HARNETT COUNTY
2026

SCHEDULE OF VALUES

Harnett
COUNTY
NORTH CAROLINA

The Board of Commissioners hereby approves the Schedule of rules, standards, and values to be used in appraising property in Harnett County for the reappraisal effective January 1, 2026.

HARNETT COUNTY
BOARD OF COMMISSIONERS

Barbara McKoy (District 1)
William Morris, Vice-Chairman (District 2)
W. Brooks Matthews (District 3)
Duncan Edward Jaggers (District 4)
Matthew Nicol, Chairman (District 5)

Approved

November 17, 2025

HARNETT COUNTY BOARD OF COMMISSIONERS

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Matthew Nicol, Chairman to the Board of Commissioners

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COMPONENTS OF A REAPPRAISAL

To accomplish the task of valuing all parcels within a county as of the January 1 reappraisal date, the methodology of mass appraisal rather than the methodology of single-property appraisals must be utilized. Mass appraisal is the systematic appraisal of groups of properties as neighborhoods. This is accomplished by using standardized procedures and statistical testing. In a mass appraisal system, the assessor must make valuation judgments about groups of properties rather than single properties. The assessor must be able to develop, support and explain standardized adjustments in a valuation model among use classes, construction types, neighborhoods and other property groups. The guide used for this is the uniform schedule of values. The schedule of values is made up of schedules, standards, rules, tables and other factors used to apply the correct value to parcels. The schedule of values serves as the county's mass appraisal model and is implemented by means of a computer assisted mass appraisal system (CAMA). Incorporated in the schedule may be building cost figures derived from national data that have been adjusted to reflect local costs, local cost studies, qualifying arms-length sales, and income and expense formulas. This schedule of values sets forth values for appropriate unit of measurement for use in appraising land and buildings. For example, land may be valued by a set amount per square foot, lot, acre, or home-site, depending on the highest and best use, while a dwelling is typically valued using an established amount per square foot. The land unit per appropriate unit of measurement also will vary depending on the neighborhood in which the land is situated. Factors that warrant adjustments are also set forth in the schedule of values for various types of property. The schedule typically authorizes adjustments to land value based on factors such as home-site size, excess acreage, road frontage, topography, zoning, the presence of easements and other factors. A county's schedule also typically prescribes ranges of characteristics and corresponding percentage adjustments for recognized factors.

Mass appraisal for ad valorem purposes entails many of the same principles as an independent fee, single-property appraisal. Mass appraisal techniques, however, emphasize valuation modules (expressed as equations, tables and schedules), standards of practice, and statistical quality control. A reassessment program consists of these subsystems:

1. A data management system
2. A sales analysis system
3. A valuation system
4. An administrative system

These subsystems are independent of each other. For example, the valuation system uses information maintained in the sales analysis and data management systems and produces output (valuations) required by the administrative system in the production of tax bills.

DATA MANAGEMENT SYSTEM

The data management system has components for collection, entry, editing, organization, conversion, storage, and security of property characteristics and ownership. Quality control of this system is very important because the accuracy of the values determined depends on the reliability of the data from which they are generated. In addition, data collection, conversion, and maintenance are the most expensive aspects of any reappraisal program. Special care must be given to the thought and planning required of managing logic to minimize cost.

Data maintenance is the protocol for creating new parcels, capturing and valuing new construction, and making changes to the current property database. The maintenance protocol consists of three components:

1. County land records system: the daily creation of new parcels from the recording of "splits" (dividing of an existing parcel), combining existing parcels, and the recording of new subdivision plats feeds the second component.
2. Permits and inspections: as the appraisal staff receives notice of new permits and inspections, property record cards are accessed, and new data is collected. Staff receives this information and monitors the construction progress and make determinations of the percentage of construction completed as of January 1 each calendar year.
3. Periodic re-inspection of all properties: routine field visits are supplemented with information obtained from the latest Orthophotography and provided by property owners as part of the annual listing abstracts and requests from taxpayers for review or appeal.

SALES ANALYSIS SYSTEM

The sales analysis system has components for sales data collection, sales screening and processing, ratio studies, and sales reporting. Assessment/sales ratio studies are the primary tool for measuring mass appraisal performance. They are invaluable for monitoring appraisal results, identifying reappraisal priorities, adjusting valuations to the market, and assisting the administrative system in planning and scheduling.

Ratio studies and sales reports draw on values produced by the valuation system and on property characteristics maintained in data management.

VALUATION SYSTEM

The valuation system (CAMA) consists of mass appraisal applications of the three approaches to value and/or allows for various adjustments that recognize specific aspects of each approach. The three approaches are:

1. Cost Approach: requires maintenance and application of computerized cost schedules and equations, depreciation schedules, and indexing factors. This data comes from contractors, building material suppliers, etc.
2. Sales Comparison Approach: applications include multiple regression analysis and model building for automated comparable sales analysis.
3. Income Approach: will require income multipliers and overall rates. The information to generate this comes from rental, leasing, sales, etc., data provided by owners and tenants.

The optimum results of the valuation system will be to consider all three approaches to value, as appropriate to property type, and determine which method(s) produces the best results for the final appraisal. Properly executed, any of the three approaches to value will yield creditable results, however the sales comparison and income approaches are highly dependent on available data. Of the three approaches, only the cost approach can be uniformly applied with limited data.

The economy can affect the number of arm's length sales occurring in the market. A general county-wide reappraisal depends on data being available from a wide variety of sources to properly apply each of the three approaches to value. Even when an abundance of relevant data is available for applying the sales comparison approach and the income approach, that data may also be utilized in refining the cost approach. In the absence of relevant data prior to the final determination of reappraisal values, the cost approach becomes the more reliable approach for all property types. Below is a comparison of the three approaches to value and when it is best to apply them.

RESIDENTIAL	COMMERCIAL	INDUSTRIAL/ SPECIAL PURPOSE
1.Sales Comparison	1.Sales Comparison	1.Cost
2.Cost	2.Income	2.Sales Comparison
3.Income	3.Cost	3.Income

For an assessor to undertake their responsibilities and duties properly, they must be familiar with the legal framework in which to perform their function. The legal framework sets the guidance and rules to follow for a reappraisal. Some general statues, but not all, are included in this section. Others will be included throughout this schedule as applicable.

STATUTORY REQUIREMENTS

G S 105-286. Time for general reappraisal of Real Property.

(a) Octennial Cycle. - Each county must reappraise all real property in accordance with the provisions of G.S. 105-283 and G.S. 105-317 as of January 1 of the year set out in the following schedule and every eighth year thereafter, unless the county is required to advance the date under subdivision (2) of this section or chooses to advance the date under subdivision (3) of this section.

(1) Schedule of Initial Reappraisals.
Division One - 1972: Harnett

(2) Mandatory Advancement. - A county whose population is 75,000 or greater according to the most recent annual population estimates certified to the Secretary by the State Budget Officer must conduct a reappraisal of real property when the county's sales assessment ratio determined under G.S. 105-289(h) is less than .85 or greater than 1.15, as indicated on the notice the county receives under G.S. 105-284. A reappraisal required under this subdivision must become effective no later than January 1 of the earlier of the following years:

a. The third year following the year the county received the notice.
b. The eighth year following the year of the county's last reappraisal.

(3) Optional Advancement. - A county may conduct a reappraisal of real property earlier than required by subdivision (1) or (2) of this subsection if the Board of County Commissioners adopts a resolution providing for advancement of the reappraisal. The resolution must designate the effective date of the advanced reappraisal and may designate a new reappraisal cycle that is more frequent than the octennial cycle set in subdivision (1) of this subsection. The Board of County Commissioners must promptly forward a copy of the resolution adopted under this subdivision to the Department of Revenue. A more frequent reappraisal cycle designated in a resolution adopted under this subdivision continues in effect after a mandatory reappraisal required under subdivision (2) of this subsection unless the board of county commissioners adopts another resolution that designates a different date for the county's next reappraisal.

Note: Under the provisions of ***G S 105-286(a)(3)***, for 2022 the Harnett County Board of Commissioners adopted a resolution to advance the reappraisal date to January1, 2022, and continue on a four-year reappraisal cycle from this date.

G S 105-273(13). Definitions

Real property, real estate, or land. - Any of the following:

a. The land itself.
b. Buildings, structures, improvements, or permanent fixtures on land.
c. All rights and privileges belonging or appertaining to the property.
d. A manufactured home as defined in G.S. 143-143.9(6), unless it is considered tangible

personal property for failure to meet all of the following requirements:

1. It is a residential structure.
2. It has the moving hitch, wheels, and axles removed.
3. It is placed upon a permanent foundation either on land owned by the owner of the manufactured home or on land in which the owner of the manufactured home has a leasehold interest pursuant to a lease with a primary term of at least 20 years and the lease expressly provides for disposition of the manufactured home upon termination of the lease.

G S 105-296(b). Powers and duties of assessor.
Within budgeted appropriations, he shall employ listers, appraisers, and clerical assistants necessary to carry out the listing, appraisal, assessing, and billing functions required by law. The assessor may allocate responsibility among such employees by territory, by subject matter, or on any other reasonable basis. Each person employed by the assessor as a real property appraiser or personal property appraiser shall during the first year of employment and at least every other year thereafter attend a course of instruction in his area of work. At the end of the first year of their employment, such persons shall also achieve a passing score on a comprehensive examination in property tax administration conducted by the Department of Revenue.

G S 105-299. Employment of experts.
The Board of County Commissioners may employ appraisal firms, mapping firms or other persons or firms having expertise in one or more of the duties of the assessor to assist him or her in the performance of such duties. The county may make available to such persons any information it has that will facilitate the performance of a contract entered into pursuant to this section. Persons receiving such information shall be subject to the provisions of G.S. 105-289(e) and G.S. 105-259 regarding the use and disclosure of information provided to them by the county. Any person employed by an appraisal firm whose duties include the appraisal of property for the county shall be required to demonstrate that he or she is qualified to carry out such duties by achieving a passing grade on a comprehensive examination in the appraisal of property administered by the Department of Revenue. In the employment of such firms, primary consideration shall be given to the firms registered with the Department of Revenue pursuant to the provisions of G.S. 105-289(i). A copy of the specifications to be submitted to potential bidders and a copy of the proposed contract may be sent by the board to the Department of Revenue for review before the invitation or acceptance of any bids. Contracts for the employment of such firms or persons shall be deemed to be
contracts for personal services and shall not be subject to the provisions of Article 8, Chapter 143, of the General Statutes.
(1939, c. 310, s. 408; 1971, c. 806, s. 1; 1973, c. 476, s. 193; 1975, c. 508, s. 2; 1983, c. 813, s. 4; 1985, c. 601, s. 2; 1989, c. 79; 2002-184, s. 7; 2003-416, s. 9; 2012-152, s. 2; 2012-194, s. 61.5(b).)

G S 105-317. Appraisal of real property; adoption of schedules, standards, and rules.
(a) Whenever any real property is appraised, it shall be the duty of the persons making appraisals:

(1) In determining the true value of land, to consider as to each tract, parcel, or lot separately listed at least its advantages and disadvantages as to location; zoning; quality of soil; waterpower; water privileges;

dedication as a nature preserve; conservation or preservation agreements; mineral, quarry, or other valuable deposits; fertility; adaptability for agricultural, timber-producing, commercial, industrial, or other uses; past income; probable future income; and any other factors that may affect its value except growing crops of a seasonal or annual nature.

(2) In determining the true value of a building or other improvement, to consider at least its location; type of construction; age; replacement cost; cost; adaptability for residence, commercial, industrial, or other uses; past income; probable future income; and any other factors that may affect its value.

(3) To appraise partially completed buildings in accordance with the degree of completion on January 1.

(b) In preparation for each revaluation of real property required by G.S. 105-286, It shall be the duty of the assessor to see that:

(1) Uniform schedules of values, standards, and rules to be used in appraising real property at its true value and at its present-use value are prepared and are sufficiently detailed to enable those making appraisals to adhere to them in appraising real property.

(2) Repealed by Session Laws 1981, c. 678, s. 1.

(3) A separate property record be prepared for each tract, parcel, lot, or group of contiguous lots, which record shall show the information required for compliance with the provisions of G.S. 105-309 insofar as they deal with real property, as well as that required by this section. (The purpose of this subdivision is to require that individual property records be maintained in sufficient detail to enable property owners to ascertain the method, rules, and standards of value by which property is appraised.)

(4) The property characteristics considered in appraising each lot, parcel, tract, building, structure and improvement, in accordance with the schedules of values, standards, and rules, be accurately recorded on the appropriate property record.

(5) Upon the request of the owner, the Board of Equalization and Review, or the Board of County Commissioners, any particular lot, parcel, tract, building, structure or improvement be actually visited and observed to verify the accuracy of property characteristics on record for that property.

(6) Each lot, parcel, tract, building, structure and improvement be separately appraised by a competent appraiser, either one appointed under the provisions of G.S. 105-296 or one employed under the provisions of G.S. 105-299.

(c) Notice is given in writing to the owner that he is entitled to have an actual visitation and observation of his property to verify the accuracy of property characteristics on record for that property.The values, standards, and rules required by subdivision (b)(1) shall be reviewed and approved by the Board of County Commissioners before January 1 of the year they are applied. The Board of County Commissioners may approve the schedules of values, standards, and rules to be used in appraising real property at its true value and at its present-use value either separately or simultaneously. Notice of the receipt and adoption by the Board of County Commissioners of either or both the true value and present-use value schedules, standards, and rules, and notice of a property owner's right to comment on and contest the schedules, standards, and rules shall be given as follows:

(1) The assessor shall submit the proposed schedules, standards, and rules to the Board of County Commissioners not less than 21 days before the meeting at which they will be considered by the board. On the same day that they are submitted to the board for its consideration, the assessor shall file a copy of the proposed schedules, standards, and rules in his office where they shall remain available for public inspection.

(2) Upon receipt of the proposed schedules, standards, and rules, the Board of County Commissioners shall publish a statement in a newspaper having general circulation in the county stating:

a. That the proposed schedules, standards, and rules to be used in appraising real property in the county have been submitted to the Board of County Commissioners and are available for public inspection in the assessor's office; and

b. The time and place of a public hearing on the proposed schedules, standards, and rules that shall be held by the Board of County Commissioners at least seven days before adopting the final schedules, standards, and rules.

(3) When the Board of County Commissioners approves the final schedules, standards, and rules, it shall issue an order adopting them. Notice of this order shall be published once a week for four successive weeks in a newspaper having general circulation in the county, with the last publication being not less than seven days before the last day for challenging the validity of the schedules, standards, and rules by appeal to the Property Tax Commission. The notice shall state:

a. That the schedules, standards, and rules to be used in the next scheduled reappraisal of real property in the county have been adopted and are open to examination in the office of the assessor; and

b. That a property owner who asserts that the schedules, standards, and rules are invalid may except to the order and appeal therefrom to the Property Tax Commission within 30 days of the date when the notice of the order adopting the schedules, standards, and rules was first published.

c. Before the Board of County Commissioners adopts the schedules of values, standards, and rules, the assessor may collect data needed to apply the schedules, standards, and rules to eachparcel in the county. (1939, c. 310, s. 501; 1959, c. 704, s. 4; 1967, c. 944; 1971, c. 806, s. 1; 1973, c.476, s. 193; c. 695, s. 5; 1981, c. 224; c. 678, s. 1; 1985, c. 216, s. 2; c. 628, s. 4; 1987, c. 45, s. 1; c. 295,s. 1; 1997-226, s. 5.)

G S 105-283. Uniform appraisal standards.

All property, real and personal, shall as far as practicable be appraised or valued at its true value in money. When used in this Subchapter, the words "true value" shall be interpreted as meaning market value, that is, the price estimated in terms of money at which the property would change hands between a willing and financially able buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of all the uses to which the property is adapted and for which it is capable of being used. For the purposes of this section, the acquisition of an interest in land by an entity having the power of eminent domain with respect to the interest acquired shall not be considered competent evidence of the true value in money of comparable land. (1939, c. 310, s. 500; 1953, c. 970, s. 5; 1955, c. 1100, s. 2; 1959, c. 682; 1967, c. 892, s. 7; 1969, c. 945, s. 1; 1971, c. 806, s. 1; 1973, c. 695, s. 11; 1977, 2nd Sess., c. 1297.)

Authors Notes: The Machinery Act of North Carolina has been provided as an integral part of these Uniform Schedules of Value, Standards, and Rules. All applicable standards not recited in this text are included by reference.

In addition to the specific statutory direction and appellate court rulings, it is necessary to be well-versed with the nature of appraised values of property and with the basic economic principles that serve as the foundation of the valuation process.

APPRAISAL THEORY

An appraisal, in itself, is nothing more than an opinion of value. This does not imply, however, that one opinion is necessarily as good as another; there are valid and accurate appraisals, and there are invalid and inaccurate appraisals. The validity of an appraisal can be measured against the supporting evidence from which it was derived, and its accuracy against that very thing it is supposed to predict - the actual behavior of the market. Each is fully contingent upon the ability of the appraiser to record adequate data and to interpret that data into an indication of value.

Appraising real property, like the solving of any problem, is an exercise in reasoning. It is a discipline, and like any discipline, it is founded on fundamental economic and social principles. From these principles evolve certain premises which, when applied to the valuation of property, serve to explain the reaction of the market. This section concerns itself with those concepts and principles basic to the property valuation process. One cannot overstate the necessity of having a workable understanding of them.

CONCEPT OF PROPERTY

The definition of property should begin the discussion of assessing value. Property is associated with the right of any person to possess, use, enjoy and dispose of a thing. Property, then, is a broad term expressing the relationship between owners and their rights in and to possessions. In appraising real property, the parcel to be appraised includes the rights inherent in ownership of the property and should be included in the opinion of value rendered by the reappraisal.

All property may be divided into two major categories-real property and personal property. Real property is defined as the sum of the tangible and intangible rights in land and improvements. This refers to the interest, benefits, and rights inherent in the ownership of physical real estate. Real estate is the physical land, and everything permanently attached to it. Personal property consists of moveable items not permanently affixed to, or part of, the real estate and is commonly known as “personal” or “chattels.”

Real estate may be divided into two categories-land and improvements. Land is defined as the surface of the earth together with everything under its boundary and everything over it. Improvements (land improvements, such as paving, fencing, structures, and landscaping etc.) consist of immovable items affixed to and becoming part of the real estate. “Permanently affixed” refers to the original intent of the owner and economic life of the improvements.

Defining the term “affixed’ has been the subject of much litigation, and the courts are subject to change the meaning. In general terms, personal property annexed to land is called a fixture. Chattels that have been annexed to land are called a fixture.

These chattels that have been annexed to the land, so as to lose their character as chattels, become real estate for ad valorem tax purposes. In determining the nature of the annexation of personal property, there are two basic considerations: first, the adaptability of the personal property to the use part of the realty; and second, the person by whom the annexation is made and his interest in the land and the personal property.

Courts have held that, if the chattel is affixed to the land so that it loses its original physical character and cannot be restored to its original condition as a practical matter, it loses its nature as personal property and becomes real property. Two tests relied upon to determine if personal property becomes real estate are: first the intention of the person who put the item in its place; and second, whether the item may be removed from the real estate without damaging either the item or the real estate. Also, to be considered are the use of the item and the generally accepted conveyance of the item in real estate transactions.

In identifying property, a distinction must be made between that of tangible and intangible property. Tangible property consists of actual physical property. Intangible property is evidence of ownership of property rights. Some examples of intangible property are patent rights, copyrights, notes, mortgages, deeds of trust, and stock certificates.

BUNDLE OF RIGHTS

Real estate and real property are often used interchangeably. Generally speaking, real estate pertains to the real or fixed improvements to the land such as structures and other appurtenances, whereas real property encompasses all the interests, benefits and rights enjoyed by the ownership of the real estate.

Real property ownership involves the Bundle of Rights Theory which asserts that the owner has the right to enter it, use it, sell it, lease it, or give it away, as the owner so chooses. Law guarantees these rights, but they are subject to certain governmental and private restrictions.

The Governmental restrictions are found in its power to:

- Tax property
- Take property by condemnation for the benefit of the public, providing that just compensation is made to the owner (Eminent Domain)
- Police property by enforcing any regulations deemed necessary to promote the safety, health, morals and general welfare of the public
- Provide for the reversion of ownership to the state in cases where a competent heir to the property cannot be ascertained (Escheat)

Private restrictions imposed upon property are often in the form of agreements incorporated into the deed. The deed also spells out precisely which rights of the total bundle of rights the buyer is acquiring. Since value is related to each of these rights, the appraiser should know precisely which rights are involved in his appraisal.

Appraisals for Ad Valorem tax purposes generally assume the property is owned in the "Fee Simple", meaning that the total bundle of rights is considered to be intact.

THE NATURE AND MEANING OF VALUE

An appraisal is an opinion or estimate of value. The concept of value is basic to the appraisal process and calls for a thorough understanding. The American Institute of Real Estate Appraisers' Appraisal Terminology Handbook, 1981 edition, offers the following definitions of value:

"The measure of value is the amount (for example, of money) which the potential purchaser probably will pay for possession of the thing desired."

"The ratio of exchange of one commodity for another, for example, one bushel of wheat in terms of a given number of bushels of corn; thus, the value of one thing may be expressed in terms of another thing. Money is the common denominator by which value is measured."

"It is the power of acquiring commodities in exchange, generally with a comparison of utilities - the utility of the commodity parted with (money) and that of the commodity acquired in the exchange (property)."

"Value depends upon the relation of an object to unsatisfied needs; that is, supply and demand."

"Value is the present worth of future benefits arising out of ownership to typical users and investors."

With these definitions, one can see that value is not an intrinsic characteristic of the commodity itself. On the contrary, value is determined by people, created by desire, modified by varying degrees of desire, and reduced by lack of desire. Throughout the definitions a relationship between the purchase and the commodity (property) is implied; this relationship is "value". A purchaser desires a property because it is a useful commodity in that it has utility. Utility is a prerequisite to value, but utility standing alone does not sufficiently cause value. If a great supply of a useful commodity exists, like for example air, needs would be automatically satisfied, desire would not be aroused, and therefore value would not be created. Therefore, besides having utility, to effectively arouse desire, the commodity must also be scarce.

One additional factor is necessary to complete the value equation, the ability to become a buyer. A translation must be made of desire into a unit of exchange; a buyer must have purchasing power. The relationship is now complete; the commodity has utility and is relatively scarce, it arouses desire, and the buyer can satisfy that desire by trading for it; value is created. The question is how much value there is and herein lies the job of the appraiser.

Numerous definitions of value have been offered, some simple and some complex. It would seem though that any valid definition of value would necessarily embody the elements of utility, desire, scarcity and purchasing power. Furthermore, the concept of value very rarely stands alone. Instead, it is generally prefixed by a descriptive term that serves to relate it to a specific appraisal purpose or activity such as "loan value". Since appraisals are made for a variety of reasons, it is important for the appraiser to clarify the specific purpose for the appraisal and the type of value that he seeks to estimate.

For Ad Valorem Tax purposes, the value sought is generally market value. North Carolina Machinery Act describes market value as follows:

G S 105-283 All property, real and personal, shall as far as practicable be appraised or valued at its true value in money. When used in this Subchapter, the words "true value" shall be interpreted as meaning market value, that is, the price estimated in terms of money at which the property would change hands between a willing and financially able buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of all the uses to which the property is adapted and for which it is capable of being used. For the purposes of this section, the acquisition of an interest in land by an entity having the power of eminent domain with respect to the interest acquired shall not be considered competent evidence of the true value in money of comparable land.

VALUE IN USE AS OPPOSED TO VALUE IN EXCHANGE

We have stated that there are a number of qualifying distinctions made in reference to the meaning of value. One of the most common and probably the most important, relative to the purpose of this manual is the distinction between value in use and value in exchange. We have defined market value as a justifiable price which buyers, in general, will pay in the market. The question arises then as to the value of property which, by nature of its special and highly unique design, is useful to the present owner, but relatively less useful to buyers in the market. One can readily see that such a property's utility value may differ greatly from its potential sales price. It is even possible that no market for such a property exists. Such a property is said to have value in use, which refers to the actual value of a commodity to a specific person, as opposed to value in exchange, which aligns itself with market value, referring to the dollar value of a commodity to buyers in general. In a sense, value in use embodies the object premise, which maintains that value is within the object. This concept easily accommodates cost. While with value in exchange the subjective element is accentuated. Value in exchange, being the primary concern for the assessor, reflects the actions and reactions of buyers, sellers and investors and is considered market value.

In any discussion of value, a comparison of the terms “cost” and “price” is useful. Cost may be defined as the sacrifice made in the acquisition of property and commonly reflects the perspective of the buyer. Either the purchase of an existing property or the construction of a new property may incur cost. Price may be defined as the amount of money given, expected or arrived at when arranging for the exchange of property. Cost and price may be the same, but not necessarily. An example would be; a purchaser pays $200,000 to buy a property, it may be stated that the property cost $200,000. However, while price is defined in terms of money, cost is expressed as a sacrifice. A sacrifice may be in terms of money, labor, or time. Also, when property is sold, the price may be either above or below the owner’s cost.

MARKET VALUE

The terms "value" and "market value" though similar are not the same. There are many different definitions for market value provided by statutes and constitutions of all fifty states for property taxation and realtors used to market property. The assessor must adhere to the definition of market value as stated in ***G S 105-283*** (see section on statutes) and decisions rendered by the North Carolina Appellate Courts.

The following important points regarding market value should be noted:

1. It is the most probable price.
2. It is not the highest, lowest, or average price.
3. It is expressed in terms of money.
4. It implies a reasonable time for exposure to the market.
5. It implies that both buyer and seller are well-informed of the uses to which the property may be put. It requires an arm's length transaction in the open market.
6. It requires a willing buyer and willing seller, with no advantage being taken by either buyer or seller. Neither buyer nor seller placed in a position of having to purchase or sell to avoid legal action or dispose of property. This is a constraint against consideration of foreclosures and short sales.
7. It recognizes the present use as well as the potential use of property.

Note: In analyzing sales of property, close attention is paid to identifying all transactions that are the result of a foreclosure or short sale. Such sales are not retained for further consideration in determining the schedules set out elsewhere in this document, and neither will they be considered in analyzing the reappraisal results via the State-mandated assessment/sales ratio study. For a complete list of conditions, that the North Carolina Department of Revenue distributes to all 100 counties to be used in determining qualified or disqualified sales (not consider an arm's length transaction).

PRINCIPLE OF HIGHEST AND BEST USE

The way in which property is used, or could be used, plays an essential role in determining its market value. An assessor recognizes this as the highest and best use. The highest and best use for a property is that use which will produce the highest net return to the land for a given period of time within the limits of those uses which are economically feasible, probable and legally permissible.

On a community-wide basis, the major determining factor in highest and best use is the maximum quantity of land that can be devoted to a specific use and still yield a satisfactory return. Once a suitable basic use has been chosen for a specific property, each increment of capital investment to the existing or planned improvement will increase the net return to the land only up to a certain point; after this point is reached; the net return to the land begins to diminish. This is the point at which the land is at its highest and best use.

For example, in planning a high-rise office building, each additional upper floor represents an extra capital expenditure that must yield a certain return to the investor. This return will be dependent upon the levels of economic rent that the market will bear at the time. An optimum number of floors can be calculated above which the income yield requirements of additional expenditures will no longer be satisfactorily met. This, notwithstanding the possibility of other more particular considerations, should determine the number of stories in the building.

Detailed analysis of this type is rarely thrust upon the property tax appraiser. Generally, the tax appraiser will find the most prudent course of action to consider the present use and follow development rather than anticipate it.

Just as everything changes with time, the highest and best use of property will change. The character of a neighborhood may be altered, thereby creating demands for different uses. The assessor periodically reviews conclusions as to highest and best use and revises them according to the data that is collected. As an example, zoning, one of the restraints on use, may be changed, which changes the allowable use.

BASIC PRINCIPLES OF VALUE

Certain principles are generally accepted as having a direct effect on the modern concept of value evolving from economic doctrine. It should be emphasized that these principles rarely, if ever, can be considered in isolation. It is typical to conceive them in an interrelated setting, for they tend to complement and accompany one another. These principles, after considering the interrelationship among them, result in the highest and best use.

The following principles are essential to appraisal function:

PRINCIPLE OF ANTICIPATION

Market value is the present worth of all the anticipated future benefits to be derived from the property. Income stream and amenities may be considered benefits. Anticipated future benefits are those benefits anticipated by the market. Past sales of the property and past income are important only when they are an indication of what may be expected in the future. The principle of change works in conjunction with the principle of anticipation.

PRINCIPLE OF BALANCE

The principle of balance, when applied to a property, states that maximum market value is reached when the four agents of production – labor, coordination or management, capital, and land attain a state of equilibrium.

PRINCIPLE OF CHANGE

The principle states that market value is never constant because economic, social, and governmental forces are at work to change property and its environment. Because change is continuous, the estimate of market value is valid only on the effective day for which it is made. This principle works in conjunction with the principle of anticipation.

The impact of change on the value of real property manifests itself in the life cycle of a neighborhood. The cycle is characterized by three stages of evolution: the development and growth evidenced by improving values; the leveling off stage evidenced by static values; and finally, the stage of infiltration of decay evidenced by declining values.

The highest and best use today is not necessarily the highest and best use tomorrow. The highest and best use of the land often lies in a succession of uses. A declining single-family residential neighborhood may be ripe for multi-family, commercial or industrial development. Whether it is or not depends upon the relationship of present or anticipated future demand with existing supply.

In estimating value, the appraiser is obligated to reasonably anticipate the future benefits, as well as the present benefits derived from ownership and to evaluate the property in light of the quality, quantity, and duration of these benefits based on actual data as opposed to speculative or potential benefits that may or may not occur.

PRINCIPLE OF COMPETITION

This principle states that when substantial profits are being made, competition is created. This leads to the aphorism that profit tends to breed competition and that excess profit breeds ruinous competition.

PRINCIPLE OF CONFORMITY

The principle of conformity states that maximum market value is reached when a reasonable degree of economic and social homogeneity is expected in the foreseeable future. As applied to improvements, reasonable homogeneity implies reasonable similarity, not monotonous uniformity. Similarity in age, income, background, etc., is conformity when applied to residents. In understanding the neighborhood concept in mass appraisal, conformity is essential and works with the principles of progression and regression.

PRINCIPLE OF CONSISTENT USE

This principle states that the property must be valued with a single use for the entire property. Property valued on the basis of one use for land and another for the improvements is improper. The principle is especially applicable to a property in transition from one use to another. While the improvements on a parcel ready for a high use may theoretically have a long physical life, their economic life may have already terminated.

PRINCIPLE OF CONTRIBUTION

This principle states that a value of an agent of production (or a property component) depends upon its contribution to the whole. This is another way of saying that cost does not necessarily equal value. Some examples are:

1. A garage is erected on an existing home at a cost of $30,000. Based on comparable sales analysis, it is determined that such a garage adds $35,000 to the overall market value of the property. In this case $35,000 is the value contribution of the garage.

2. Cost does not always equal value. A stone fireplace cost $10,000 to construct. Sales analysis in this neighborhood reflects that a standard fireplace only adds $5,000 of value to a home. A stone fireplace may only add $6,000 of contribution to the value of the home, not the cost of $10,000.

This principle is the basis for the adjustment process of the comparative sales approach to value and the direct sales comparison method of land valuation, for determining whether physical deterioration and functional obsolescence are curable or incurable, and for justifying remodeling and modernization. Many of the adjustments to value that are detailed herein for various property characteristics are based on their contribution to the whole property, not their actual cost. This principle works in conjunction with the principles of balance, increasing and decreasing returns, and surplus productivity.

PRINCIPLE OF INCREASING AND DECREASING RETURN

This principle states that, when successive increments of one agent of production are added to fixed amounts of other agents, future net benefits (income or amenities) will increase up to a certain point, (the point of decreasing returns), after which successive increments will decrease future net benefits.

PRINCIPLE OF PROGRESSION AND REGRESSION

The principles of progression and regression relate to how surroundings affect the value of an object. Progression indicates that the value of a lessor object is enhanced by association with better objects of the same type. The principle of regression states that, when there are dissimilar properties within the same general classification and in the same area, the better property will be adversely affected.

PRINCIPLE OF SUBSTITUTION

Value is created by the marketplace. It is the function of translating demand into a commodity of exchange. When the benefits and advantages derived from two properties are equal, the lowest priced property receives the greatest demand, and rightfully so. The informed buyer is not justified in paying anything more for a property than it would cost to acquire an equally desirable property. That is to say that the value of a property is established as that amount for which equally desirable comparable properties are being bought and sold in the market. Herein lies an approach to value . . . and the basis of the valuation process.

PRINCIPLE OF SUPPLY AND DEMAND

In order for property to have value, there must be desirability, utility, scarcity, and economic purchasing power. Utility is the capacity of goods to create desire and should not be confused with usefulness. While utility is a subjective concept, usefulness is an objective concept inherent in the property.

Scarcity helps to create desire. There are two economic forces which determine scarcity, supply and demand.

Among the forces which constantly operate to influence supply and demand are population growth, new techniques in transportation, purchasing power, price levels, wage rates, taxation, governmental controls, and scarcity. A sudden population growth in an area would create an increase in demand for housing. If the demand increased at a higher rate than the supply, this could soon be a scarcity of housing. If the demand was backed up by purchasing power, rentals and sale prices would tend to increase and ultimately reach a level which would tend to stimulate more builders to compete for the potential profits and thus serve to increase the supply toward the level of demand. As the supply is increased demand would begin to taper off. This would cause rentals and sale prices to level off. When builders, due to increases in labor and material rates, are no longer able to build cheaply enough to meet the new level of prices and rents, competition would tend to taper off and supply would level off. The cycle is then complete.

Balance occurs when reasonable competition serves to coordinate supply with demand. When competition continues unchecked to produce a volume that exceeds the demand, the net returns to investors are no longer adequate to pay all the costs of ownership, resulting in loss rather than profit and consequently, a decline in values.

A community may well support two shopping centers, but the addition of a third shopping center may increase the supply to excess. If this occurs, one of two effects are caused; either the net dollar return to all the shopping centers will be reduced below that level necessary to support the investment, or one of the shopping centers will flourish at the others' expense.

Utility and scarcity by themselves do not confer value on an object, unless the desire by the purchaser is present, a desire backed by the economic purchasing power of the buyer(s).

PRINCIPLE OF SURPLUS PRODUCTIVITY

This principle states that the net income remaining after the cost of the agents of production-labor, coordination, and capital has been paid is considered surplus productivity.

TRADITIONAL APPROACHES TO VALUE

In the preceding paragraphs, it has been stated that value is an elusive item that occurs in many different forms, and that the forces and influences which combine to create, sustain, or destroy value are numerous and varied. It is the appraiser's function to define the type of value sought, to compile and to analyze all related data, and giving due consideration to all the factors which may influence the value, to process and translate that data into a final opinion or *estimate of value*. This he/she must do for each property he/she is to appraise.

The processing of this data into a conclusion of value generally takes the form of three recognized approaches to value: Cost Approach, Sales Comparison Approach and Income Approach. Underlying each of the approaches is the principle that the justifiable price of a property is no more than the cost of acquiring and/or reproducing an equally desirable substitute property. The use of one or all three approaches in the valuation of a property is determined by the quantity, quality, and accuracy of the data available to the appraiser.

The *COST APPROACH* involves making an estimate of the depreciated cost of reproducing or replacing the building and site improvements. *Reproduction Cost* refers to the cost at a given point in time of reproducing a replica property, whereas *Replacement Cost* refers to the cost of producing improvements of equal utility. Depreciation is deducted from this cost new for loss in value caused by physical deterioration, and functional or economic obsolescence. To this depreciated cost is then added to the estimated value of the land, resulting in an indication of value derived by the Cost Approach.

The significance of the Cost Approach lies in its extent of application . . . it is the one approach that can be used on all types of construction. It is a starting point for appraisers, and therefore it is a very effective “yardstick” in any equalization program for Ad Valorem taxes. Its widest application is in the appraisal of properties where the lack of adequate market and income data precludes the reasonable application of the other traditional approaches.

The *SALES COMPARISON APPROACH* involves the compiling of sales and offerings of properties that are comparable to the property being appraised. These sales and offerings are then adjusted for any dissimilarity, and a value range obtained by comparison of said properties. The approach is reliable to the extent that the properties are comparable, and the appraiser's judgment of proper adjustments is sound. The procedure for using this approach is essentially the same for all types of property with the only difference being the elements of comparison.

The significance of this approach lies in its ability to produce estimates of value, which directly reflect the attitude of the market. Its application is contingent upon the availability of comparable sales and therefore finds its widest range in the appraisal of vacant land and residential properties. Some examples of applicable North Carolina Case Law are:

Neither this section nor G *S 105-317(a)* requires the commission to value property according to its sale price in a recent arm’s length transaction when competent evidence of a different value is presented.
In re Greensboro Office Partnership, 72 N.C. App635, 235 S.E. 2n 24, cert. denied, 313 N.C. 602,330 S.E. 2d 610 (1985)

Where sale was not between a willing buyer and a willing seller, as contemplated by this section, sales price was not indicative of property’s true value.
In re Phoenix Ltd. Partnership, 134 N.C. App. 474, 517 S.E. 2d 903 (1999)

Essentially, North Carolina law prohibits the presumption that the sale price of any particular property must be the basis for its appraised value for ad valorem tax purposes. Instead, reliance is placed on the greater weight of evidence determined from a larger sampling of comparable properties and, as a result, the appraised value may be less than or greater than the sale price of any particular property.

The *INCOME APPROACH* measures the present worth of the future benefits of a property by the capitalization of the net income stream over the remaining economic life of the property. The approach involves making an estimate of the "effective gross income" of a property, derived by deducing the appropriate vacant and collection losses from its estimated economic rent, as evidenced by the yield of comparable properties. From this figure then is deducted applicable operating expenses, the cost of taxes and insurance, and reserve allowances for replacements resulting in an estimate of net income, which may then be capitalized into an indication of value.

The approach obviously has its basic application in the appraisals of properties universally bought and sold on their ability to generate and maintain a stream of income for their owners. The effectiveness of the approach lies in the appraiser's ability to relate to the changing economic environment and to analyze income yields in terms of their relative quality and durability.

PROPERTY VALUATION TECHNIQUES

APPLYING THE COST APPROACH

If the highest and best use of a property is its present use, a valid indication of value may be derived by estimating the value of the land, and adding the land value to the depreciated value of the structures on the land; the resulting equation being . . .

	Estimated Land Value
+	Estimated Replacement Cost New of Structures
-	Estimated Depreciation
=	Indication of Property Value

Since estimating the land value is covered in a separate section, this section will address itself to the two remaining elements, Replacement Cost and Depreciation.

REPLACEMENT COST

Replacement Cost is the current cost of producing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. The distinction being drawn is one between *Replacement Cost*, which refers to a substitute property of equal utility, as opposed to *Reproduction Cost*, which refers to a substitute replica property. In a particular situation the two concepts may be interchangeable, but they are not necessarily so. They both, however, have application in the Cost Approach to value, the difference being reconciled in the consideration of depreciation allowances.

In actual practice, outside of a few historic type communities in this country, developers and builders, for obvious economic reasons, replace buildings, not reproduce them. It logically follows that if an appraiser's job is to measure the actions of knowledgeable persons in the marketplace, the use of proper replacement costs should provide an accurate point of beginning in the valuation of most improvements.

The Replacement Cost includes the total cost of construction incurred by the builder whether preliminary to, during the course of, or after completion of the construction of a particular building. Among these are material, labor, all subcontracts, builders' overhead and profit, architectural and engineering fees, consultation fees, survey and permit fees, legal fees, taxes, insurance, and the cost of interim financing.

ESTIMATING REPLACEMENT COST

There are various methods that may be employed to estimate replacement cost new. The methods widely used in the appraisal field are the quantity-survey method, the unit-in-place or component part-in-place method, and the model method.

The *Quantity-Survey Method* involves a detailed itemized estimate of the quantities of various materials used, labor and equipment requirements, architect and engineering fees, contractor's overhead and profit, and other related costs. This method is primarily employed by contractors and cost estimators for bidding and budgetary purposes and is much too laborious and costly to be effective in everyday appraisal work, especially in the mass appraisal field. The method, however, does have its place in that it is used to develop certain unit-in-place costs which can be more readily applied to estimating for appraisal purposes.

The *Unit-in-Place Method* is employed by establishing in-place cost estimates (including material, labor, overhead and profit) for various structural components. The prices established for the specified components are related to their most common units of measurement such as cost per yard of excavation, cost per lineal foot of footings, and cost per square foot of floor covering.

The unit prices can then be multiplied by the respective quantities of each as they are found in the composition of the subject building to derive the whole dollar component cost, the sum of which is equal to the estimated cost of the entire building, providing of course, that due consideration is given to all other indirect costs which may be applicable. The components part-in-place method of using basic units can also be extended to establish prices for larger components in-place such as complete structural floors (including the finish flooring, sub-floor, joists and framing) which are likely to occur repeatedly in a number of buildings.

The *Model Method* is still a further extension, in that unit-in-place costs are used to develop base unit square foot or cubic foot costs for total specified representative structures in place, which may then serve as “models” to derive the base unit cost of comparable structures to be appraised. The base unit cost of the model most representative of the subject building is applied to the subject building and appropriate tables of additions and deductions are used to adjust the base cost of the subject building to account for any significant variations between it and the model.

Developed and applied properly, these pricing techniques will assist the appraiser in arriving at valid and accurate estimates of replacement cost new as of a given time. The cost generally represents the upper limit of value of a structure. The difference between its replacement cost new and its present value is depreciation. The final step in completing the Cost Approach then is to estimate the amount of depreciation and deduct said amount from the replacement cost new.

DEPRECIATION

Simply stated, depreciation can be defined as “a loss in value from all causes.” As applied to real estate, it represents the loss in value between market value and the sum of the replacement cost new of the improvements plus the land value as of a given time. The causes for the loss in value may be divided into three broad classifications: Physical Deterioration, Functional Obsolescence, and Economic Obsolescence.

Physical Deterioration pertains to the wearing out of the various building components, referring to both short-life and long-life terms, through the action of the elements, age, and use. The condition may be considered either “curable” or “incurable”, depending upon whether it may or may not be practical and economically feasible to cure the deficiency by repair and replacement.

Functional Obsolescence is a condition caused by either inadequacies or over-adequacies in design, style, composition, or arrangement inherent to the structure itself, which tends to lessen its usefulness. Like physical deterioration, the condition may be considered either curable or incurable. Some of the more common examples of functional obsolescence are excessive wall and ceiling heights, excessive structural construction, surplus capacity, ineffective layouts, and inadequate building services.

Economic Obsolescence is a condition caused by factors extraneous to the property itself, such as changes in population characteristics and economic trends, encroachment of inharmonious land uses, excessive taxes, and governmental restrictions. The condition is generally incurable in that the causes lie outside the property owner's realm of control.

ESTIMATING DEPRECIATION

An estimate of depreciation represents an opinion of the appraiser as to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. Of the three estimates necessary to the cost approach, it is the one most difficult to make. The accuracy of the estimate will be a product of the appraiser's experience in recognizing the symptoms of deterioration and obsolescence and the ability to exercise sound judgment in equating all observations to the proper monetary allowance to be deducted from the replacement cost new. There are several acceptable methods that may be employed:

Physical deterioration and/or functional obsolescence can be measured by observing and comparing the physical condition and/or functional deficiencies of the subject property as of a given time with either an actual or hypothetical, comparable, new and properly planned structure.

Curable physical deterioration and functional obsolescence can be measured by estimating the cost of restoring each item of depreciation to a physical condition as good as new or estimating the cost of eliminating the functional deficiency.
Functional and economic obsolescence can be measured by capitalizing the estimated loss in rental due to the structural deficiency, or lack of market demand.

Total accrued depreciation may be estimated by first estimating the total useful life of a structure and then translating its present condition, desirability, and usefulness into an effective age (rather than an actual age) which would represent that portion of its total life (percentage) which has been used up.

Total accrued depreciation may also be estimated by deriving the amount of depreciation recognized by purchasers as evidenced in the prices paid for property in the market place; the loss of value being the difference between the cost of replacing the structure now and its actual selling price (total property selling price less the estimated value of the land).

APPLYING THE MARKET DATA APPROACH

An indication of the value of a property can be derived through analysis of the selling prices of comparable properties. The use of this technique, often referred to as the "comparison approach" or "comparable sales approach", involves the selection of a sufficient number of valid comparable sales and the adjustment of each sale to the subject property to account for variations in time, location, site and structural characteristics.

INTRODUCTION TO THE SALES COMPARISON APPROACH

For assessment purposes, market values are defined by constitutions, statutes and case law. When sales data is available, the sales comparison approach is generally considered the most reliable of the approaches to value. However, in North Carolina assessment litigation, under the "rules of evidence", a bona fide sale of the subject property may not be considered the best evidence of market value "when competent evidence of different value is presented". In re Greensboro Office Partnership, 72 N.C. App 635, 235 S.E. 2n 24, cert. denied, 313 N.C. 602,330 S.E. 2d 610 (1985).

Emphasizing uniformity and the equitable distribution of the tax burden relative to the premise that similar properties should share similarly in that burden, North Carolina statutory language and the interpretation of relating actual sales to market value by the North Carolina Courts both provide this guidance.

The sales comparison approach models the behavior of the market by comparing the properties being appraised (subject property) with similar properties that have recently sold (comparable properties). Comparable properties are selected for their similarity to the subject property. Their sales prices are then adjusted for their differences from the subject. Finally, the market value for the subject is determined from the adjusted sales prices of the comparable properties.

To understand the sales comparison approach, an appraiser must understand the principles of supply and demand. The interaction of supply and demand factors impacts property prices. Supply depends on current inventories and, in a larger sense, the availability of human skills, materials, and capital, while demand is influenced by population levels, mortgage rates, income levels, local services, housing trends, and the cost of substitutes. The principle of substitution is one demand factor that implies that the market will recognize differences in utility between the subject and its best alternatives by a difference in price.

The sales comparison approach requires the following steps:

1. Definition of the appraisal problem.
2. Data collection
3. Analysis of market data to develop units of comparison and select attributes for adjustment (model specifications)
4. Development of reasonable adjustments (model calibration).
5. Application of the model to adjust the sales price of comparable properties to the subject property.
6. Analysis of the adjusted sales price to indicate the value of the subject property.

The entire valuation process depends on accurately defining the subject property because the nature of the property determines the sources of information, methods of comparable selection, and adjustment techniques.

Defining the subject property includes:

1. Identifying the property (parcel number or pin for ad valorem tax purposes)
2. The rights to be appraised (generally Fee Simple for ad valorem tax purposes)
3. The date of appraisal (January 1 of the appraisal year for NC ad valorem tax purposes)
4. The use (highest and best use)
5. The type of value to estimate (market value, for NC ad valorem tax purposes)

This approach has a wide application as a method of estimating value; however, there are factors that can or do limit the usefulness of the sales comparison approach. In spite of these limitations, this approach has a broad application in all appraisal work. The value estimates found by the use of this approach are considered particularly significant because they are expressions of value as established by transactions in the marketplace.

Even though the sales comparison approach is mostly used for estimating market value for residential property, it may also be used for some commercial and industrial properties if sufficient data is available. Additionally, some valuation parameters of the other valuation approaches (cost and income) are influenced by the application of and observations learned from the sales comparison approach.

SELECTING VALID COMPARABLES

Since market value has been defined as the price which an informed and intelligent buyer, fully aware of the existence of competing properties and not being compelled to act is justified in paying for a particular property, it follows that if market value is to be derived from analyzing comparable sales, that the sales must represent valid “arm’s length” transactions. Due consideration must be given to the conditions and circumstances of each sale before selecting the sales for analysis. Some examples of sales that do not normally reflect valid market conditions are as follows:

Sales in connection with foreclosures, bankruptcies, condemnations and other legal actions.

Sales to or by federal, state, county and local governmental agencies. Sales to or by religious, charitable or benevolent, tax-exempt agencies. Sales involving family transfers, or "love and affection."

Sales involving intra-corporate affiliations. Sales involving the retention of life interests. Sales involving cemetery lots.

Sales involving mineral or timber rights, and access or drainage rights. Sales involving the transfer of part interests.

In addition to selecting valid market transactions, it is equally important to select properties that are truly comparable to the property under appraisement. For instance, sales involving both real property and personal property or chattels may not be used unless the sale can be adjusted to reflect only the real property transaction, nor can sales of non-operating or deficient industrial plants be validly compared with operating plants. The comparable sales and subject properties must exhibit the same use, and the site and structural characteristics must exhibit an acceptable degree of comparability.

PROCESSING COMPARABLE SALES

All comparable sales must be adjusted to the subject property to account for variations in time and location. The other major elements of comparison will differ depending upon the type of property being appraised. In selecting these elements, the appraiser must give prime consideration to the same factors that influence the prospective buyers of particular types of properties.

The typical homebuyer is interested in the property's capacity to provide the family with a place to live. A primary concern is with the living area, utility area, number of rooms, number of baths, age, structural quality and condition, and the presence of a modern kitchen and recreational conveniences of the house. Equally important is the location and neighborhood, including the proximity to and the quality of schools, public transportation, and recreational and shopping facilities.

In addition to the residential amenities, the buyer of agricultural property is primarily interested in the productive capacity of the land, the accessibility to the marketplace, and the condition and functional utility of the farm buildings and structures on the land.

The typical buyer of commercial property, including warehouses and certain light industrial plants, is primarily concerned with its capability to produce revenue. Of special interest will be the age, design and structural quality and condition of the improvements, the parking facilities, and the location relative to transportation, labor markets and trade centers.

In applying the market data approach to commercial/industrial property, the appraiser will generally find it difficult to locate a sufficient number of comparable sales, especially of properties that are truly comparable in their entirety. It will, therefore, generally be necessary to select smaller units of comparison such as price per square foot, per unit, per room, etc. In doing so, great care must be exercised in selecting a unit of comparison that represents a logical common denominator for the properties being compared. A unit of comparison that is commonly used and proven to be fairly effective is the Gross Rent Multiplier, generally referred to as G.R.M., which is derived from dividing the gross annual income into the sales price. Using such units of comparison enables the appraiser to compare two properties that are similar in use and structural features but differ significantly in size and other characteristics.

Having selected the major factors of comparison, it remains for the appraiser to adjust each of the factors to the subject property. In comparing the site, adjustments for size, location, accessibility, and site improvements must be made. In comparing the structures, adjustments for size, quality, design, condition, and significant structural and mechanical components also must be made. The adjusted selling prices of the comparable properties will establish a range in value in which the value of the subject property will fall. Further analysis of the factors should enable the appraiser to narrow the range down to the value level that is most applicable to the subject property.

APPLYING THE INCOME APPROACH

INTRODUCTION

The justified price paid for income producing property is no more than the amount of investment required to produce a comparably desirable return; and since the market can be analyzed in order to determine the net return actually anticipated by investors, it follows that the value of income producing property can be derived from the income which it is capable of producing. What is involved is an estimate of income through the collection and analysis of available economic data, the development of a property capitalization rate, and the processing of the net income into an indication of value by employing one or more of the acceptable capitalization methods and techniques.

THE PRINCIPLES OF CAPITALIZATION

Capitalization is the process for converting the net income produced by property into an indication of value. Through the years of appraisal history, a number of procedures have been recognized and employed by appraisal authorities in determining the value of real estate by the income approach. Although present-day practice recommends only certain methods, we will at least touch on the other approaches to value - even though they may not be accepted in today's appraisal scene because they do not accurately reflect the current market conditions.

EXPLORING THE RENTAL MARKET

The starting point for the appraiser is an investigation of current economic rent in a specific area in order to establish a sound basis for estimating the gross income that should be returned from competitive properties. The appraiser must make a distinction between Economic Rent, the rent which property is normally expected to produce on the open market, as opposed to Control Rent, the rent which property is actually realizing at the time of the appraisal due to lease terms established sometime in the past.

The first step then is to obtain specific income and expense data on properties that best typify normal market activity. The data is necessary to develop local guidelines for establishing the economic rent and related expenses for various types of properties.

The next step is to similarly collect income and expense data on individual properties, and to evaluate the data against the established guidelines. The collection of income and expense data (I & E) is an essential phase in the valuation of commercial properties. The appraiser is primarily concerned with the potential earning power of the property. The objective is to estimate its expected net income. Income and Expense Statements of past years are valuable only to the extent that they serve this end. The statements must not only be complete and accurate but must also stand the test of market validity. Consideration of the following factors should assist the appraiser in evaluating the income and expense (I & E) data in order to arrive at an accurate and realistic estimate of net income.
Harnett County did not send surveys soliciting income and expense data from property owners and lessees of commercial (income-producing) property. Typically, the return results for these surveys are limited at best. A significant amount of information is made available as part of the appeal process. This data (income and expense) is generally provided in support of a claim seeking a decrease in appraisal value. The quality/worth of the data is dependent on the documentation provided. Lease information (lease rates, terms, and other stated considerations) is best, with undocumented statements the least useful.

The county may utilize other outside sources of information. Even though this may be done on a limited basis it could be useful during the appeal process.

QUESTIONS RELATING TO INCOME DATA

Was the reported income produced entirely by the subject property? Very often the rent will include an amount attributable to one or more additional parcels of real estate. In this

case, it would be necessary to obtain the proper allocations of rent.

A. Was the income attributable to the subject property as it physically existed at the time of the appraisal, or did the appraisal include the value of leasehold improvements and remodeling for which the tenant paid in addition to rent? If so, it may be necessary to adjust the income to reflect economic rent.
B. Does the reported income represent a full year's return? It is often advisable to obtain both monthly and annual amounts as verification.
C. Does the income reflect current economic rent? Is either part or all of the income predicated on old leases? If so, what are the provisions for renewal options and rates?
D. Does the reported income reflect 100% occupancy? What percentage of occupancy does it reflect? Is this percentage typical of this type of property, or is it due to special non-recurring causes?
E. Does the income include rental for all marketable space? Does it include an allowance for space, if any, which is either owner or manager occupied? Is the allowance realistic?
F. Is the income attributable directly to the real estate and conventional amenities? Is some of the income derived from furnishings and appliances? If so, it will be necessary to adjust the income or make provisions for reserves to eventually replace them, whichever local custom dictates.
G. In many properties, an actual rental does not exist because the real estate is owner occupied. In this event it is necessary to obtain other information to provide a basis to estimate economic rent. The information required pertains to the business operation using the property. Proper analysis of the annual operating statements of the business, including gross sales or receipts, can provide an accurate estimate of economic rent. Information requirements for a few of the more common property uses are as follows:

- Retail Stores - The annual net gross sales. (Gross sales less returned merchandise)
- Hotels and Motels – The annual operating statement of the business. If retail or office space is leased in these properties, obtain the actual rent paid.
- Theaters – The annual gross receipts (including admissions and concessions) and seating capacity.
- Automobile Parking – The annual gross receipts.

ANALYSIS OF EXPENSE DATA

The appraiser must consider only those expenses that are applicable to the cost of ownership; that is, those expenses that are normally owner incurred. Any portion of the expenses incurred directly or indirectly by the tenant should not be considered. Each expense item must stand the test of both legitimacy and accuracy. How do they compare with the established guidelines and norms? Are they consistent with the expenses incurred by comparable properties?

Management - refers to the cost of administration. These charges should realistically reflect what a real estate management company would actually charge to manage the property. If no management fee is shown on the statement; an allowance must be made by the appraiser. On the other hand, if excessive management charges are reported, as is often the case, the appraiser must disregard the reported charges and use an amount that he/she deems appropriate and consistent with comparable type properties. The cost of management bears a relationship with the risk of ownership and will generally range between 4 to 10% of the gross income.

General expenses - may include such items as the cost of services and supplies not charged to a particular category. Unemployment and F.I.C.A. taxes, Workmen's Compensation, and other employee insurance plans are usually legitimate deductions when employees are a part of the building operation.

Reimbursed expenses - refer to the cost associated with the maintenance of public or common areas of the commercial property. This expense is passed on to the tenants and should, therefore, only be considered when the amount of reimbursement is included as income.

Miscellaneous expenses - is the "catch-all" category for incidentals. This item should reflect a very nominal percentage of the income. If expenses reported seem to be excessive, the appraiser must examine the figures carefully in order to determine if they are legitimate expenses, and if so, to allocate them to their proper category.

Cleaning expenses - are legitimate charges. They are for such items as general housekeeping and maid service; and include the total cost of labor and related supplies. All or a portion of the cleaning services may be provided by outside firms working on a "contract" basis. Cleaning expenses vary considerably and are particularly significant in operations such as offices and hotels. "Rule of thumb" norms for various operations are made available through national management associations. The appraiser should have little difficulty in establishing local guidelines.

Utilities - are generally legitimate expenses and if reported accurately, need very little reconstruction by the appraiser, other than to determine if the charges are consistent with comparable properties. Local utility companies can provide the appraiser with definite guidelines.

Heat and Air Conditioning - costs are often reported separately and in addition to utilities. The expenses would include the cost of fuel other than the fore mentioned utilities, and may include, especially in large installations, the cost of related supplies, inspection fees, and maintenance charges. These are generally legitimate costs, and the same precautions prescribed for "utilities" are in order.

Elevator expenses - including the cost of repairs and services, are legitimate deductions, and are generally handled through service contracts. These fees can generally be regarded as fairly stable annual recurring expenses.

Decorating and minor alterations - are necessary to maintain the income stream of many commercial properties. In this respect they are legitimate expenses. However, careful scrutiny o

These figures is required. Owners tend to include the cost of major alterations and remodeling which are, in fact, capital expenditures, and as such are not legitimate operating expenses.

Repairs and Maintenance - expenses reported for any given year are not necessarily a true indication of the average or typical annual expense for these items. For example, a statement could reflect a substantial expenditure for a specific year (possibly because the roof was replaced; and/or several items of deferred maintenance were corrected); yet the statement for the following year may indicate that repairs and maintenance charges were practically nil. It is necessary for the appraiser to either obtain complete economic history on each property in order to make a proper judgment as to the average annual expense for these items, or include a proper allowance based on norms for the type and age of the improvements to cover annual expenses. Since it is neither possible nor practical to obtain enough economic history on every property, the latter method is generally used: and the amounts reported for repairs and maintenance are then estimated by the appraiser.

Insurance - Caution must be used in accepting insurance expense figures. Cost shown may be for more than one year: or maybe for blanket policies including more than one building. It is generally more effective for the appraiser to establish his/her own guidelines for insurance. He/She must also be careful to include only items applicable to the real estate. Fire extended coverage and owner's liability are the main insurance expense items. Separate coverage on special component parts of the buildings, such as elevators and plate glass, are also legitimate expenses.

Real Estate Taxes - In making appraisals for tax purposes, the appraiser must exclude the actual amount reported for real estate taxes. Since future taxes will be based on his appraised value, the appraiser must express the taxes as a factor of the estimated value. This can be done by including an additional percentage in the capitalization rate to account for real estate taxes.

Depreciation - The figure shown for depreciation on an operating statement is a “bookkeeping figure” which the owner uses for Internal Revenue purposes and should not be considered in the income approach. This reflects a tax advantage that is one of the benefits of ownership.

Interest - Although interest is considered a legitimate expense, it is always included in the Capitalization Rate. Most property is appraised as if it were “free and clear”, however, the appraiser does consider the interest of a current mortgage in the Capitalization Rate build-up.

Land Rent - When appraising for real estate tax purposes, only the sum of the leasehold and the leased fee is usually considered. Land rent is not deducted as an expense. Considered separately, rent from a ground lease would be an expense to the leasehold interest and an income to the leased fee. However, if land were rented from another property to supply additional parking for example, that land rent would be an allowable expense.

It is obvious that there are some expense items encountered on operating statements that the appraiser should not consider as allowable. This is because he/she is interested in legitimate cash expenses only. Income statements are usually designed for income tax purposes where credit can be taken for borrowing costs and theoretical depreciation losses.

It is virtually impossible and certainly not always practical to obtain a complete economic history on every commercial property being appraised. On many properties, however, detailed economic information can be obtained through the use of Income and Expense forms. One must realistically recognize the fact that the data obtainable on some properties is definitely limited.

In most cases, the gross income and a list of the services and amenities furnished can be obtained during the data gathering operation. However, in order to ensure a sound appraisal, it may be necessary to estimate the fixed and operating expenses. This is best accomplished by setting guidelines for expenses, based on a percentage of Effective Gross Income or a cost per square foot of leased area. These percentages or costs will vary depending on the services supplied and the type of property.

CAPITALIZATION METHODS

The most prominent methods of capitalization are Direct, Straight Line, Sinking Fund, and Annuity. Each of these is a valid method for capitalizing income into an indication of value. The basis for their validity lies in the action of the market, which indicates that the value of income producing property can be derived by equating the net income with the net return anticipated by informed investors. This can be expressed in terms of a simple equation:

Value = Net Income divided by Capitalization Rate

The *Straight Line* and *Sinking Fund* methods are both actual forms of Straight Capitalization, with one using Straight Line recapture and the other using Sinking Fund recapture. Both methods follow the same basic principles as Direct Capitalization, differing only in that they provide separate capitalization rates for land and buildings; the building rate differing from the land rate in that it includes an allowance for recapture.

Straight Line Capitalization allows for “recapture” based on remaining economic life of the building - implying that at the end of that period of time, there would be no improvement value. There are three fallacies in this thinking. First, the potential buyer (investor) has no intention of holding the property that long. The average investment period might average ten years. Second, the investor anticipates that at the end of that period he will either get all his money back or will make a profit. And third, is the depreciation allowance possible in connection with federal income taxes.

Depreciation allowances begin to “run out” between seven and ten years, so the advantages of owning the property are reduced considerably. A prudent owner may choose to sell the property at this point and re-invest in another property so that he may begin the depreciation cycle again and continue to take full advantage of the favorable tax laws.

For these reasons, the Straight- Line Capitalization Method does not usually follow what the market indicates.

Straight Line recapture calls for the return of investment capital in equal increments or percentage allowances spread over the estimated remaining economic life of the building.

Sinking Fund recapture calls for the return of invested capital in one lump sum at the termination of the estimated remaining economic life of the building. This is accomplished by providing for the annual return of a sufficient amount needed to invest and annually re-invest in “safe” interest-bearing accounts, such as government bonds or certificates of deposit, which will ultimately yield the entire capital investment during the course of the building's economic life.

Annuity Capitalization lends itself to the valuation of long-term leases. In this method, the appraiser determines, by the use of annuity tables, the present value of the right to receive a certain specified income over the stipulated duration of the lease. In addition to the value of the income stream, the appraiser must also consider the value that the property will have once it reverts back to the owner at the termination of the lease. This reversion is valued by discounting its anticipated value against its present worth. The total property value then is the sum of the capitalized income stream plus the present worth of the reversion value.

CURRENT TECHNIQUES

There are two methods, however, that do lend themselves to an accurate measure of market value based on potential income. These are Direct Capitalization, utilizing the Direct Comparison Method of Rate Selection, and Mortgage Equity Capitalization.

In *Direct Capitalization*, the appraiser determines a single "overall" capitalization rate. This is done through analysis of actual market sales of similar types of properties. He develops the net income of each property: and divides the net income by the sales price to arrive at an overall rate to provide an indication of value.

Mortgage Equity Capitalization is a form of direct capitalization with the major difference in the two approaches being the development of the overall capitalization rate.

In this method, equity yields, and mortgage terms are considered influencing factors in construction of the interest rate. In addition, a plus or minus adjustment is required to compensate for anticipated depreciation or appreciation. This adjustment can be related to the recapture provisions used in other capitalization methods and techniques.

RESIDUAL TECHNIQUES

It can readily be seen that any one of the factors of the Capitalization Equation (Value = Net Income divided by Capitalization Rate) can be determined if the other two factors are known. Furthermore, since the value of property is the sum of the land value plus the building value, it holds that either of these can be determined if the other is known. The uses of these mathematical formulas in capitalizing income into an indication of value are referred to as the residual techniques, or more specifically, the property residual, the building residual, and the land residual techniques.

The *Property Residual Technique* is an application of Direct Capitalization. In this technique, the total net income is divided by an overall capitalization rate (which provides for the return on the total investment) to arrive at an indicated value for the property. This technique has received more popular support in recent years because it closely reflects the market. With this technique, the capitalization rate may be developed by either "direct comparison" in the market or by the Mortgage Equity Method.

The *Building Residual Technique* requires the value of the land to be a known factor. The amount of net income required to earn an appropriate rate of return on the land investment is deducted from the total net income. The remainder of the net income (residual) is divided by the building capitalization rate (which is composed of a percentage for the return on the investment, plus a percentage for the recapture of the investment) to arrive at an indicated value for the building.

The *Land Residual Technique* requires the value of the building to be a known factor. The amount of net income required to provide both a proper return on and the recapture of the investment is deducted from the total net income. The remainder of the net income (residual) is then divided by the land capitalization rate (which is composed of a percentage for the return on the investment) to arrive at an indicated value for the land.

MORTGAGE EQUITY METHOD EXAMPLE

For purposes of illustration, assume an investment financed with a 70% loan at 14.0% interest. The term of the mortgage is 20 years, paid off in level monthly payments. The total annual cost for principal and interest on such a loan can be determined by referring to the mortgage equity tables. Select the Constant Annual percent for an interest rate of 14.0% and a term of 20 years. Note that the constant is 14.92% of the amount borrowed, or .92% more than the interest rate alone.

Assume that the equity investor will not be satisfied with less than an 18% yield. The income necessary to satisfy both Lender and Equity can now be shown. The product of the percent portion and the rate equals the weighted rate. The total of each weighted rate equals the weighted average.

	PORTION	RATE		WEIGHTED RATE
Mortgage loan (principle interest)	70%	.1492	=	.1044
Equity (down payment)	30%	.18	=	.0540
Weighted Average	100%			100%

Note that the “constant annual percent” is used for the rate of the loan.

Since there is a gain in equity's position through the years by the loan being paid off little by little, it is necessary to calculate the credit for “Equity Build-Up”. Assume that the investor plans to hold the property for ten years. Since the mortgage is for 20 years, only a portion of the principal will be paid off and this amount must be discounted, as it won't be received for ten years. From the Table of Loan Balance and Debt Reduction, at the end of ten years for a twenty- year mortgage at 14%, the figure is .199108. Consulting the sinking fund tables indicates that the discount factor for 18% and 10 years is .0425.

The credit for Equity Build-Up can now be deducted from the basic rate, thus . . .

.199108		70%		.0425	=	.0059
(% of loan paid in 10 yrs.)	x	(loan rate)	X	(sinking fund 18% for 10 yrs.)		

Resulting Net Rate = .1525

LAND VALUATION TECHNIQUES

In making appraisals for Ad Valorem Tax purposes, it is generally necessary to estimate separate values for the land and the improvements on the land. In actuality, the two are not separated and the final estimate of the property as a single unit must be given prime consideration. However, in arriving at that final estimate of value, aside from the requirements for property tax appraisals, there are certain other reasons for making a separate estimate of value for the land:

An estimate of land value is required in the application of the Cost Approach.

An estimate of land value is required to be deducted from the total property sales price in order to derive indications of depreciation through market-data analysis. (Depreciation being equal to the difference between the replacement cost new of a structure and the actual price paid in the marketplace for the structure.)

As land is not a depreciable item, a separate estimate of land value is required for bookkeeping and accounting purposes; likewise, the total capitalization rate applicable to land will differ from the rate applicable to the improvements on the land.

Since land may or may not be used to its highest potential, the value of land may be completely independent of the existing improvements on the land.
Real Estate is valued in terms of its highest and best use. The highest and best use of the land (or site), if vacant and available for use, may be different from the highest and best use of the improved property. This will be true when the improvement is not an appropriate use and yet contributes to total property value in excess of the value of the site. Highest and Best Use (Highest and Most Profitable Use; Optimum Use) is that reasonable and probable use which will support the highest present value as of the date of the appraisal. Alternatively, it is the most profitable likely use to which a property can be put. It may be measured in terms of the present worth of the highest net return that the property can be expected to produce over a stipulated long-term period of time. (American Institute of Real Estate Appraisers' Appraisal Terminology Handbook, 1981 edition.)

As appraisers' opinions are based on data derived from the market, it is necessary to study and adapt, if possible, procedures used by those closest to everyday transactions.

COMPARABLE SALES METHOD

The most frequently used method in estimating the value of land is the comparable sales method in which land values are derived from analyzing the selling prices of similar sites. This method is in essence the application of the market data approach to value and all the considerations pertaining thereto are equally applicable here.

The appraiser must select comparable and valid market transactions; and must weigh and give due consideration to all the factors significant to value, adjusting each to the subject property. The comparable sites must be used in the same way as is the subject property; and subjected to the same zoning regulations and restrictions. It is also preferable, whenever possible, to select comparable sales from the same or a similar neighborhood. The major adjustments will be to account for variations in time, location, and physical characteristics to include size, shape, topography, landscaping, access, as well as other factors which may significantly influence the selling price, such as the productivity of farmland.

Although it is always preferable to use sales of unimproved lots for comparison, it is not always possible to do so. Older neighborhoods are not likely to yield a sufficient number of representative sales of unimproved lots to permit a valid analysis. In such cases, in order to arrive at an estimate of land values using the comparable sales approach, it is necessary to consider improved property sales and to estimate the portion of the selling price applicable to the structure. The procedure would be to estimate the replacement cost of the buildings as of the date of sale, estimate the accrued depreciation and deduct that amount from the replacement cost resulting in the estimated selling price of the buildings, which can be deducted from the total selling price of the property to derive the portion of the selling price which can be allocated to the land. The equation is as follows:

	Selling Price of Property
-	Estimated Depreciated Value of Buildings
=	Indication of Land Value

In some of these older neighborhoods, vacant lots will exist often as a result of fire or normal deterioration. Since the desirability as a new building site is restricted, value is generally determined by adjoining property owners who have a desire for additional land area.

In order to apply the comparable sales method, it is first necessary to establish a common unit of comparison. The units generally used in the valuation of land are price per front foot, price per square foot, price per acre, price per lot, site or home site, price per apartment unit, and price per motel unit. The selection of any one particular unit depends upon the type of property being appraised; frontage being commonly used for plated, uniform type residential lots, and square footage and acreage for larger, un-platted tracts, as well as irregularly shaped lots lacking in uniformity. Use of square footage is especially desirable in Central Business Districts where the entire lot maintains the same level of value: depth factor adjustments have a tendency to distort this concept. Commercial arteries are also best valued on a square foot basis.

The utility of a site will vary with the frontage, width, depth, and overall area. Similarly, the unit land values should be adjusted to account for differences in size and shape between the comparable and the subject property. Since such an adjustment is generally necessary for each lot, it is beneficial that the appraiser adopts and/or develops standardized procedures for adjusting the lot size and the unit values to account for the variations. It is not uncommon for all lots within a development to market at the same price. Should data indicate this, it is necessary to make alterations or adjustments to maintain this value level. In some cases, a “site value” concept has advantages. Site value tables provide uniform pricing of standard sized lots within homogenous neighborhoods or subdivisions. Some of the techniques commonly employed are as follows:

Standard lot sizing techniques provide for the adjustment of the frontage, width, and depth of irregular shaped lots to make the units of measurement more comparable with uniform rectangular lots. Incremental and decremented adjustments can be applied to account for size differences.

Standard Depth Tables provide for the adjustment of front foot unit values to account for variations in depth from a predetermined norm.

Frontage Tables provide for the adjustment of front footage unit values to account for variations in the relative utility value of excessive or insufficient frontage as compared to a predetermined norm.

Acreage or Square Footage Tables provide for the adjustment of unit values to account for variations in the relative utility value of excessive or insufficient land sizes as compared to a predetermined norm.

During the process of adjusting the comparable sales to account for variations between them and the subject property, the appraiser must exercise great care to include all significant factors and to properly consider the impact of each of the factors upon the total value. If done properly, the adjusted selling prices of the comparable properties will establish a range in value in which the value of the subject property will fall. Further analysis of the factors should enable the appraiser to narrow the range down to the value level that is most applicable to the subject property.

THE LAND RESIDUAL TECHNIQUE

In the absence of sufficient market data, income-producing land may be valued by determining the portion of the net income attributable to the land and capitalizing the net income into an indication of value. The procedure is as follows:

1. Determine the highest and best use of the land, which may be either its present use or hypothetical use. .Estimate the net income which the property can be expected to yield.

2. Estimate the replacement cost new of the improvements.

3. If the case involves the present use, estimate the proper allowance for depreciation, and deduct that amount from the replacement cost new of the improvements to arrive at an estimate of their depreciated value.

4. Develop appropriate capitalization rates.

5. Calculate the income requirements of the improvements; and deduct the amount from the total net income to derive that portion of the income that can be said to be attributable to the land.

6. Capitalize the residual income attributable to the land to an indication of value.

RATIO METHOD

A technique useful for establishing broad indications of land values is a “typical” allocation or ratio method. In this technique, the ratio of the land value to the total value of improved properties is observed in situations where there is good market and/or cost evidence to support both the land values and total values. This market abstracted ratio is then applied to similar properties where the total values are known, but the allocation of values between land and improvements are not known.

The ratio is usually expressed as a percentage that represents the portion of the total improved value that is land value, or as a formula:

$$\frac{\text{Total Land Value}}{\text{Total Property Value}} \text{ x } 100\% = \%\text{ Land Is of Total Property Value}$$

This technique can be used on most types of improved properties, with important exceptions being farms and recreational facilities, provided that the necessary market and/or cost information is available. In actual practice, available market information limits this technique primarily to residential properties, and to a much lesser extent, commercial and industrial properties such as apartments, offices, shopping centers, and warehouses. The ratio technique cannot give exact indications of land values. It is nevertheless useful, especially when used in conjunction with other techniques of estimating land values because it provides an indication of the reasonableness of the final estimate of land value.

The ratio should be extracted from available market information and applied to closely similar properties. It should be noted that any factor that affects the value could also affect the ratio of values. Zoning is particularly important because it may require more or less improvements to be made to the land; or may require a larger or smaller minimum size. This tends to have a bearing on the land values and may influence the ratio of values considerably from community to community. The following is an example of a residential land valuation situation: Market information derived from a new subdivision.

Typical Lot Sale Price (most lots equivalent)	$15,000
Improved Lot Sales (range)	$65,000 to $75,000
Indicated Ratio $\frac{\$15,000}{75,000}$ To $\frac{15,000}{65,000}$ X 100%	20% to 23%

Similar subdivision, but 100% developed.

Typical Lot Sale Price (most lots equivalent)	Unavailable
Improved Lot Sales (range)	$85,000 to $105,000
Broadest Indicated Range of Lot Values (20% x $85,000 to 23% x $105,000)	$17,000 to $24,150
Narrowest Indicated Range of Lot Values (23% x $85,000 to 20% x $105,000)	$19,550 to $21,000

If both lots and improvements vary considerably, the broadest range is most appropriate. If most lots vary little and are judged equivalent, but the improvements vary somewhat, the narrowest range is appropriate. Most subdivisions exhibit a combination of the two ranges, showing a narrow typical range, but a wider actual range of land values.

MASS APPRAISING

In preceding sections, we have outlined the fundamental concepts, principles, and valuation techniques underlying the Appraisal Process. We will now approach the problem at hand; the reappraisal of certain specified real property within a total taxing jurisdiction, be it an entire county or any subdivision thereof; and to structure a systematic mass appraisal program to affect the appraisal of said properties in such a way as to yield valid, accurate, and equitable property valuations at a reasonable cost dictated by budgetary limitations, and within a time span totally compatible with assessing administration needs.

The key elements of the program are validity, accuracy, equity, economy, and efficiency. To be effective, the program must:

- incorporate the application of proven and professionally acceptable techniques and procedures;

- provide for the compilation of complete and accurate data and the processing of that data into an indication of value approximating the prices actually being paid in the marketplace;

- provide the necessary standardization measures and quality controls essential to promoting and maintaining uniformity throughout the jurisdiction;

- provide the appropriate production controls necessary to execute each phase of the operation in accordance with a carefully planned budget and work schedule; and;

- provide techniques specially designed to streamline each phase of the operation, eliminating superfluous functions, and reducing the complexities inherent in the Appraisal Process to more simplified but equally effective procedures.

In summary, the objective of an individual appraisal is to arrive at an opinion of value, the key elements being the validity of the approach and the accuracy of the estimate. The objective of a mass appraisal for tax purposes is essentially the same. However, in addition to being valid and accurate, the value of each property must be equitable to that of each other property, and what's more, these valid, accurate, and equitable valuations must be generated as economically and efficiently as possible.

OVERVIEW

The prime objective of mass appraisals for tax purposes is to equalize property values. Not only must the value of one residential property be equalized with another, but it must also be equalized with each agricultural, commercial, and industrial property within the political unit.

The common denominator or the basis for equalization is market value; that price which an informed and intelligent person, fully aware of the existence of competing properties and not being compelled to act, is justified in paying for a particular property.

The job of the appraiser is to arrive at a reasonable estimate of that justified price. To accomplish this, the coordination of approaches to the valuation of the various classes of property must be made so that they are related to one another in such a way as to reflect the motives of the prospective purchasers of each type of property.

A prospective purchaser of a residential property is primarily interested in its capacity to render service to the family as a place to live. Its location, size, quality, design, age, condition, desirability and usefulness are the primary factors to be considered in making a selection. By relying heavily upon powers of observation and inherent intelligence, knowing what could be afforded and simply comparing what is available, one property will eventually stand out to be more appealing than another. So, it is likewise the job of the appraisers to evaluate the relative degree of appeal of one property to another for tax purposes.

The prospective purchaser of agricultural property will be motivated somewhat differently. The primary interest will be in the productive capabilities of the land. It is reasonable to assume that the purchaser will be familiar, at least in a general way, with the productive capacity of the farm. It might be expected that the prudent investor will have compared one farm's capabilities against another. Accordingly, the appraiser for local tax equalization purposes must rely heavily upon prices being paid for comparable farmland in the community.

The prospective purchaser of commercial property is primarily interested in the potential net return and tax shelter the property will provide. That price which is justified to pay for the property is a measure of the prospects for a net return from the investment. Real estate, as an investment then, must not only compete with other real estate, but also with stocks, bonds, annuities, and other similar investment areas. The commercial appraiser must explore the rental market and compare the income-producing capabilities of one property to another.

The prospective purchaser of industrial property is primarily interested in the overall utility value of the property. Of course, in evaluating the overall utility, individual consideration must be given to the land and each improvement thereon. Industrial buildings are generally of special purpose design, and as such, cannot readily be divorced from the operation for which they were built. As long as the operation remains effective, the building will hold its value. If the operation becomes obsolete, the building likewise becomes obsolete. The upper limit of its value is its replacement cost new, and its present value is some measure of its present usefulness in relation to the purpose for which it was originally designed.

Any effective approach to valuations for tax purposes must be patterned in such a way as to reflect the “modus operandi” of buyers in the marketplace. As indicated above, the motives influencing prospective buyers tend to differ depending upon the type of property involved. It follows that the appraiser's approach to value must differ accordingly.

The residential appraiser must rely heavily upon the market data approach to value; analyzing the selling prices of comparable properties and considering the very same factors of location, size, quality, design, age, condition, desirability, and usefulness, which were considered by the buyer.

The commercial appraiser will find that since commercial property is not bought and sold as frequently as is residential property, the sales market cannot be readily established. By relying heavily on the income approach to value, the net economic rent that the property is capable of yielding can be determined, and the amount of investment required to affect that net return at a rate commensurate with that normally expected by investors could also be determined. This can only be achieved through a comprehensive study of the income-producing capabilities of comparable properties and an analysis of present-day investment practices.

The industrial appraiser will not be able to rely on the market data approach because of the absence of comparable sales, each sale generally reflecting different circumstances and conditions. Also, it is not possible to rely upon the income approach; again because of the absence of comparable investments, and because of the inability to accurately determine the contribution of each unit of production to the overall income produced. Therefore, by relying heavily on the cost approach to value, a determination must be made of the upper limit or replacement cost new of each improvement and the subsequent loss of value resulting overall from physical, functional and economic factors.

The fact that there are different approaches to value, some of which are more applicable to one class of property than to another, does not, by any means, preclude equalization between classes. Remember that the objective in each approach is to arrive at a price which an informed and intelligent person, fully aware of the existence of competing properties and not being compelled to act, is justified in paying for any one particular property. Underlying, and fundamental to each of the approaches is the comparison process. Regardless of whether the principal criteria are actual

selling prices, income-producing capabilities, or functional usefulness, like properties must be treated alike. The primary objective is equalization. The various approaches to value, although valid in themselves, must nevertheless be coordinated one to the other in such a way as to produce values that are not only valid and accurate, but are also equitable. The same "yardstick" of values must be applied to all properties; and must be applied by systematic and uniform procedures.

It is obvious that sales on all properties are not required to effectively apply the market data approach. The same is true regarding any other approach. What is needed is a comprehensive record of all the significant physical and economic characteristics of each property in order to compare the properties of "unknown" values with the properties of "known" values. All significant differences between properties must in some measure, either positively or negatively, be reflected in the final estimate of value.

Each property must be given individual treatment, but the treatment must be uniform and standardized, and essentially no different than that given to any other property. All the factors affecting value must be analyzed and evaluated for each and every property within the entire political unit. It is only by doing this that equalization between properties and between classes of properties can be ultimately affected.

All this, at best, is an oversimplification of the equalization process underlying the entire Mass Appraisal Program. The program itself consists of various operational phases, and its success depends primarily upon the systematic coordination of collecting and recording data, analyzing the data, and processing the data to an indication of value.

DATA INVENTORY

Basic to the appraisal process is the collecting and recording of pertinent data. The data will consist of general supporting data, referring to the data required to develop the elements essential to the valuation process; neighborhood data, referring to information regarding pre-delineated neighborhood units; and specific property data, referring to the data compiled for each parcel of property to be processed into an indication of value by the cost, market and/or income approach.

The data must be comprehensive enough to allow for the adequate consideration of all factors that significantly affect property values. In keeping with the economics of a mass appraisal program, it is costly and impractical to collect, maintain, and process data of no or marginal contribution to the desired objectives. The axiom “too much data is better than insufficient data” does not apply. What does apply is the proper amount of data, no more or no less, which is necessary to provide the database necessary to generate the desired output.

Cost data must be sufficient enough to develop or select and validate the pricing schedules and cost tables required to compute the replacement cost new of improvements needed to apply the cost approach to value.

All data pertaining to the cost of total buildings in place should include the parcel identification number, property address, and date of completion, construction cost, name of builder, source of information, structural characteristics, and other information pertinent to analysis.

Cost information may be recorded on the same form (unassigned property record card) used to record specific property data.

The principal sources for obtaining cost data are builders, suppliers, and developers, and it is generally advisable to collect cost data in conjunction with new construction pick-ups.

Sales data must be sufficient enough to provide a representative sampling of comparable sales needed to apply the market data approach, to derive unit land values and depreciation indicators needed to apply the cost approach, and to derive gross rent multipliers and elements of the capitalization rate needed to apply the income approach.

All sales data should include the parcel identification number, property qualification code, month and year of sale, selling price, source of information, i.e., buyer, seller, agent, or fee, and a reliable judgment as to whether or not the sale is representative of a true arm's length transaction.

Sales data should be recorded on the same form (assigned property record card) used to record specific property data; and verified during the property-listing phase.

The principal source for obtaining sales data is the County Register of Deeds Office, MLS, Sales Letters, Fee Appraisers and the real estate transfer returns. Other sources may include developers, realtors, lending institutions, and individual owners during the listing phase of the operation.

Income and expense data must be sufficient enough to derive capitalization rates and accurate estimates of net income needed to apply the income approach. Income and expense data should include both general data regarding existing financial attitudes and practices, and specific data regarding the actual incomes and expenses realized by specific properties.

The general data should include such information as equity return expectations, gross rentals, vacancy and operating cost expectations and trends, prevailing property management costs, and prevailing mortgage costs.

Specific data should include the parcel identification number, property address (or building ID), source of information, the amount of equity, the mortgage and lease terms, and an itemized account of the annual gross income, vacancy loss, and operating expenses for the most recent two-year period.

The general data should be documented in conjunction with the development of capitalization procedural guidelines. The specific data, since it is often considered confidential and not subject to public access, should be recorded on special forms, designed in such a way as to accommodate the property owner or agent thereof in submitting the required information. The forms should also have space reserved for the appraiser's analysis and calculations.

The principal sources for obtaining the general financial data are investors, lending institutions, fee appraisers and property managers. The primary sources for obtaining specific data are the individual property owners and/or tenants during the listing phase of the operation.

Neighborhood data. At the earliest feasible time during the data inventory phase of the operation, and after a thorough consideration of the living environment and economic characteristics of the overall county, or any political sub-division thereof, the appraisal staff should delineate the larger jurisdictions into smaller "neighborhood units," each exhibiting a high degree of homogeneity in residential amenities, land use, economic trends, and housing characteristics such as structural quality, age, and condition. The neighborhood delineation should be outlined on an index (or comparable) map, and each assigned an arbitrary Neighborhood Identification Code, which when combined with the parcel identification numbering system, will serve to uniquely identify it from other neighborhoods.

Neighborhood data must be comprehensive enough to permit the adequate consideration of value-influencing factors to determine the variations in selling prices and income yields attributable to benefits arising from the location of one specific property as compared to another. The data should include the taxing district, the school district, the neighborhood identification code, special reasons for delineation (other than obvious physical and economic boundaries), and various neighborhood characteristics such as the type (urban, suburban, etc.), the predominant class (residential, commercial, etc.), the trend (whether it is declining, improving, or relatively stable), its accessibility to the central business district, shopping centers, interstate highways and primary transportation terminals, its housing characteristics, the estimated range of selling prices for residentially-improved properties, and a rating of its relative durability.

All neighborhood data should be recorded on a specially designed form during the delineation phase. The existing property record card can serve in this capacity as it contains the current data on file.

Specific property data must be comprehensive enough to provide the data base needed to process each parcel of property to an indication of value, to generate the tax roll requirements, to generate other specified output, and to provide the assessing officials with a permanent record to facilitate maintenance functions and to administer taxpayer assistance and grievance proceedings.

The data should include the parcel identification number, ownership and mailing address, legal description, property address, property classification code, local zoning code, neighborhood identification code, site characteristics, and structural characteristics.

All the data should be recorded on a single, specially designed property record card customized to meet individual assessing needs. Each card should be designed and formatted in such a way as to accommodate the listing of information and to facilitate data processing. In addition to the property data items noted above, space must be provided for a building sketch, land and building computations, summarization, and memoranda. In keeping with the economy and efficiency of a mass appraisal program, the card should be formatted to minimize writing by including a sufficient amount of site and structural descriptive data that can be checked and/or circled. The descriptive data should be comprehensive enough to be suitable for listing any type of land and improvement data regardless of class, with the possible exception of large industrial, institutional, and utility complexes that require lengthy descriptions. In these cases, it will generally be necessary to use a specially- designed supplemental property record document, keyed and indexed to the corresponding property record card. The property record card should be made a permanent part of the assessing system, and used not only in conjunction with the revaluation, but also to update the property records for subsequent assessments.

The specific property data should be compiled from existing assessing records and field inspections. The parcel identification number, ownership, mailing address, and legal description may be obtained from existing tax rolls. Property classification codes may also be obtained from existing tax rolls (whenever available) and verified in the field. Local zoning codes may be obtained from existing zoning maps. Neighborhood identification codes may be obtained from the neighborhood delineation maps. Lot sizes and acreage may be obtained from existing tax maps. The property address, and the site and structural characteristics may be obtained by making a physical inspection of each property.

In transferring lot sizes from the tax maps to the property record cards, the personnel performing the tasks must be specially trained in the use of standardized lot sizing techniques and depth tables, may be used, which are necessary to adjust irregular shaped lots and abnormal depths to account for variations from predetermined norms. In regard to acreage, the total acreage may be transferred, but the acreage breakdowns required to affect the valuation of agricultural, residential, forestry, commercial, and industrial properties must be obtained in the field from the property owner and verified by personal observation and aerial photographs, if available.

Field inspections must be conducted by qualified listers under the close supervision of the appraisal staff. During this phase of the operation, the lister must visit each property and attempt personal contact with the occupant. In the course of the inspection, the following procedures must be adhered to.

Identification of the property. Recording the property address.

Interviewing the occupant of the building and recording all pertinent data.

Inspection, when possible, of the interior of the building and recording of all pertinent physical data.

Measuring and inspecting the exterior of the building, as well as all other improvements on the property, and recording the story height, and the dimensions and/or size of each.

Recording a sketch of the principal building(s), consisting of a plan view showing the main portion of the structure along with any significant attached exterior features, such as porches, etc. All components must be identified; and the exterior dimensions shown for each.

Selection of and recording the proper quality grade of the improvement. Selection of and

recording of the proper adjustments for all field priced items.

Reviewing the property record card for completeness and accuracy.

After the field inspection is completed, the property record cards must be submitted to clerical personnel to review the cards for completeness, calculate the areas, and make any necessary mathematical extensions.

Complete and accurate data is essential to the program. Definite standardized data collection and recording procedures must be followed if these objectives are to be met.

PROCESSING THE DATA

This phase of the operation involves the analysis of data compiled during the data inventory phase and the processing of that data to an indication of value through the use of the cost, market, and income approaches to value.

During the analytical phase, it will be necessary to analyze cost, market, and income data in order to provide a basis for validating the appropriate cost schedules and tables required to compute the replacement cost new of all buildings and structures; for establishing comparative unit land values for each class of property; for establishing the appropriate depreciation tables and guidelines for each class of property; and for developing gross rent multipliers, economic rent and operating expense norms, capitalization rate tables and other related standards and norms required to effect the mass appraisal of all the property within an entire political unit on an equitable basis.

After establishing the appropriate standards and norms, it remains to analyze the specific data compiled for each property by giving due consideration to the factors influencing the value of that particular property as compared to another, and then to process the data into an indication of value by employing the techniques described in the section of the manual dealing with the application of the traditional approaches to value.

Anyone, or all three of the approaches, if applied properly, should lead to an indication of market value; of primary concern is applying the approaches on an equitable basis. This will require the coordinated effort of a number of individual appraisers, each appraiser acting as a member of a team, with the team effort directed toward a valid, accurate and equitable appraisal of each property within the political unit. Each property must be physically reviewed, during which time the following procedures must be adhered to.

- Verification of the characteristics recorded on the property record card.

- Certification that the proper schedules and cost tables were used in computing the replacement cost of each building and structure.

- Determination of the proper quality grade and design factor to be applied to each building to account for variations from the base specifications.Making a judgment of the overall condition, desirability, and usefulness of each improvement in order to arrive at a sound allowance for depreciation.

- Capitalization of net income capabilities into an indication of value in order to determine the loss of value attributable to functional and economic obsolescence.

- Addition of the depreciated value of all improvements to the land value; and reviewing the total property value in relation to the value of comparable properties.

At the completion of the review phase, the property record cards must be, once again, submitted to clerical personnel for final mathematical calculations and extensions, and a final check for completeness and accuracy.

Once the final values have been established for each property, the entire program should be evaluated in terms of its primary objectives: do the values approximate a satisfactory level of market value, and what's more important, are the values equitable? Satisfactory answers to these questions can best be obtained through a statistical analysis of recent sales in an appraisal-to-sale ratio study if sufficient sales are available.

To perform the study, it is necessary to take a representative sampling of recent valid sales and compute the appraisal-to-sale ratio for each of the sales. If the sample is representative, the computed median appraisal-to-sale ratio will give an indication of how close the appraisals within each district approximates the market value. This is providing, of course, that the sales included represent true market transactions. It is then necessary to determine the deviation of each individual appraisal-to-sale ratio from the median ratio, and to compute either the average or the standard deviation, which will give an indication of the degree of equity within each individual district. What remains then is to compare the statistical measures across property classes in order to determine those areas, if any, which need to be further investigated, revising the appraisal, if necessary, to attain a satisfactory level of value and equity throughout the entire jurisdiction.

The techniques and procedures set forth herein, if applied skillfully, should yield highly accurate and equitable property valuations, and should provide a sound property tax base. It should be noted, however, that no program, regardless of how skillfully administered, can ever be expected to be error-free. The appraisal must be “fine-tuned”, and this can best be done by giving the taxpayer an opportunity to question the value placed upon his property and to produce evidence that the value is inaccurate or inequitable. During this time, the significant errors will be brought to light, and taking the proper corrective action will serve to further the objectives of the program. What's important in the final analysis is to use all these measures as well as any other resources available to produce the highest degree of accuracy and equity possible.

ESTIMATING REPLACEMENT COST NEW

The informed buyer is not justified in paying anything more for a property than what it would cost him/her to acquire an equally desirable substitute property. Likewise, the upper limit of value of most improvements is the cost of reproducing an equally desirable substitute improvement. It follows, then, that a uniform starting point for an Equalization Program is to determine the Replacement Cost New of each and every improvement.

REPLACEMENT COST

Replacement Cost is the current cost of producing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. The distinction being drawn is one between Replacement Cost, which refers to a substitute property of equal utility, as opposed to Reproduction Cost, which refers to a substitute replica property.

The Replacement Cost of an improvement includes the total cost of construction incurred by the builder, whether preliminary to, during the course of, or after completion of its construction. Among these are materials, labor, all sub-contracts, builder's overhead and profit, architectural and engineering fees, consultation fees, survey and permit fees, legal fees, taxes, insurance and the cost of interim financing.

PRICING SCHEDULES

Pricing schedules and related cost tables are included in this manual to assist the appraiser in arriving at accurate estimation of Replacement Cost New. They have been developed by applying unit-in-place costs to the construction of specified hypothetical or model buildings. Application of the schedules involves the selection of the model which most nearly resembles the subject building and adjusting its price to compensate for all significant variations.

Pricing schedules are included for various types of Residential, Agricultural, Institutional, Commercial and Industrial structures.

Cost adjustments for the variations which are most frequently encountered in a particular type of building are included. Adjustments for other variations may be made by using either the other Feature Cost Tables or other appropriate schedules.

SELECTING THE PROPER QUALITY GRADE

The quality of materials and workmanship is the one most significant variable to be considered in estimating the replacement cost of a structure. Two buildings may be built from the same general plan, each offering exactly the same facilities and with the same specific features, but with widely different costs due entirely to the quality of materials and workmanship used in their construction. For instance, the cost of a dwelling constructed of high-quality materials and with the best of workmanship throughout can be more than twice that of one built from the same floor plan, but with inferior materials and workmanship.

The schedules included in this manual have been developed to provide the appraiser with a range of grades comprehensive enough to distinguish all significant variations in the quality of materials and workmanship which may be encountered; the basic specifications for each grade as to the type of facility furnished remain relatively consistent throughout, and the primary criterion for establishing the grade being the overall quality of materials and workmanship.

The majority of buildings erected fall within a definite class of construction, involving the use of average quality of materials with average quality of workmanship. This type of construction being the most common, it can readily be distinguished by the layman as well as the professional appraiser. Consequently, better or inferior quality of construction can be comparatively observed. The quality grading system and pricing schedules in this manual are keyed to this obvious condition; the basic grade being representative of that cost of construction using average quality of materials with average quality workmanship. The principal Quality Grade classifications are as follows:

Grade XX	Superior Quality
Grade X	Excellent Quality
Grade A	Very Good Quality
Grade B	Good Quality
Grade C	Average Quality
Grade D	Fair Quality
Grade E	Poor Quality

The seven grades listed above will cover the entire range of construction quality, from the poorest quality to the finest quality.

The general quality specifications for each grade are as follows:

XX Grade Buildings generally having an exceptional architectural style and design, constructed with the finest quality materials and custom workmanship. Superior quality interior finish, built-in features, deluxe heating system, plumbing and lighting fixtures.

X Grade Buildings generally having an outstanding architectural style and design, constructed with the finest quality materials and workmanship. Superior quality interior finish, built-in features, deluxe heating system, plumbing and lighting fixtures.

A Grade Architecturally attractive buildings constructed with excellent quality materials and workmanship throughout. High quality interior finish and built-in features. Deluxe heating system and very good grade plumbing and lighting fixtures.

B Grade Buildings constructed with good quality materials and above average workmanship throughout. Moderate architectural treatment. Good quality interior finish and built-in features. Good grade heating, plumbing and lighting fixtures.

C Grade Buildings constructed with average quality materials and workmanship throughout, conforming to the base specifications used to develop the pricing schedule. Minimal architectural treatment. Average quality interior finish and built-in features. Standard grade heating, plumbing and lighting fixtures.

D Grade Buildings constructed with economy quality materials and fair workmanship throughout. Void of architectural treatment. Cheap quality interior finish and built-in features. Low grade heating, plumbing and lighting fixtures.

E Grade Buildings constructed with a very cheap grade of materials, usually “culls”, “seconds” and poor- quality workmanship; resulting from unskilled, inexperienced, “do-it-yourself” type labor. Low grade heating, plumbing, and lighting fixtures.

In order to facilitate using this grading system, and again to promote and maintain uniformity in approach, the value relationship of grade to grade as just described has been incorporated into the development of the base specifications relating to each schedule used in the manual.

Note: The appraiser must exercise extreme caution not to confuse the concepts “quality” and “condition” when selecting the proper grade. This is especially applicable to older buildings, wherein a deteriorated condition can have a noticeable effect on their physical appearance. A building will always retain its initial grade of construction, regardless of its existing deteriorated condition. The Quality Grade ultimately selected must reflect that original built-in quality, and the selection of that grade cannot be influenced in any way by the physical condition of the building.

APPLYING THE PROPER GRADE FACTOR

Grading would be a relatively simple process if all buildings were built to conform to the quality grade specifications outlined above. The fact is, however, that this ideal condition does not exist. It is not unusual for any conventional building to be built incorporating construction qualities that fall between the established grade levels. The grading system in this manual has been designed in such a way as to provide the appraiser with a method for accounting for such variations by establishing intermediate grades.

If the Subject building is judged to be of a better or inferior quality than the actual grade levels, a grade factor of plus (+) or minus (-) should be applied, i.e., C+ would be better than a straight "C" Grade, B- poorer than a straight "B" Grade, etc.

There is rarely a clear-cut designation of a specific grade factor. The appraiser will generally select a range, such as C+ to B-, and then weigh the various quality factors exhibited in the construction in order to select the proper factor.

Following the above procedures results in the full range of Quality Grade Factors, examples of these factors are listed below.

Quality Grade Factors							
XX(+)	350%	**A(+)**	165%	**C(+)**	110%	**E(+)**	65%
XX	325%	**A**	155%	**C**	100%	**E(+)**	55%
XX(-)	300%	**A(-)**	145%	**C(-)**	95%	**E(-)**	45%
X(+)	275%	**B(+)**	135%	**D(+)**	90%		
X	250%	**B**	125%	**D**	85%		
X(-)	200%	**B(-)**	120%	**D(-)**	75%		

Note: The quality factor ultimately selected should represent a composite judgement of the overall Quality Grade. Generally, the quality of materials and workmanship is fairly consistent throughout the construction of a specific building. However; since this is not always the case, it is frequently necessary to weigh the quality of each major component in order to arrive at the proper "overall" Quality Grade. Equal consideration must also be given to any "Additions" which are constructed of materials and workmanship inconsistent with the quality of the main building.

PRICING SCHEDULES AND COST TABLES

The Pricing Schedules and Cost Tables in this manual are provided to assist the appraiser in arriving at accurate and uniform valuations. Used properly, they should prove to be an invaluable tool. Quality valuations, however, are not the product of schedules and tables themselves, but rather of the appraiser's ability to use them effectively. In order to bring this about, a thorough understanding of the make-up and the capabilities and limitations of each schedule is essential. The appraiser must know the specifications, from which the base prices were derived, the composition of the prices, and the proper techniques and procedures for applying the prices. What's more important, the appraiser must be able to exercise good common sense and sound judgement in selecting and using them. It should also be noted that the schedules and tables in the manual have been developed primarily for mass appraisal and tax equalization purposes. They have, therefore, been designed to provide the appraiser with an uncomplicated, fast, and effective method of arriving at an accurate estimate of replacement costs. In order to maintain simplicity in the schedules, techniques, and procedures, it is often necessary to make certain compromises from a strictly technical and engineering point of view. Extensive effort has been made in developing the schedules to minimize these compromises and limit them to variables that have minimal influence on the final value of the building. The schedules have been designed to reflect actual building costs and practices. Field tests have proven them to be both accurate and reliable, and when applied properly, highly effective in arriving at realistic replacement costs.

GENERAL RESIDENTIAL PRICING SCHEDULES

QUALITY GRADE OR CLASS

The quality grade of materials and workmanship is the one most significant variable to be considered in estimating the replacement cost of a structure. Two buildings may be built from the same general plan, each offering exactly the same facilities and with the same specific features, but with widely different costs due entirely to the quality of materials and workmanship used in their construction. For instance, the cost of a dwelling constructed of high-quality materials and with the best of workmanship throughout can be more than twice that of one built from the same floor plan but with inferior materials and workmanship prevailing.

The following schedule has been developed to distinguish between variations in cost. This schedule represents the full range of conventional dwelling construction. The basic specifications for each grade, as to type of facilities furnished, are relatively constant; that is, each has a specific type of heating system, two bathrooms, kitchen unit, and other typical living facilities, but with variable quality of materials and workmanship prevailing.

The basic grade represents the cost of construction using average quality materials, with average workmanship. The majority of dwellings erected fall within one class above and one class below the base grade of C. The layman or professional appraiser can readily distinguish between these classes. The three classes of grade of quality for this group of dwelling have been established as follows:

Grade B	Good	Quality 125%
Grade C	Average	Quality 100%
Grade D	Fair	Quality 85%

In order to justify variation in cost, maintain uniformity and retain complete control throughout the cost range, we have established these base grades. The pricing spread between each grade is based upon the use of better grade materials and higher quality workmanship from C Grade to B Grade. B Grade dwellings are found to have better individual features and interior finish, which reflects higher costs than a C Grade. Likewise, the D Grade dwelling would be constructed of lesser quality than C Grade, due to the type of materials used and workmanship. Consequently, better quality of construction or construction of cheaper quality can be comparatively observed.

To cover the entire range of dwelling construction, three additional classes of dwellings above the three base grade dwellings must be considered along with one grade dwelling below the base three grades.

The three base grades above are:

"A"	Excellent Quality	155%
"X"	Superior Quality	250%
"XX"	Ultimate Quality	325%

The A, X and XX Grade dwelling incorporates the best quality of materials and workmanship. Construction costs of XX Grade dwellings usually run substantially higher than the cost of C Grade dwellings. The prestige type and the mansion, or country estate-type homes are usually in this class. The X Grade dwellings having exceptional architectural style and design are generally the custom- built homes and are better in overall construction than the C Grade dwellings. The A Grade dwellings having outstanding architectural style and design are generally the custom- built homes and are 55% better in overall construction than the C Grade dwellings.

The dwelling of the cheapest quality construction built of low-grade materials and is the E Grade quality.

These seven (7) established base graded or classes of quality will cover the entire range of dwelling construction, from the cheapest to the finest in quality.

USE OF GRADE FACTORS

The grading method is based on C Grade as standards of quality and design. Quality adjustments are established by means of grade factor multipliers. Since not all dwellings are constructed to fall into one of the precise grade levels with no adjustments, it becomes necessary to further refine our grading system. It is not unusual for conventional houses to be built incorporating qualities that fall above or below these established grades. If the house that is being appraised does not fall exactly on a specific grade, but should be classified within that grade, the use of Grade Factor Symbols (+ or -) will accomplish this adjustment in the Grade XX, X, A, B, C, D and E Classes.

For a grading increase in the X Grade category, a plus factor can be used, which will result in each factor being higher than the last.

A Sample Would Be –

A dwelling with outstanding architectural style and design, constructed with the finest quality materials and workmanship throughout, Superior quality interior, finish with extensive built-in features, Deluxe heating system and high-grade lighting and plumbing fixtures may be graded A+. The A+ Grade places this house in the Superior Quality range. The + part of the A+ Grade places this house one level above the A Grade category. Grade A+ has a multiplier of 165%. Thus, once you have priced this house to the base level of C, a multiplier of 165% would be applied to adjust the C Grade base level up to the A+ Grade level you desired.

The same approach would apply should you have a house constructed with a very cheap grade of materials, usually culls and seconds, and very poor-quality workmanship resulting from unskilled, inexperienced, do-it-yourself type labor. Minimal code, low-grade mechanical features and fixtures may be graded E. The E Grade places this house in the Cheap Quality range. Grade E has a multiplier of 55%; once you have priced this house to the base level of “C”, a multiplier of 55% would be applied to adjust the C Grade base level down to the E Grade level you desired.

NOTE: The quality factor ultimately selected is to represent a composite judgment of the overall Quality Grade. Generally, the quality of materials and workmanship is fairly consistent throughout the construction of a specific building; however, since this is not always the case, it is frequently necessary to weigh the quality of each major component in order to arrive at the proper overall Quality Grade. Equal consideration must also be given to any additions which are constructed of materials and workmanship inconsistent with the quality of the main building.

The appraiser must use extreme caution not to confuse Quality and Condition when establishing grades for older houses in which a deteriorated condition may have a noticeable effect on their appearance. Grades should be established on original built-in quality as new dwellings and not be influenced by physical condition. Proper grading must reflect replacement cost of new buildings. Bear in mind a house will always retain its initial grade of construction, regardless of its present deteriorated condition.

XX Quality Dwellings

These dwellings are constructed of the finest quality materials and workmanship, exhibiting unique and elaborate architectural styling and treatment, and having all the features typically characteristic of mansion-type homes.

BASE SPECIFICATIONS

FOUNDATION: Brick or reinforced concrete foundation walls on concrete footings with interior piers.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls will be of high quality and constructed with much detail and workmanship. Ample insulation and numerous openings for windows and doors are typical.

ROOF: Slate, tile, cedar shake, or architectural asphalt shingles on quality sheathing with well braced rafters having various slopes and ridges.

INTERIOR FINISH: The interior of these homes is of the highest custom design and construction with much attention given to fine detail and master craftsmanship.

FLOORS: Heavy construction utilizing wood or steel joists and sub floor with the best quality combination of hardwoods, ceramic tile, terrazzo, marble or granite tile, vinyl, or luxurious carpeting.

PLUMBING: A combination of high-quality fixtures, good quality materials, and skilled workmanship. Considered typically and adequate for the type of construction, generally exceeding a total of twelve fixtures.

CLIMATE CONTROL: A heating system equal to forced air with ample capacity and insulated ductwork throughout. Air conditioning is included as a part of the specifications; however, this item is considered an add-on item and is excluded from base pricing.

ELECTICAL: Good quality wiring, maximum electrical outlets and expensive light fixtures.

Grade XX

X Quality Dwellings

These homes are architecturally designed; and custom built by contractors who specialize in good quality construction. Extensive detail is given to ornamentation with the use of good grade materials and skilled craftsmanship. Homes of this quality are located in affluent areas that will enhance and benefit the home the most.

BASE SPECIFICATIONS

FOUNDATION: Brick or reinforced concrete foundation walls on concrete footings with interior piers.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls will be of high quality and constructed with much detail and workmanship. Ample insulation and numerous openings for windows and doors are typical.

ROOF: Slate, tile, cedar shake, or architectural asphalt shingles on quality sheathing with well braced rafters having various slopes and ridges.

INTERIOR FINISH: The interior of these homes is of the highest custom design and construction with much attention given to fine detail and master craftsmanship.

FLOORS: Heavy construction utilizing wood or steel joists and sub floor with the best quality combination of hardwoods, ceramic tile, terrazzo, marble or granite tile, vinyl, or luxurious carpeting.

PLUMBING: A combination of high-quality fixtures, good quality materials, and skilled workmanship. Considered typically and adequate for the type of construction, generally exceeding a total of twelve fixtures.

CLIMATE CONTROL: A heating system equal to forced air with ample capacity and insulated ductwork throughout. Air conditioning is included as a part of the specifications; however, this item is considered an add-on item and is excluded from base pricing.

ELECTICAL: Good quality wiring, maximum electrical outlets and expensive light fixtures.

Grade X+

Grade X+

Grade X+

Grade X

Grade X

Grade X

Grade X-

Grade X-

Grade X-

A Quality Dwellings

These homes are architecturally designed; and custom built by contractors who specialize in good quality construction. Extensive detail is given to ornamentation with the use of good grade materials and skilled craftsmanship. Homes of this type are located in areas that are specifically developed for this level of quality.

BASE SPECIFICATIONS

FOUNDATION: Brick or reinforced concrete foundation walls on concrete footings with interior piers.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls will be of good quality and constructed with detail and workmanship. Ample insulation and adequate openings for windows and doors is typical.

ROOF: Slate, tile, cedar shake, or architecture asphalt shingles on quality sheathing with well braced rafters having various slopes and ridges.

INTERIOR FINISH: The interior of these homes is of good design and good construction with much attention given to detail and good quality craftsmanship.

FLOORS: Heavy construction utilizing wood or steel joists and sub floor with a good quality combination of hardwoods, ceramic tile, marble or granite tile, vinyl, or good quality carpeting.

PLUMBING: A combination of good quality fixtures, good quality materials, and skilled workmanship. Considered typically and adequate for the type of construction, generally exceeding a total of twelve fixtures.

CLIMATE CONTROL: A heating system equal to forced air with ample capacity and insulated ductwork throughout. Air conditioning is included as a part of the specifications; however, this item is considered an add-on item and is excluded from base pricing.

ELECTICAL: Good quality wiring, maximum electrical outlets and expensive light fixtures.

Grade A+

Grade A+

Grade A+

	**Grade A**

Grade A	

	**Grade A**

Grade A-

Grade A-

Grade A-

B Quality Dwellings

These homes are architecturally designed and built by contractors who specialize in good quality construction. Much detail is given to ornamentation with the use of good grade materials and skilled workmanship. Custom-built homes normally fall into this classification.

BASE SPECIFICATIONS

FOUNDATION: Brick or reinforced concrete foundation walls on concrete footings with interior piers.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls will be of good quality and constructed with detail and workmanship. Ample insulation and adequate openings for windows and doors are typical.

ROOF: Slate, tile, cedar shake, or architecture asphalt shingles on quality sheathing with well braced rafters having various slopes and ridges.

INTERIOR FINISH: The interior of these homes is of good design and good construction and good quality workmanship.

FLOORS: Moderate construction utilizing wood or steel joists and sub floor with a good combination of hardwoods, ceramic tile, vinyl, or good quality carpeting.

PLUMBING: A combination of quality fixtures, quality materials, and skilled workmanship. Considered typically and adequate for this type of construction, generally having at least eight fixtures.

CLIMATE CONTROL: A heating system equal to forced air with ample capacity and insulated ductwork throughout. Air conditioning is included as a part of the specifications; however, this item is considered an add-on item and is excluded from base pricing.

ELECTICAL: Good quality wiring, maximum electrical outlets and good light fixtures.

Grade B+

Grade B+

Grade B+

Grade B

Grade B

Grade B

Grade B-

Grade B-

Grade B-

C Quality Dwellings

These homes are designed and built by contractors who specialize in average quality construction. Adequate detail is given to ornamentation with the use of average grade materials and typical workmanship. Homes of this type are located in areas that are specifically developed for this level of quality. These homes represent the prevalent quality.

BASE SPECIFICATIONS

FOUNDATION: Brick or reinforced concrete foundation walls on concrete footings with interior piers.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls will be of average quality and constructed with detail and workmanship. Ample insulation and adequate openings for windows and doors is typical.

ROOF: Tile, cedar shake, or asphalt shingles on average quality sheathing with frame trusses and having typical slopes.

INTERIOR FINISH: The interior of these homes is of average design and average construction with attention given to detail and average quality workmanship.

FLOORS: Moderate construction utilizing wood or steel joists and sub floor with an average combination of hardwoods, ceramic tile, vinyl, or average quality carpeting.

PLUMBING: A combination of average quality fixtures, average quality materials, and workmanship. Considered typically and adequate for the type of construction, generally not exceeding a total of twelve fixtures.

CLIMATE CONTROL: A heating system equal to forced air with ample capacity and insulated ductwork throughout. Air conditioning is included as a part of the specifications; however, this item is considered an add-on item and is excluded.

ELECTICAL: Average quality wiring, adequate electrical outlets and average light fixtures from base pricing.

Grade C+

Grade C+

Grade C+

Grade C

Grade C

Grade C

Grade C-

Grade C-

Grade C-

D Quality Dwellings

These homes are usually built of fair quality materials with expense-saving construction. Economy-built homes would normally fall into this classification.

BASE SPECIFICATIONS

FOUNDATION: Brick or concrete block walls on concrete footings.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, or frame siding. All exterior walls are average quality or less and constructed with minimal detail and workmanship. Insulation is minimal and openings for windows and doors are typical.

ROOF: Light weight asphalt shingles on adequate sheathing and frame trusses with minimal slope.

INTERIOR FINISH: The interior of these homes is below average design and construction with limited attention given to detail and quality workmanship.

FLOORS: Low-cost construction utilizing wood or steel joists and sub floor with some hardwoods, vinyl, and/or low- quality carpeting.

PLUMBING: A combination of fair quality fixtures and typical quality materials and workmanship. Considered typical and adequate for this type of construction, it normally has eight fixtures or less.

CLIMATE CONTROL: A heating system equal to forced air with minimal capacity and ductwork throughout. Air conditioning is not a part of the specifications. This item is excluded from base pricing and should be added if applicable.

ELECTICAL: Adequate quality wiring, minimal electrical outlets and low-cost light fixtures.

Grade D+

Grade D+

Grade D+

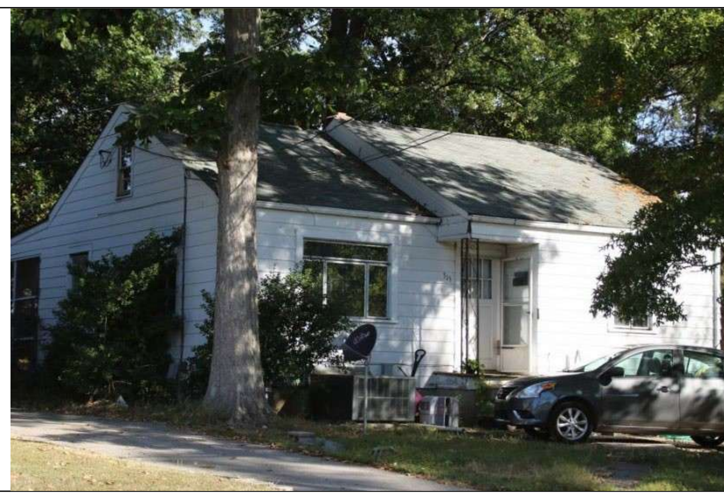
Grade D

Grade D

Grade D

Grade D-

Grade D-



Grade D-

E Quality Dwellings

These homes are constructed of low-quality materials and are usually designed not to exceed minimal building code. Little detail is given to interior or exterior finish. They are usually built for functional use only. Homes of this type are not specifically located within housing developments but may be built as in-fill housing.

BASE SPECIFICATIONS

FOUNDATION: Brick or concrete block foundation walls on concrete footings, piers, or concrete slab.

EXTERIOR WALLS: Stone, brick veneer, stucco, log, frame siding, or concrete block. All walls are cheaply constructed with minimal detail and workmanship. Little or no insulation and minimal windows and doors are typical.

ROOF: Light weight asphalt shingles, roll roofing, or metal on plywood sheathing and frame trusses with minimal slope.

INTERIOR FINISH: The interior of these homes is of fair design and construction with low-cost materials. Little attention is given to detail and quality workmanship.

FLOORS: Low-cost construction utilizing wood or steel joists and sub floor with some hardwoods, vinyl, and/or low -quality carpeting.

PLUMBING: A combination of fair quality fixtures, typical quality materials, and workmanship. Considered adequate for the type of construction. Generally, not have more than a total of five fixtures.

CLIMATE CONTROL: A heating system equal to forced air with minimal capacity and ductwork throughout. Air conditioning is not a part of the specifications. This item is excluded from base pricing and should be added if applicable.

ELECTICAL: Minimal quality wiring limited electrical outlets and inexpensive lighting.

Grade E+

Grade E+

Grade E+

Grade E

Grade E

Grade E

	**Grade E-**

MANUFACTURED HOUSING

General

Manufactured housing can be single-wide mobile homes, double-wide mobile homes, multi-sectional homes, or modular homes. Non-modular structures are designed with a steel undercarriage and wheel assemblies for transporting to the site.
Note: most modular homes have wood joists rather than a steel undercarriage. For mass appraisal purposes, both wood joist and steel undercarriage homes that are classified as modular are considered to be like stick-built homes.

As of June 15, 1976, all manufactured homes built, after that time, must meet or exceed Federal Standards outlined in Title VI, Housing and Community Development Act of 1974. These standards (building codes) are administered by United States Department of Housing and Urban Development (HUD). The HUD code, unlike conventional building codes, requires manufactured homes to be constructed on permanent chassis. Manufactured homes that are not considered modular homes must have a red/silver certification (HUD certification) on the exterior of each transportable section when transported from the factory.

Modular homes are constructed on the same state, local and regional building codes (conventional building codes) as site- built homes which exceed the HUD code and have a "State of North Carolina Modular Construction Validating Stamp" on the interior of the home. For mass appraisal purposes all factory constructed homes are to be classified as either manufactured (single-wide, double-wide, etc.) or modular.

MODULAR HOME CLASSIFICATION STANDARDS

All homes constructed in a factory may be considered a manufactured home, but only those that meet or exceed the North Carolina State Residential Building Code may be considered modular homes. North Carolina General Statute 105-164.3(21b) defines modular home as "a factory-built structure that is designed to be used as a dwelling, is manufactured in accordance with the specifications for modular homes under the North Carolina State Residential Building Code (NCSRBC), and bears a seal or label issued by the Department of Insurance pursuant to G.S. 143-139.1". Also, in addition to NCSRBC, modular homes may be required to be constructed to local and/or regional building codes. North Carolina addresses the construction and definition of modular homes under the North Carolina State Building Code Volume VIII – Modular Construction Regulations. The quality of modular homes is considered to be the same as site-built homes per memorandum from the North Carolina Department of Insurance (see memorandum, page 383). For mass appraisal purposes, structures that are considered modular must meet current general statute requirements. Note: All homes classified as modular will be considered as real property, even if on someone else's land.

MANUFACTURED HOME CLASSIFICATION STANDARDS

All manufactured homes that do not meet the requirements of a modular home are to be considered using the term "manufactured home" for mass appraisal purposes. N.C.G.S. 105-273(13), in defining real property, provides for the inclusion of manufactured homes. Also, N.C.G.S. 105-316.7 defines mobile home and manufactured home.

Any manufactured home will be considered *real property* and will be valued in accordance with the schedule of values if the owner of the land and the owner of the home placed upon the land are the same, having the towing hitch and axle assembly removed and placed upon a permanent foundation as required by the Harnett County Building Department.

If the owner of the manufactured home does not own the land it occupies, the home will be considered a *personal property* item. If the manufactured home is considered a *personal* item, it will be noted within the miscellaneous items section of the property record card.

BAS-03
Single-Sect
Manufactured Home

BAS-02
Multi-Sect
Manufactured
Home

BAS
Modular Home

RESIDENTIAL COST SCHEDULES

The Cost Approach to value lends itself best to property valuation for tax purposes for two principal reasons.

1) Appraisals for Ad Valorem purposes require separate land value estimates.

2) The Cost Approach can be applied to all classes of property.

The use of one approach to the exclusion of others is contrary to the appraisal process. The approach outlined in this manual includes cost schedules which have been developed and are supported through analysis and incorporation of economic factors indicated by all three approaches to value: Cost, Income and Market.

The following cost schedules are based on a model residence constructed using typical components, average quality workmanship and materials, consisting of one thousand five hundred (1,500) square feet, 2 full baths, central a/c, heat pump, prefab fireplace and continuous footing.

How to Use the Property Record Card (PRC) to Calculate a Residential Building

Values

To calculate a property's value, the appraiser first determines a Schedule of Values based solely on the objective property characteristics. Adjustments for quality of construction, depreciation and any further adjustments are made as needed.

It is important to be aware that rates and values shown on the Property Record Card may be rounded or truncated for purposes of formatting and display. The purpose of this example is to help the non-professional understand how the Schedule of Values is applied to generate values. For that reason, calculations that the computer model is performing consecutively have been divided into separate steps. This may lead to small variations between values calculated manually and values calculated using the appraisal software, mainly due to rounding being performed at different points. These differences should not be interpreted as mathematical errors.

How to Interpret a Sketch

All sketches have a "main body" which corresponds generally to the heated livable square footage within the foundation area. Within the sketching software that Harnett County uses, this main first floor living space is coded as BAS on a residential single family home. Please note that other codes will apply for residential upper story or basement square footage. Similarly, other types of residential or commercial structures will employ coding that is more specific to how that structure would be defined (such as DUP/TRI as the main living area on a Duplex/Triplex).

A sketch may also have one or more attachments, such as a deck or attached garage. The term "attachment" as used here does not imply that the feature was built at a different point in time than the main body; it may or may not be part of the original construction. A property sketch will include all structures that build off the main area until there is no longer a shared wall or connection point.

Step 1 – Determine the Replacement Cost New

The main living area and all attachments have both a total square footage based on field measurement and a base rate attached to this type of structure. In this example, there is a main single family residential living area (BAS), a Finished Open Porch (FOP), a Finished Garage with Door (FGD), a Finished Enclosed Porch (FEP), and a Patio (PTO).

Structure Type	Square Footage	2026 Base Rate
Single Family Residential Living Area (BAS)	1,780 sq ft	$160/sq ft
Finished Open Porch (FOP)	88 sq ft	$30.14/sq ft
Finished Garage with Door (FGD)	550 sq ft	$31.50/sq ft
Finished Enclosed Porch (FEP)	84 sq ft	$49.51/sq ft
Patio (PTO)	144 sq ft	$11.92/sq ft

Step 2 – Determine any Adjustments to the Base Square Foot Rate
Next, calculate any necessary value adjustments based on building characteristics. Multiplying the square footage times the indicated rate in Step 1 will provide an initial Replacement Cost New. The HVAC system to the house values at $7.50 per square foot. The home has a face brick exterior, which values as an additional $2.20 per square foot in relation to a base material, such as vinyl siding. These items adjust the Single Family Residential Main Living Area to an adjusted rate of $169.70 per square foot.

Step 3 – Calculate the Schedule Values for the Sketched Main Area and Attachments
Let's calculate the BAS heated living area value section using the adjusted rate of $169.70 per square foot and the total heated square footage of 1,780.

BAS: [(1,780 * $169.70) *0.82] = $247,694

> 1,780 is the home's heated square footage
> $169.70 is the adjusted base rate for BAS area
> 0.82 is the Total Finished Area size adjustment for this tier of square footage. Each attachment type is connected to one of the size adjustment tables based on specific square footage. The adjustment below is applicable to the type of attachment at that size level.

Using the same process, we can calculate the rest of the areas:
FGD: [(550 * $31.50)*0.98] = $16,979
FEP: [(84* $49.51)*1.00] = $4,159
FOP: [(88 * $30.14)*1.00] = $2,652
PTO: [(144 * $11.92)*0.96] = $1,648

In this example, we have 2 full bathrooms and a 1 story brick fireplace to be added to the value. According to the Schedule of Values, full baths add $3,000 per unit so a $6,000 adjustment is made to the building value. A 1 story brick fireplace adds $3,700 per unit.

> Bathrooms: 2 * $3,000 * 0.82 (main area size adjustment) = $4,920

Total value: $281,751 (rounded)

Step 4 – Apply Grade and Depreciation factors
The above mathematical equations give us the total value of the main living area and any sketched attachments based on the correct rate, square footage and size adjustment for each. This assumes the value in a vacuum, which is not how a home will sell. Based on sales analysis and extraordinary assumption, an appraiser needs to consider several other relevant factors when determining value: quality of construction, building condition and age-related depreciation.
The grade consists of an overall quality rating (C+, C, C-, etc.) that considers the home's build, materials, complexity, standards at the time of construction, etc. Depreciation for most residential buildings will be listed as "AV" although homes with updates/renovation or homes that are deteriorating faster than is typical for comparable homes may be rated differently. In some cases, this can be more precisely determined from review of a sales listing or from further information provided on appeal. This property has a grade C (base value) and a depreciation rating of Average. The prior total value is modified by the quality grade and depreciation to more accurately gauge the particular home beyond just its square footage. One would see a significant market sale difference between a B grade home and a C grade home of identical

square footage. One would also see a significant market sale difference between a 1970 home with some cosmetic updates in Good condition as opposed to a home with worn exterior features in Fair condition. The appraiser applies adjustments to replicate how these differences sell on market so that a reliable mass appraisal model can be constructed.

Prior Total Value * Grade Factor
$281,751 * 1.00 = $281,751

Prior Total Value * Condition and Depreciation (Average condition at 61 years old in 2026)
$281,751 * 0.64 (36% depreciated, 64% good) = $180,321

Step 5 – Apply the Neighborhood Factor
The above total reflects the home value based on sketched area, square footage, quality, condition and age-related depreciation. The final key component is location. One would not expect the same house to sell for the same dollar value in every neighborhood or rural region in the county. Values are localized to adjust for not only the township but for the sales trend of the specific neighborhood or rural region to more correctly reflect the activity of that local market.

Assessed Value * Neighborhood Factor = Final Assessed Value
$180,321 x 1.20 = **$216,385**

$216,385 is the Final Assessed Value of the building, which will be added to the land value and outbuilding value (if any) to determine the Total Assessed Value of the property.

How to Calculate the Land Value

Utilizing the parcel's acreage, land coding, depth/size factor, condition factor and the land rates for the neighborhood or rural region, we can calculate land value on this parcel. Please see Section 17 for further information regarding the Land Valuation Technique used.

Land breakdown of 4.99 total acres:
- 1.0 acre of Rural Home Site (5010 code)
- 2.30 acres of residential agricultural land (5113 code)
- 1.69 acres of residential wooded land (6113 code)

Land rates for this rural region:
- Rural Home Site: $78,000 per acre
- Residual agricultural or wooded land: $14,750 per acre

Land adjustments for this parcel:
- Depth/size adjustment per Schedule of Values: 1.00 on 5010, 1.02 on 5113/6113
- Condition factor: 0.70 (Parcel has -25% private access and -5% easement considerations)

Land valuation calculation:
- 5010 land line:
  - 1.00 * 0.70 = total adjustment factor of 0.70

$78,000 per acre * 0.70 = adjusted unit price of $54,600 per acre
Adjusted unit price of $54,600 per acre * 1.00 acre = $54,600 total value

5113 land line:
1.02 * 0.70 = total adjustment factor of 0.71
$14,500 per acre * 0.71 = adjusted unit price of $10,295 per acres
Adjusted unit price of $10,295 per acre * 2.30 acres = $23,678 total value

6113 land line:
1.02 * 0.70 = total adjustment factor of 0.71
$14,500 per acre * 0.71 = adjusted unit price of $10,295 per acres
Adjusted unit price of $10,295 per acre * 1.69 acres = $17,399 total value

Total land value:
5010: $54,600
5113: $23,679
6113: $17,399
Total: $95,678

MAIN AREA BASE RATES

Use Code	Description	Rate
01-BAS	Base Living	$160.00
02-BAS-02	Doublewide Manufactured Homes	$140.00
03-BAS-03	Singlewide Manufactured Homes	$120.00
62-DUP/TRI	Duplex/Triplex	$105.50
04-CONDO	Condominium	$140.00
05-PATIO HOME	Patio Home	$160.00
09-TOWNHOUSE	Townhouse Single Family	$152.00

MODEL CODES – NO MONETARY VALUE – USED IN VALUATION TO DIRECT TO THE CORRECT DEPRECIAITON.

Model Code	Description
00	Vacant
01	Single Family Home
02	Manufactured Home
03	Condominiums
04	Office Construction
05	Apartments
06	Warehouse/Industrial
07	Commercial
UN	Unknown

MAIN AREA BASE RATES

Code	Heat Type	SQ.FT. ADJ.
01	No Heat	(-) $4.60
02	Baseboard Heat	BASE
03	Forced Air-Not Ducted	BASE
04	Forced Air-Ducted	(+) $3.80
05	Radiant Ceiling Heat	BASE
06	Hot Water	(+) $1.20
07	Steam	(+) $1.20
08	Radiant-Electric	BASE
09	Radiant-Water	(+) $1.20
10	Heat Pump	(+) $3.80

Code	Foundation	SQ.FT. ADJ.
01	Earth	(-) $3.00
02	Piers	BASE
03	Continuous Footing	BASE
04	Spread Footing	$1.00
05	Special Footing	$1.50

Plumbing	Rate
Full Bath	$3,000
Half Bath	$2,000

Code	A/C	SQ.FT. ADJ.
01	None	BASE
02	Wall Unit	(-) $2.10
03	Central	(+) $3.70
04	Packaged Rooftop	(+) $3.70
05	Chilled Water	(+) $3.70

Code	Fireplace	Rate
01	None	BASE
02	Prefab	$1,850
03	1 Sty Single	$3,700
04	2 Sty Single/1 Dbl	$4,700
05	2 or more	$6,150
06	Massive	$6,765
07	2 or more Massive	$7,380

Code	Basement	SQ. FT. ADJ.
FBM	Basement Finished	$62.20
FGB	Fin. Basement Garage	$28.80
UBM	Basement Unfin.	$27.20
UGB	Unfin. Basement Garage	$27.20

Code	Ext. Wall	SQ.FT. ADJ.
01	Siding Minimum	BASE
02	Corrugated Metal (light)	(-) $0.80
03	Composition or Wall Board	(+) $3.50
05	Asbestos Shingle	(-) $0.80
08	Masonite on Sheathing	(+) $0.20
09	Wood on Sheathing/Plywood	BASE
10	Aluminum/Vinyl Siding	BASE
11	Concrete Block	(-) $0.50
12	Stucco on Con. Block	BASE
13	Stucco on Tile/Wood	(+) $0.90
16	Wood Shingle/Log	(+) $2.70
18	Siding Maximum	(+) $3.50
19	Cem BR/SPLBLK	(+) $3.50
20	Jumbo/Comm Brick	(+) $2.70
21	Face Brick	(+) $2.20
22	Stone	(+) $3.80
23	Corrugated Metal (heavy)	(-) $0.30
24	Prefab/Mod Metal	(-) $0.50
25	Reinforced Concrete	(+) $4.40
26	Precast Panel	(+) $2.20
28	Glass/Thermopane	(+) $5.50

Base Rate Includes 1 type of the following Heat Type: Baseboard Heat, Forced Air-Not Ducted, Radiant Ceiling Heat, Radiant-Electric. 1 type of the following Foundation: Piers and Continuous Footing Foundation. 1 type of the following Ext. Walls: Minimum Siding, Wood on Sheathing, Vinyl Siding, Stucco on Conc. Block and No A/C and No Fireplace

DESCRIPTIVE CODES - NO VALUE TIED TO THESE

Code	Sub Floor System
01	Earth/No Sub Floor
02	Slab on Grade
03	Slab Above Grade
04	Plywood
05	Wood
06	Slab Platform Hght
07	Structural Slab

Code	Roofing Cover
01	Min. Roofing (Corr. Or Sh. M.)
02	Rolled Compisition
03	Asphalt or Composition Shingle
04	Built up tar and grave/Rubber
05	Corrugated Asbestor/Rubber
06	Asbestos Shingle/Corr.
07	Concrete/Clay Tile
08	Cedar Shake
09	Enamel Metal Shingle/Copper
10	Wood Shingle/ 3 1 0 Shingle
11	Slate
12	Metal

Code	Heating Fuel
01	None
02	Oil, Wood or Coal
03	Gas
04	Electric
05	Solar

Code	Roofing Structure
01	Flat
02	Shed
03	Gable
04	Hip
05	Gambrel/Mansard
06	Irregular/Cathedral
07	Wood Truss
08	Irregular/Wood Truss
09	Rigid Frame w/ bar joist
10	Steel Frame or Truss
11	Bowstring Truss
12	Reinforced Concrete
13	Prestress Concrete

Code	Interior Wall Construction
01	Masonry or Minimum
02	Wall Board/Wood Wall/Metal
03	Plastered
04	Plywood Panel
05	Drywall/Sheetrock
06	Custom Interior

Code	Interior Floor Cover
01	None
02	Minimum, Plywood, Linoleum
03	Concrete Finished
04	Concrete Tapered
05	Asphalt Tile
06	Vinyl Asbestos
07	Cork or Vinyl Tile
08	Sheet Vinyl
09	Pine or Soft Woods
10	Terrazzo Monolithic
11	Ceramic Clay Tile
12	Hardwood
13	Parquet
14	Carpet
15	Quarry or Hard Tile
16	Terrazzo Epoxy Strip
17	Precast Concrete
18	Slate
19	Marble

Code	Style of Dwelling
01	1.0 Story
02	1.5 Stories
03	2.0 Stories
04	2.5 Stories or more
05	Ranch w/ basement
06	A Frame
07	Split Level
08	Split Foyer
09	1.25 Stories
10	1.75 Stories
11	2.25 Stories

MAIN AREA SIZE ADJUSTMENTS

SINGLE FAMILY RESIDENTIAL SIZE TABLE	
LOW-HIGH RANGE	**FACTOR**
0-600	130%
601-620	129%
621-640	128%
641-660	127%
661-680	126%
681-700	125%
701-720	124%
721-740	123%
741-760	122%
761-780	121%
781-800	120%
801-820	119%
821-840	118%
841-860	117%
861-880	116%
881-900	115%
901-920	114%
921-940	113%
941-960	112%
961-980	111%
981-1000	110%
1001-1020	109%
1021-1040	108%
1041-1060	107%
1061-1080	106%
1081-1100	105%
1101-1120	104%
1121-1140	103%
1141-1160	102%
1161-1200	101%
1201-1500	100%
1501-1700	99%
1701-1900	98%
1901-2100	97%
2101-2300	96%
2301-99999	95%

MANUFACTURED DOUBLEWIDE SIZE TABLE	
LOW-HIGH RANGE	**FACTOR**
0-600	130%
601-610	129%

MANUFACTURED DOUBLEWIDE SIZE TABLE	
LOW-HIGH RANGE	**FACTOR**
611-620	128%
621-630	127%
631-640	126%
641-650	125%
651-660	124%
661-670	123%
671-680	122%
681-690	121%
691-700	120%
701-720	119%
721-740	118%
741-760	117%
761-780	116%
781-800	115%
801-820	114%
821-840	113%
841-860	112%
861-880	111%
881-900	110%
901-920	109%
921-940	108%
941-960	107%
961-980	106%
981-1000	105%
1001-1020	104%
1021-1040	103%
1041-1080	102%
1081-1120	101%
1121-1160	100%
1161-1200	99%
1201-1240	98%
1241-1280	97%
1281-1320	96%
1321-1360	95%
1361-1400	94%
1401-1440	93%
1441-1480	92%
1481-1520	91%
1521-1560	90%
1561-1600	89%
1601-1650	88%
1651-1700	87%

MANUFACTURED DOUBLEWIDE SIZE TABLE CONT.	
LOW-HIGH RANGE	**FACTOR**
1701-1800	86%

MANUFACTURED DOUBLEWIDE SIZE TABLE	
LOW-HIGH RANGE	**FACTOR**
1801-99999	85%

MANUFACTURED SINGLEWIDE SIZE TABLE	
LOW-HIGH RANGE	**FACTOR**
0-200	130%
201-225	126%
226-250	124%
251-275	122%
276-300	120%
301-325	118%
326-350	116%
351-375	114%
376-400	112%
401-425	110%
426-450	108%
451-475	106%
476-500	104%
501-550	102%
551-600	101%
601-625	100%
626-650	99%
651-675	98%
676-700	97%
701-725	96%
726-750	95%
751-800	94%
801-850	93%
851-900	92%
901-950	91%
951-1000	90%
1001-1050	89%
1051-1100	88%
1101-1150	87%
1151-1200	86%
1201-99999	85%

MAIN BUILDING SUBAREA CODES

Code	Description	Rate	Size Adj
APT	Apartment	$105.00	RES
SFB	Base Semi Finished	$46.41	RES
CAN	Canopy	$12.18	A5
CDN	Canopy Detached	$12.18	A5
FCP	Carport Finished	$19.85	A3
UCP	Carport Unfinished	$19.85	A3
FDC	Carport Finished Detached	$19.85	A3
UDC	Carport Unfinished Detached	$19.85	A3
FGR	Garage Finished (No Door)	$30.24	A2
FGD	Garage Finished w/ Door	$31.50	A2
UGR	Garage Unfinished (No Door)	$29.19	A2
UGD	Garage Unfinished w/ Door	$30.45	A2
FDG	Garage Finished Detached	$30.24	A2
UDG	Garage Unfinished Detached	$30.24	A2
CLP	Loading Plot Covered	$21.75	A4
ULP	Loading Plot Uncovered	$16.00	A4
MEZ	Mezzanine	$16.50	A1
PTO	Patio	$11.92	A4
FEP	Porch Enclosed Finished	$49.51	A6
UEP	Porch Enclosed Unfinished	$49.51	A6
FOP	Porch Open Finished	$30.14	A5
UOP	Porch Open Unfinished	$30.14	A5
FSP	Porch Screen Finished	$34.65	A6
USP	Porch Screen Unfinished	$34.65	A6
FDS	Porch Screen Finished Detached	$34.65	A6
UDS	Porch Screen Unfinished Detached	$34.65	A6
STP	Stoop	$16.17	A4
FST	Storage Finished	$23.63	A1
UST	Storage Unfinished	$23.63	A1
OVH	Overhang (1st floor only w/ no foundation)	$47.78	RES
TER	Terrace	$11.92	A4
FUS	Upper Story Finished	$136.00	RES
UUS	Upper Story Unfinished	$47.25	RES
FUS3	Upper Story Finished (3rd Story)	$136.00	RES
UUS3	Upper Story Unfinished (3rd Story)	$47.25	RES
WDD	Wood Deck	$17.54	A5

ATTACHMENT CODE SIZE ADJUSTMENT

A1		
AREA		ADJ
001-150		110
151-200		108
201-250		106
251-300		104
301-350		102
351-600		100
601-650		98
651-700		96
701-750		94
751-800		92
801-UP		90

A2		
AREA		ADJ
001-050		110
051-100		105
101-150		102
151-400		100
401-550		98
551-700		96
701-850		94
851-1000		92
1001-UP		90

A3		
AREA		ADJ
001-150		110
151-200		105
201-250		102
251-400		100
401-600		98
601-700		96
701-800		94
801-900		92
901-UP		90

A4		
AREA		ADJ
001-040		100
041-080		98
081-150		96
151-300		94
301-UP		90

A5		
AREA		ADJ
001-020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

A6		
AREA		ADJ
001-020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

QUALITY GRADE

Quality Grade Factors

XX(+)	350%	**A(+)**	165%	**C(+)**	110%	**E(+)**	65%
XX	325%	**A**	155%	**C**	100%	**E(+)**	55%
XX(-)	300%	**A(-)**	145%	**C(-)**	95%	**E(-)**	45%
X(+)	275%	**B(+)**	135%	**D(+)**	90%		
X	250%	**B**	125%	**D**	85%		
X(-)	200%	**B(-)**	120%	**D(-)**	75%		

SINGLE FAMILY RESIDENTIAL C.D.U. TABLE

AGE	EX	VG	GD	AV	FR	PR	VP	UN
1	0%	0%	0%	0%	5%	10%	15%	25%
2	0%	0%	0%	0%	6%	12%	18%	30%
3	0%	0%	0%	1%	7%	14%	21%	35%
4	0%	0%	0%	1%	8%	16%	24%	40%
5	0%	0%	1%	2%	9%	18%	27%	45%
6	0%	0%	1%	3%	10%	20%	30%	50%
7	0%	1%	1%	3%	12%	22%	32%	62%
8	0%	1%	1%	4%	14%	24%	34%	70%
9	0%	1%	1%	4%	16%	26%	36%	80%
10	0%	1%	2%	5%	18%	28%	38%	90%
11	0%	1%	2%	6%	20%	30%	40%	90%
12	0%	1%	2%	7%	22%	32%	42%	90%
13	0%	1%	2%	8%	23%	33%	43%	90%
14	0%	1%	2%	9%	24%	34%	44%	90%
15	0%	1%	3%	10%	25%	35%	45%	90%
16	1%	2%	3%	11%	26%	36%	46%	90%
17	1%	2%	3%	12%	27%	37%	47%	90%
18	1%	2%	4%	13%	28%	38%	48%	90%
19	1%	2%	4%	14%	29%	39%	49%	90%
20	1%	2%	5%	15%	30%	40%	50%	90%
21	1%	2%	5%	15%	30%	40%	50%	90%
22	1%	2%	6%	16%	31%	41%	51%	90%
23	1%	2%	6%	16%	31%	41%	51%	90%
24	1%	2%	7%	17%	32%	42%	52%	90%
25	1%	2%	8%	18%	33%	43%	53%	90%
26	2%	2%	8%	18%	33%	43%	53%	90%
27	2%	2%	9%	19%	34%	44%	54%	90%
28	2%	2%	9%	19%	34%	44%	54%	90%
29	2%	2%	10%	20%	35%	45%	55%	90%

AGE	EX	VG	GD	AV	FR	PR	VP	UN
30	2%	3%	10%	20%	35%	45%	55%	90%
31	2%	3%	%	%	%	%	%	0%
32	2%	3%	11%	21%	36%	46%	56%	90%
33	2%	3%	12%	22%	37%	47%	57%	90%
34	2%	3%	12%	22%	37%	47%	57%	90%
35	3%	3%	13%	23%	38%	48%	58%	90%
36	3%	3%	14%	24%	39%	49%	59%	90%
37	3%	3%	14%	24%	39%	49%	59%	90%
38	3%	3%	15%	25%	40%	50%	60%	90%
39	3%	3%	15%	25%	40%	50%	60%	90%
40	3%	4%	16%	26%	41%	51%	61%	90%
41	3%	4%	16%	26%	41%	51%	61%	90%
42	3%	4%	17%	27%	42%	52%	62%	90%
43	3%	4%	17%	27%	42%	52%	62%	90%
44	3%	4%	18%	28%	43%	53%	63%	90%
45	3%	5%	18%	28%	43%	53%	63%	90%
46	3%	5%	19%	29%	44%	54%	64%	90%
47	3%	5%	19%	29%	44%	54%	64%	90%
48	3%	5%	20%	30%	45%	55%	65%	90%
49	3%	5%	20%	30%	45%	55%	65%	90%
50	3%	5%	21%	31%	46%	56%	66%	90%
51	4%	6%	21%	31%	46%	56%	66%	90%
52	4%	6%	22%	32%	47%	57%	67%	90%
53	4%	6%	22%	32%	47%	57%	67%	90%
54	4%	6%	23%	33%	48%	58%	68%	90%
55	4%	6%	23%	33%	48%	58%	68%	90%
56	5%	7%	24%	34%	49%	59%	69%	90%
57	5%	7%	24%	34%	49%	59%	69%	90%
58	5%	7%	25%	35%	50%	60%	70%	90%
59	5%	7%	25%	35%	50%	60%	70%	90%
60	5%	7%	25%	36%	51%	61%	71%	90%
61	5%	8%	26%	36%	51%	61%	71%	90%
62	5%	8%	26%	37%	52%	62%	72%	90%
63	5%	8%	26%	37%	52%	62%	72%	90%
64	5%	8%	26%	38%	53%	63%	73%	90%
65	6%	8%	27%	38%	53%	63%	73%	90%
66	6%	9%	27%	39%	54%	64%	74%	90%
67	6%	9%	27%	39%	54%	64%	74%	90%
68	6%	9%	27%	39%	54%	64%	74%	90%
69	6%	9%	28%	40%	55%	65%	75%	90%
70	7%	9%	28%	40%	55%	65%	75%	90%
71	7%	10%	28%	40%	55%	65%	75%	90%

AGE	EX	VG	GD	AV	FR	PR	VP	UN
72	7%	10%	28%	41%	56%	66%	76%	0%
73	7%	10%	29%	41%	56%	66%	76%	90%
74	7%	10%	29%	41%	56%	66%	76%	90%
75	7%	10%	29%	42%	57%	67%	77%	90%
76	7%	11%	29%	42%	57%	67%	77%	90%
77	7%	11%	30%	42%	57%	67%	77%	90%
78	7%	11%	30%	43%	58%	68%	78%	90%
79	7%	11%	30%	43%	58%	68%	78%	90%
80	8%	11%	30%	43%	58%	68%	78%	90%
81	8%	11%	31%	44%	59%	69%	79%	90%
82	8%	12%	31%	44%	59%	69%	79%	90%
83	8%	12%	31%	44%	59%	69%	79%	90%
84	8%	12%	31%	45%	60%	70%	80%	90%
85	8%	12%	32%	45%	60%	70%	80%	90%
86	8%	12%	32%	45%	60%	70%	80%	90%
87	8%	12%	32%	46%	61%	71%	81%	91%
88	8%	13%	32%	46%	61%	71%	81%	91%
89	8%	13%	33%	46%	61%	71%	81%	91%
90	9%	13%	33%	47%	62%	72%	82%	92%
91	9%	13%	33%	47%	62%	72%	82%	92%
92	9%	13%	33%	47%	62%	72%	82%	92%
93	9%	14%	34%	48%	63%	73%	83%	93%
94	9%	14%	34%	48%	63%	73%	83%	93%
95	9%	14%	34%	48%	63%	73%	83%	93%
96	9%	14%	34%	49%	64%	74%	84%	94%
97	9%	15%	34%	49%	64%	74%	84%	94%
98	9%	15%	34%	49%	64%	74%	84%	94%
99	10%	15%	35%	50%	65%	75%	85%	95%
100	10%	15%	35%	50%	65%	75%	85%	95%

MANUFACTURED HOME C.D.U. TABLE

AGE	EX	VG	GD	AV	FR	PR	VP	UN
0	0%	0%	0%	0%	0%	0%	0%	0%
1	0%	1%	1%	2%	4%	12%	31%	95%
2	0%	2%	2%	3%	6%	14%	32%	95%
3	1%	2%	2%	4%	7%	16%	34%	95%
4	1%	3%	3%	5%	9%	18%	35%	95%
5	1%	3%	4%	6%	10%	19%	36%	95%
6	2%	4%	5%	7%	12%	21%	37%	95%
7	2%	4%	6%	8%	13%	23%	39%	95%
8	2%	5%	7%	9%	15%	24%	40%	95%
9	3%	5%	8%	10%	17%	26%	41%	95%
10	3%	5%	9%	12%	19%	28%	43%	95%
11	3%	6%	10%	13%	21%	30%	44%	95%
12	4%	6%	11%	14%	23%	33%	46%	95%
13	4%	6%	12%	16%	25%	36%	48%	95%
14	4%	7%	12%	18%	27%	38%	50%	95%
15	4%	7%	13%	19%	28%	40%	51%	95%
16	5%	7%	13%	20%	30%	42%	53%	95%
17	5%	8%	14%	22%	31%	44%	54%	95%
18	5%	8%	14%	23%	32%	46%	55%	95%
19	5%	9%	15%	24%	33%	47%	56%	95%
20	5%	9%	15%	25%	34%	48%	57%	95%
21	6%	10%	16%	26%	35%	49%	58%	95%
22	6%	10%	16%	27%	36%	50%	59%	95%
23	6%	11%	17%	28%	37%	51%	60%	95%
24	6%	11%	17%	29%	38%	52%	61%	95%
25	7%	12%	18%	30%	38%	53%	62%	95%
26	7%	12%	18%	31%	39%	54%	63%	95%
27	7%	13%	19%	32%	40%	55%	64%	95%
28	8%	13%	19%	33%	40%	55%	65%	95%
29	8%	14%	20%	33%	41%	56%	66%	95%
30	8%	14%	20%	34%	42%	57%	67%	95%
31	8%	15%	21%	34%	42%	57%	68%	95%
32	9%	15%	21%	35%	43%	58%	69%	95%
33	9%	16%	22%	35%	43%	58%	70%	95%
34	9%	16%	22%	36%	44%	59%	71%	95%
35	10%	17%	23%	36%	44%	59%	72%	95%
36	10%	17%	24%	37%	45%	60%	73%	95%
37	10%	18%	24%	37%	45%	60%	74%	95%
38	11%	18%	25%	38%	45%	61%	75%	95%

AGE	EX	VG	GD	AV	FR	PR	VP	UN
39	11%	19%	25%	38%	%	61%	75%	95%
40	11%	19%	26%	39%	46%	62%	76%	95%
41	12%	20%	26%	39%	47%	63%	76%	95%
42	12%	20%	27%	40%	47%	64%	77%	95%
43	12%	21%	27%	41%	48%	65%	77%	95%
44	13%	21%	28%	42%	49%	65%	78%	95%
45	13%	22%	28%	42%	50%	66%	78%	95%
46	13%	22%	29%	43%	51%	66%	79%	95%
47	14%	23%	29%	44%	52%	67%	79%	95%
48	14%	23%	30%	44%	53%	68%	80%	95%
49	14%	24%	30%	45%	54%	69%	80%	95%

OTHER BUILDING AND YARD ITEMS PRICING SCHEDULES

The Other Building and Yard Item pricing schedules are provided to calculate the replacement cost new of a variety of types of structures typically associated with residential property.

Base prices and adjustments are provided for swimming pools, detached garages, greenhouses, carports, canopies, utility buildings, tennis courts, boat houses, and boat docks. Each structure has been assigned a unique Structure Type Code to be utilized on Computer-Assisted Mass Appraisal (CAMA) programs.

Depreciation allowances, where applicable, are included on the appropriate schedule. Additional tables can be found in the Depreciation Schedules and Tables section of the Manual.

The general pricing procedure is as follows:

1. Determine the Miscellaneous Structure code that best describes the structure. (Ex. Detached garage is a code 02)
2. Multiply the square footage of the building by the square foot rate times the size factor for that structure code. (Ex. 900 Sq. Ft X $30.00 X .90 = $24,300)
3. Apply the proper Quality Grade Factor to arrive at the Replacement Cost New. The standard pricing schedule is at a C grade building.
4. Apply the proper depreciation from the correct table. (Ex. A garage built in 2007 in normal condition is reduced by 35% to its final value)
5. The final value for the building is finished.

01 STORAGE

02M PRE FAB GARAGE

03 CARPORT

	**03M METAL CARPORT**

	**99 STABLE**

25 BARN	

26 POULTRY HOUSE	

	**39 LEAN TO/CANOPY/ OPEN POLE SHED**

97 SHELTER/ 3 SIDED SHED

24 SHED

07/08 SWIMMING POOL

OUTBUILDING AND YARD ITEMS

Code	Description	Rate	Size Adj.	Deprec.
1	Storage	$12.00	A4	S2
02M	Garage Prefab (metal)	$22.00	A1	S3
2	Garage	$30.00	A1	S3
02FA	Garage w/ Finished Upper Story 100%	$72.00	A1	S3
02FU	Garage w/ Finished Upper Story <100%	$68.00	A1	S3
02UA	Garage w/ Unfinished Upper Story <100%	$53.00	A1	S3
02US	Garage w/ Unfinished Upper Story 100%	$56.00	A1	S3
03M	Carport Prefab (metal)	$6.00	A5	S3
3	Carport	$9.00	A5	S3
4	Patio	$5.50	A1	S3
7	Pool/Concrete	$50.00	A1	S1
8	Pool/Vinyl	$40.00	A1	S1
11	Porch	$19.00	A5	S3
13	Greenhouse	$8.00	A4	S2
14	Fireplace	$4,200.00	-	S3
18	Penthouse	$25.00	A1	S3
20	Tobacco Barn	$19.00	A4	S2
23	Pack Barn	$18.00	A4	S2
24	Shed	$16.00	A4	S2
25	Barn	$19.00	A4	S2
26	Poultry/Dark	$8.00	A1	S2
27	Hog Parlor	$9.00	A4	S1
28	Silo	$9.00	-	S1
30	Tunnel	Code to not use	-	-

Code	Description	Rate	Size Adj.	Deprec.
31	Commercial Area	Code to not use	-	-
39	Canopy/Lean to/Open Pole Shed	$6.00	A5	S3
45	Freight Elevator	$45,000.00	-	S2
46	Passenger Elevator	$80,000.00	-	S2
47	Quonset	$17.00	A1	S3
55	Gazebo	$28.00	A1	S1
60	Bath House	$52.00	A2	S2
66	Dwelling	Code to not use	-	-
67	Pier	$26.00	A3	S1
68	Docks	$26.00	A1	S1
69	Metal Building	$25.00	A1	S3
77	Boathouse	$31.00	A1	S1
81	Boat Ramp	$12.00	A1	S1
82	Milk Barn	Code to not use	-	-
83	Bulkhead	$150.00	-	S2
87	Terrace	Code to not use	-	-
88	Deck	$15.00	A5	S3
89	Apron	$5.00	A1	S1
90	Pump House	$10.00	A1	S1
91	Patio Covered	$18.00	A1	S3
92	Crib	$6.00	A4	S1
93	Dock Board	$15.00	A4	S2
94	Boat Slip	$26.00	-	-
95	Boat Slip Covered	$26.00	-	-
96	Pier Covered	$30.00	A3	S2
97	Shelter/ 3 Sided Shed	$8.00	A4	S2
99	Stable	$30.00	A4	S2
B6	Shop	$24.00	A4	S2
D8	Home Site	$5,000.00	-	-

QUALITY GRADE FACTORS

XX(+)	350%	**A(+)**	165%	**C(+)**	110%	**E(+)**	65%
XX	325%	**A**	155%	**C**	100%	**E(+)**	55%
XX(-)	300%	**A(-)**	145%	**C(-)**	95%	**E(-)**	45%
X(+)	275%	**B(+)**	135%	**D(+)**	90%		
X	250%	**B**	125%	**D**	85%		
X(-)	200%	**B(-)**	120%	**D(-)**	75%		

OTHER BUILDING AND YARD ITEMS CODE SIZE ADJUSTMENT

A1		
AREA		ADJ
< 150		110
151-200		108
201-250		106
251-300		104
301-350		102
351-600		100
601-650		98
651-700		96
701-750		94
751-800		92
801-UP		90

A2		
AREA		ADJ
< 050		110
051-100		105
101-150		102
151-400		100
401-550		98
551-700		96
701-850		94
851-1000		92
1001-UP		90

A3		
AREA		ADJ
< 150		110
151-200		105
201-250		102
251-400		100
401-600		98
601-700		96
701-800		94
801-900		92
901-UP		90

A4		
AREA		ADJ
< 040		100
041-080		98
081-150		96
151-300		94
301-UP		90

A5		
AREA		ADJ
< 020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

A6		
AREA		ADJ
< 020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

OTHER BUILDING AND YARD ITEMS DEPRECIATION

S1	
AGE	DEPR.
01	10%
02	20%
03	25%
04	30%
05	35%
06	40%
07	45%
08-UP	50%

S2	
AGE	DEPR.
01	5%
02	10%
03	15%
04	20%
05	25%
06	30%
07	35%
08	40%
09	45%
10	50%
11	55%
12	60%
13	65%
14	70%
15-UP	75%

S3	
AGE	DEPR.
00--03	5%
04--06	10%
07--09	15%
10--12	20%
13--15	25%
16--18	30%
19--21	35%
22--24	40%
25--27	45%
28--30	50%
31--35	55%
36--40	60%
41--45	65%
46--50	70%
51--UP	75%

S4	
AGE	DEPR.
00--04	5%
05--08	10%
09--12	15%
13--16	20%
17--20	25%
21--24	30%
25--28	35%
29--32	40%
33--36	45%
37--40	50%
41--44	55%
45--48	60%
49--52	65%
53--56	70%
57--UP	75%

S5	
AGE	DEPR.
00--05	5%
06--10	10%
11--15	15%
16--20	20%
21--25	25%
26--30	30%
31--35	35%
36--40	40%
41--45	45%
46--50	50%
51--55	55%
56--60	60%
61--65	65%
66--70	70%
71--UP	75%

EXEMPT/INSTITUTIONAL BUILDINGS

This section of the Manual includes basic procedures and applications to be utilized to determine the Replacement Cost New for a variety of institutional type structures. Prices are provided based on the structure type and exterior wall material.

BASE SPECIFICATIONS

Base prices assume normal construction, mechanical, and other features such as plumbing, heating, air conditioning, interior finish, framing, elevators, etc., according to the designed building structure type.

SCHEDULE APPLICATION

Select the structure type which is most representative of the subject building.
Establish the Quality Grade of the building, which is contingent upon the exterior wall material of the structure type. Determine the total square feet of floor area and multiply the cost per square foot by the total area to establish the replacement cost.

Note: separate prices are provided for finished or unfinished basements.

PERCENT (%) GOOD GUIDELINES

Physical deterioration of institutional buildings should be based on the effective age and condition. Structures of this type normally have an expected life which is longer than other types of similar structures. Actual age and life expectancy can be extended through continued maintenance and renovation. When establishing the percent (%) good, the adjustment should be based on anticipated additional life as compared to normal life guidelines.

COMMERCIAL/INDUSTRIAL SCHEDULES

Commercial and Industrial pricing schedules are provided for a variety of buildings based on the use of the property. The General Commercial Schedule is to be used as a guide for computing the replacement cost of mercantile type buildings, offices, and similar type structures, commercial living accommodations and associated support structures and manufacturing and warehouse storage type structures.

The general application of all the schedules is essentially the same; selecting the base price (per square foot) which is most representative of the subject building and adjusting the base price to account for any significant variation.

SCHEDULE FORMAT - BASE PRICES

The schedules designate base prices by use type for a series of perimeter-area ratios and wall types. "C" Grade base prices are provided for various finish types at different floor levels with specified floor-to-floor heights, for fire resistant construction with brick (or equal), frame (or equal), and metal superstructure walls and reinforced concrete basement walls.

Wood Frame (W) – buildings that are constructed of combustible materials with wood framed exterior walls covered by shingles, wood siding, stucco, asbestos, aluminum, or vinyl. Roof structure is usually wood frame or pre-constructed trusses with wood sheathing and composition shingles, built-up or corrugated metal cover. Floor structure may be perimeter footing with reinforced concrete slab or wood joists and sheathing.

Masonry (M) – buildings that are constructed of double brick, brick on concrete block, stone or ornamental concrete block exterior walls which are usually load bearing. Roof structure is usually wood frame or pre-constructed trusses with wood sheathing and composition shingles, built-up or corrugated metal cover. Floor structure may be perimeter footing with reinforced concrete slab or wood joist and sheathing.

Concrete (C) – buildings that are constructed with poured reinforced concrete super structure, or reinforced concrete or pre-cast concrete panel load bearing exterior walls. Super structure may have a variety of exterior walls covers including pre-cast panels and masonry veneers, or steel frame and stationary glass. Roof structure may be steel joists with metal decking and poured concrete or concrete planks or other non-combustible construction. Floors are usually reinforced concrete slab on grade.

Rigid Steel or Pre-Engineered (R) – buildings that are constructed with prefabricated structural members with exterior wall cover of pre-constructed panels or sheet siding. Roof structure is steel joists or beams usually with corrugated metal cover. Floors are usually reinforced concrete slab on grade.

The base price is determined by selecting the appropriate square foot price based on exterior wall type, construction and use. The base price is driven by construction type and is adjusted for variations in wall height, and area perimeter ratio adjustments.

Base prices also include: normal footings and foundation construction for a building at grade level, normal parapets and coping, ground floor slab including base and cement finish, normal roof construction consisting of insulation, decking, framing, and utility service.

Basements include excavation and backfill and structural floor (for first floor) construction consisting of sub floor and framing.

Note: The cost of the basement exterior wall construction and spread footings exclude an allowance for the normal foundation construction included with the first floor.

Stairways (with enclosures in the finished use types) are included in the basement and upper floor prices.

Normal partitions, plumbing, and lighting are included for each floor level based on use type. Adjustments may be made for the various base price components if the component is greater or less than what is considered normal for the use type.

Example: For general retail, normal is considered a cross partition (separating the sales area from the stock area) and partitions for two toilet rooms. If the store would be divided into several sales areas, an addition for excessive partitions would be applicable.

CONSTRUCTION TYPES

Wood Frame/Joist/Beam to indicate construction, which incorporates wood, stud balloon or platform framing or wood post and beam framing (mill construction). This category also includes masonry structures, which incorporate wood joist or plank floor systems, or wood joist, truss, or rafter roof systems.

Fire Resistant to indicate buildings with exposed structural steel or reinforced concrete columns and beams. Multi-story structures will have steel floor joists with concrete plank or a reinforced concrete floor system. Exterior walls will typically be masonry or metal and glass panels.

Fireproof to indicate typically high- rise buildings with fabricated, heavy, structural steel column and beam framing which has been enveloped in a fire-proof material such as concrete or gypsum. Floors will be reinforced concrete or pre-cast concrete plank on steel joists protected by a gypsum-vermiculite plaster on metal lath ceiling. Exterior walls will be masonry or metal and glass panels.

QUALITY GRADE SPECIFICATIONS

The base prices are for normal "C" Grade buildings erected with average quality materials and workmanship. A Table of Quality Factors is provided to adjust the "C" Grade prices in order to account for variations in construction quality.

XX Grade — Buildings generally having an outstanding architectural style and design, constructed with the finest quality materials and workmanship. Superior quality interior finish, built-in features, heating system, and very good grade plumbing and lighting fixtures.

X Grade — Buildings generally having an outstanding architectural style and design, constructed with the finest quality materials and workmanship. Superior quality interior finish, built-in features, deluxe heating system, plumbing and lighting fixtures.

A Grade — Architecturally attractive buildings constructed with excellent quality materials and workmanship. High quality interior finish, built-in features, heating system, and very good grade plumbing and lighting fixtures.

B Grade — Buildings constructed with good quality' materials and above average workmanship, moderate architectural treatment. Good quality interior finish, built-in features, heating, plumbing, and lighting fixtures.

C Grade — Buildings constructed with average quality materials and workmanship conforming with the base specifications used to develop the pricing schedule. Minimal architectural treatment. Average quality interior finish and built-in features. Standard quality heating system, plumbing, and lighting fixtures.

D Grade — Buildings constructed with economy quality materials and fair workmanship. Void of architectural treatment. Cheap quality interior finish and built-in features. Low grade heating, plumbing, and lighting fixtures.

E Grade — Buildings constructed with a very cheap grade of materials, usually "seconds" and very poor- quality workmanship resulting from unskilled, inexperienced, "do-it-yourself" type labor. Low grade heating, plumbing, and lighting fixtures.

Note: The quality factor selected is to represent a composite judgment of the overall grade. Generally, the quality of materials and workmanship is consistent throughout the construction of a specific building. However, since this is not always the case, it is necessary to weigh the quality of each major component in order to arrive at the proper "overall" quality grade. Particular consideration must be given to "special features" such as elevators and banking features, since variations for quality are already considered in the respective pricing tables. Equal consideration must also be given to those "additions" which are constructed of materials and workmanship inconsistent with the quality of the main building.

QUALITY GRADE FACTORS

XX(+)	350%	**A(+)**	165%	**C(+)**	110%	**E(+)**	65%
XX	325%	**A**	155%	**C**	100%	**E(+)**	55%
XX(-)	300%	**A(-)**	145%	**C(-)**	95%	**E(-)**	45%
X(+)	275%	**B(+)**	135%	**D(+)**	90%		
X	250%	**B**	125%	**D**	85%		
X(-)	200%	**B(-)**	120%	**D(-)**	75%		

GENERAL APPLICATION

The general pricing procedure is as follows:

1. Determine the Subarea Code.
2. Apply the appropriate base rate to the selected Subarea Code plus Ext. Wall, Heat Fuel, Heat Type and A/C Type.
3. If there are any Fixtures, those will be taken into the valuation calculations.
4. Adjust for wall height, Table **H1** or **H2**.
5. A story height adjustment of .90 is applied to any Subarea Code above level 1.
6. Determine the area perimeter ratio and apply to each main area section. (Note: for Apartments, Mini-Storage Buildings, Fast Food Restaurants, Hotels and Motels and Car Washes use an adjustment of 100% area perimeter ratio adjustment.)
7. Sub-total the replacement cost of all main area components.
8. Add the cost of attachments or additions to arrive at the total "C" Grade Replacement Cost.
9. If there are any listed Fireplaces, those will be taken into the valuation calculations.
10. Apply the proper Quality Grade Factor to arrive at the Replacement Cost New.
11. Deduct for depreciation based on age, condition and structural framing.
12. Apply necessary neighborhood factor.

SPECIAL APPLICATION

Although the General Commercial and Industrial schedules have been designed to be used primarily for computing the replacement cost of mercantile type buildings, offices, commercial apartments, warehouses, and manufacturing facilities, the schedules can also be effectively adapted to the pricing of other special purpose buildings. In order to maintain uniformity of the approach in pricing special purpose buildings, specific instructions and procedures have been developed and included in the schedules.

27-AUTO SALE/SERV

23-BANK

12-MAN CARWASH

20-BEAUT/BARB

12A-AUTO CARWSH

57-CONV. RES

78-COUNTRY CLUB

13-DEPT STR

65-DISC STR

40-INDUST

66-LAUNDRY

74-HFTA

39-MOTEL	

17-OFFICE	

	**21-REST**

	**58-RETAIL**

96-DNTWN ROW	

	**53-SERV GARG**

26-SERV STATION

14-SUPERMRKT

32-THEATER

48-WHSE

11-CONT ST

56-VETS

	**34-BOWLING**

79-FUNERAL	

	**31-DAYCARE**

19-MED BLDG

89-MINI LUBE

31-DAYCARE

MAIN AREA RATES PER SQUARE FOOT

USE CODE	OCCUPANCY	RATE PER SQ.FT.	HEIGHT ADJ
10	*Commercial	-	-
11	Convenience Store	$311.33	H2
12M	Manual Car Wash	$131.39	H1
12A	Auto Car Wash	$297.87	H1
13	Department Store	$100.67	H2
14	Supermarket	$88.86	H2
15	Shopping Mall	$70.26	H2
16	Shopping Center (Strip)	$118.50	H2
17	Office	$97.19	H2
18	Office High Rise	$93.80	H2
19	Medical Building	$147.63	H2
20	Beauty/Barber Shop	$106.23	H2
21	Restaurant	$87.43	H2
22	Fast Food	$285.22	H1
23	Bank	$161.53	H2
26	Service Station	$153.20	H2
27	Auto Sales and Service	$157.90	H2
28	Parking Garage	$31.09	H2
29	Mini Storage	$38.53	H1
30	Laboratory/Research	$91.49	H2
31	Day Care	$95.76	H2
32	Theater	$75.99	H2
33	Lounge/Night Club	$76.96	H2
34	Bowling Alley	$51.49	H2
37	Hotel	$118.01	H1
38	Furniture Showroom	$58.81	H2
39	Motel	$77.46	H1
40	Industrial	$28.46	H2
41	Light Manufacturing	$26.60	H2
42	Heavy Manufacturing	$28.46	H2
43	Lumber Yard	$18.65	H2
44	Packing Plant/Food Processing	$28.46	H2
46	Distillery/Brewery/Winery	$95.47	H2
47	Skating Rink	$56.32	H2
48	Warehouse	$61.76	H2
49	Regional Shops	$93.14	H2
50	*Rural Home Site	-	-
51	Cold Storage/Freezer	$44.83	H2
52	Truck Terminal	$43.96	H2
53	Service Garage	$73.25	H2
54	Office/Warehouse/Flex	$86.89	H2
55	Drug Store	$92.81	H2
55F	Franchise Drug Store	$290.54	H2
56	Veterinarians Office	$107.17	H2

MAIN AREA RATES PER SQUARE FOOT (Continued)

USE CODE	OCCUPANCY	RATE PER SQ.FT.	HEIGHT ADJ
57	Converted Residence/Commercial	$86.92	H2
58	Retail	$137.36	H2
59	Kennel	$147.34	H2
60	Garden Apartment	$142.56	H1
61	Townhouse Apartment	$138.97	H1
63	High Rise Apartment	$171.75	H1
64	Convenience Store Fast Food	$201.23	H2
65	Discount Store	$122.24	H2
66	Laundry	$43.08	H2
67	Auditorium	$58.93	H2
68	Armory	$53.18	H2
69	Dormitory	$57.27	H2
70	Institutional	$28.46	H2
71	Church	$80.17	H2
72	School/College Private	$61.23	H2
73	Hospital	$160.71	H2
74	Home For The Aged	$125.74	H2
75	Police/Fire Station	$58.81	H2
76	Mortuary	$59.80	H2
77	Club, Lodge, Hall	$56.79	H2
78	Country Club	$67.29	H2
79	Funeral	$67.96	H2
80	Marina	$79.21	H2
81	Hangar	$50.32	H2
82	Radio/Tv Station	$74.42	H2
83	School	$61.23	H2
84	College	$61.23	H2
85	Cafeteria	$70.38	H2
86	Research/Development	$87.13	H2
87	Government Building	$70.42	H2
88	Health Club	$57.51	H2
89	Mini Lube	$377.47	H2
91	Utility	$62.46	H2
92	*Mining	-	-
94	Gymnasium	$48.62	H2
95	Library	$64.67	H2
96	Downtown Row	$92.93	H2
99	*New Parcel	-	-
100	Classroom	$61.23	H2

*Use Codes only used for descriptive purposes, no monetary value.

STORY ADJUSTMENT FOR COMMERCIAL BUILDINGS
Anything above Level 1 gets a 90% adjustment of the Level 1 floor rate

AREA PERIMETER RATIO PERCENTAGE

Perim	150	175	200	250	300	400	500	600	700	800	1000	1200	1400	1600	1800	2000
Sq. Ft																
1000	122	126	130	132	-	-	-	-	-	-	-	-	-	-	-	-
1500	111	115	119	123	126	-	-	-	-	-	-	-	-	-	-	-
2000	104	107	111	117	120	125	-	-	-	-	-	-	-	-	-	-
2500	100	103	105	110	115	120	124	-	-	-	-	-	-	-	-	-
3000	97	100	102	106	110	119	120	-	-	-	-	-	-	-	-	-
4000	94	96	98	100	104	110	117	119	-	-	-	-	-	-	-	-
5000	92	94	95	97	100	105	110	115	-	-	-	-	-	-	-	-
6000	91	92	93	95	98	102	106	110	110	-	-	-	-	-	-	-
8000	89	90	91	92	94	97	100	104	107	110	-	-	-	-	-	-
10000	-	-	90	91	93	95	97	100	103	105	110	115	-	-	-	-
12000	-	-	89	90	91	93	95	97	100	102	106	110	115	-	-	-
14000	-	-	-	-	90	92	94	96	98	100	103	106	110	114	-	-
16000	-	-	-	-	-	91	93	94	96	97	100	104	107	110	-	-
18000	-	-	-	-	-	90	92	93	95	96	99	102	104	107	110	-
20000	-	-	-	-	-	89	91	92	94	95	97	100	103	105	108	110
25000	-	-	-	-	-	88	90	91	92	93	95	97	99	101	103	105
30000	-	-	-	-	-	87	89	90	91	92	93	95	97	98	100	102
35000	-	-	-	-	-	86	88	89	90	91	92	93	95	96	98	99
40000	-	-	-	-	-	85	87	88	89	90	91	92	94	95	96	98
50000	-	-	-	-	-	-	86	87	88	89	90	91	92	93	94	95
75000	-	-	-	-	-	-	85	85	85	86	87	88	89	90	91	92
100000	-	-	-	-	-	-	-	-	-	84	85	86	87	88	89	90
199999	-	-	-	-	-	-	-	-	-	-	-	85	86	87	88	89
999999	-	-	-	-	-	-	-	-	-	-	-	-	85	85	85	85

WALL HEIGHT ADJUSTMENTS

Code	Height	Adjust.
H1	ALL	100%
H2	8	94%
H2	9	96%
H2	10	100%
H2	11	100%
H2	12	100%
H2	13	100%
H2	14	100%
H2	15	102%
H2	16	104%
H2	17	106%
H2	18	108%
H2	19	110%
H2	20	112%
H2	21	114%
H2	22	116%
H2	23	118%
H2	24	120%
H2	25	122%
H2	26	124%

Code	Height	Adjust.
H2	27	126%
H2	28	128%
H2	29	130%
H2	30	132%
H2	31	134%
H2	32	136%
H2	33	138%
H2	34	140%
H2	35	142%
H2	36	144%
H2	37	146%
H2	38	148%
H2	39	150%
H2	40	152%
H2	41	154%
H2	42	156%
H2	43	158%
H2	44	160%
H2	45	162%
H2	46-OVER	164%

COMMERCIAL BASEMENT RATES

FINISHED COMMERCIAL BASEMENT CODES

CODE	DESCRIPTION	RATES
FAB	Finished Apt. Basement	$32.28
FRE	Finished Retail Basement	$30.30
FOB	Finished Office Basement	$36.32
FWB	Finished Warehouse Basement	$15.33
FMB	Finished Manufacturing Basement	$16.40
FFB	Finished Fast Food Basement	$57.03
FSB	Finished Storage Basement	$17.62
FGO	Finished Govern. Basement	$21.74
FCL	Finished Classroom Basement	$33.39
FRB	Finished Rest. Basement	$39.57
FHM	Finished Hotel/Motel Basement	$36.71

UNFINISHED COMMERCIAL BASEMENT CODES

CODE	DESCRIPTION	RATES
UAB	Unfinished Apt. Basement	$9.90
URE	Unfinished Retail Basement	$9.90
UOB	Unfinished Office Basement	$13.13
UWB	Unfinished Warehouse Basement	$9.90
UMB	Unfinished Manufacturing Basement	$13.13
UFM	Unfinished Fast Food Basement	$9.90
USB	Unfinished Storage Basement	$7.92
UGO	Unfinished Govern. Basement	$9.90
UCL	Unfinished Classroom Basement	$9.90
URB	Unfinished Rest. Basement	$9.90
UHM	Unfinished Hotel/Motel Basement	$9.90

DESCRIPTIVE CODES – NO VALUE TIED TO THESE

Code	Sub Floor System
01	Earth/No Sub Floor
02	Slab on Grade
03	Slab Above Grade
04	Plywood
05	Wood
06	Slab Platform Height
07	Structural Slab

Code	Roofing Cover
01	Min. Roofing (Corr. Or Sh. M)
02	Rolled Composition
03	Asphlat or Composition Shingle
04	Built Up Tar and Grave/Rubber
05	Corrugates Asbestor/Rubber
06	Asbestos Shingle/Corr.
07	Concrete/Clay Tile
08	Cedar Shake
09	Enamel Metal Shingle/Copper
10	Wood Shingle/ 310 Shingle
11	Slate
12	Metal

Code	Heating Fuel
01	None
02	Oil, Wood or Coal
03	Gas
04	Electric
05	Solar
06	None (Comm.)
07	Oil, Wood or Coal (Comm.)
08	Gas (Comm.)
09	Electric (Comm.)
10	Solar (Comm.)

Code	Roofing Structure
01	Flat
02	Shed
03	Gable
04	Hip
05	Gambrel/Mansard
06	Irregular/Cathedral
07	Wood Truss
08	Irregular/Wood Truss
09	Rigif Frame W/ Bar Joist
10	Steel Frame or Truss
11	Bowstring Truss
12	Reinforced Concrete
13	Prestress Concrete

Code	Interior Wall Construction
01	Masonar or Minimum
02	Wall Board/Wood Wall/Metal
03	Plastered
04	Plywood Panel
05	Drywall/ Sheetrock
06	Custom Interior

Code	Interior Floor Cover
01	None
02	Minimum, Plywood, Linoleum
03	Concrete Finished
04	Concrete Tapered
05	Asphalt Tile
06	Vinyl Asbestos
07	Cork or Vinyl Tile
08	Sheet Vinyl
09	Pine or Soft Woods
10	Terrazo Monolithic
11	Ceramic Clay Tile
12	Hardwood
13	Parquet
14	Carpet
15	Quarry or Hard Tile
16	Terrazo Epoxy Strip
17	Precast Concrete
18	Slate
19	Marble

Code	Style of Dwelling
01	1.0 Story
02	1.5 Stories
03	2.0 Stories
04	2.5 Stories or More
05	Ranch W/ Basement
06	A Frame
07	Split Level
08	Split Foyer
09	1.25 Stories
10	1.75 Stories
11	2.25 Stories

Code	Structural Frame
01	None
02	Wood Frame
03	Pre Fab
04	Masonry
05	Reinforced Concrete
06	Steel
07	Fireproof Steel
08	Special

Code	Ceiling & Insulation
01	Suspended- Ceiling Insulated
02	Suspended- Wall Insulated
03	Suspended-Ceiling & Wall Insulated
04	Suspended- No Insulation
05	Not Suspended- Ceiling Insulated
06	Not Suspended- Wall Insulated
07	Not Suspended- Ceiling & Wall Insulated
08	Not Suspended- No Insulation
09	No Ceiling- Roof Insulated
10	No Ceiling- Wall Insulated
11	No Ceiling- Roof & Wall Insulated
12	No Ceiling- No Insulation

ATTACHMENT CODE SIZE ADJUSTMENT

A1		
AREA		
001-150		110
151-200		108
201-250		106
251-300		104
301-350		102
351-600		100
601-650		98
651-700		96
701-750		94
751-800		92
801-UP		90

A2		
		ADJ
001-050		110
051-100		105
101-150		102
151-400		100
401-550		98
551-700		96
701-850		94
851-1000		92
1001-UP		90

A3		
AREA		ADJ
001-150		110
151-200		105
201-250		102
251-400		100
401-600		98
601-700		96
701-800		94
801-900		92
901-UP		90

A4		
AREA		ADJ
001-040		100
041-080		98
081-150		96
151-300		94
301-UP		90

A5		
AREA		ADJ
001-020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

A6		
AREA		ADJ
001-020		110
021-040		106
041-060		104
061-080		102
081-200		100
201-300		98
301-400		96
401-500		94
501-UP		90

OUTBUILDING AND OTHER SIZE ADJUSTMENTS

C25	
AGE	DEPR
01	4%
02	8%
03	11%
04	14%
05	17%
06	20%
07	23%
08	26%
09	28%
10	30%
11	33%
12	35%
13	37%
14	39%
15	40%
16	42%
17	44%
18	46%
19	47%
20	49%
21	50%
22	51%
23	53%
24	54%
25-UP	55%

C20	
AGE	DEPR
01	5%
02	9%
03	13%
04	17%
05	21%
06	24%
07	27%
08	30%
09	33%
10	36%
11	38%
12	40%
13	43%
14	45%
15	47%
16	49%
17	50%
18	52%
19	54%
20-UP	55%

C30	
AGE	DEPR
01	3%
02	6%
03	9%
04	12%
05	15%
06	17%
07	20%
08	22%
09	24%
10	26%
11	28%
12	30%
13	32%
14	34%
15	36%
16	37%
17	39%
18	40%
19	42%
20	43%
21	45%
22	46%
23	47%
24	49%
25	50%
26	51%
27	52%
28	53%
29	54%
30-UP	55%

C15	
AGE	DEPR
01	9%
02	17%
03	24%
04	30%
05	36%
06	40%
07	45%
08	49%
09	52%
10	55%
11-17	60%
18-20	65%
21-UP	75%

C35	
AGE	DEPR
01	3%
02	6%
03	9%
04	12%
05	14%
06	17%
07	19%
08	21%
09	23%
10	25%
11	27%
12	29%
13	30%
14	32%
15	33%
16	35%
17	36%
18	37%
19	39%
20	40%
21	41%
22	42%
23	43%
24	44%
25	45%
26	46%
27	47%
28	48%
29	49%
30-UP	50%

C10	
AGE	DEPR
01	9%
02	17%
03	24%
04	30%
05	36%
06	40%
07	45%
08	49%
09	52%
10	55%
11-17	60%
18-20	65%
21-UP	75%

C40	
AGE	DEPR
01	2%
02	5%
03	7%
04	9%
05	11%
06	13%
07	14%
08	16%
09	18%
10	19%
11	21%
12	22%
13	23%
14	25%
15	26%
16	27%
17	28%
18	29%
19	30%
20	31%
21	32%
22	33%
23	34%
24	35%
25-26	36%
27	37%
28	38%
29-30	39%
31	40%
32-33	41%
34-35	42%
36-37	43%
38	44%
39-49	45%
50-59	50%
60-69	55%
70-79	60%
80-89	65%
90-UP	75%

C50	
AGE	DEPR
01	2%
02	4%
03	6%
04	8%
05	9%
06	11%
07	13%
08	14%
09	16%
10	17%
11	19%
12	20%
13	22%
14	23%
15	24%
16	26%
17	27%
18	28%
19	29%
20	30%
21	31%
22	33%
23	34%
24	35%
25	36%
26	37%
27	38%
28	39%
29-30	40%
31	41%
32	42%
33	43%
34	44%
35	45%
36-37	46%
38	47%
39	48%
40-41	49%
42	50%
43-44	51%
45	52%
46-47	53%
48-49	54%
50-89	55%
90-UP	65%

COMMERCIAL OUTBUILDINGS AND YARD ITEMS

Code	Description	Rate	Size Adj	Deprec.
05	Wood Fence	$9.00	-	C10
06	CL Fence	$3.00	-	C10
09	Asphalt Paving	$4.00	-	C10
10	Concrete Paving	$5.00	-	C15
12	Tennis Court	$6.00	-	C25
15	Mobile Home Space (MHP)	$5,000	-	-
17	Office	$53.00	A1	C30
32	Golf Green	$100,000	-	C30
34	Vaults –Record	$100.00	-	C30
35	Water Tank	Not being used	-	-
36	Petro Tank	Not being used	-	-
37	Elev Tank	Not being used	-	-
38	Scale	Not being used	-	-
39G	Gas Station Canopy	$35.00	A5	C30
40	Loading Dock	$16.00	A5	C15
41	Dock Level	Not being used	-	-
42	Sprinkler	$3.50	-	C30
43	Rail Side	$85.00	A1	C30
44	Yard Lights	$1,500	-	C20
45	Freight Elevator	$45,000	-	S5
46	Passenger Elevator	$80,000	-	S5
49	Overhead Doors	$1,575	A2	C20
50	Laundry	$60.00	A1	C20
51	Club House	$85.00	A1	C20
53	Escalator	$100,000	-	C35
59	Cemetery Lot	$450	-	-
62	Air Conditioner	$4.00	-	-
64	Crypt	$1,600	-	-
65	Guard House	$80.00	A1	C25
72	Leasehold	$1.00	-	-
73	Cooler	Not being used	-	-
74	Freezer	Not being used	-	-
75	Car Wash	$60.00	A2	C15
78	Truck Well	$15.00	A4	C25
79	Boiler Room	$8.00	A1	C35
84	Hanger	$45.00	A1	C35
85	Mini Golf	$6,500	-	C30
98	Mezzanine	$24.00	A1	C35
A1	Backstop	$3.00	A1	C10
A2	Ball Court	$6.00	A1	C10
A4	Booth	$90.00	A1	C10
A6	Classroom	$75.00	A1	C25
A7	Driving Range	$8,000	-	C30
A8	Dugout	$20.00	A4	C20
B1	Kennel	$6.00	A1	C20
B3	Recreation Building	$52.00	A1	C30
B4	Restroom	$85.00	A1	C20

EXEMPT/INSTITUTIONAL BUILDINGS

This section of the Manual includes basic procedures and applications to be utilized to determine the Replacement Cost New for a variety of institutional type structures. Prices are provided based on the structure type and exterior wall material.

BASE SPECIFICATIONS

Base prices assume normal construction, mechanical, and other features such as plumbing, heating, air conditioning, interior finish, framing, elevators, etc., according to the designed building structure type.

SCHEDULE APPLICATION

Select the structure type which is most representative of the subject building.
Establish the Quality Grade of the building, which is contingent upon the exterior wall material of the structure type. Determine the total square feet of floor area and multiply the cost per square foot by the total area to establish the replacement cost.

Note: separate prices are provided for finished or unfinished basements.

PERCENT (%) GOOD GUIDELINES

Physical deterioration of institutional buildings should be based on the effective age and condition. Structures of this type normally have an expected life which is longer than other types of similar structures. Actual age and life expectancy can be extended through continued maintenance and renovation. When establishing the percent (%) good, the adjustment should be based on anticipated additional life as compared to normal life guidelines.

68-ARM
ARMORY

71-CHURCH
CHURCH

100-CLASSRM
CLASSROOM

**94-GYM
GYMNASIUM**

**75-
POLICE/FIRE
FIRE/POLICE
STATION**

**73-HOSP
HOSPITAL**

87-GOVERN BLDG GOVERNMENT BUILDING

70-INSTIT INSTITUTIONAL

95-LIBRARY LIBRARY

MULTI-FAMILY APARTMENTS

An apartment is a residential living unit with the same living accommodations normally found in a single- family residence. An apartment house is a multifamily residence containing four or more residential living units and generally providing each unit with a number of common facilities, services and amenities. Two or more apartment buildings operating as a single unit are generally referred to as an apartment complex.

The increased development of multi-family residential housing units since the 1950's has brought the development of both apartment complexes and "high-rise" apartment buildings. Each of these offers complete living accommodations with all the modern conveniences and amenities. In addition, they generally provide a variety of recreational facilities and services for their occupants.

VALUATION

As with other types of property, the replacement cost method of valuation is a starting point for the appraiser. There are two types of apartment buildings that must be considered: 1) the walk-up apartment normally found in apartment complexes; and 2) the high-rise or elevator building.

Apartment units found in each apartment building or complex of buildings vary in size and arrangement. They may be one room efficiency units consisting of a bedroom and kitchenette; two room studio units consisting of a bedroom and living room/den and kitchenette combination; and conventional units consisting of a kitchen, dining area, living room and one or more bedrooms. Each apartment unit has one or more bathrooms, and conventional units often have a separate dining room, den, or family room.

One of the most significant variables in determining the replacement cost of an apartment building is the average size of the individual units. The pricing schedule provided in this section is designed to account for this variation.

BASE PRICES - APARTMENTS

Base square foot prices have been developed for typical average "C" Grade quality apartment units, based on average unit sizes at various floor levels for Wood Joist construction. Adjustments are provided for Fire Resistant and Reinforced Concrete, together with Brick (or equal) and Frame/Concrete Block exterior walls.

The foundation, roof, and normal built-ins are included with the first -floor prices, thus making the schedule applicable to both one story and multi-story buildings.

APPLICATION

Application of the pricing schedule involves the selection of the appropriate base price per floor based on the average unit sizes. Adjustments to the base price for air conditioning, central heating, and type of construction should be made to account for any variations between the subject building and the model building.

SPECIAL APPLICATION

The Apartment Pricing Schedule is designed for garden/walk-up apartment buildings of four or more units. Two and three family residences should be priced by using the Residential Dwelling Schedule (included in the Residential section of the manual).

QUALITY FACTOR

The schedule prices are for average "C" Grade construction quality, erected with average materials and workmanship. A table of Quality Factors is provided to adjust the "C" Grade prices in order to account for variations in construction quality.

INCOME APPROACH

Apartment buildings, regardless of the type, are built, bought, and sold as investment or income producing property. The appraisal of apartments utilizing the Capitalization or Income Approach to value follows the same procedures discussed in the Property Valuation section of the manual.

The basic procedure is. . .

1. Collection of the income generated - including monthly rents for the units, parking, and other receipts, such as laundry facilities.

2. The collection of the expenses associated with the management and maintenance of the property.

3. The capitalization of the net income into an indication of value.

A special section is provided on the use of the economic data form to record all necessary income and expense data.

PERCENT (%) GOOD GUIDELINES

Physical deterioration of the structure should be based on age and condition of the property. Functional and Economic Depreciation allowances must be derived from the income and expense of each apartment project as it relates to other properties of similar utility and condition; and should be expressed as percent (%) good.

60-GARDEN APT GARDEN APARTMENT	

	**61-TWNHSE APT TOWNHOUSE APARTMENT**

FRANCHISE FOOD RESTAURANTS

Franchise Food restaurants have become a common place beginning in the 1950's. The buildings, though they offer similar accommodations, are highly distinctive in architectural style and design. Each operation is readily identifiable with a particular design and motif; and relies heavily on the appearance or "eye appeal" of its buildings to attract, maintain and promote business. The wide range of styles and designs have a direct influence on the replacement costs of the buildings. The size and quality of materials and workmanship alone are not the prime determining factors. Two restaurants showing no marked difference in size and construction quality may still show a considerable difference in cost due to the difference in design and décor. The replacement cost schedule provided is based upon specifications of size, quality, and design. The schedule is to be used as a guide for estimating replacement costs of franchise food restaurants. The proper use of the schedule, along with experience and sound judgment, should enable the appraiser to establish a reasonable estimate of replacement cost.

BASE SPECIFICATIONS

The Cost Schedule assumes a basic layout which includes a serving area, food preparation area, a small office area, an employee dressing area, two toilet rooms, and depending upon size, a dining area. General construction features include masonry foundation walls on spread footings; 4" reinforced concrete floor slab on a granular base; roof and exterior wall construction, interior finish, and building equipment and fixtures commensurate with the grade; stud and masonry partitioning; unfinished floor and painted masonry or dry wall interior finish in storage areas and mechanical rooms; utility service, heating, fluorescent lighting fixtures in the preparation and office areas, plumbing fixtures and drains.

QUALITY GRADE SPECIFICATIONS

A Grade — A unique design featuring elaborate architecture especially in the roof and exterior walls; built of high-quality materials and workmanship. A-Frame, Mansard, Gambrel, or Multi-Pitch type roofs with extensive overhangs, and copper, porcelain enamel shingles, wood shakes, slate, or comparable high- quality roofing on insulated wood or steel decking and framing, with laminated wood frame or steel frame supporting beams and columns often exposed to project architectural effects. Walls consist of a combination of face brick or ceramic glazed brick, decorative stone or wood and plate glass. High quality interior finish of ceramic or quarry tile flooring, exposed stone and brick or high- grade wood or porcelain enamel paneling and ceramic tile wall finish, porcelain enamel or acoustical tile ceilings, often open to the roof slope: combined heating and air conditioning system, high grade ornamental lighting fixtures in the dining and service areas; good quality plumbing fixtures for typical toilet room facilities.

B Grade — Conventional design featuring custom architectural styling, built of good quality materials and workmanship. Mansard, Gambrel or Double-Pitch roofs with liberal overhangs, composition tar and gravel, stone chip, or asphalt shingle roofing on insulated wood or steel decking and framing; face brick, ceramic tile and plate glass exterior walls with moderate architectural treatment; good quality interior finish of ceramic or quarry tile flooring, exposed brick or wood paneling and ceramic wall finish; acoustical tile or drywall ceiling; combined heating and air conditioning system, ornamental lighting fixtures in the dining and serving areas, and good quality plumbing fixtures for typical toilet room facilities.

C Grade Conventional design featuring moderate architectural styling, built of good quality workmanship and materials. Double-Pitch type roofs with normal overhangs, composition tar and gravel or asphalt shingle roofing on insulated wood or steel decking and framing; face brick, wood, or painted concrete block and plate glass exterior walls; good quality interior finish of quarry or vinyl asbestos tile flooring, wood paneling or drywall and part ceramic tile wall finish; drywall or acoustical tile ceiling; combined heating and air conditioning system; fluorescent lighting fixtures in the dining area, and good quality plumbing fixtures for typical toilet room facilities.

D Grade Simple conventional design void of architectural styling; built of average quality materials and workmanship. Flat or Single Pitch roof with normal overhangs, composition roofing on insulated wood decking and framing; painted concrete block or wood exterior walls with a minimal amount of plate glass; average quality interior finish consisting of asphalt or vinyl asbestos tile flooring; painted concrete block, drywall or paneled wall finish and drywall ceiling; forced-air heating, wall unit air conditioning, fluorescent lighting fixtures, fair quality plumbing fixtures for typical toilet room facilities.

E Grade Simple design void of architectural styling; built of fair quality materials and workmanship. Single-Pitch roof with normal overhangs, and composition roofing on wood decking and framing; painted concrete block or wood exterior walls with a minimal amount of plate glass; low quality interior finish consisting of asphalt tile flooring and painted concrete block and drywall; unit heaters, no air conditioning, fluorescent lighting fixtures, and fair quality plumbing fixtures for typical toilet room facilities.

SCHEDULE APPLICATION

Base prices are included for Average "C" Grade construction for four typical exterior wall types. Select the base price based upon the structure size and exterior wall construction, and make adjustments for attached improvements, air conditioning and sprinkler systems as required. Apply the proper quality Grade factor to establish the replacement cost new.

PERCENT (%) GOOD GUIDELINES

Franchise Food restaurants are special purpose buildings which are not readily adaptable to other uses. They go out of style both functionally and economically at a much faster rate than they deteriorate physically. The business is highly competitive and relies heavily on location and the physical appearance of its buildings. In order to keep abreast of competition, owners must frequently renovate the structures. Changing consumer habits, traffic patterns, and competition are but a few of the factors that influence the life span of the buildings and must therefore be considered in the evaluation process.

22-FAST FD
FAST FOOD

22-FAST FD
FAST FOOD

22-FAST FD
FAST FOOD

MOBILE HOME PARKS

The pricing schedule included in this section is provided as a guide to assist the appraiser in arriving at a reasonable and equitable estimate of the cost of developing a variety of commercial mobile home and trailer parks. Typical site-costs are given for five Grades of parks; the general specifications are as follows:

A Grade	Excellent quality and excellently planned mobile home parks designed to accommodate the largest tractor-drawn or on-site erected mobile homes, and to provide the user with the utmost in residential amenities, including spacious lots with extensive and attractive landscaping, ample off-street parking, and a wide variety of recreational facilities. Site areas will generally range from 4,500 to 5,500 sq. ft.
B Grade	Good quality and well-planned mobile home parks designed to accommodate the larger tractor-drawn mobile homes with room to spare for lawns and gardens, and featuring attractive landscaping, off-street parking, and complete recreational facilities. Site areas will generally range from 3,500 to 4,500 sq. ft.
C Grade	Average quality and well-planned mobile home parks designed to accommodate mobile homes up to 55' to 60' long, and to provide the user with adequate utility services and facilities, but rather limited recreational facilities and other such amenities. Site areas will generally range from 2,500 to 3,500 sq. ft.
D Grade	Fair quality and minimally planned trailer parks intended primarily for semi-permanent occupancy, built to accommodate car-drawn trailers up to 40' to 45' long, and offering only minimal utility and recreational facilities. Site areas will generally range from 1,750 to 2,500 sq. ft.
E Grade	Cheap quality trailer parks designed to accommodate transient type trailers, and to provide the user with the minimum required facilities. Site areas will generally range from 1,000 to 1,750 sq. ft.

Application of the pricing schedule involves determining the Grade, which is the most representative of the subject property, selecting the corresponding base site-cost, and adjusting the base site-cost to account for any variations between the subject property and the model specifications.

BASE COST COMPONENTS

The costs per site have been developed to include the cost of normal basic on-site improvements and do not include the cost of the land, service and recreational buildings, or major recreational structures, such as swimming pools. The base components are as follows:

Engineering. . . includes the design plans and specifications of the park (exclusive of buildings), engineering and surveying fees, and public fees and permits.

Grading. . . includes the normal grading involved in leveling the site for drainage and roughing out roads, but does not include any abnormal site preparation, such as the excavation and terracing required for hill-side sites.

Street Paving. . . includes base preparation and paving.

Patios and Walks. . . includes all flat work other than street paving.

Sewer. . . includes all on-site lines, but does not include hook-up charges, sewage disposal systems, or any off-site connections to trunk lines.

Water. . . includes on-site mains and site services, but does not include wells, pumps, or any off-site connections to source lines.

Electrical. . . includes on-site conduit, electrical and telephone wiring, site outlets, and street and common area lighting commensurate with the Grade; but does not include the cost of any off-site connections.

Gas. . . includes on-site piping, and site and building connections, but does not include any off-site mains.

Other Features. . . include the cost of average entrance ornamentation, landscaping, and common area development commensurate with the park Grade.

Note: Outdoor recreational facilities, such as swimming pools, tennis courts, etc.
are not included and should be computed separately.

BASE COST ADJUSTMENTS

Many mobile homes and trailer parks are apt to possess some features which are typical of one Grade and some features which are typical of another.
For example, an A Grade Park may exhibit B Grade "other features" such as entrance decor, landscaping, and recreational facilities; or similarly, a park maybe C Grade in all respects except for good quality streets. In such cases, the appraiser must analyze each park in terms of its individual component in order to determine the contribution of each component to the overall cost per site. In order to facilitate this, the specifications and corresponding costs for each component are detailed, thus enabling the appraiser to adjust the base cost either upward or downward to account for any significant variations.

PERCENT (%) GOOD GUIDELINES

Mobile home parks generally can be expected to have a life expectancy of 10 to 30 years, depending on the quality of the park. The components of a mobile home park, as described above, are subject to the same depreciating forces as are any other real estate improvements. Physical deterioration itself is difficult to observe; but is generally directly related to the functional and economic depreciation of the park. In a going and profitable park, the actual rate of physical deterioration is arrested somewhat by regular and normal maintenance. A park that is normally maintained will have components replaced or renewed as they age. As a park goes out of style functionally and economically, maintenance becomes more and more of a cost burden to the owner and is consequently reduced or curtailed completely, allowing the process of deterioration to accelerate.

MOBILE HOME PARKS

The average quality mobile home park is designed to provide the user with adequate utility services and facilities. Recreational amenities are limited or nonexistent with streets and landscaping of minimal planning and construction.

Normal site improvements include low-cost concrete or asphalt pads and walks, and enough grading to allow adequate site preparation, drainage, and leveling, minimal on-site electrical service, on-site well and septic service, on site public or private water and sewer systems.

The value attributed to land, and the cost of any supportive structures, are not included in the base cost site.

Any variation in overall quality from average should be reflected by the appropriate quality grade adjustment.

REPLACEMENT COST PER SITE

“15” Mobile Home Site $5,000

GOLF COURSES

Golf courses are designed and built in a variety of types and sizes. The pricing schedules in this section are provided as a guide to assist the appraiser in arriving at a reasonable and equitable estimate of the cost of developing the various types of courses.

REGULATION COURSES

A regulation golf course usually consists of 18 holes of varied length. There are generally four short holes, 130 to 200 yards (par 3); ten average holes 350 to 400 yards (par 4); and four long holes 450 to 550 yards (par 5). Average costs per hole are given for five grades of courses, the general specifications are as follows:

XX Grade	Excellent course designed for professional play; rolling terrain; well landscaped with wide tree lined fairways and large, excellent quality greens and tees; numerous natural and man-made hazards; generally, 7200 yards long with a par 72 rating.
A Grade	Excellent course design for championship play; rolling terrain; well landscaped with wide fairways and large, very good quality greens and tees; many natural and man-made hazards; generally, 6900 yards long with a par 72 rating.
B Grade	Good course design for private club membership; rolling terrain; well landscaped with wide fairways and large, good quality greens and tees; natural and some man-made hazards; generally, 6500 yards long with a par 70 rating.
C Grade	Average course designed for municipal or general public play; flat terrain; landscaped fairways; average size and quality greens and tees; some natural and few, if any, man- made hazards; generally, 6000 yards long with a par 67 to 70 rating.
D Grade	Simply developed course often referred to as a "cow-pasture course", flat terrain, very little landscaping, small greens and tees, few natural hazards, generally, 5400 yards long with a par 64 to 67 rating.

BASE PRICE COMPONENTS

The costs per hole have been developed to include the cost of normal on course improvements and do not include the cost of land, clubhouse, or any recreational facilities. The base price components are as follows:

Grading and clearing. . . includes the removal of brush and trees from the fairways, greens, or tees, landscaping and the seeding of grass.

Sprinkler System. . . includes the water source, pumps, piping, and sprinkler heads.

Greens. . . includes the building, seeding and care of the greens until the opening of the course.

Tees. . . includes the building and care of the tees until the opening of the course.

Bunkers. . . includes the building and care of the bunkers until the opening of the course.

Service and Cart Roads. . . includes base preparation, paving, and bridges over hazards.

Architect's Fees. . . includes all plans and supervision during construction.

OTHER COURSES

Miniature Course	The entire course is comprised of a putting surface which has various obstacles and hazards placed between the tee and the cup.
Pitch and Putt Course 60	The course has greens, bunkers, tees, fairways, and very little, if any, rough area separating the holes. The holes are usually 120 yards long and the course often has lighting for night play.
Par 3 Course	The course is the same as a regulation course, but on a smaller scale with all the holes rated par 3, 140 to 160 yards long and the course may have lighting for night play.
Executive Course	Also called a par 60 course; the course is the same as a regulation course, but on a smaller scale with the holes 200 to 300 yards long. The holes are mostly par 3 with some par 4 and par 5 ratings.

Driving Range	Consists of a piece of land usually 10 to 15 acres with elevated tees along one side used for practice of hitting tee shots on regulation courses.
Practice Putting Greens	Consists of a large green with numerous cups used for putting practice.

GENERAL APPLICATION

The primary variables in golf courses are size, layout, sprinkler system, greens, tees, fairways, and bunkers. Costs of courses may vary from $15,000 per hole for a course with minimal improvements to $125,000 per hole for the best championship courses. The costs given are for average courses in each quality grade. Included in the cost per hole is normal clearing and grading, complete sprinkler systems, landscaping, greens, tees, bunkers, service and cart roads, and architect's fees. Costs do not include buildings, swimming pools, parking areas, or any other off-course improvements. Listed below is the procedure to be used for the appraisal of golf courses.

1. Identify the course by name and record the following data on the property record card (preferably in the top portion of the sketch area).

    a. The type of course (regulation size, pitch and putt, miniature, etc.).

    b. The year of completion (if developed in phases, describe the number of holes completed each year).

    c. The number of holes and the amount of land used for the course.

    d. The course length and par.

    e. The terrain and topographical features.

    f. The average size of the greens, tees, and the number of bunkers.

    g. The type of sprinkler system.

2. Analyze the various components of the subject property, giving special consideration to the extent of planning, the natural contour of the land, clearing and grading of fairways, greens, and tees, the extent and quality of the sprinkler system: whether it is automatic, manual, covers the entire course or only the tees and greens, the average green and tee size, the average number of bunkers per hole, the quality of cart and service roads and any other characteristics essential to establishing the proper grade level of the course.

3. Determine the Quality Grade of the course by comparing its components, as analyzed above, with the given specifications for each grade and select the corresponding base cost per hole.

4. In many instances, the course will exhibit a composite quality which falls somewhere between two grades. In such cases it is necessary to interpolate between the base hole costs.

5. Multiply the average replacement cost per hole, as derived in Step #3, by the total number of holes to arrive at the total replacement cost of the course.

6. Determine the proper depreciation allowance based upon the condition, desirability, and usefulness of the course relative to its age, and apply it to the total replacement cost as derived in Step #4, to arrive at the depreciated value of the course.

7. Sketch, list, and compute by using the appropriate pricing schedule, the replacement cost and depreciated value of all improvements not included in the base cost.

GOLF COURSE PRICING

32 - REPLACEMENT COST $100,000 PER HOLE.

FOR PROFIT CEMETERIES

North Carolina General Statute §105-278.2

§ 105-278.2. (Effective for taxes imposed for taxable years beginning on or after July 1, 2022) Burial property.

(a) Commercial Property. – Real property set apart for burial purposes that is owned and held for purposes of (i) sale or rental or (ii) sale of burial rights therein is exempt from taxation. A single application is required under G.S. 105-282.1 for property exempt under this subsection.

(b) Other Property. – Real property set apart for burial purposes not owned and held for a purpose listed in subsection (a) of this section is exempt from taxation. No application is required under G.S. 105-282.1 for property exempt under this subsection. A local government cannot deny the exemption provided under this subsection to a taxpayer that lacks a survey or plat detailing the exempt property.

(c) Terms. – For purposes of this section, the term "real property" includes land, tombs, vaults, monuments, and mausoleums, and the term "burial" includes entombment. (1973, c. 695,s. 4; 1987, c. 724; 2018-113, s. 15; 2021-180, s. 42.12(a).)

CEMETERIES

Private or "for profit" cemeteries are appraised by determining the number of unsold units (lots, crypts and niches), the average selling price per unit and the absorption period necessary to deplete the unsold inventory.

The following formula has been utilized by Harnett County:

Number of unsold lots, crypts, niches (x) average selling price (x) discount rate. (# units) x (avg. $ price) x (DR) = indicated value)

NOTE: Other income (openings, closings, markers sales, etc.) is not included in the formula listed above. This additional income should be capitalized using a traditional income approach to determine value. Any excess land (non-platted or not dedicated for burial purposes) will be valued in accordance with the rates placed on surrounding parcels. The value of all land dedicated for burial purposes will be included in the value of the unsold units, land occupied by sold units will be considered exempt from taxation and will not be included in the final appraised value.

NOTE: The gravesites, crypts and niches rates are specific to each cemetery and are listed in the miscellaneous building rates.

EXAMPLE:

Spartan Cemetery

Property consists of: 21.584 acres totally dedicated for cemetery use, and 3,500 unsold gravesites. Gravesites sell at an average of $450 each and the absorption period is estimated at 50 to 75 years.

(3500 units) x ($450/unit) = $1,575,000 x (10% DR) = **$157,500 Indicated Value**

SOLAR FARMS

G.S. 105-275 – Property classified and excluded from tax base.

80% of the appraised value of solar electric systems is excluded as exempt use.
Solar Energy Electric System means "all equipment used directly and indirectly for the conversion of solar energy to electricity."

Solar Panels and other equipment shall be valued as business personal property. The land associated with this equipment will be valued at a range of **$8,000 to $25,000** per acre based on location and the principle of **Highest and Best Use.**

CELL TOWERS

For listing purposes 1.00 acre will be designated to support the cell tower and associated components required to run cellular operations.

The cellular components are listed as personal property. They usually consist of the cell tower, individual company's cellular antenna, operating equipment, equipment shelters and security fencing. Give any information attained about the cellular components to business personal property.

The land supporting the cell tower will be valued using the prevailing commercial and industrial land rates in the immediate area.

SECTION 42 LOW-INCOME HOUSING

North Carolina General Statute # 105-277.16

In North Carolina low-income housing which has been allocated a federal tax credit under Section 42 of the Code is designated a special class of property under Article V, Section 2 (2) of the North Carolina Constitution and must be appraised, assessed and taxed in accordance with this section. The assessor must use the income approach as the method of valuation for property classified under this section and must take rent restrictions that apply to the property into consideration in determining the income attributable to the property. The assessor may not consider income tax credits received under Section 42 of the Code or under G.S. 105-129.42 in determining the income attributable to the property. (2008-146, s. 3.1:2008-187, s. 47.6).

General Application

Identify the low-income housing property being appraised and request copies of the audited financial statements for current year (revaluation year) and three prior years.

Analyze the actual income stream; apply expense ratios, capitalization rates, and Gross Rent Multipliers (GRM) developed for use in the 2026 Harnett County Revaluation Project.

Standardized Operating Expenses & Vacancy Rates Operating Expenses

Based on analysis, an expense ratio of 55% has been adopted for use by Harnett County.

Vacancy Rates

Analysis of vacancy rates provided by IREM indicates average vacancy rates of 0% to 5%, a rate of 3% has been adopted for use by Harnett County.

Reserve for Replacements

Analysis of typical reserve for replacements for traditional apartment properties in Harnett County indicates a range of 3% to 5%. A rate of 5% has been selected for use in Section 42 low-income housing appraisal.

Capitalization Rate

A range of capitalization rates from 4.5%-7.5% have been adopted for Section 42 housing.

SAMPLE INCOME APPROACH APPRAISAL
SECTION 42 LOW INCOME HOUSING
(G.S. 105-277.16)

100 UNIT APARTMENT COMPLEX @ $450 PER MONTH BASE RENT

POTENTIAL GROSS INCOME (100 x $450 x 12 MONTHS)	$540,000
VACANCY (3%)	(-$16,200)
OTHER INCOME	
EFFECTIVE GROSS INCOME	$523,800
OPERATING EXPENSES (55%)	(-$288,090)
RESERVE FOR REPLACEMENTS (5%)	(-$26,190)
NET OPERATING INCOME	$209,520
CAPITALIZATION RATE (6%)	{.06}
APPRAISED VALUE	$3,492,000
VALUE PER UNIT (ROUNDED)	$34,920

DWELLING PERCENT GOOD

CONDITION RATING SYSTEM

As houses grow older, they wear out; they become less desirable, less useful. This universal decline in value is called depreciation, and appraisers are required to determine the degree of this loss in each property they examine. If all houses deteriorated at the same rate, this decline in value would be a simple function of the age of the structure - a certain percentage per year. However, houses depreciate at varying rates depending on a score or so of variables.

Every building is acted upon by two value reducing forces. One tends to shorten its physical life; the other shortens its economic life. Both forces act concurrently, overlap, and affect each other. A new house, or any type of structure for that matter, has its greatest value at the moment of completion. Its life expectancy - both physical and economic - is longest on the day the key is handed over by the builder. The building is then most desirable and most useful. The future benefits which the occupant may expect to enjoy are at the maximum. From that day forward, however, decay and wear and tear act to lessen the value of the structure by curtailing its remaining capacity for use.

At the same time the house is "wearing out ", it is also "going out of style". It is becoming less desirable. It is progressively becoming less useful, both from the effect of forces within the property (obsolescence), and outside of it as well (encroachment of undesirable influences such as less desirable property uses).

Neither physical decline nor functional loss are constant in their action.

Deterioration is a relatively steady process offset periodically by maintenance.

Worn-out elements of the building are repaired or replaced at intervals, depending upon the policy of the owner. Cheaper houses generally deteriorate faster than better ones. Obsolescence and encroachment may come slowly or happen almost overnight. The forces which cause both deterioration and functional/economic depreciation may act and often do act simultaneously, but they are not necessarily related. A house may decline in physical condition, and yet throughout its entire life remain relatively functional.

Obviously enough, the age of a house remains an important factor in estimating accrued depreciation. A certain number of houses will receive "normal" maintenance and will experience "average" economic loss due to obsolescence and functional depreciation. These buildings will depreciate at an average rate as they grow older.

Other houses will lose value at less or more rapid rates. Condition Ratings provide a logical reasoning process, by means of which normal age depreciation may be modified according to the appraiser's best determination of the relative loss of value in a structure, as compared with the average loss that might be expected. Thus, the age of a dwelling is an unreliable indicator of the degree of depreciation from its cost new. For houses depreciate not merely because they grow older - but because they wear out and become less desirable and less useful for a variety of causes.

To assist the appraiser in establishing the "Condition Ratings" of buildings, several simple classifications have been established. These classifications or ratings are entirely natural and will fit the normal impressions of the appraiser as he examines a building. Following is a tabulation of Condition Ratings, with their accompanying definitions of the observed physical condition of the building, and its degree of desirability and usefulness for its age and for its type.

CONDITION RATING GUIDE

CONDITION RATING OF DWELLING	DEFINITION
Excellent	Building is in perfect condition; very attractive and highly desirable.
Very Good	Slight evidence of deterioration; still attractive and quite desirable.
Good	Minor deterioration visible; slightly less attractive and desirable, but useful.
Average	Normal wear and tear are apparent, average attractiveness and desirability.
Fair	Marked deterioration - but quite usable, rather unattractive and undesirable.
Poor	Definite deterioration is obvious; definitely undesirable, and barely usable.
Very Poor	Condition approaches unsoundness; extremely undesirable and barely usable.
Unsound	Building is definitely unsound and practically unfit for use.

Age is reflected as an index of the normal deterioration and obsolescence in a structure which may be expected over the years. Condition represents a variable measure of the effects of maintenance and remodeling on a building. Desirability is a measure of the degree of appeal a particular building may have to prospective purchasers. Usefulness is a measure of the utility value of the structure for the purpose for which it may be used.

Percent good is defined as the resultant estimate of the diminishing value of an improvement, after subtracting the amount of estimated depreciation from the Replacement Cost New. For example, a structure which is estimated to be 45 percent depreciated as of a given time has a percent good of 55. Therefore, depreciation and percent good are complements of each other. Once the

Condition Rating of a building has been established through a consideration of its condition, desirability, and usefulness for its age and its type, reference to the Basic Percent Good Table will indicate the appropriate value percent remaining for a structure possessing these qualities, in the degree observed and noted by the appraiser.

The degree of deterioration and obsolescence, or loss of value from all causes, both within and without the property, is automatically taken into account. This is accomplished by means of a simple rating of the capabilities and qualities of the structure, in precisely the same terms as a prospective purchaser would. Sound valuation theory presupposes the existence of a prospective buyer with intelligence enough to compare the advantages and disadvantages of competing properties, and to rate the property he is examining according to its relative degree of desirability and usefulness.

APPLYING THE CONDITION SYSTEM

To apply the Condition System, the appraiser rates each house according to his composite impression of its relative condition, desirability, and usefulness for its age and type. The following four actual cases illustrate this convenient and practical method of determining percent good in houses.

Case One: A fifteen-year-old single-family residence situated in an attractive residential suburb of a typical American community. Grade "B" with two baths. Minor deterioration is visible: slightly less attractive and desirable than new, but useful. A qualified observer would rate this house above average on the Condition Rating System. Accordingly, our appraiser has assigned it a Condition Rating of "Good". Referring to the table, we find 97% Good would be appropriate.

Case Two: A one-story frame house seven years old. Grade "C" or average quality construction: three bedrooms, one and one-half baths. Structure shows normal wear and tear and has average attractiveness and desirability. The appraiser's impression is, "for a seven-year-old Grade "C" house, this would be rated as Average." From the table we find 97% Good is indicated.

Case Three: This century-old colonial style frame house is located in a New England seaport community; erected 1858. Grade "B" or good quality construction. The building has been extremely well maintained and completely modernized with central heating, electric lighting, and plumbing added. The structure is in good physical condition in spite of its age. The building is architecturally attractive and quite desirable. The appraiser's impression is, "for a very old house of Grade "B" quality, this is an Excellent one ". From the table 90% Good is indicated.

Case Four: A twenty-four-year-old single-family residence of Grade "C" quality; one story and basement, frame construction; three bedrooms with bath. The structure has had normal maintenance and is average in physical condition. Within the past two years, an elevated six-lane expressway passing over the adjoining lot has been erected. This encroachment has seriously detracted from the attractiveness and desirability of the property. Accordingly, the appraiser has assigned a Condition Rating of "Very Poor". From the table 48% Good is indicated.

DWELLING PERCENT GOOD

1. Rate the dwelling in terms of its overall condition, desirability, and usefulness.
2. Select the proper percent good relative to its actual age.

Common Causes of Functional Obsolescence

Poor ratio of land to building area.

Inadequate parking, and/or truck and railroad loading and unloading facilities.

An appearance unattractive and inconsistent with present use and surrounding properties.

Poor proportion of office, rental, or manufacturing, and warehouse space.

Inadequate or unsuited utility space.

Effects of corrosion created by manufacturing, processing, or storing chemicals.

Foundational and structural failures due to poor soil conditions, poor design, excessive loading, poor maintenance, excessive vibration of building and process equipment.

Inadequate power distribution, heating, ventilation, air conditioner, or lightning systems.

Common Causes of Economic Obsolescence

Limited use and excessive material and product handling costs caused by irregular and inefficient floor plans, varying floor elevations, inadequate clearance, and cut up interiors with small bays and excessive number of walls, posts and columns.

Multistory design when single story would be more efficient and economical.

Excessive of deficient floor load capacity.

Insufficient and inadequate elevator service.

High maintenance costs resulting from mixed building constructions and/or the use of obsolete building materials.

Zoning laws and other governmental regulations which affect the usage and operation of the property.

Building code requirements which set current acceptable construction standards.

Market acceptability of the product or services for which the property was constructed or is currently used.

Profitability of the operation of the property and justifiable investment which the business would support.

Termination of the need for the property due to actual or probable changes in economic or social conditions.

RESIDENTIAL DEPRECIATION TABLE

AGE	EX	VG	GD	AV	FR	PR	VP	UN
1	0%	0%	0%	0%	5%	10%	15%	25%
2	0%	0%	0%	0%	6%	12%	18%	30%
3	0%	0%	0%	1%	7%	14%	21%	35%
4	0%	0%	0%	1%	8%	16%	24%	40%
5	0%	0%	1%	2%	9%	18%	27%	45%
6	0%	0%	1%	3%	10%	20%	30%	50%
7	0%	1%	1%	3%	12%	22%	32%	62%
8	0%	1%	1%	4%	14%	24%	34%	70%
9	0%	1%	1%	4%	16%	26%	36%	80%
10	0%	1%	2%	5%	18%	28%	38%	90%
11	0%	1%	2%	6%	20%	30%	40%	90%
12	0%	1%	2%	7%	22%	32%	42%	90%
13	0%	1%	2%	8%	23%	33%	43%	90%
14	0%	1%	2%	9%	24%	34%	44%	90%
15	0%	1%	3%	10%	25%	35%	45%	90%
16	1%	2%	3%	11%	26%	36%	46%	90%
17	1%	2%	3%	12%	27%	37%	47%	90%
18	1%	2%	4%	13%	28%	38%	48%	90%
19	1%	2%	4%	14%	29%	39%	49%	90%
20	1%	2%	5%	15%	30%	40%	50%	90%
21	1%	2%	5%	15%	30%	40%	50%	90%
22	1%	2%	6%	16%	31%	41%	51%	90%
23	1%	2%	6%	16%	31%	41%	51%	90%
24	1%	2%	7%	17%	32%	42%	52%	90%
25	1%	2%	8%	18%	33%	43%	53%	90%
26	2%	2%	8%	18%	33%	43%	53%	90%
27	2%	2%	9%	19%	34%	44%	54%	90%
28	2%	2%	9%	19%	34%	44%	54%	90%
29	2%	2%	10%	20%	35%	45%	55%	90%
30	2%	3%	10%	20%	35%	45%	55%	90%
31	2%	3%	11%	21%	36%	46%	56%	90%
32	2%	3%	11%	21%	36%	46%	56%	90%
33	2%	3%	12%	22%	37%	47%	57%	90%
34	2%	3%	12%	22%	37%	47%	57%	90%
35	3%	3%	13%	23%	38%	48%	58%	90%
36	3%	3%	14%	24%	39%	49%	59%	90%
37	3%	3%	14%	24%	39%	49%	59%	90%
38	3%	3%	15%	25%	40%	50%	60%	90%

AGE	EX	VG	GD	AV	FR	PR	VP	UN
39	3%	3%	15%	25%	40%	50%	60%	90%
40	3%	4%	16%	26%	41%	51%	61%	90%
41	3%	4%	16%	26%	41%	51%	61%	90%
42	3%	4%	17%	27%	42%	52%	62%	90%
43	3%	4%	17%	27%	42%	52%	62%	90%
44	3%	4%	18%	28%	43%	53%	63%	90%
45	3%	5%	18%	28%	43%	53%	63%	90%
46	3%	5%	19%	29%	44%	54%	64%	90%
47	3%	5%	19%	29%	44%	54%	64%	90%
48	3%	5%	20%	30%	45%	55%	65%	90%
49	3%	5%	20%	30%	45%	55%	65%	90%
50	3%	5%	21%	31%	46%	56%	66%	90%
51	4%	6%	21%	31%	46%	56%	66%	90%
52	4%	6%	22%	32%	47%	57%	67%	90%
53	4%	6%	22%	32%	47%	57%	67%	90%
54	4%	6%	23%	33%	48%	58%	68%	90%
55	4%	6%	23%	33%	48%	58%	68%	90%
56	5%	7%	24%	34%	49%	59%	69%	90%
57	5%	7%	24%	34%	49%	59%	69%	90%
58	5%	7%	25%	35%	50%	60%	70%	90%
59	5%	7%	25%	35%	50%	60%	70%	90%
60	5%	7%	25%	36%	51%	61%	71%	90%
61	5%	8%	26%	36%	51%	61%	71%	90%
62	5%	8%	26%	37%	52%	62%	72%	90%
63	5%	8%	26%	37%	52%	62%	72%	90%
64	5%	8%	26%	38%	53%	63%	73%	90%
65	6%	8%	27%	38%	53%	63%	73%	90%
66	6%	9%	27%	39%	54%	64%	74%	90%
67	6%	9%	27%	39%	54%	64%	74%	90%
68	6%	9%	27%	39%	54%	64%	74%	90%
69	6%	9%	28%	40%	55%	65%	75%	90%
70	7%	9%	28%	40%	55%	65%	75%	90%
71	7%	10%	28%	40%	55%	65%	75%	90%
72	7%	10%	28%	41%	56%	66%	76%	90%
73	7%	10%	29%	41%	56%	66%	76%	90%
74	7%	10%	29%	41%	56%	66%	76%	90%
75	7%	10%	29%	42%	57%	67%	77%	90%
76	7%	11%	29%	42%	57%	67%	77%	90%
77	7%	11%	30%	42%	57%	67%	77%	90%
78	7%	11%	30%	43%	58%	68%	78%	90%

AGE	EX	VG	GD	AV	FR	PR	VP	UN
79	7%	11%	30%	43%	58%	68%	78%	90%
80	8%	11%	30%	43%	58%	68%	78%	90%
81	8%	11%	31%	44%	59%	69%	79%	90%
82	8%	12%	31%	44%	59%	69%	79%	90%
83	8%	12%	31%	44%	59%	69%	79%	90%
84	8%	12%	31%	45%	60%	70%	80%	90%
85	8%	12%	32%	45%	60%	70%	80%	90%
86	8%	12%	32%	45%	60%	70%	80%	90%
87	8%	12%	32%	46%	61%	71%	81%	91%
88	8%	13%	32%	46%	61%	71%	81%	91%
89	8%	13%	33%	46%	61%	71%	81%	91%
90	9%	13%	33%	47%	62%	72%	82%	92%
91	9%	13%	33%	47%	62%	72%	82%	92%
92	9%	13%	33%	47%	62%	72%	82%	92%
93	9%	14%	34%	48%	63%	73%	83%	93%
94	9%	14%	34%	48%	63%	73%	83%	93%
95	9%	14%	34%	48%	63%	73%	83%	93%
96	9%	14%	34%	49%	64%	74%	84%	94%
97	9%	15%	34%	49%	64%	74%	84%	94%
98	9%	15%	34%	49%	64%	74%	84%	94%
99	10%	15%	35%	50%	65%	75%	85%	95%
100	10%	15%	35%	50%	65%	75%	85%	95%

COMMERCIAL/INDUSTRIAL PERCENT GOOD

COMMON CAUSES OF OBSOLESCENCE

In the fina1 analysis, an estimate of depreciation or value loss represents an opinion of the appraiser as to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. The accuracy of the estimate will be a product of the appraiser's experience in recognizing the symptoms of deterioration and obsolescence and his ability to exercise sound judgment in equating his observations to the proper monetary allowance to be deducted from the replacement cost new. The following tables have been provided as guidelines to assist the appraiser in arriving at the resultant estimate of the diminishing value of improvements after subtracting all forms of depreciation. The following is a list of some of the most common sources of functional and economic obsolescence which should further assist him in arriving at a reasonable estimate of obsolescence.

COMMERCIAL DEPRECIATION TABLES

Commercial Depreciation Codes are defined by three characters. All commercial depreciation codes start with character C. The second position character denotes Condition. The last character position identifies Construction Type. Codes are defined as:

Condition		Construction Type	
E	Excellent	W	Wood Frame
G	Good	R	Fire Resistant
A	Average	P	Fire Proof
F	Fair		
P	Poor		
U	Unsound		

Fire Resistant Construction

CER

Age	Deprec.
01	0%
02-03	1%
04	2%
05-06	3%
07	4%
08-09	5%
10	6%
11-12	7%
13	8%
14-15	9%
16	10%
17-18	11%
19	12%
20-21	13%
22	14%
23-24	15%
25	16%
26-27	17%
28	18%
29-30	19%
31-32	20%
33	21%
34-35	22%
36-37	23%
38-39	24%
40-41	25%
42-44	26%
45-46	27%
47	28%
48-49	29%
50 Up	30%

CGR

Age	Deprec.
01	1%
02	2%
03	3%
04	5%
05	6%
06	7%
07	8%
08	10%
09	11%
10	12%
11	13%
12	14%
13	15%
14	16%
15	17%
16	18%
17	19%
18	20%
19	21%
20-21	22%
22	23%
23	24%
24	25%
25	26%
26-27	27%
28	28%
29	29%
30	30%
31-32	31%
33	32%
34	33%
35	34%
36-37	35%
38	36%
39-40	37%
41-42	38%
43-44	39%
45-46	40%
47	41%
48-49	42%
50 Up	43%

CAR

Age	Deprec.
01	2%
02	3%
03	5%
04	7%
05	9%
06	10%
07	12%
08	14%
09	16%
10	17%
11	19%
12	21%
13	22%
14	23%
15	24%
16	25%
17	27%
18	28%
19	29%
20	30%
21	31%
22	32%
23	33%
24	34%
25	35%
26	36%
27	37%
28	38%
29	39%
30	40%
31	41%
32	42%
33	43%
34	44%
35	45%
36	46%
37	47%
38	48%
39-40	49%
41-42	50%
43	51%
44-45	52%
46-47	53%
48-49	54%
50 Up	55%

CFR

Age	Deprec.
01	3%
02	5%
03	6%
04	8%
05	10%
06	12%
07	14%
08	16%
09	18%
10	19%
11	21%
12	23%
13	24%
14	25%
15	26%
16	27%
17	28%
18	30%
19	31%
20	32%
21	34%
22	35%
23	36%
24	37%
25	38%
26	39%
27	40%
28	42%
29	43%
30	44%
31	45%
32	46%
33	47%
34	48%
35	49%
36	50%
37	51%
38-39	52%
40	53%
41	54%
42	55%
43-44	56%
45	57%
46-47	58%
48-49	59%
50 Up	60%

CPR

Age	Deprec.
01	4%
02	6%
03	8%
04	10%
05	12%
06	14%
07	16%
08	18%
09	20%
10	22%
11	24%
12	26%
13	27%
14	29%
15	30%
16	32%
17	34%
18	35%
19	37%
20	38%
21	40%
22	42%
23	43%
24	44%
25	45%
26	46%
27	48%
28	49%
29	51%
30	52%
31	53%
32	54%
33	55%
34	57%
35	58%
36	59%
37	60%
38	61%
39	62%
40	63%
41	64%
42-43	65%
44-45	66%
46-47	67%
48	68%
49	69%
50 Up	70%

CUR

Age	Deprec.
01 Up	90%

Wood Frame Construction

CEW	
Age	Deprec.
01	0%
02-03	1%
04	2%
05-06	3%
07	4%
08-09	5%
10	6%
11-12	7%
13	8%
14-15	9%
16	10%
17-18	11%
19	12%
20-21	13%
22	14%
23-24	15%
25	16%
26-27	17%
28	18%
29-30	19%
31-32	20%
33	21%
34-35	22%
36-37	23%
38-39	24%
40-41	25%
42-44	26%
45-46	27%
47	28%
48-49	29%
50 Up	30%

CUW	
Age	Deprec.
01 Up	90%

CGW	
Age	Deprec.
01	2%
02	3%
03	4%
04	6%
05	7%
06	8%
07	10%
08	11%
09	12%
10	14%
11	15%
12	16%
13	17%
14-15	19%
16	21%
17	22%
18	23%
19	24%
20-21	25%
22	26%
23	27%
24	28%
25	29%
26	30%
27	31%
28	32%
29-30	33%
31	34%
32	35%
33	36%
34-35	37%
36-37	38%
38-39	39%
40-41	40%
42-46	41%
47-49	42%
50 Up	43%

CAW	
Age	Deprec.
01	3%
02	5%
03	7%
04	9%
05	11%
06	13%
07	15%
08	17%
09	19%
10	21%
11	22%
12	24%
13	26%
14	28%
15	29%
16	31%
17	33%
18	34%
19	35%
20	36%
21	37%
22	38%
23	39%
24	40%
25	42%
26	43%
27	44%
28	45%
29	46%
30	47%
31	48%
32	49%
33	50%
34-35	51%
36	52%
37	53%
38-39	54%
40 Up	55%

CFW	
Age	Deprec.
01	4%
02	6%
03	8%
04	10%
05	12%
06	14%
07	16%
08	18%
09	20%
10	22%
11	24%
12	26%
13	28%
14	30%
15	31%
16	32%
17	35%
18	36%
19	37%
20	38%
21	39%
22	40%
23	42%
24	44%
25	45%
26	46%
27	47%
28	48%
29	49%
30	51%
31	52%
32	53%
33	54%
34	55%
35	56%
36	57%
37	58%
38-39	59%
40 Up	60%

CPW	
Age	Deprec.
01	4%
02	7%
03	9%
04	11%
05	14%
06	16%
07	18%
08	20%
09	23%
10	25%
11	27%
12	30%
13	32%
14	34%
15	36%
16	38%
17	40%
18	42%
19	44%
20	45%
21	47%
22	49%
23	51%
24	52%
25	53%
26	55%
27	56%
28	57%
29	59%
30	60%
31	61%
32	62%
33	63%
34	64%
35	65%
36	66%
37	67%
38	68%
39	69%
40 Up.	70%

Fire Proof Construction

CEP

Age	Deprec.
01-03	0%
04-05	1%
06-07	2%
08-09	3%
10-11	4%
12-13	5%
14-15	6%
16-17	7%
18-19	8%
20-21	9%
22-23	10%
24	11%
25-26	12%
27-28	13%
29-30	14%
31-32	15%
33-34	16%
35-36	17%
37-38	18%
39-40	19%
41-42	20%
43-44	21%
45-46	22%
47-48	23%
49-50	24%
51-52	25%
53-54	26%
55-56	27%
57-58	28%
59	29%
60 Up	30%

CGP

Age	Deprec.
01	0%
02	1%
03	2%
04	3%
05	4%
06	5%
07	6%
08	8%
09	9%
10-11	10%
12	11%
13	12%
14	13%
15	14%
16-17	15%
18	16%
19	17%
20-21	18%
22	19%
23	20%
24	21%
25-26	22%
27	23%
28	24%
29-30	25%
31	26%
32	27%
33-34	28%
35-36	29%
37-38	30%
39-40	31%
41	32%
42	33%
43-44	34%
45-46	35%
47-48	36%
49-50	37%
51-52	38%
53-54	39%
55-56	40%
57-58	41%
59	42%
60 Up	43%

CAP

Age	Deprec.
01	0%
02	2%
03	3%
04	5%
05	6%
06	8%
07	10%
08	12%
09	14%
10	15%
11	16%
12	17%
13	18%
14	20%
15	21%
16	22%
17	23%
18	24%
19	25%
20	26%
21	27%
22	28%
23	29%
24	30%
25	31%
26	32%
27	33%
28	34%
29	35%
30	36%
31	37%
32	38%
33	39%
34-35	40%
36-37	41%
38-39	42%
40	43%
41	44%
42	45%
43-44	46%
45-46	47%
47-48	48%
49	49%
50-51	50%
52-53	51%
54-55	52%
56-57	53%
58-59	54%
60 Up	55%

CFP

Age	Deprec.
01	1%
02	2%
03	4%
04	7%
05	8%
06	10%
07	12%
08	14%
09	16%
10	18%
11	19%
12	20%
13	21%
14	23%
15	24%
16	25%
17	26%
18	27%
19	28%
20	29%
21	30%
22	31%
23	33%
24	34%
25	35%
26	36%
27	37%
28	38%
29	39%
30	41%
31	42%
32	43%
33	44%
34	45%
35	46%
36-37	47%
38-40	48%
41-42	49%
43-44	50%
45-46	51%
47-48	52%
49-50	53%
51-52	54%
53	55%
54-55	56%
56	57%
57-58	58%
59	59%
60 Up	60%

CPP

Age	Deprec.
01-02	2%
03	5%
04	8%
05	10%
06	12%
07	14%
08	16%
09	18%
10	20%
11	22%
12	23%
13	24%
14	25%
15	26%
16	27%
17	28%
18	29%
19	30%
20	32%
21	33%
22	34%
23	36%
24	37%
25	39%
26	40%
27	41%
28	42%
29	43%
30	45%
31	46%
32	47%
33	49%
34	50%
35	51%
36	52%
37	53%
38	54%
39	55%
40	56%
41	57%
42	58%
43	59%
44-45	60%
46	61%
47	62%
48	63%
49-50	64%
51-52	65%
53	66%
54-55	67%
56-57	68%
58-59	69%
60 Up	70%

CUP

Age	Deprec.
01 Up	90%

OTHER BUILDING AND YARD ITEM

PERCENT GOOD GUIDELINES

The appraisal of other buildings and yard improvements for both residential and agricultural properties is a difficult task. Other buildings and yard improvements are rarely purchased or sold separately from the balance of the property. The cost of construction of a swimming pool, which is built for the convenience and comfort of a property owner, will rarely add an equivalent amount to the market value of the property. The cost of construction of a farm outbuilding that can be justified by its contribution to the farming operation will again seldom add an equivalent amount to the market value of the property.

In effect, other buildings and yard improvements have value in direct proportion to their degree of utility or usefulness. This is an extension of the principle of contribution, which affirms that the value of any factor in production is dependent upon the amount which it contributes to the overall net return, irrespective of the cost of its construction. Any effective approach to the valuation of other buildings and yard improvements must reflect the action of investors. Informed farm owners and operators would not invest in buildings which could not pay for themselves by either maintaining or adding to the required level of productivity. Homeowners would not invest in swimming pools, detached garages, etc., which would not supply the degree of comfort and/or convenience they desire.

Five individual Percent Good Tables have been developed to assist the appraiser in valuing the various other building and yard improvements that are normally encountered. The following is a list of the five tables.

Miscellaneous Structures Depreciation

S1	
AGE	DEPR.
01	10%
02	20%
03	25%
04	30%
05	35%
06	40%
07	45%
08-UP	50%

S2	
AGE	DEPR.
01	5%
02	10%
03	15%
04	20%
05	25%
06	30%
07	35%
08	40%
09	45%
10	50%
11	55%
12	60%
13	65%
14	70%
15-UP	75%

S3	
AGE	DEPR.
00--03	5%
04--06	10%
07--09	15%
10--12	20%
13--15	25%
16--18	30%
19--21	35%
22--24	40%
25--27	45%
28--30	50%
31--35	55%
36--40	60%
41--45	65%
46--50	70%
51--UP	75%

S4	
AGE	DEPR.
00--04	5%
05--08	10%
09--12	15%
13--16	20%
17--20	25%
21--24	30%
25--28	35%
29--32	40%
33--36	45%
37--40	50%
41--44	55%
45--48	60%
49--52	65%
53--56	70%
57--UP	75%

S5	
AGE	DEPR.
00--05	5%
06--10	10%
11--15	15%
16--20	20%
21--25	25%
26--30	30%
31--35	35%
36--40	40%
41--45	45%
46--50	50%
51--55	55%
56--60	60%
61--65	65%
66--70	70%
71--UP	75%

LAND TYPES AND DESCRIPTIONS

LAND TYPE	LAND DESCRIPTIONS
0100 (SFR)	Build Site – site for possible construction of building in a subdivision
0200 (Mbl Hm Sub)	Build Site – site for possible construction of mobile homes in a subdivision
0210 (MH TR Park)	Build Site – site for possible construction of mobile home trailer parks
5010 (Rural)	Build Site for all residential main improvements outside urban or suburban areas.
5113(AGRI I)	Primarily cleared residential residual land
6113 (Wood I)	Primarily wooded residential residual land
5960 (Open Space)	Allocation of value to individual properties located in townhouse or condominium developments. Value includes interest in all common areas, e.g. parking areas, pools, tennis courts, etc
0702 (Cell Tower)	Land that has a cell tower placed on it.
0703 (Solar Farm)	Land that has an active solar farm placed on at least some of the acreage
9000 (Leasehold)	This land line applies to a privately owned condo, where the resident owns the building only but the land it stands on is owned by the community, HOA or another entity.
9010 (No Land Int)	This code is applied for structures in which the building on the land would typically be assessed as one parcel with the land and outbuilding value but cannot be due to ownership. This is often applied to a commercial building which is owned by a different legal entity than the landowner, which necessitates the land and building to be valued as separate parcel to assess fairly. This can also be the case for a main building which is owned by one person but on land owned by parents, the family farm, a trust or similar. This is slightly different than personal property, as the structures are real property although it has some similar concepts.

9101 (Setic/Well Lot)	Land that is unsuitable for further development and earmarked for utility use to support sewer lines, septic tank or a well
9611 (Wetland)	Land that is unsuitable for any practical structural development due to the presence of a mapped waterbody (river, pond, permanent wetland, etc.)
CB (Commercial Primary)	Commercial Building Site-includes cost of typical site preparation, landscaping and water and sewer system access.
CS (Commercial Secondary)	Commercial Building Site - includes cost of minimal site preparation, landscaping, and water and sewer service
CR (Commercial Residual)	Commercial land which has nominal value, typically land which only has value relative to its contribution to the overall parcel value.
CU (Commercial Undeveloped)	Vacant Commercial Land which is suitable in size, zoning and location for commercial development.
IB (Industrial Primary)	Industrial Building Site- Includes cost of typical site preparation, landscaping and water and sewer system access.
IS (Industrial Secondary)	Industrial Secondary Site- includes cost of minimal site preparation, landscaping, and water and sewer service.
IU (Industrial Undeveloped)	Vacant Industrial Land which is suitable in size, zoning and location for industrial development.
IR (Industrial Residual)	Industrial land which has nominal value, typically land which only has value relative to its contribution to the overall parcel value.

VALUATION GUIDELINES

1) Rural - Remote or sparsely developed areas of the county where much of the land is being actively farmed or lying idle. Turnover is infrequent; and development is generally limited to major highway intersections and rural hamlet communities. Public water may or may not be available. The majority of homes and businesses in rural areas are served by individual wells and septic systems.

2) Suburban - Areas in the county in which development is occurring or has reached equilibrium stage. Includes concentrated communities, surrounding cities, and towns. Pockets of commercial and industrial properties are prevalent. Public water is normally available; and in some cases, sanitary sewer services exist but are not required.

3) Urban - Areas within or immediately surrounding cities or towns with a high density of housing, commercial and industrial properties. Land is almost always bought and sold with the intent to develop. Turnover is frequent; and development is rapid. Public water and sewer are readily available.

4) Subdivisions - Areas which have been divided into plots with roadways for the purpose of development for residential, commercial or industrial. Subdivisions may have extra restrictions besides governmental restrictions. Public water may or may not be available and in some cases sanitary sewer services exist.

LAND INFLUENCE FACTOR

GENERAL:

The technique of land pricing, as described in other sections of this manual, provides for the development of unit land rates for all classes of real property within a given area or neighborhood. These land rates are developed from verified, recent sales and are expected to reflect market value for various prevalent land types as of the effective valuation date for each given area.

Land rates will be developed for parcels in the following Categories:

Lot
Square Foot
Acreage
Unit Buildable
Base Value
Land Use

It is significant to point out that assigned land rates are based on typical or normal conditions for that class of property and land type within a specific neighborhood or area. It is likely that some number of specific parcels, within a neighborhood, will have unique factors affecting the value of that land parcel. These “Land Influences Factors” may affect the value of a specific parcel beneficially or detrimentally. I.E., plus, or minus compared to the norm for the neighborhood.

Proper appraisal practice indicates that a land rate adjustment or “Land Influence Factor” should be applied by the review appraiser to properly reflect the unique considerations for a parcel with significant physical or economic characteristics, deviating from the normal conditions reflected by the neighborhood land rates.

The primary goal of a Reappraisal Program is equalization; it is strongly recommended that users of this manual exercise proper judgment and caution in the application of land influence factors.

Land Influence Factor Guidelines

Topography

This category allows the reviewer's judgment of the degree of difficulty due to poor topography in erecting a suitable improvement on the subject parcel.

Normally if a suitable improvement is present on the subject lot, the topography problem has been corrected. Therefore, an improved lot normally should have no allowance for topography. However, a topography influence may need to be applied in significant cases of un-improved lots or tracts where poor topography represents an actual detriment to the presumed utilization of the parcel.

Topography factors include; irregular land contour, poor drainage, potential subsidence, sub-surface rock ledge, potential erosion, and flood plain areas.

The following is presented as topography factor guide:

TOPOGRAPHY INFLUENCE FACTOR GUIDE

CONDITION	DESCRIPTION	FACTOR
Normal	Problem corrected or not significant	0%
Slight	Problem is a moderate handicap to full utilization of the lot bus is correctable. This is buildable but less desirable than typical lots in the area due to topography problems.	5-15%
Moderate	Problem is significant but correctable in that it prevents the development of the lot until the topography problem is corrected.	20-40%
Severe	The topography problem is so severe it is not economically feasible to develop the lot.	45-90%

Shape or Size

Shape or size factor is normally a negative adjustment to account for loss of value to a parcel due to highly irregular shape or insufficient size for the presumed utilization of the parcel.

Shape or size factor is a review judgment and may apply to all land types. The basis for any factor is a negative adjustment reducing the subject lot value to the amount and degree of land utility applicable for the presumed utilization.

The following is presented as a shape/size factor guide:

CONDITION	DESCRIPTION	FACTOR
Normal	Shape or size is no significant detriment to the presumed utilization of the parcel.	0%
Minor	The lot is buildable and/or economically usable for the presumed utilization, but irregular shape or insufficient size preludes the full utilization of the parcel.	5-15%
Moderate	Irregular shape or insufficient size represents a significant handicap to the presumed utilization and/or development of the land category is restricted to a significant under improvement or underutilization of the parcel.	20-40%
Un-Buildable	The shape or size problem is so severe that it renders the land category unusable and/or unbuildable for the presumed utilization. A typical example would be an undersized lot subject to minimum zoning restrictions which effectively prevents an economical utilization.	45-90%

Restrictions/Undeveloped

A negative land influence adjustment for restrictions or undeveloped is applicable for cases where the property is subject to a legal or physical restriction to its utilization.
This could also be used when a property site has been prepared to build on, but building has not yet commenced. Typical examples would include: utility easements, such as power lines and sewer lines. Zoning or deed restrictions to the property, limiting the utilization to a less than normal use for typical lots in the neighborhood.

Physical barriers to the property such as bridges, highway medians, fences or abutments.

The following is presented as a land influence factor guide for restrictions:

CONDITION	DESCRIPTION	FACTOR
Normal	No significant restriction to the property exists.	0%
Minor	A restriction of moderate significance, legal or physical, exists which causes the property to be less desirable than similar lots in the area which are not subject to this restriction but does not prevent utilization of the property for the presumed use.	5-15%
Moderate	A restriction of major significance, legal or physical, exists which causes the property to be restricted to a less than full utilization compared to similar lots in the area, which are not subject to this restriction. An example would be power lines bisecting the lot which prevent the building of a dwelling but would be suitable for a garage or secondary structure	20-40%
Un-Buildable	A restriction of very severe impact, legal or physical, exists which causes the property to be rendered virtually unbuildable or unusable for any significant utilization compared to similar lots in the area which are not subject to this restriction. An example would be a lot rendered non-accessible by a highway right-of-way.	45-90%

Economic Mis-Improvement

This category is reserved as a reviewer's judgment of the comparative loss of value land (either under-improvement or over-improvement). In essence, this judgment is expressing the appraiser's opinion that the existing structure represents an encumbrance to the full utilization of the land.
The application of a mis-improvement factor for Residential/Agricultural property is possible but very rare. Most instances occur in commercial or industrial situations where market evidence indicates a different economic utilization of the land than the current utilization. It is important to recognize in the application of economic mis improvement factors that the land is presumed to be valued on the bases of typical “highest and best” utilization and the existing structure is non-contributory to this most economical utilization. Obviously, vacant tracts are not encumbered by any structure; therefore, vacant tracts are not subject to economic mis-improvement factors. Further, the appraiser should recognize that the economic mis-improvement condition is “curable”: i.e., if the structure is removed, the previously applied economic mis-improvement factor is normally no longer applicable.

Typical examples include:

Dwellings in areas converting to commercial development, or gross under improvement, as an old warehouse located in an area where market evidence indicates modern office complex development.

Following is an Economic Mis-Improvement Factor Guide:

CONDITION	DESCRIPTION	FACTOR
Normal	The property is unimproved (No major structures present) or the existing structure is consistent with the economical utilization of the land.	NONE
Minor	The land is encumbered with a structure that represents an economic mis-improvement, and the structure has an assigned value of 5% to 50% of the land value at highest and best use.	5-50%
Major	The land is encumbered with a structure that represents an economic mis-improvement, and the structure has an assigned value of 50% or more of the land value at the highest and best use.	50-100%

Corner and/or Alley Influence

This category is reserved for the recognition of the enhancement in land value attributable to the potential utilization of a corner lot, over and above the value of an otherwise comparable inside lot. The enhancement due to the presence of a rear or side alley is normally common to all lots in a given area or block. Therefore, the recommended procedure for enhancement due to alley influence, if any, is to consider this factor in the land rate itself.

The amount of enhancement, if any, to a corner lot must be based on the individual merits of each corner location.

Normally, corner influence is not applicable to Residential/Agricultural property. Corner influence factors should be applied to only those cases of commercial or industrial property where the corner is an actual enhancement to the land.

Following is presented as a guide for Corner Influence Factors:

CONDITION	DESCRIPTION	FACTOR
Normal	The presence of a corner or alley has no significant enhancement effect to the property. Example: The side street has restricted access as a dead-end street.	NONE
Minor	The lot value is moderately enhanced by the presence of corner or alley exposure. Example: Intersection of two secondary streets or a major arterial street and a secondary street.	+10-25%
Major	The lot value is significantly enhanced by the presence of corner or alley exposure. Example: The intersection of two major arterial streets.	+25-250%

View Influence

This factor is normally a positive adjustment for lots or parcels where the land value is significantly enhanced by the presence of a scenic or waterfront view when compared to similar lots in the area where no significant view is present. This factor also applies to golf course lots.

It is highly recommended that the appraiser exercise due caution in the application of view influence. It is useful to remember that while the subject may have an appealing view, if this condition is common to most parcels in the area, then comparatively there is probably no real view enhancement. The appraiser should also consider the permanency of the view, i.e., the probability of potential obstruction.

The following is a View Influence Factor Guide:

CONDITION	DESCRIPTION	FACTOR
Normal	The view is considered common to the area, and market evidence indicates no actual value enhancement exists.	NONE
Minor	The subject property has a moderate enhancement due to an appealing view, and market evidence: Indicates value enhancement exists.	(+)10 - (+)25%
Major	The subject property has a significant enhancement due to an appealing view. Further, the view enhancement is not common to similar lots in the area and there is little or no potential for obstruction of the view by other structures.	(+)25 - (+)250%
Negative	For properties with less than normal or typical views, the appraiser should apply negative factors to the affected properties as indicated by market analysis and evidence.	(-)10 - (-) 75%

BASE RATE LAND VALUATION TECHNIQUE

The Base Rate Land Valuation Technique allows the appraiser to establish land rates using either a price per acre, price per square foot or price per lot for each parcel located within an individual neighborhood unit. This method also allows the appraiser to develop base land sizes for each land segment type within the neighborhood.

RESIDENTIAL BASE RATE METHOD

Residential Base Land Rates are obtained from either land sales or using a portion of an improved sale price. Base Rates are applied at the neighborhood level for each individual land code. These rates are multiplied by the acreage for each code and then multiplied by the size factor charts herein.
**Land Type's 5113 & 6113 are added together first before adjusting to the size chart **

B1	
AREA	ADJUSTMENT
<= 0.050	300
0.051 - 0.075	288
0.076 - 0.100	275
0.101 - 0.125	263
0.126 - 0.150	250
0.151 - 0.175	238
0.176 - 0.200	225
0.201 - 0.225	213
0.226 - 0.250	200
0.251 - 0.275	195
0.276 - 0.300	190
0.301 - 0.325	185
0.326 - 0.350	180
0.351 - 0.375	175
0.376 - 0.400	170
0.401 - 0.425	165
0.426 - 0.450	160
0.451 - 0.475	155
0.476 - 0.500	150
0.501 - 0.550	145
0.551 - 0.600	140
0.601- 0.650	135
0.651 - 0.700	130
0.701 - 0.730	127
0.731 - 0.750	125
0.751 - 0.780	122
0.781 - 0.800	120
0.801 - 0.830	117
0.831 - 0.850	115
0.851 - 0.880	112
0.881 - 0.900	110
0.901 - 0.930	107
0.931 - 0.950	105
0.951 - 0.980	102
0.981 - UP	100

R1	
AREA	ADJUSTMENT
<= 1.00	103
1.01 - 5.00	102
5.01 - 10.00	101
10.01 - 17.00	100
17.01 - 18.00	98
18.01 - 19.00	96
19.01 - 20.00	94
20.01 - 25.00	92
25.01 - 30.00	90
30.01 - 35.00	88
35.01 - 40.00	86
40.01 - 50.00	84
50.01 - 60.00	82
60.01 - 70.00	80
70.01 - 80.00	78
80.01 - 90.00	76
90.01 - 100.00	74
100.01 - 110.00	72
110.01 - 115.00	70
115.01 - 120.00	68
120.01 - 125.00	66
125.01 - 130.00	64
130.01 - 135.00	62
135.01 - 140.00	60
140.01 - 145.00	59
145.01 - 150.00	58
150.01 - 155.00	57
155.01 - 160.00	56
160.01 - 165.00	55
165.01 - 170.00	54
170.01 - 175.00	53
175.01 - 180.00	52
180.01 - 185.00	51
185.01 - UP	50

R2	
AREA	ADJUSTMENT
<= 1.00	103
1.01 - 5.00	102
5.01 - 10.00	101
10.01 - UP	100

LAND USE SCHEDULES

2026 REAPPRAISAL

HARNETT COUNTY NORTH CAROLINA

In order to comply with the procedures of North Carolina General Statutes 105-317 (c) "1" and "2" and 105-277.6 (c), Harnett County is required to develop and adopt a land use schedule of values for agriculture, horticulture and forest lands. The purpose of this schedule is to provide a uniform method of valuation based on the present value in use for qualifying lands. After careful consideration of the available pertinent production statistics for Harnett County, North Carolina and the Use Value Manual for Agricultural, Horticultural and Forest Land prepared by the North Carolina Use Advisory Board, the following schedule of values is recommended as the standard for present use taxation for the 2026 Harnett County, North Carolina Reappraisal.

LAND USE VALUATION SCHEDULE

AGRICULTURAL SCHEDULE (Rate Per Acre)	
133A	$1,200
136	$950
137	$1,035

HORTICULTURAL SCHEDULE (Rate Per Acre)	
133A	$1,520
136	$1,370
137	$1,295

FORESTRY SCHEDULE (Rate Per Acre)	
133A	$355
136	$390
137	$425

Rates shown are price per acre.

In lieu of detailed soil maps, the rate per class will be applied countywide.

Waste land is defined as land that, due to its physical condition, location, or legal restrictions, cannot be used for cultivation or other productive purposes. Land restricted from present use in any classification for utility, water, and sewer easements shall be considered waste land. Land considered restricted for the above-mentioned purposes will be assessed at $40 per acre.

Flood Zone Documentation:

The purpose of this is to apply flood adjustments to the parcels that are located within a FEMA designated flood zone. This will be done in mass. Parcels may need further review by experienced appraisers.

Harnett County has approximately 4500 parcels that are affected in some way by a flood zone. For this exercise we will group the flood zones into the following group:

- Floodway
- 100 Year
- 500 Year

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

FLOOD ZONE ADJUSTMENT GUIDE

% IN FLOOD ZONE	**0**	**1 to 10%**	**11 to 25%**	**26 to 50%**	**51 to 75%**	**76 to 100%**
FLOOD ZONE						
Floodway	0%	5%	10%	25%	50%	75%
100 Year	0%	3%	5%	10%	15%	20%
500 Year	0%	1%	3%	5%	10%	15%

INCOME APPROACH TO VALUE

The Income Approach includes models for the following property groups:

- Apartments
- Hotels
- Retail Shops/Grocery Stores
- Discount Stores
- Office
- Convenience Stores
- Restaurants
- Manufacturing/Warehouse
- NNN Models
- Mobile Home Parks
- Mini Storage
- Service Shop/Service Garage
- Franchise Drug Store
- Franchise Restaurant
- Franchise Retail
- Medical Office
- Motels
- Nursing Home
- Office/Warehouse
- Shopping Center/Mall

Income and Expense Models are developed for each property group to cover the broad range of properties located within Harnett County. Income and expense models are based on typical net lease situations. For triple net and other type leases, expense ratios should be adjusted to reflect actual or typical expenses of the landlord in this type of arrangement. Triple net leases have little to no expenses.

Economic Income is developed on a gross square foot or unit basis. Potential Gross Income is adjusted for occupancy loss to produce an Effective Gross Income. Income and Occupancy factors may be adjusted outside of the stated models for exceptional properties on an individual basis.

Expenses for management and marketing, maintenance, utilities, reserve for replacement, property taxes and other operating expenses are specified as a percentage of Effective Gross Income. Expenses are deducted from Effective Gross Income to generate a Net Income, which is then capitalized using direct capitalization. Expenses may be adjusted outside of the stated models based on the individual property.

Income Models include associated capitalization parameters:

a) Typical financing percentage rates and terms.
b) Cash on cash requirements.

These capitalization parameters may be adjusted for lower or higher risk properties through an override of the indicated model rates. Capitalization Rates are computed excluding an effective tax rate and applied to the Net Income to generate an indicated value.

At the current time, Harnett County's tax appraisal system does not allow these models to be loaded at a table level. These models are used as a guide for individual parcels.

APARTMENTS

	MONTHLY RENTAL RATE					EXPENSE RATIOS			CAPITALIZATION		
MODEL	EFF	1BR	2BR	3BR	4BR	VACANCY	MGMT	EXPENSES	CAP RATE	GRM	MISC
AP1	900+	1000+	1500+	2000+	2500+	**5 - 10%**	**3 - 10%**	**25 - 40%**	**.045 - .07**	**7-8**	**$100.00+**
AP2	750	900	1100	1400	1700	**5 - 10%**	**3 - 10%**	**25 - 40%**	**.045 - .08**	**7-8**	**$100.00**
AP3	600	650	850	1000	1200	**5 - 10%**	**3 - 10%**	**25 - 40%**	**.06 - .09**	**6-7**	**$100.00**
AP4	500	550	650	800	900	**10 - 15%**	**3 - 10%**	**30 - 50%**	**.06 - .10**	**6-7**	**$100.00**
AP5	400	450	525	700	800	**10 - 15%**	**3 - 10%**	**30 - 50%**	**.07 - .11**	**6-7**	**$50.00**
AP6	250-Less	300-LESS	400-LESS	500-LESS	600-LESS	**15 - 20%**	**3 - 10%**	**30 - 50%**	**.10 - .12**	**5-6**	**$50.00**

HOTELS

EFFECTIVE DAILY ROOM RATES		EXPENSE RATIOS			CAPITALIZATION	
MODEL	DAILY ROOM RATES	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
H01	$200 - UP PER NIGHT	**35 - 50%**	**5 - 10%**	**40 - 60%**	**.08 - .10**	**1 - 3**
H02	$150 PER NIGHT	**35 - 50%**	**5 - 10%**	**40 - 65%**	**.08 - .10**	**1 - 3**
H03	$100 PER NIGHT	**35 - 50%**	**5 - 10%**	**50 - 65%**	**.09 - .11**	**1 - 3**
H04	$75 PER NIGHT	**35 - 50%**	**5 - 10%**	**50 - 65%**	**.09 - .11**	**1 – 2**

RETAIL SHOPS/GROCERY STORES

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
RE1	$10 - UP PER SQ/FT	**5 - 10%**	**5 - 10%**	**20 - 40%**	**.06 - .10**	**N/A**
RE2	$10 - $20 PER SQ/FT	**5 - 10%**	**5 - 10%**	**20 - 40%**	**.06 - .10**	**N/A**
RE3	$8.50 - $15 PER SQ/FT	**5 - 10%**	**5 - 10%**	**20 - 40%**	**.06 - .10**	**N/A**
RE4	$7.50 - $12.50 PER SQ/FT	**5 - 10%**	**5 - 10%**	**25 - 50%**	**.06 - .11**	**N/A**
RE5	$6 - $10 PER SQ/FT	**10 - 15%**	**5 - 10%**	**25 - 50%**	**.06 - .11**	**N/A**
RE6	$5 - $7.50 PER SQ/FT	**10 - 15%**	**5 - 10%**	**25 - 50%**	**.06 - .11**	**N/A**

DEPARTMENT/DISCOUNT STORES

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
DS1	$6 - UP PER SQ/FT	3 - 5%	5 - 10%	25 - 40%	.05 - .09	N/A
DS2	$4 - $6 PER SQ/FT	3 - 5%	5 - 10%	25 - 40%	.06 - .10	N/A
DS3	$2.50 - $4 PER SQ/FT	3 - 5%	5 - 10%	25 - 40%	.07 - .11	N/A

OFFICE

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
OF1	$20 - UP PER SQ/FT	3 - 5%	3 - 5%	20 - 35%	.05 - .08	N/A
OF2	$15 - $20 PER SQ/FT	3 - 10%	3 - 5%	20 - 35%	.05 - .09	N/A
OF3	$10 - $15 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.06 - .095	N/A
OF4	$5 - $10 PER SQ/FT	10 - 15%	5 - 10%	25 - 45%	.07 - .11	N/A
OF5	$7 - LESS PER SQ/FT	10 - 15%	5 - 10%	25 - 45%	.08 - .11	N/A

CONVENIENCE STORES

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
CS1	$35- UP PER SQ/FT	0 - 5%	5 - 10%	08 - 10%	.05 - .10	N/A
CS2	$20- $30 PER SQ/FT	0 - 5%	5 - 10%	10 - 15%	.06 - .11	N/A
CS3	$12.50- $20 PER SQ/FT	3 - 5%	5 - 10%	15 - 30%	.07 - .11	N/A
CS4	$8-$12.50 PER SQ/FT	5 - 10%	5 - 10%	20 - 30%	.08 - .11	N/A
CS5	$5 - $8 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.09 - .12	N/A

RESTAURANTS

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
RS1	$25 - UP PER SQ/FT	0 - 5%	5 - 10%	20 - 35%	.05 - .09	N/A
RS2	$15 - $25 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.05 - .10	N/A
RS3	$10 - $15 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.06 - .10	N/A
RS4	$6 - $10 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.07 - .11	N/A
RS5	$4 - $6 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.08 - .12	N/A

MANUFACTURING/WAREHOUSE

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
MW1	$7.50 - UP PER SQ/FT	5 – 10%	5 - 10%	25 - 40%	.05 - .09	N/A
MW2	$4 - $7.50 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.05 - .10	N/A
MW3	$2.50 - $4 PER SQ/FT	10 - 15%	5 - 10%	25 - 40%	.06 - .10	N/A
MW4	$1 - $2.50 PER SQ/FT	10 - 15%	5 - 10%	40 - 55%	.07 - .11	N/A

NNN MODELS

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
NN1	$20 - UP PER SQ FT	0 - 3%	5 - 10%	10 - 15%	.05 - .08	N/A
NN2	$25 - $40 PER SQ/FT	0 - 3%	5 - 10%	10 - 15%	.05 - .08	N/A
NN3	$7.50 - UP PER SQ/FT	0 - 5%	5 - 10%	05 - 10%	.05 - .09	N/A

MOBILE HOME PARKS

ECONOMIC RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT PER SITE	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
MH1	$125 - UP/MONTH	5 - 10%	5 - 10%	25 - 35%	.05 - .10	5 – 6

MINI-STORAGE

ECONOMIC RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT PER UNIT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
MS1	$75 - UP PER MONTH	10 - 25%	5 - 10%	20 - 35%	.05 - .09	5 – 6
MS2	$50- $125 PER MONTH	10 - 25%	5 - 10%	20 - 35%	.05 - .09	5 – 6
MS3	$25 - $75 PER MONTH	10 - 25%	5 - 10%	20 - 35%	.05 - .10	5 – 6

SERVICE SHOP/SERVICE GARAGE

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
SS1	$15 - UP PER SQ/FT	5 – 10%	5 - 10%	10 - 15%	.06 - .08	N/A
SS2	$5 - $10 PER SQ/FT	5 - 10%	5 - 10%	20 - 35%	.07 - .10	N/A
SS3	$2.50 - $4 PER SQ/FT	5 - 10%	5 - 10%	25 - 40%	.08 - .11	N/A

FRANCHISE DRUG STORES

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
FD1	$18 - UP PER SQ/FT	3 - 5%	5 - 10%	05 - 10-%	.045 - .08	N/A
FD2	$15 - $20 PER SQ/FT	3 - 5%	5 - 10%	05 - 10%	.05 - .085	N/A

FRANCHISE RESTURANTS

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
FR1	$25 - UP PER SQ/FT	0 - 3%	5 - 10%	10 - 15%	.045 - .08	N/A
FR2	$15 - $25 PER SQ/FT	0 - 3%	5 - 10%	10 - 15%	.05 - .09	N/A

FRANCHISE RETAIL

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
RF1	$12.50 - UP PER SQ/FT	5 – 10%	5 - 10%	05 - 15%	.06 - .08	N/A
RF2	$7- $12 PER SQ/FT	5 - 10%	5 - 10%	05 - 15%	.07 - .09	N/A
RF3	$7.50 –LESS PER SQ/FT	5 - 10%	5 - 10%	05 - 15%	.07 - .09	N/A

MEDICAL OFFICES

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
MD1	$30 - UP PER SQ/FT	5 - 10%	5 - 10%	20 - 30%	.05 - .09	N/A
MD2	$20 - $30 PER SQ/FT	5 - 10%	5 - 10%	25 - 35%	.06 - .09	N/A
MD3	$10 - $20 – PER SQ/FT	5 - 10%	5 - 10%	25 - 35%	.07 - .10	N/A

MOTELS

EFFECTIVE DAILY ROOM RATES		EXPENSE RATIOS			CAPITALIZATION	
MODEL	DAILY ROOM RATES	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
MO1	$125 - UP PER NIGHT	40 - 50%	5 - 10%	40 - 60%	.06 - .10	1 - 3
MO2	$100 PER NIGHT	40 - 50%	5 - 10%	40 - 60%	.07 - .10	1 - 3
MO3	$85 PER NIGHT	40 - 50%	5 - 10%	50 - 65%	.08 - .11	1 - 3
MO4	$65 PER NIGHT	40 - 50%	5 - 10%	50 - 65%	.09 - .11	1 – 2
MO5	$50 PER NIGHT	40 - 50%	5 – 10%	50 – 70%	.10 - .12	1 - 2
MO6	$40 PER NIGHT	40 - 50%	5 – 10%	50 – 70%	.10 - .12	1 - 2

NURSING HOMES

ECONOMIC RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
NH1	$1100 - UP/MONTH	5 - 10%	5 - 10%	40 - 60%	.05 - .09	N/A

OFFICE/WAREHOUSE

ECONOMIC RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
OW1	$10 - UP PER SQ FT	05 - 10%	5 - 10%	20 - 40%	.06 - .09	N/A
OW2	$7.50- $12.50 PER SQ FT	05 - 10%	5 - 10%	20 - 40%	.06 - .10	N/A
OW3	$4.50 - $7.50 PER SQ FT	05 - 10%	5 - 10%	20 - 40%	.07 - .10	N/A

SHOPPING CENTERS/MALL

ANNUAL SQUARE FOOT RENT		EXPENSE RATIOS			CAPITALIZATION	
MODEL	ECONOMIC RENT	VACANCY	MGMT	EXPENSES	CAP RATE	GRM
SC1	$15 - UP PER SQ/FT	5 - 10%	5 - 10%	25 - 50%	.06 - .09	N/A
SC2	$12.50 - $20 PER SQ/FT	5 - 10%	5 - 10%	25 - 45%	.07 - .10	N/A
SC3	$7.50 - $12.50 PER SQ/FT	5 - 10%	5 - 10%	25 - 45%	.08 - .10	N/A

Neighborhood Delineation

Purpose

Neighborhood Delineation is a study of forces from outside which could be considered to have an effect on property value; and conclusions on the typical housing, economic, social and demographic characteristics of the geographic area considered a homogeneous neighborhood. A "neighborhood" for analysis purposes is defined as the largest geographic grouping of properties where the significant economic forces of those properties are generally uniform.

The Neighborhood Data Form serves three (3) main functions:

1. To provide an opinion of the typical structure, economic factors and conditions within an area considered a neighborhood. Appraisers use this information to provide a benchmark to compare each property within the neighborhood with each other.

2. To provide a generally similar geographic area to use as a statistical base for sales comparison, both during the 2026 Reappraisal and years later to measure change and update values accordingly.

3. Provide a basis to allow development of computer assisted land price tables (CALP).

Significant Characteristics Considered:

1. Physical Boundaries

    a. Natural - as rivers, mountains, woods, streams, etc.

    b. Manmade - as roads, highways, railroads, streets, corporation boundaries, etc.

2. Housing Characteristics - such as type, quality, age and condition.

3. Occupancy - as % of homes owner-occupied or tenant-occupied, and % of vacant structures.

4. Predominant land use and anticipated changes.

5. Typical land size and land valuation.

6. Neighborhood life cycle.

7. Estimates of market value ranges.

INSTRUCTIONS FOR NEIGHBORHOOD DELINEATION FIELD ANALYSIS

Step 1 - Produce large scale maps for the county, which ideally show all streets, roads and significant physical features such as rivers, lakes, railroads, etc.

Step 2 - Establish preliminary neighborhood boundaries on base maps using known physical and governmental features as boundaries. A general rule would be to consider all physical separation points such as rivers, arterial streets, corporation lines, lakes, commercial-industrial areas, highways, etc., as a definite neighborhood boundary.

Step 3 - Assemble and analyze supplementary material for the community as available and useful.

Examples would include:

- Listing of established subdivisions
- Zoning maps and zoning restrictions
- Planning department maps - (master development plans)
- Census Tract Statistics
- School district maps
- Redevelopment planning maps and studies
- Current and planned utility maps (sewer, public water)
- Soil maps, topographic maps, etc.
- Real estate sales data from multiple listing service and internal sales verification letters.
- Industrial plant listing, employment base summaries.

Step 4 - Begin the field inspection process by conducting a thorough, street by street visual inspection throughout the county. Based on physical observation and data collected and analyzed to date, establish individual neighborhood boundaries, recognizing the specific delineation points where the properties begin to represent significant physical and economic changes from adjacent areas.

Step 5 - After establishing boundaries of each neighborhood;

A - Fill out the neighborhood data form and assign an identification number.

B - Post the established neighborhood boundaries and identification numbers to a master map.

Step 6 - Establish final boundaries and permanent neighborhood numbers and post both to the Project Master Map and Individual Field Maps used for field appraisal.

Step 7 - Determine through manual or computerized analysis the comparability of all neighborhoods. The theory here is, even though various neighborhoods may be physically separated, if the predominant value analysis characteristics such as value range, housing characteristics, neighborhood type, etc., are similar, then it is desirable to group similar neighborhoods and thereby create a larger sales data base for comparable property value analysis.

SUMMARY - Keep in mind during the neighborhood analysis process, our primary purpose is to use the neighborhoods established to develop a statistical measuring base for pooling and analyzing sales data and subsequently using this data to determine market value for individual properties via the comparable market data approach.

2026 USE-VALUE MANUAL

FOR AGRICULTURAL, HORTICULTURAL

AND

FOREST LAND

April 2025

North Carolina Use-Value Advisory Board
North Carolina Department of Revenue
Raleigh, North Carolina

Table of Contents

Foreword

When originally enacted in 1973, the objective of the present-use value program was to keep “the family farm in the hands of the farming family.” By the early 1970’s, North Carolina had become a prime site for industrial and commercial companies to relocate because of its plentiful and reliable work force. With this growth came other improvements to the State’s infrastructure to accommodate this growth, such as new and larger road systems, more residential subdivisions, and new industrial and commercial developments. The land on which to build these improvements came primarily from one source: farmland. As the demand for this land skyrocketed, so did its price as well as its assessed value, as counties changed from a fractional assessment to a market value system. Farmers who owned land near these sites soon could not afford the increase in property values and sought relief from the General Assembly.

In response, the General Assembly passed legislation known as the Present-Use Value program. As originally enacted, the basic tenets of this program were that only individuals who lived on the land for which they were applying could immediately qualify and that the land had to have a highest and best use as agriculture, horticulture or forest land. Land might also have qualified if the farmer owned it for seven years. Passage of this law eased the financial burden of most farmers and eliminated to some degree the “sticker shock” of the new property tax values. From that time until the mid-1980’s, the present-use value schedules were based on farmer-to-farmer sales, and quite often the market value schedules were very similar to the present use schedules, especially in the more rural areas.

Virtually every session of the General Assembly has seen new changes to the law, causing a constant rethinking as to how the law is to be administered. The mid-1980's saw several court cases that aided in this transformation. Among the legislative changes that resulted from these cases were the use of soil productivity to determine value, the use of a 9% capitalization rate, and the utilization of the "unit concept" to bring smaller tracts under the present use value guidelines.

Through the years the General Assembly has expanded the present-use value program to include new types of ownership such as business entities, tenants in common, trusts, and testamentary trusts. Legislation also expanded the definition of a relative. More recent legislation has established cash rents as the basis for determining present-use value for agricultural and horticultural land, while retaining the net income basis for determining present-use value for forestland.

This Use-Value Advisory Board Manual is published yearly to communicate the UVAB recommended present-use value rates and to explain the methodology used in establishing the recommended rates.

NORTH CAROLINA USE-VALUE ADVISORY BOARD

Chairman
Dr. A. Richard Bonanno
Associate Dean & Director
North Carolina Cooperative Extension Service
North Carolina State University
NCSU Box 7602
Raleigh, NC 27695-7602

____
(Representing the NC Cooperative Extension Service at NCSU)

Members

Mr. Sean M. Brogan, Director
Forest Management & Forest Development
NC Forest Service
Archdale Building-10th Fl
Raleigh, NC 27699-1616
Telephone: 919.857.4818
Fax: 919.857.4805
Email: Sean.Brogan@ncagr.gov
(Representing NC Forest Service, NC Department of Agricultural and Consumer Services)

Jonathan T. Lanier
General Counsel
NC Dept. of Agriculture & Consumer Services
2 West Edenton Street
Raleigh, NC 27601
Telephone: 919.707.3010
Email: Jonathan.lanier@ncagr.gov
(Representing Dept. of Agriculture & Consumer Services)

Mr. Michael Brown
Lee County Tax Administrator
106 Hillcrest Drive
Sanford, NC 27330
Telephone: 919-718-4661
Fax:
Email: mbrown@leecountync.gov
(Representing NC Assn. Of Assessing Officers)

Mr. David Allen
Randolph County Commissioner
Randolph County Office Building
725 McDowell Rd. – 2nd Floor
Asheboro, NC 27205
Telephone: 828.312.0102
Fax: 828.465.8392
Email: David.Allen@RandolphCountyNC.gov
(Representing NC Assn. Of County Commissioners)

Dr. M. Ray McKinnie
Associate Dean & Extension Administrator
NC Cooperative Extension Program
NC A&T State University
PO Box 21928
Greensboro, NC 27420-1928
Telephone: 336.285.4651
Email: mckinnie@ncat.edu
(Representing the NC Cooperative Extension Program at NC A&T State University

Mr. Steve Woodson
Associate General Counsel
North Carolina Farm Bureau
PO Box 27766
Raleigh, NC 27611
Telephone: 919.788.1018
Fax: 919.783.3593
Email: steve.woodson@ncfb.org
(Representing NC Farm Bureau Federation, Inc.)

Mr. Tony Simpson
Director, Local Government Division
NC Department of Revenue
PO Box 871
Raleigh, NC 27602
Telephone: 919.814.1129
Fax: 919.715.3107
Email: john.simpson@ncdor.gov
(Representing NC Dept. of Revenue)

Mr. John Hatcher
Executive VP, NC Forestry Association
1600 Glenwood Avenue
Raleigh, NC 27608
Telephone: 919.834.3943 (press 5)
Fax: 919.832.6188
Email: jhatcher@ncforestry.org
(Representing NC Forestry Association)

USE-VALUE ADVISORY BOARD SUBCOMMITTEES

Tony Simpson, NCDOR
Steve Woodson, Farm Bureau
Dee Webb, NCDA&CS
David Baker, NCACC
Michael Brown, Lee County
Daniel J. Whittle, Environmental Defense
Robert Horton, NRCS

Soils

Rafeal Vega, NRCS
Milton Cortes, NRCS
Doug Huffman, NCDOR
Godfrey Gayle, NC A&T State University
Vacant, Soil Science, NCSU

Cash Rents

Doug Huffman, NCDOR
Tony Simpson, NCDOR
Michael Brown, Lee County
Steve Woodson, Farm Bureau
Vacant, Crop Science, NCSU

Forestry

Robert Bardon, Forestry, NCSU
Tony Simpson, NCDOR
Doug Huffman, NCDOR
Steve Whitfield, NC Forest Landowners Assn.
John Hatcher, Private Landowner Representative

USE-VALUE ADVISORY BOARD MANUAL

Following are explanations of the major components of this manual.

I. Cash Rents

Beginning in 1985, the basis for determining present-use value for agricultural land was based on the soil productivity for growing corn and soybeans. At that time, corn and soybeans were considered the predominant crops in the state. Over time, fewer and fewer acres went into the production of corn and soybeans and the land used for these crops tended to be lower quality. As a result, both the productivity and value of these crops plummeted, thus resulting in lower present-use values. A viable alternative was sought to replace corn and soybeans as the basis for present-use value. Following a 1998 study by North Carolina State University, cash rents for agricultural and horticultural land were determined to be the preferred alternative. Cash rents are a very good indicator of net income, which can be converted into a value using an appropriate capitalization rate.

The General Assembly passed legislation that established cash rents as the required method for determining the recommended present-use values for agricultural and horticultural land. The cash rents data from the NCSU study served as the basis for determining present-use value for the 2004-2007 UVAB manuals. However, starting in 2006, funding became available for the North Carolina Department of Agriculture to perform an extensive statewide cash rents survey on a yearly basis. The 2006 survey became the basis for the 2008 UVAB recommended values, and this process will continue forward until changes dictate otherwise (i.e. the 2007 survey is used to establish the 2009 UVAB values, etc.).

Forestland does not lend itself well to cash rents analysis and continues to be valued using the net income from actual production.

II. Soil Types and Soil Classification

The 1985 legislation divided the state using the six Major Land Resource Areas (MLRAs). Five different classes of productive soils and one non-productive soil class for each MLRA were determined. Each class was identified by its net income according to type: agriculture, horticulture and forestry. The net income was then divided by a 9% capitalization rate to determine the present-use value. For 2004 and forward, the following change has taken place. For agricultural and horticultural classifications, the five different soil classes have been reduced to three soil classes and one non-productive soil class. Forestland present-use value has kept the five soil classes and one non-productive soil class. The use of the six MLRAs has been retained.

The six MLRAs are as follows:

MLRA 130	Mountains
MLRA 133A	Upper Coastal Plain
MLRA 136	Piedmont
MLRA 137	Sandhills
MLRA 153A	Lower Coastal Plains
MLRA 153B	Tidewater

The soils are listed in this manual according to the MLRA in which they occur. They are then further broken down into their productivity for each of the three types of use: agriculture, horticulture and forestry. Every soil listed in each of the MLRAs is ranked by its productivity into four classes (with the exception of forestry which retained its previous six classes). The classes for agricultural and horticultural land are as follows:

CLASS I	Best Soils
CLASS II	Average Soils
CLASS III	Fair Soils
CLASS IV	Non-Productive Soils

It should be noted that, in some soil types, all the various slopes of that soil have the same productivity class for each of the usages, and therefore for the sake of brevity, the word “ALL” is listed to combine these soils. Each of the classes set up by the UVAB soils subcommittee corresponds to a cash rent income established by the most recent cash rents survey conducted by the North Carolina Department of Agriculture. This rent income is then capitalized by a rate established each year by the UVAB (see below). The criteria for establishing present-use value for forestry have remained basically unchanged from previous years due to the quantity and quality of information already available.

III. Capitalization Rate

The capitalization rate mandated by the 1985 legislation for all types of present-use value land was 9%. The 1998 study by NCSU strongly indicated that a lower capitalization rate for agricultural and horticultural land was more in line with current sales and rental information. The 2002 legislation mandated a rate between 6%-7% for agricultural and horticultural land.

For the year 2004 and the subsequent years, the UVAB has set the capitalization rate at 6.5% for agricultural and horticultural land.

The capitalization rate for forestland continues to be fixed at 9% as mandated by the statutes.

IV. Other Issues

The value for the best agricultural land can be no higher than $1,200 an acre for any MLRA.

PRESENT-USE VALUE SCHEDULES

MLRA	BEST	AVERAGE	FAIR
130	90.30	54.30	35.50
133A	82.15	58.30	43.65
136	61.80	42.10	27.35
137	67.50	47.30	32.20
153A	77.10	56.10	42.20
153B	103.95	70.70	53.00

AGRICULTURAL SCHEDULE

MLRA	CLASS I	CLASS II	CLASS III
130	$1,200*	$835	$545
133A	$1,200*	$895	$670
136	$950	$645	$420
137	$1,035	$725	$495
153A	$1,185	$860	$645
153B	$1,200*	$1,085	$815

--NOTE: All Class IV or Non-Productive Land will be appraised at $40.00 per acre.
--Cash rents were capitalized at a rate of 6.5% to produce the Agricultural Schedule.
* As required by statute, agricultural values cannot exceed $1,200.

HORTICULTURAL SCHEDULE

HORTICULTURAL RENTS

MLRA	BEST	AVERAGE	FAIR
130	161.70	111.10	72.90
133A	99.10	68.40	52.25
136	89.20	58.05	40.15
137	84.35	56.85	37.70
153A	93.80	58.15	44.40
153B	122.40	92.80	84.35

HORTICULTURAL SCHEDULE

MLRA	CLASS I	CLASS II	CLASS III
130	$2,485	$1,705	$1,120
133A	$1,520	$1,050	$800
136	$1,370	$890	$615
137	$1,295	$870	$580
153A	$1,440	$890	$680
153B	$1,880	$1,425	$1,295

--NOTE: All Class IV or Non-Productive Land will be appraised at $40.00 per acre.

--Cash rents were capitalized at a rate of 6.5% to produce the Horticultural Schedule.

FORESTLAND NET PRESENT VALUES

130	$35.95	$24.87	$9.10	$5.06	$5.01
133A	$32.06	$24.43	$19.44	$7.42	$5.05
136	$35.29	$25.34	$23.71	$15.07	$11.13
137	$38.31	$25.34	$24.80	$8.58	$3.25
153A	$32.06	$24.43	$19.44	$7.42	$5.05
153B	$27.11	$19.44	$19.37	$7.42	$5.05

FORESTLAND SCHEDULE

MLRA	Class I	Class II	Class III	Class IV	Class V
130	$395	$275	$100	$60	$55
133A	$355	$270	$215	$80	$60
136	$390	$280	$265	$165	$125
137	$425	$280	$275	$95	$40
153A	$355	$270	$215	$80	$60
153B	$300	$215	$215	$80	$60

--NOTE: All Class VI or Non-Productive Land will be appraised at $40.00/Acre. Exception: For any MLRA where the Class V rate is $40 or less, use 80% of the Class V rate.

--Net Present Values were divided by a capitalization rate of 9.00% to produce the Forestland Schedule.

2009 Cash Rent Study

The National Agricultural Statistics Service in cooperation with the North Carolina Department of Agricultural and Consumer Services collected cash rents data on the 2009 County Estimates Survey. North Carolina farmers were surveyed to obtain cash rent values per acre for three land types: Agricultural, horticultural, and Christmas tree land. Supporting funds for this project were provided by the North Carolina Legislature. Appreciation is expressed to all survey participants who provided the data on which this report is based.

THE SURVEY

The survey was conducted by mail with telephone follow-up during September through February. Values relate to the data collection time period when the respondent completed the survey.

THE DATA

This report includes the most current number of responses and average rental rate per acre. Producers were asked to provide their best estimate of cash rent values in their county by land quality. The data published here are simple averages of the best estimate of the cash rent value per acre. These averages are not official estimates of actual sales.

Reported data that did not represent agricultural usage were removed in order to give a more accurate reflection of agricultural rents and values. To ensure respondent confidentiality and provide more statistical reliability, counties and districts with fewer than 10 reports are not published individually, but are included in aggregate totals. Published values in this report should never be used as the only factor to establish rental arrangements.

Data were collected for three land types: Agricultural, horticultural, and Christmas tree land. Agricultural land includes land used to produce row crops such as soybeans, corn, peanuts, and small grains, pasture land, and hay. Agricultural land also includes any land on which livestock are grown. Horticultural land includes commercial production or growing of fruits or vegetables or nursery or floral products such as apple orchards, blueberries, cucumbers, tomatoes, potted plants, flowers, shrubs, sod, and turf grass. Christmas tree land includes any land to produce Christmas trees, including cut and balled Christmas trees.

2009 Average Cash Rents for Resource Area = 130 Mountains

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
ALLEGHANY	22	89.80	21	55.50	21	33.30												
ASHE	17	76.50	15	43.50	15	28.30							12	162.50				
AVERY																		
BUNCOMBE	37	100.70	31	53.90	27	33.80												
BURKE	25	55.20	22	33.20	19	26.60												
CALDWELL	13	35.40	11	23.20	10	16.70												
CHEROKEE	16	88.10	11	48.60	10	29.50												
CLAY	15	68.70	14	39.10	13	25.20												
GRAHAM																		
HAYWOOD	41	117.90	28	73.80	29	43.50												
HENDERSON	24	83.50	18	57.60	18	36.90												
JACKSON																		
MACDOWELL																		
MACON	11	73.20	12	43.30														
MADISON	26	116.50	22	63.20	23	40.50												
MITCHELL																		
POLK																		
SWAIN																		
TRANSYLVANIA	14	93.60											11	181.36				
WATAUGA	27	79.10	18	49.70	14	32.50												
WILKES	79	57.30	71	39.30	59	27.00												
YANCEY	17	117.90	13	72.30	13	48.85												
AREA TOTAL	422	82.10	349	49.40	317	32.30	78	147.00	47	101.10	41	66.30	69	153.60	47	93.60	38	61.30

2009 Average Cash Rents for Resource Area = 133A Upper Coastal Plain

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
BLADEN	36	63.10	32	49.20	25	33.80												
COLUMBUS	77	60.80	58	45.80	51	34.60												
CUMBERLAND	36	66.40	29	44.70	25	30.40												
DUPLIN	142	69.30	113	50.80	90	39.70												
EDGECOMBE	36	77.10	29	57.20	22	43.60												
GREENE	61	79.70	40	55.00	36	4130												
HALIFAX	28	83.30	18	64.20	14	42.10												
HARNETT	58	74.50	52	5170	39	36.40												
JOHNSTON	103	7190	84	49.90	63	33.40	13	93.90	10	53.00								
LENOIR	60	8160	45	58.70	33	42.10												
NASH	51	77.80	39	52.70	31	43.10												
NORTHAMPTON	23	102.60	17	73.80	13	57.30												
ROBESON	53	49.60	52	38.90	28	32.40												
SAMPSON	128	8160	109	56.40	87	4180	10	95.00										
SCOTLAND	10	44.50																
WAYNE	96	89.70	64	62.30	65	47.00												
WILSON	40	82.80	30	6150	27	48.20												
AREA TOTAL	1038	74.70	819	53.00	655	39.70	61	90.10	46	62.20	35	47.50						

2009 Average Cash Rents for Resource Area = 136 Piedmont

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
ALAMANCE	63	52.30	51	32.90	50	20.70												
ALEXANDER	35	49.10	28	33.40	29	20.00												
ANSON	35	50.10	31	41.30	25	28.40												
BURKE	25	55.20	22	33.20	19	26.60												
CABARRUS	20	42.20	16	37.80	13	23.90												
CALDWELL	13	35.40	11	23.50	10	16.70												
CASWELL	54	49.90	41	30.90	44	19.20												
CATAWBA	32	39.20	29	28.60	31	19.20												
CHATHAM	47	48.80	48	34.70	37	23.10												
CLEVELAND	44	36.50	39	29.20	34	21.20												
DAVIDSON	50	45.60	43	32.90	40	21.40												
DAVIE	38	60.70	27	39.30	24	21.30												
DURHAM	15	36.50	12	27.50	13	21.50												
FORSYTH	26	63.60	16	48.80	18	23.30												
FRANKLIN	41	59.20	38	37.10	35	21.90												
GASTON	17	33.50	15	27.30	15	18.80												
GRANVILLE	58	53.00	45	31.60	43	17.80												
GUILFORD	46	41.20	39	27.00	34	17.60												
HALIFAX	28	83.30	18	64.20	14	42.10												
IREDELL	52	53.90	49	43.40	43	27.90												
JOHNSTON	103	71.90	84	49.90	63	33.40	13	93.90	10	53.00								
LEE	25	72.40	20	45.40	16	33.10												
LINCOLN	16	35.60	14	21.80	12	15.60												
MECKLENBURG	11	61.40																
MONTGOMERY	16	41.60	16	39.10	14	20.00												
MOORE	37	56.50	33	37.30	25	23.90												
NASH	51	77.80	39	52.70	31	43.10												
ORANGE	31	37.60	26	31.80	25	19.40												
PERSON	38	60.70	26	40.60	22	23.30												
POLK																		
RANDOLPH	96	48.20	81	33.80	73	21.90												
RICHMOND	21	32.60	15	23.30	18	19.30												
ROCKINGHAM	55	55.10	41	30.30	40	16.60												
ROWAN	47	48.80	36	34.70	33	23.50												
RUTHERFORD	21	37.40	16	27.60	14	19.30												
STANLY	34	52.50	30	40.30	29	27.90												
STOKES	54	74.20	39	47.10	34	28.10												
SURRY	73	83.00	57	53.90	53	35.30												
UNION	55	66.30	50	47.80	40	40.30												
VANCE	32	55.00	22	29.30	23	17.20												
WAKE	55	61.20	46	36.20	39	26.20												
WARREN	24	40.90	15	25.30	20	17.80												
WILKES	79	57.30	71	39.30	59	27.00												
YADKIN	79	67.00	60	47.80	58	31.50												
AREA TOTAL	**1798**	**56.20**	**1468**	**38.30**	**1324**	**24.90**	**125**	**81.10**	**101**	**52.80**	**89**	**36.50**	**46**	**77.90**	**43**	**52.90**	**41**	**35.00**

2009 Average Cash Rents for Resource Area = 137 Sandhills

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
HARNETT	58	74.50	52	51.70	39	36.40												
HOKE	17	56.50	11	45.00	11	29.10												
LEE	25	72.40	20	45.40	16	33.10												
MOORE	37	56.50	33	37.30	25	23.90												
RICHMOND	21	32.60	15	23.30	18	19.30												
SCOTLAND	10	44.50																
AREA TOTAL	168	61.40	139	43.00	115	29.30	*	76.70	*	51.70	*	34.30						

An * indicates the data is published even though there are less than 10 reports.

2009 Average Cash Rents for Resource Area = 153A Lower Coastal Plain

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
BEAUFORT	30	83.70	23	52.00	21	37.10												
BERTIE	41	75.00	23	60.10	21	44.50												
BLADEN	36	63.10	32	49.20	25	33.80												
BRUNSWICK	23	44.40	15	38.00	13	30.00												
CARTERET																		
CHOWAN	20	87.00	13	58.90	12	51.70												
COLUMBUS	77	60.80	58	45.80	51	34.60												
CRAVEN	32	60.60	29	47.80	21	35.20												
DUPLIN	142	69.30	113	50.80	90	39.70												
EDGECOMBE	36	77.10	29	57.20	22	43.60												
GATES	13	81.20	11	62.30														
HERTFORD	15	73.00	11	49.60														
JONES	25	64.40	22	49.80	20	41.30												
MARTIN	46	80.70	33	53.20	29	40.50												
NEW HANOVER																		
ONSLOW	34	55.40	24	42.80	23	34.80												
PAMLICO	13	70.40	13	51.20	13	36.50												
PENDER	24	67.10	21	45.50	19	33.70												
PITT	45	73.70	39	56.20	33	40.50												
WASHINGTON	12	128.80	10	61.00														
AREA TOTAL	**672**	**70.10**	**525**	**51.00**	**442**	**38.40**	**30**	**85.30**	**19**	**52.90**	**13**	**40.40**						

2009 Average Cash Rents for Resource Area = 153B Tidewater

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
BEAUFORT	30	83.70	23	52.00	21	37.10												
CAMDEN																		
CARTERET																		
CHOWAN	20	87.00	13	58.40	12	51.70												
CURRITUCK	10	88.00																
DARE																		
HYDE																		
PAMLICO	13	70.40	13	51.20	13	36.50												
PASQUOTANK	19	105.30	11	73.20	10	60.00												
PERQUIMANS	24	101.90	21	78.10	18	58.90												
TYRRELL	10	109.50																
WASHINGTON	12	128.80	10	61.00														
AREA TOTAL	163	94.50	117	64.30	111	48.20	12	111.30	*	84.40	*	76.70						

An * indicates the data is published even though there are less than 10 reports.

2009 Average Cash Rents - State Total

County	Agricultural High Productivity		Agricultural Medium Productivity		Agricultural Low Productivity		Horticultural High Productivity		Horticultural Medium Productivity		Horticultural Low Productivity		Christmas Trees High Productivity		Christmas Trees Medium Productivity		Christmas Trees Low Productivity	
	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average	No. of reports	Average
STATE TOTAL	3431	66.90	2743	45.60	2414	31.50	254	103.20	184	67.70	155	46.90	114	121.50	93	75.30	80	49.40

Christmas Tree Guidelines

This information replaces a previous memorandum issued by our office dated December 12, 1989. The 1989 General Assembly enacted an "in-lieu of income" provision allowing land previously qualified as horticulture to continue to receive benefits of the present-use value program when the crop being produced changed from any horticultural product to Christmas trees. It also directed the Department of Revenue to establish a separate gross income requirement different from the $1,000 gross income requirement for horticultural land, when the crop being grown was evergreens intended for use as Christmas trees. N.C.G.S. 105-289(a)(6) directs the Department of Revenue:

> **"To establish requirements for horticultural land, used to produce evergreens intended for use as Christmas trees, in lieu of a gross income requirement until evergreens are harvested from the land, and to establish a gross income requirement for this type of horticultural land, that differs from the income requirement for other horticultural land, when evergreens are harvested from the land."**

After consulting with cooperative extension agents, the regional Christmas tree/horticultural specialist at the Western North Carolina Experimental Research Station, and various landowners/growers, we have determined the standards in the following attachments to be reasonable guidelines for compliance with G.S. 105-289(a)(6). Please note these requirements are subject to the whims of weather and other conditions that can have a significant impact. The combined effect of recent hurricanes, spring freezes, and ice storms across some parts of the State should be taken into consideration when appropriate within each county. As with other aspects of the present-use value program, owners of Christmas tree land should not be held accountable for conditions such as adverse weather or disease outbreak beyond their control.

We encourage every county to contact their local Cooperative Extension Service Office to obtain the appropriate local data and expertise to support particular situations in each county.

I. Gross Income Requirement for Christmas Trees

For MLRA 130, the gross income requirement for horticultural land used to grow evergreens intended for use as Christmas trees is $2,000 per acre.

For all other MLRAs, the gross income requirement for horticultural land used to grow evergreens intended for use as Christmas trees is $1,500 per acre.

MLRA 130 – Mountains

The in-lieu of income requirement is for acreage in production but not yet undergoing harvest, and will be determined by sound management practices, best evidenced by the following:

1. Sites prepared by controlling problem weeds and saplings, taking soil samples, and applying fertilizer and/or lime as appropriate.

2. Generally, a 5' x 5' spacing producing approximately 1,750 potential trees per acre. Spacing must allow for adequate air movement around the trees. (There is very little 4' x 4' or 4.5' x 4.5' spacing. Some experimentation has occurred with 5' x 6' spacing, primarily aimed at producing a 6' tree in 5 years. All of the preceding examples should be acceptable.)

3. A program for insect and weed control.

4. Generally, an eight-to-ten year setting to harvest cycle. (Most leases are for 10 years, which allows for a replanting of non-established or dying seedlings up through the second year.)

The gross income requirement for acres undergoing Christmas tree harvest in the mountain region of North Carolina (MLRA 130) is $2,000 per acre. Once Christmas trees are harvested from specific acreage, the requirement for those harvested acres will revert to the in-lieu of income requirement.

As an example, if the total amount of acres devoted to Christmas tree production is six acres, three of which are undergoing harvest and three of which have yet to reach maturity, the gross income requirement would be $6,000.

MLRA 136 – Piedmont, MLRA 137 – Sandhills, MLRA 133A – Upper Coastal Plain, MLRA 153A – Lower Coastal Plain, and MLRA 153B – Tidewater.

The in-lieu of income requirement is for acreage in production but not yet undergoing harvest, and will be determined by sound management practices, best evidenced by the following:

2. Generally, a 7' x 7' spacing producing approximately 900 potential trees per acre. Spacing must allow for adequate air movement around the trees. (There may be variations in the spacing dependent on the species being grown, most likely Virginia Pine, White Pine, Eastern Red Cedar, and Leyland Cypress. All reasonable spacing practices should be acceptable.)

3. A program for insect and weed control.

4. Generally a five-to-six year setting to harvest cycle. (Due to the species being grown, soil conditions and growing practices, most operations are capable of producing trees for market in the five-to-six year range. However, the combined effect of adverse weather and disease outbreak may force greater replanting of damaged trees thereby lengthening the current cycle beyond that considered typical.)

The gross income requirement for acres undergoing Christmas tree harvest in the non-mountain regions of North Carolina (MLRAs 136, 137, 133A, 153A, and 153B) is $1,500 per acre. Once Christmas trees are harvested from specific acreage, the requirement for those harvested acres will revert to the in-lieu of income requirement.

As an example, if the total amount of acres devoted to Christmas tree production is six acres, three of which are undergoing harvest and three of which have yet to reach maturity, the gross income requirement would be $4,500.

<u>Procedure for Forestry Schedules</u>

The charge to the Forestry Group is to develop five net income per-acre ranges for each MLRA based on the ability of the soils to produce timber income. The task is confounded by variable species and stand type; management level, costs and opportunities; markets and stumpage prices; topographies; and landowner objectives across North Carolina.

In an attempt to develop realistic net income per acre in each MLRA, the Forestry Group considered the following items by area:

1. Soil productivity and indicator tree species (or stand type);
2. Average stand establishment and annual management costs;
3. Average rotation length and timber yield; and
4. Average timber stumpage prices.

Having selected the appropriate combinations above, the harvest value (gross income) from a managed rotation on a given soil productivity level can be calculated, netted of costs and amortized to arrive at the net income per acre per year soil expectation value. The ensuing discussion introduces users of this manual to the procedure, literature and software citations and decisions leading to the five forest land classes for each MLRA. Column numbers beside sub-headings refer to columns in the Forestry Net Present Values Table.

<u>Soil Productivity/Indicator Species Selection (Col. 1).</u> Soil productivity in forestry is measured by site index (SI). Site index is the height to which trees of a given species will grow on a given soil/site over a designed period of time (usually 50 or 25 years, depending on species, site or age

of site table). The Forestry Group identified key indicator species (or stand types) for each MLRA and then assigned site index ranges for the indicator species that captured the management opportunities for that region. The site index ranges became the productivity class basis for further calculations of timber yield and generally can be correlated to Natural Resource Conservation Service (NRCS) cubic foot per acre productivity classes for most stand types. By MLRA, the following site index ranges and species/stand types cover the overwhelming majority of soils/sites and management opportunities.

Species/Stand Type	SI Range (50 yr. basis)
Loblolly pine	86-104
Loblolly pine	66-85
Loblolly pine	60-65
Mixed hardwoods	Mixed species and site indices on coves, river bottoms, bottomlands
Pond and/or longleaf pine	50-55
Upland hardwoods (MLRA 136)	40-68 (Upland oak)

MLRA 130:

Species/Stand Type	SI Range (50 yr. basis)
White pine	70-89
White pine	55-69
Shortleaf/mixed hardwoods	Mixed species/sites (SI 42-58 shortleaf)
Bottomland/cove hardwoods	Mixed species/site indices on coves and bottoms
Upland oak ridges	40-68

The site index ranges above, in most cases, can be correlated to individual soil series (and series' phases) according to NRCS cubic foot per acre productivity classes. An exception will be the cove, bottomland, river bottom, and other hardwood sites where topographic position must also be considered. The Soils Group is responsible for assigning soil series to the appropriate class for agriculture, horticulture and forestry.

Stand Establishment and Annual Management Costs (Columns 2 and 3). Stand establishment costs include site preparation and tree planting costs. Costs vary from $0 to over $200 per acre depending on soils, species, and management objectives. No cost would be incurred for natural regeneration (as practiced for hardwoods) with costs increasing as pine plantations are intensively managed on highly productive sites. The second column in the Forestry Net Present Values Table contains average establishment costs for the past five years as reported by the N.C. Forest Service for site classes in each MLRA.

Annual management may include costs of pine release, timber stand improvement activities, prescribed burning, boundary line maintenance, consultant fees and other contractual services. Cost may vary from $0 on typical floodplain or bottomland stands to as high as $6 per acre per year on intensively managed pine plantations. Annual management costs in Forestry Net Present Values Table are the best estimates under average stand management regimes by site class.

Rotation Length and Timber Yields (Columns 4, 5, 6). Saw timber rotations are recommended on all sites in North Carolina. This decision is based on the market situation throughout the state, particularly the scarce markets for low quality and small-diameter pine and hardwood, which normally would be used for pulpwood. Timber thinnings are not available to most woodlot managers and, therefore, rotations are assumed to proceed unthinned until the optimum economic product mix is achieved.

Timber yields are based on the most current yield models developed at the N.C. State University College of Natural Resources for loblolly pine. (Hafley, Smith, and Buford, 1982) and natural hardwood stands (Gardner et al. 1982). White pine yields, mountain mixed stand yields, and upland oak yields are derived from U.S. Forest Service yield models developed by Vimmerstedt (1962) and McClure and Knight. Longleaf and pond pine yields are from Schumacher and Coile (1960).

Timber Stumpage Prices (Columns 7 and 8). Cost of forestry operations are derived from the past five-year regional data (provided by the NC Forest Service). For timber, stumpage prices (prices paid for standing timber to landowners) are derived over the same 5-year period from regional timber price data obtained from Timber Mart-South, Inc, or similar timber price reporting system.

Harvest Values (Column 9). Multiplication of timber yields (columns 5 and 6) times the respective timber stumpage prices (columns 7 and 8) gives the gross harvest value of one rotation.

Annualized Net Present Value (NPV) (Column 10). Harvest values (column 9) are discounted to present value at a 4 percent discount rate, which is consistent with rates used and documented by the U.S. Forest Service, forestry industry and forestry economists. This rate approximates the long-term measures of the opportunity cost of capital in the private sector of the U. S. economy (Row et al. 1981; Gunter and Haney, 1984). The respective establishment costs and the present value of annual management costs are subtracted from the present value of the income to obtain the net present value of the timber stand. This is then amortized over the life of the rotation to arrive at the annualized net present value (or annual net income) figure.

Forestry Net Present Values

Indicator Species or Stand Types, Lengths of Rotation, Costs, Yields, Price and Annualized Net Present Value per Acre of Land by Site Index Ranges in Each Major Land Resource Area, North Carolina.

(1) Species/Stand Type	(2) Est. Cost	(3) Mgmt. Cost	(4) Rot. Lgth.	(5) Yield	(6) Yield	(7) Price /mbf	(8) Price /cd	(9) Harvest Value	(10) Annualized NPV
	($)	($)	(yrs)	(MBF)	(cds)	($)	($)	($)	($)
MLRAs 153A and 133A (Lower and Upper CP)									
Mixed hardwoods	0	0.0	50	11.5	44	251.69	18.99	3,730	24.43
Loblolly pine (86-104)	370	3.0	30	12	14.4	229.68	28.48	3,166	32.06
Loblolly pine (66-85)	273	2.0	30	7	16.8	229.68	28.48	2,086	19.44
Loblolly pine (60-65)	138	1.0	40	4.8	12.7	229.68	28.48	1,464	7.42
Pond pine (50-55)	48	0.5	50	2.7	20	229.68	28.48	1,190	5.05
Longleaf pine (50-55)	48	0.5	50	3.2	8	229.68	28.48	963	4.30
MLRA 153B (Tidewater)									
Mixed hardwoods	0	0.0	50	8.43	44	251.69	18.99	2,957	19.37
Loblolly pine (86-104)	456	3.0	30	12	14.4	229.68	28.48	3,166	27.11
Loblolly pine (66-85)	273	2.0	30	7	16.8	229.68	28.48	2,086	19.44
Loblolly pine (60-65)	138	1.0	40	4.8	12.7	229.68	28.48	1,464	7.42
Pond pine (low site)	48	0.5	50	2.7	20	229.68	28.48	1,190	5.05
MLRA 137 (Sandhills)									
Mixed hardwoods	0	0.0	50	11.9	46	251.69	18.99	3,869	25.34
Loblolly pine (86-104)	273	3.0	30	12	15.6	229.68	28.48	3,201	38.31
Loblolly pine (66-85)	138	2.0	30	6.4	16.9	229.68	28.48	1,951	24.80
Loblolly pine (60-65)	55	1.0	50	7.2	7	229.68	28.48	1,853	8.58
Longleaf pine (50-55)	55	0.5	50	3.2	8	229.68	28.48	963	3.25

Forestry Net Present Values

Indicator Species or Stand Types, Lengths of Rotation, Costs, Yields, Price and Annualized Net Present Value per Acre of Land by Site Index Ranges in Each Major Land Resource Area, North Carolina.

(1) Species/Stand Type	(2) Est. Cost	(3) Mgmt. Cost	(4) Rot. Lgth.	(5) Yield	(6) Yield	(7) Price /mbf	(8) Price /cd	(9) Harvest Value	(10) Annualized NPV
	($)	($)	(yrs)	(MBF)	(cds)	($)	($)	($)	($)
MLRA 136 (Pied)									
Mixed hardwoods	0	0.0	50	11.9	46	251.69	18.99	3,869	25.34
Loblolly pine (86-104)	289	3.0	30	11.5	15.6	229.68	28.48	3,086	35.29
Loblolly pine (66-85)	157	2.0	30	6.4	16.9	229.68	28.48	1,951	23.71
Loblolly pine (60-65)	55	0.5	40	4.1	15	229.68	28.48	1,369	11.13
Upland hardwoods	0	0.0	50	6.05	32	229.68	28.48	2,301	15.07
MLRA 130 (MTN)									
Mixed hardwoods*	0	0.0	50	10.95	0	346.74	16.59	3,797	24.87
White pine (70-89)	290	2.0	30	17.8	0	172.36	18.56	3,068	35.95
White pine (55-69)	183	1.0	35	8.5	0	172.36	18.56	1,465	9.10
Shortleaf/mixed hwd.	0	0.0	60	6	0	198.89	18.56	1,193	5.01
Upland oak ridge (40-68)	0	0.0	70	5.32	0	346.74	16.59	1,845	5.06

* Coves, riverbottoms, bottomland yields

MLRA 130 – Mountains

Map Unit Name	Agri	For	Hort
Alluvial land, wet	IV	II	IV
Arents, loamy	IV	II	IV
Arkaqua loam, 0 to 2 percent slopes, frequently flooded	IV	II	IV
Arkaqua loam, 0 to 2 percent slopes, occasionally flooded	II	III	II
Arkaqua loam, 0 to 2 percent slopes, rarely flooded	II	III	II
Ashe and Edneyville soils, 6 to 15 percent slopes	IV	I	III
Ashe and Edneyville soils, 15 to 25 percent slopes	IV	I	III
Ashe and Edneyville soils, 25 to 45 percent slopes	IV	I	IV
Ashe fine sandy loam, 6 to 15 percent slopes	IV	III	III
Ashe fine sandy loam, 10 to 25 percent slopes	IV	III	III
Ashe fine sandy loam, 15 to 25 percent slopes	IV	III	III
Ashe fine sandy loam, 25 to 45 percent slopes	IV	III	IV
Ashe gravelly fine sandy loam, 25 to 65 percent slopes	IV	III	IV
Ashe stony fine sandy loam, ALL	IV	III	IV
Ashe stony sandy loam, ALL	IV	III	IV
Ashe-Chestnut-Buladean complex, very stony, ALL	IV	III	IV
Ashe-Cleveland complex, stony, ALL	IV	IV	IV
Ashe-Cleveland-Rock outcrop complex, ALL	IV	IV	IV
Ashe-Rock outcrop complex, 15 to 70 percent slopes	IV	VI	IV
Augusta fine sandy loam, cool variant, 1 to 4 percent slopes (Delanco)	II	I	II
Balsam, ALL	IV	VI	IV
Balsam-Rubble land complex, windswept, ALL	IV	VI	IV
Balsam-Tanasee complex, extremely bouldery, ALL	IV	VI	IV
Bandana sandy loam, 0 to 3 percent slopes, occasionally flooded	II	II	II
Bandana-Ostin complex, 0 to 3 percent slopes, occasionally flooded	III	II	III
Biltmore, ALL	IV	II	IV
Braddock and Hayesville clay loams, eroded, ALL	III	I	III
Braddock clay loam, 2 to 6 percent slopes, eroded	II	I	III
Braddock clay loam, 2 to 8 percent slopes, eroded	II	I	III
Braddock clay loam, 6 to 15 percent slopes, eroded	II	I	III
Braddock clay loam, 8 to 15 percent slopes, eroded	II	I	III
Braddock clay loam, eroded, ALL OTHER	IV	I	III
Braddock clay loam, 15 to 30 percent slopes, eroded, stony	IV	I	IV
Braddock fine sandy loam, 15 to 30 percent slopes	III	I	III
Braddock gravelly loam, 2 to 8 percent slopes	I	I	I
Braddock gravelly loam, 8 to 15 percent slopes	II	I	I
Braddock loam, 2 to 8 percent slopes	I	I	I
Braddock loam, 8 to 15 percent slopes	II	I	I
Braddock-Urban land complex, ALL	IV	I	IV
Bradson gravelly loam, ALL	II	I	I
Brandywine stony soils, ALL	IV	IV	IV
Brasstown-Junaluska complex, 8 to 15 percent slopes	III	IV	III
Brasstown-Junaluska complex, 15 to 30 percent slopes	IV	IV	III
Brasstown-Junaluska complex, ALL OTHER	IV	IV	IV
Brevard fine sandy loam, 1 to 6 percent slopes, rarely flooded	I	I	I
Brevard loam, 2 to 6 percent slopes	I	I	I
Brevard loam, 6 to 10 percent slopes	II	I	I
Brevard loam, 7 to 15 percent slopes	II	I	I
Brevard loam, 10 to 25 percent slopes	IV	I	I
Brevard loam, 15 to 25 percent slopes	IV	I	I
Brevard loam, 25 to 45 percent slopes	IV	I	II
Brevard sandy loam, 8 to 15 percent slopes	II	I	I

MLRA 130 – Mountains

Map Unit Name	Agri	For	Hort
Brevard-Greenlee complex, extremely bouldery, ALL	IV	I	IV
Buladean-Chestnut complex, 15 to 30 percent slopes, stony	IV	I	III
Buladean-Chestnut complex, stony, ALL OTHER	IV	I	IV
Burton stony loam, ALL	IV	V	IV
Burton-Craggey complex, windswept, ALL	IV	VI	IV
Burton-Craggey-Rock outcrop complex, windswept, ALL	IV	VI	IV
Burton-Wayah complex, windswept, ALL	IV	VI	IV
Cashiers fine sandy loam, 2 to 8 percent slopes	II	I	I
Cashiers fine sandy loam, 8 to 15 percent slopes	II	I	II
Cashiers fine sandy loam, 15 to 30 percent slopes, stony	IV	I	II
Cashiers fine sandy loam, 30 to 50 percent slopes, stony	IV	I	III
Cashiers fine sandy loam, 50 to 95 percent slopes, stony	IV	I	IV
Cashiers gravelly fine sandy loam, 8 to 15 percent slopes	II	I	II
Cashiers gravelly fine sandy loam, 15 to 30 percent slopes	IV	I	II
Cashiers gravelly fine sandy loam, 30 to 50 percent slopes	IV	I	III
Cashiers gravelly fine sandy loam, 50 to 95 percent slopes	IV	I	IV
Cashiers sandy loam, 8 to 15 percent slopes, stony	II	I	II
Cashiers sandy loam, 15 to 30 percent slopes, stony	IV	I	II
Cashiers sandy loam, 30 to 50 percent slopes, stony	IV	I	III
Cashiers sandy loam, 50 to 95 percent slopes, stony	IV	I	IV
Cataska-Rock outcrop complex, 30 to 95 percent slopes	IV	VI	IV
Cataska-Sylco complex, 50 to 95 percent slopes	IV	VI	IV
Chandler and Fannin soils, 25 to 45 percent slopes	IV	I	IV
Chandler gravelly fine sandy loam, 8 to 15 percent slopes	IV	III	II
Chandler gravelly fine sandy loam, 15 to 30 percent slopes	IV	III	II
Chandler gravelly fine sandy loam, 30 to 50 percent slopes	IV	III	III
Chandler gravelly fine sandy loam, ALL OTHER	IV	III	IV
Chandler gravelly fine sandy loam, windswept, ALL	IV	VI	IV
Chandler loam, 2 to 8 percent slopes	III	III	II
Chandler loam, 8 to 15 percent slopes	IV	III	II
Chandler loam, 15 to 25 percent slopes	IV	III	III
Chandler loam, 25 to 65 percent slopes	IV	III	IV
Chandler silt loam, 10 to 25 percent slopes	IV	III	II
Chandler silt loam, 25 to 45 percent slopes	IV	III	III
Chandler stony loam, 45 to 70 percent slopes	IV	III	IV
Chandler stony silt loam, ALL	IV	III	IV
Chandler-Micaville complex, 8 to 15 percent slopes	IV	III	II
Chandler-Micaville complex, 15 to 30 percent slopes, stony	IV	III	II
Chandler-Micaville complex, 30 to 50 percent slopes, stony	IV	III	III
Chandler-Micaville complex, 50 to 95 percent slopes, stony	IV	III	IV
Cheoah channery loam, ALL	IV	I	IV
Cheoah channery loam, stony, ALL	IV	I	IV
Cheoah channery loam, windswept, stony	IV	VI	IV
Chester clay loam, 15 to 45 percent slopes, eroded (Evard)	IV	I	III
Chester fine sandy loam, 6 to 15 percent slopes (Evard)	II	I	I
Chester fine sandy loam, 15 to 25 percent slopes (Evard)	II	I	III
Chester fine sandy loam, 25 to 45 percent slopes (Evard)	IV	I	III
Chester loam, 2 to 6 percent slopes	II	I	I
Chester loam, 6 to 10 percent slopes	III	I	I
Chester loam, 10 to 25 percent slopes	IV	I	II
Chester loam, 25 to 45 percent slopes	IV	I	III
Chester stony loam, 10 to 15 percent slopes (Evard)	III	I	III

Map Unit Name	Agri	For	Hort
Chester stony loam, (Evard), ALL OTHER	IV	I	IV
Chestnut and Edneyville soils, 15 to 25 percent slopes	IV	I	II
Chestnut and Edneyville soils, 25 to 50 percent slopes	IV	I	III
Chestnut gravelly loam, 50 to 80 percent slopes	IV	III	IV
Chestnut-Ashe complex, ALL	IV	III	IV
Chestnut-Buladean complex, 8 to 15 percent slopes, rocky	III	III	III
Chestnut-Buladean complex, stony, ALL	IV	III	IV
Chestnut-Cleveland-Rock outcrop complex, windswept, ALL	IV	VI	IV
Chestnut-Edneyville complex, 8 to 25 percent slopes, stony	IV	III	III
Chestnut-Edneyville complex, 25 to 60 percent slopes, stony	IV	III	IV
Chestnut-Edneyville complex, windswept, stony, ALL	IV	VI	IV
Chestoa-Ditney-Rock outcrop complex, 30 to 95 percent slopes, very bouldery	IV	VI	IV
Cleveland-Chestnut-Rock outcrop complex, windswept, ALL	IV	VI	IV
Cleveland-Rock outcrop complex, 8 to 90 percent slopes	IV	VI	IV
Cliffield-Cowee complex, 15 to 30 percent slopes, very stony	IV	V	IV
Cliffield-Fairview complex, 15 to 25 percent slopes	IV	V	IV
Cliffield-Pigeonroost complex, very stony, ALL	IV	V	IV
Cliffield-Rhodhiss complex, 25 to 60 percent slopes, very stony	IV	V	IV
Cliffield-Rock outcrop complex, 50 to 95 percent slopes	IV	VI	IV
Cliffield-Woolwine complex, 8 to 15 percent slopes	IV	V	IV
Clifton (Evard) stony loam, ALL	IV	I	IV
Clifton clay loam, 8 to 15 percent slopes, eroded	III	I	III
Clifton clay loam, 15 to 30 percent slopes, eroded	IV	I	III
Clifton clay loam, 30 to 50 percent slopes, eroded	IV	I	IIII
Clifton loam, 2 to 8 percent slopes	II	I	I
Clifton loam, 6 to 10 percent slopes	II	I	I
Clifton loam, 8 to 15 percent slopes	II	I	II
Clifton loam, 10 to 25 percent slopes	IV	I	II
Clifton loam, 15 to 25 percent slopes	IV	I	II
Clifton loam, 25 to 45 percent slopes	IV	I	III
Clifton stony loam, 15 to 45 percent slopes	IV	I	IV
Clingman-Craggey-Rock outcrop complex, windswept, 15 to 95 percent slopes, extremely bouldery	IV	VI	IV
Codorus, ALL	II	II	III
Colvard, ALL	I	II	III
Comus, ALL	I	II	III
Cowee gravelly loam, stony, ALL	IV	V	IV
Cowee-Evard-Urban land complex, 15 to 30 percent slopes	IV	III	IV
Cowee-Saluda complex, stony, ALL	IV	V	IV
Craggey-Rock outcrop complex, 40 to 90 percent slopes	IV	VI	IV
Craggey-Rock outcrop-Clingman complex, windswept, rubbly, ALL	IV	VI	IV
Crossnore-Jeffrey complex, very stony, ALL	IV	I	IV
Cullasaja cobbly fine sandy loam, 8 to 30 percent slopes, very bouldery	IV	II	IV
Cullasaja cobbly loam, extremely bouldery, ALL	IV	II	IV
Cullasaja very cobbly fine sandy loam, extremely bouldery, ALL	IV	II	IV
Cullasaja very cobbly loam, extremely bouldery, ALL	IV	II	IV
Cullasaja very cobbly sandy loam, extremely bouldery, ALL	IV	II	IV
Cullasaja-Tuckasegee complex, 8 to 15 percent slopes, stony	IV	II	II
Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, stony	IV	II	II
Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, stony	IV	II	III
Cullasaja-Tuckasegee complex, 50 to 90 percent slopes, stony	IV	II	IV
Cullasaja-Tuckasegee complex, 50 to 95 percent slopes, stony	IV	II	IV

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Map Unit Name	Agri	For	Hort
Cullasaja-Tusquitee complex, 10 to 45 percent slopes	IV	II	III
Cullowhee fine sandy loam, 0 to 2 percent slopes, occasionally flooded	II	II	II
Cullowhee, frequently flooded, ALL	IV	II	IV
Cullowhee-Nikwasi complex, 0 to 2 percent slopes, frequently flooded	IV	II	IV
Delanco (Dillard) loam, ALL	I	I	I
Delanco fine sandy loam, 2 to 6 percent slopes	II	I	I
Dellwood gravelly fine sandy loam, 0 to 5 percent slopes, frequently flooded	IV	II	IV
Dellwood, occasionally flooded, ALL	III	II	III
Dellwood-Reddies complex, 0 to 3 percent slopes, occasionally flooded	III	II	III
Dellwood-Urban land complex, 0 to 3 percent slopes, occasionally flooded	IV	II	IV
Dillard, ALL	I	I	I
Dillsboro clay loam, 2 to 8 percent slopes	I	I	I
Dillsboro clay loam, 8 to 15 percent slopes, rarely flooded	II	I	II
Dillsboro clay loam, 8 to 15 percent slopes, stony	III	I	II
Dillsboro clay loam, 15 to 30 percent slopes, stony	IV	I	II
Dillsboro loam, 2 to 8 percent slopes	I	I	I
Dillsboro loam, 8 to 15 percent slopes	II	I	II
Dillsboro-Urban land complex, 2 to 15 percent slopes	IV	I	IV
Ditney-Unicoi complex, very stony, ALL	IV	VI	IV
Ditney-Unicoi complex, 50 to 95 percent slopes, very rocky	IV	VI	IV
Ditney-Unicoi-Rock outcrop complex, ALL	IV	VI	IV
Edneytown gravelly sandy loam, 8 to 25 percent slopes	IV	I	III
Edneytown-Chestnut complex, 30 to 50 percent slopes, stony	IV	I	III
Edneytown-Chestnut complex, 50 to 80 percent slopes, stony	IV	I	IV
Edneytown-Pigeonroost complex, 8 to 15 percent slopes, stony	III	I	III
Edneytown-Pigeonroost complex, 15 to 30 percent slopes, stony	IV	I	III
Edneytown-Pigeonroost complex, 30 to 50 percent slopes, stony	IV	I	IV
Edneyville (Edneytown) fine sandy loam, 7 to 15 percent slopes	III	I	III
Edneyville (Edneytown) fine sandy loam, 15 to 25 percent slopes	IV	I	IV
Edneyville (Edneytown) fine sandy loam, 25 to 45 percent slopes	IV	I	IV
Edneyville loam, 15 to 25 percent slopes	IV	I	II
Edneyville loam, 25 to 45 percent slopes	IV	I	III
Edneyville stony loam, 45 to 70 percent slopes	IV	I	IV
Edneyville-Chestnut complex, 2 to 8 percent slopes, stony	III	I	III
Edneyville-Chestnut complex, 8 to 15 percent slopes, stony	IV	I	III
Edneyville-Chestnut complex, 10 to 25 percent slopes, stony	IV	I	III
Edneyville-Chestnut complex, 15 to 30 percent slopes, stony	IV	I	III
Edneyville-Chestnut complex, ALL OTHER	IV	I	IV
Edneyville-Chestnut-Urban land complex, ALL	IV	I	IV
Ellijay silty clay loam, 2 to 8 percent slopes, eroded	III	I	I
Ellijay silty clay loam, 8 to 15 percent slopes, eroded	IV	I	I
Ellijay silty clay loam, eroded, ALL OTHER	IV	I	II
Elsinboro loam, ALL	I	I	I
Eutrochrepts, mined, 30 to 50 percent slopes, very stony	IV	VI	IV
Evard and Saluda fine sandy loams, 25 to 60 percent slopes	IV	I	IV
Evard fine sandy loam, 7 to 15 percent slopes	III	I	II
Evard fine sandy loam, 15 to 25 percent slopes	IV	I	II
Evard fine sandy loam, 25 to 50 percent slopes	IV	I	III
Evard gravelly sandy loam, 6 to 15 percent slopes	III	I	II
Evard gravelly sandy loam, 15 to 25 percent slopes	IV	I	III
Evard loam, ALL	IV	I	IV
Evard soils, 15 to 25 percent slopes	IV	I	III

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Map Unit Name	Agri	For	Hort
Evard soils, ALL OTHER	IV	I	IV
Evard stony loam, 25 to 60 percent slopes	IV	I	IV
Evard-Cowee complex, 2 to 8 percent slopes	III	I	II
Evard-Cowee complex, 8 to 15 percent slopes	III	I	II
Evard-Cowee complex, 8 to 15 percent slopes, eroded	III	I	II
Evard-Cowee complex, 8 to 25 percent slopes, stony	IV	I	III
Evard-Cowee complex, ALL OTHER	IV	I	IV
Evard-Cowee-Urban land complex, ALL	IV	I	IV
Fannin fine sandy loam, 8 to 15 percent slopes	III	I	I
Fannin fine sandy loam, 15 to 30 percent slopes	IV	I	II
Fannin fine sandy loam, 15 to 30 percent slopes, stony	IV	I	II
Fannin fine sandy loam, 30 to 50 percent slopes	IV	I	II
Fannin fine sandy loam, 30 to 50 percent slopes, stony	IV	I	III
Fannin fine sandy loam, 50 to 95 percent slopes	IV	I	III
Fannin loam, 8 to 15 percent slopes	III	I	II
Fannin loam, 15 to 25 percent slopes	IV	I	III
Fannin loam, 25 to 45 percent slopes	IV	I	III
Fannin loam, 30 to 50 percent slopes, eroded	IV	I	III
Fannin loam, 45 to 70 percent slopes	IV	I	IV
Fannin sandy clay loam, 8 to 15 percent slopes, eroded	III	I	II
Fannin sandy clay loam, eroded, ALL OTHER	IV	I	III
Fannin silt loam, 6 to 10 percent slopes, eroded			
Fannin silt loam, 7 to 15 percent slopes	III	I	II
Fannin silt loam, 10 to 25 percent slopes, eroded	IV	I	III
Fannin silt loam, 15 to 25 percent slopes	IV	I	III
Fannin silt loam, 25 to 45 percent slopes	IV	I	III
Fannin silty clay loam, 15 to 45 percent slopes, eroded	IV	I	IV
Fannin-Chestnut complex, 50 to 85 percent slopes, rocky	IV	I	IV
Fannin-Cowee complex, 15 to 30 percent slopes, stony	IV	I	III
Fannin-Cowee complex, stony, ALL OTHER	IV	I	IV
Fannin-Urban land complex, 2 to 15 percent slopes	IV	I	IV
Fletcher and Fannin soils, 6 to 15 percent slopes	III	I	II
Fletcher and Fannin soils, 15 to 25 percent slopes	IV	I	II
Fluvaquents-Udifluvents complex, occasionally flooded, ALL	III	II	IV
Fontaflora-Ostin complex	IV	II	IV
French fine sandy loam, 0 to 3 percent slopes, frequently flooded	IV	II	IV
Greenlee ALL	IV	I	IV
Greenlee-Ostin complex, 3 to 40 percent slopes, very stony	IV	I	IV
Greenlee-Tate complex, ALL	IV	I	IV
Greenlee-Tate-Ostin complex, 1 to 15 percent slopes, extremely stony	IV	I	IV
Gullied land	IV	VI	IV
Harmiller-Shinbone complex, 15 to 30 percent slopes, stony	IV	III	III
Harmiller-Shinbone complex, 30 to 50 percent slopes, stony	IV	III	III
Hatboro loam	IV	II	IV
Hayesville channery fine sandy loam, 8 to 15 percent slopes, very stony	IV	I	II
Hayesville channery fine sandy loam, 15 to 25 percent slopes, very stony	IV	I	III
Hayesville channery fine sandy loam, 25 to 60 percent slopes, very stony	IV	I	IV
Hayesville clay loam, 2 to 8 percent slopes, eroded	III	I	II
Hayesville clay loam, 6 to 15 percent slopes, eroded	IV	I	II
Hayesville clay loam, 8 to 15 percent slopes, eroded	IV	I	II
Hayesville clay loam, 10 to 25 percent slopes, severely eroded	IV	I	III
Hayesville clay loam, 15 to 30 percent slopes, eroded	IV	I	III

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Map Unit Name	Agri	For	Hort
Hayesville fine sandy loam, 6 to 15 percent slopes	III	I	I
Hayesville fine sandy loam, 8 to 15 percent slopes	III	I	I
Hayesville fine sandy loam, 15 to 25 percent slopes	III	I	II
Hayesville fine sandy loam, 15 to 30 percent slopes	III	I	II
Hayesville fine sandy loam, 25 to 50 percent slopes	IV	I	III
Hayesville loam, 2 to 7 percent slopes	II	I	I
Hayesville loam, 2 to 8 percent slopes	II	I	I
Hayesville loam, 6 to 10 percent slopes	II	I	I
Hayesville loam, 6 to 15 percent slopes	III	I	I
Hayesville loam, 7 to 15 percent slopes	III	I	I
Hayesville loam, 8 to 15 percent slopes	III	I	I
Hayesville loam, 10 to 25 percent slopes	III	I	II
Hayesville loam, 15 to 25 percent slopes	III	I	II
Hayesville loam, 15 to 30 percent slopes	III	I	II
Hayesville sandy clay loam, 15 to 30 percent slopes, eroded	IV	I	III
Hayesville sandy clay loam, eroded, ALL OTHER	III	I	II
Hayesville-Evard complex, 15 to 25 percent slopes	III	I	II
Hayesville-Evard-Urban land complex, 15 to 25 percent slopes	IV	I	IV
Hayesville-Sauratown complex, 2 to 8 percent slopes	II	I	II
Hayesville-Sauratown complex, 8 to 15 percent slopes	III	I	II
Hayesville-Sauratown complex, 15 to 25 percent slopes	III	I	III
Hayesville-Sauratown complex, 25 to 60 percent slopes	IV	I	III
Hayesville-Urban land complex, ALL	IV	I	IV
Haywood stony loam, 15 to 25 percent slopes	IV	I	III
Haywood stony loam, 25 to 50 percent slopes	IV	I	IV
Hemphill, rarely flooded, ALL	IV	II	IV
Humaquepts, loamy, 2 to 8 percent slopes, stony	IV	II	IV
Huntdale clay loam, 8 to 15 percent slopes, stony	III	I	II
Huntdale clay loam, 15 to 30 percent slopes, stony	IV	I	II
Huntdale clay loam, 30 to 50 percent slopes, stony	IV	I	III
Huntdale silty clay loam, 15 to 30 percent slopes, stony	IV	I	II
Huntdale silty clay loam, 30 to 50 percent slopes, very stony	IV	I	III
Huntdale silty clay loam, 50 to 95 percent slopes, very stony	IV	I	IV
Iotla sandy loam, 0 to 2 percent slopes, occasionally flooded	II	II	III
Junaluska-Brasstown complex, 6 to 25 percent slopes	IV	IV	II
Junaluska-Brasstown complex, 15 to 30 percent slopes	IV	IV	III
Junaluska-Brasstown complex, 25 to 60 percent slopes	IV	IV	III
Junaluska-Brasstown complex, 30 to 50 percent slopes	IV	IV	IV
Junaluska-Tsali complex, ALL	IV	IV	IV
Keener-Lostcove complex, 15 to 30 percent slopes, very stony	IV	I	III
Keener-Lostcove complex, 30 to 50 percent slopes, very stony	IV	I	IV
Kinkora loam	IV	I	III
Lonon loam, 2 to 8 percent slopes	I	I	I
Lonon loam, 8 to 15 percent slopes	II	I	I
Lonon loam, 15 to 30 percent slopes	IV	I	II
Lonon-Northcove complex, 6 to 15 percent slopes	IV	I	III
Maymead fine sandy loam, ALL	IV	I	II
Maymead-Greenlee-Potomac complex, 3 to 25 percent slopes	IV	I	IV
Nikwasi, ALL	IV	II	IV
Northcove very cobbly loam, ALL	IV	I	IV
Northcove-Maymead complex, extremely stony, ALL	IV	I	IV
Oconaluftee channery loam, ALL	IV	VI	IV

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Map Unit Name	Agri	For	Hort
Oconaluftee channery loam, windswept, ALL	IV	VI	IV
Ostin, occasionally flooded, ALL	IV	II	IV
Pigeonroost-Edneytown complex, stony, ALL	IV	I	III
Pineola gravelly loam, 2 to 8 percent slopes	IV	I	II
Pineola gravelly loam, 8 to 15 percent slopes, stony	IV	I	II
Pineola gravelly loam, 15 to 30 percent slopes, stony	IV	I	III
Pits, ALL	IV	VI	IV
Plott fine sandy loam, 8 to 15 percent slopes, stony	III	I	II
Plott fine sandy loam, 15 to 30 percent slopes, stony	IV	I	II
Plott fine sandy loam, 30 to 50 percent slopes, stony	IV	I	III
Plott fine sandy loam, 50 to 95 percent slopes, stony	IV	I	IV
Plott loam, 15 to 30 percent slopes, stony	IV	I	II
Plott loam, 30 to 50 percent slopes, stony	IV	I	III
Plott loam, 50 to 95 percent slopes, stony	IV	I	IV
Ponzer muck, cool variant	IV	VI	IV
Porters gravelly loam, 8 to 15 percent slopes, stony	III	I	II
Porters gravelly loam, 15 to 30 percent slopes, stony	IV	I	II
Porters gravelly loam, 30 to 50 percent slopes, stony	IV	I	III
Porters gravelly loam, 50 to 80 percent slopes, stony	IV	I	IV
Porters loam, 25 to 45 percent slopes	IV	I	III
Porters loam, 25 to 80 percent slopes, stony	IV	I	IV
Porters loam, 30 to 50 percent slopes, stony	IV	I	IV
Porters loam, ALL OTHER	IV	I	II
Porters stony loam, 10 to 25 percent slopes	IV	I	II
Porters stony loam, 15 to 25 percent slopes	IV	I	II
Porters stony loam, 15 to 45 percent slopes	IV	I	II
Porters stony loam, 25 to 45 percent slopes	IV	I	III
Porters stony loam, ALL OTHER	IV	I	IV
Porters-Unaka complex, 8 to 15 percent slopes, stony	IV	I	II
Porters-Unaka complex, 15 to 30 percent slopes, stony	IV	I	II
Porters-Unaka complex, 30 to 50 percent slopes, stony	IV	I	III
Porters-Unaka complex, 50 to 95 percent slopes, rocky	IV	I	IV
Potomac, frequently flooded, ALL	IV	II	IV
Potomac-Iotla complex, 0 to 3 percent slopes, mounded, frequently flooded	IV	II	IV
Rabun loam, 6 to 25 percent slopes	IV	I	II
Rabun loam, 25 to 50 percent slopes	IV	I	III
Reddies, occasionally flooded	II	II	II
Reddies, frequently flooded, ALL	IV	II	IV
Rock outcrop	IV	VI	IV
Rock outcrop-Ashe complex, ALL	IV	VI	IV
Rock outcrop-Ashe-Cleveland complex, ALL	IV	VI	IV
Rock outcrop-Cataska complex, ALL	IV	VI	IV
Rock outcrop-Cleveland complex, ALL	IV	VI	IV
Rock outcrop-Cleveland complex, windswept, ALL	IV	VI	IV
Rock outcrop-Craggey complex, windswept, ALL	IV	VI	IV
Rosman, frequently flooded, ALL	IV	II	IV
Rosman, ALL OTHER	I	II	I
Rosman-Reddies complex, 0 to 3 percent slopes, occasionally flooded	I	II	I
Saunook gravelly loam, 2 to 8 percent slopes	I	I	I
Saunook gravelly loam, 8 to 15 percent slopes	I	I	I
Saunook gravelly loam, 8 to 15 percent slopes, stony	II	I	II
Saunook gravelly loam, 15 to 30 percent slopes	IV	I	II

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Map Unit Name	Agri	For	Hort
Saunook gravelly loam, 15 to 30 percent slopes, stony	IV	I	II
Saunook gravelly loam, 30 to 50 percent slopes, stony	IV	I	III
Saunook loam, 2 to 8 percent slopes	I	I	I
Saunook loam, 8 to 15 percent slopes	I	I	I
Saunook loam, 8 to 15 percent slopes, stony	II	I	II
Saunook loam, 15 to 30 percent slopes, stony	IV	I	II
Saunook loam, 15 to 30 percent slopes, very stony	IV	I	III
Saunook loam, 30 to 50 percent slopes, very stony	IV	I	IV
Saunook sandy loam, 2 to 8 percent slopes	I	I	I
Saunook sandy loam, 8 to 15 percent slopes, stony	II	I	II
Saunook silt loam, 2 to 8 percent slopes	I	I	I
Saunook silt loam, 8 to 15 percent slopes, stony	II	I	II
Saunook-Nikwasi complex, 2 to 15 percent slopes	IV	I	III
Saunook-Thunder complex, ALL	IV	I	III
Saunook-Urban land complex, 2 to 15 percent slopes	IV	I	IV
Sauratown channery fine sandy loam, 8 to 15 percent slopes	IV	V	III
Sauratown channery fine sandy loam, 8 to 15 percent slopes, very stony	IV	V	III
Sauratown channery fine sandy loam, ALL OTHER	IV	V	IV
Soco-Cataska-Rock outcrop complex, 50 to 95 percent slopes	IV	VI	IV
Soco-Ditney complex, 6 to 25 percent slopes, stony	IV	III	III
Soco-Ditney complex, 8 to 15 percent slopes, very stony	IV	III	III
Soco-Ditney complex, 15 to 30 percent slopes, very stony	IV	III	III
Soco-Ditney complex, ALL OTHER	IV	III	IV
Soco-Stecoah complex, 8 to 15 percent slopes, stony	IV	III	II
Soco-Stecoah complex, 15 to 30 percent slopes	IV	III	III
Soco-Stecoah complex, 15 to 30 percent slopes, stony	IV	III	III
Soco-Stecoah complex, ALL OTHER	IV	III	IV
Soco-Stecoah complex, windswept, 30 to 50 percent slopes	IV	VI	IV
Spivey cobbly loam, extremely bouldery, ALL	IV	I	IV
Spivey stony loam, 10 to 40 percent slopes	IV	I	IV
Spivey-Santeetlah complex, 8 to 15 percent slopes, stony	IV	I	III
Spivey-Santeetlah complex, 15 to 30 percent slopes, stony	IV	I	III
Spivey-Santeetlah complex, stony, ALL OTHER	IV	I	IV
Spivey-Whiteoak complex, ALL	IV	I	IV
Statler, rarely flooded, ALL	I	I	I
Stecoah-Soco complex, 15 to 30 percent slopes, stony	IV	I	III
Stecoah-Soco complex, 30 to 50 percent slopes, stony	IV	I	III
Stecoah-Soco complex, 50 to 80 percent slopes, stony	IV	I	IV
Stony colluvial land	IV	II	IV
Stony land	IV	VI	IV
Stony steep land	IV	VI	IV
Suncook loamy sand, ALL	IV	II	II
Sylco-Cataska complex, ALL	IV	IV	IV
Sylco-Rock outcrop complex, 50 to 95 percent slopes	IV	IV	IV
Sylco-Soco complex, 10 to 30 percent slopes, stony	IV	IV	IV
Sylva-Whiteside complex, ALL	IV	I	II
Talladega, ALL	IV	IV	IV
Tanasee-Balsam complex, ALL	IV	VI	IV
Tate fine sandy loam, 2 to 6 percent slopes	I	I	I
Tate fine sandy loam, 2 to 7 percent slopes	I	I	I
Tate fine sandy loam, 2 to 8 percent slopes	I	I	I
Tate fine sandy loam, 2 to 8 percent slopes, very stony	IV	I	II

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Map Unit Name	Agri	For	Hort
Tate fine sandy loam, 6 to 15 percent slopes	II	I	I
Tate fine sandy loam, 7 to 15 percent slopes	II	I	I
Tate fine sandy loam, 8 to 15 percent slopes	II	I	I
Tate fine sandy loam, 8 to 25 percent slopes	IV	I	II
Tate fine sandy loam, 15 to 25 percent slopes	IV	I	II
Tate gravelly loam, 8 to 15 percent slopes	II	I	I
Tate gravelly loam, 8 to 15 percent slopes, stony	II	I	II
Tate gravelly loam, 15 to 30 percent slopes, stony	IV	I	II
Tate loam, 2 to 6 percent slopes	I	I	I
Tate loam, 2 to 8 percent slopes	I	I	I
Tate loam, 6 to 10 percent slopes	II	I	I
Tate loam, 6 to 15 percent slopes	II	I	I
Tate loam, 8 to 15 percent slopes	II	I	I
Tate loam, 10 to 15 percent slopes	II	I	I
Tate loam, 15 to 25 percent slopes	IV	I	II
Tate loam, 15 to 30 percent slopes	IV	I	II
Tate-Cullowhee complex, 0 to 25 percent slopes	IV	I	II
Tate-French complex, 2 to 10 percent slopes	II	I	II
Tate-Greenlee complex, ALL	IV	I	IV
Thunder-Saunook complex, ALL	IV	II	IV
Toecane-Tusquitee complex, ALL	IV	II	III
Toxaway, ALL	IV	II	IV
Transylvania silt loam	I	II	II
Trimont gravelly loam, ALL	IV	I	IV
Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony	IV	II	III
Tuckasegee-Cullasaja complex, 15 to 30 percent slopes, very stony	IV	II	IV
Tuckasegee-Cullasaja complex, 30 to 50 percent slopes, extremely stony	IV	II	IV
Tuckasegee-Whiteside complex, 2 to 8 percent slopes	I	II	I
Tuckasegee-Whiteside complex, 8 to 15 percent slopes	II	II	I
Tusquitee and Spivey stony soils, ALL	IV	I	IV
Tusquitee loam, 6 to 10 percent slopes	I	I	I
Tusquitee loam, 6 to 15 percent slopes	II	I	I
Tusquitee loam, 7 to 15 percent slopes	II	I	I
Tusquitee loam, 8 to 15 percent slopes	II	I	I
Tusquitee loam, 10 to 15 percent slopes	II	I	I
Tusquitee loam, 15 to 25 percent slopes	IV	I	II
Tusquitee stony loam, 25 to 45 percent slopes	IV	I	IV
Tusquitee stony loam, ALL OTHER	IV	I	III
Udifluvents, frequently flooded, ALL	IV	II	IV
Udorthents, loamy, ALL	IV	V	IV
Udorthents-Pits complex, mounded, 0 to 2 percent slopes, occasionally flooded	IV	V	IV
Udorthents-Urban land complex, ALL	IV	V	IV
Unaka-Porters complex, very rocky, ALL	IV	V	IV
Unaka-Rock outcrop complex, 50 to 95 percent slopes, very bouldery	IV	VI	IV
Unicoi-Rock outcrop complex, 30 to 95 percent slopes, extremely bouldery	IV	V	IV
Unison fine sandy loam, 2 to 8 percent slopes	I	I	I
Unison fine sandy loam, 8 to 15 percent slopes	II	I	I
Unison fine sandy loam, 15 to 25 percent slopes	IV	I	II
Unison loam, 2 to 8 percent slopes	I	I	I
Unison loam, 8 to 15 percent slopes	II	I	I
Unison loam, 15 to 30 percent slopes	IV	I	II
Urban land	IV	VI	II

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Map Unit Name	Agri	For	Hort
Watauga loam, 6 to 10 percent slopes	III	I	II
Watauga loam, 6 to 15 percent slopes	III	I	II
Watauga loam, 8 to 15 percent slopes	III	I	II
Watauga loam, ALL OTHER	IV	I	III
Watauga sandy loam, 8 to 15 percent slopes, stony	III	I	II
Watauga sandy loam, 15 to 30 percent slopes, stony	IV	I	II
Watauga sandy loam, 30 to 50 percent slopes, stony	IV	I	III
Watauga stony loam, 15 to 45 percent slopes	IV	I	IV
Wayah loam, windswept, eroded, stony, ALL	IV	VI	IV
Wayah sandy loam, stony, ALL	IV	V	IV
Wayah sandy loam, windswept, stony, ALL	IV	VI	IV
Wayah-Burton complex, 15 to 30 percent slopes, bouldery	IV	V	IV
Wayah-Burton complex, 30 to 50 percent slopes, bouldery	IV	V	IV
Wayah-Burton complex, 50 to 95 percent slopes, very rocky	IV	V	IV
Wayah-Burton complex, windswept, ALL	IV	V	IV
Whiteoak cobbly loam, 8 to 15 percent slopes, stony	II	I	II
Whiteoak cobbly loam, 15 to 30 percent slopes, stony	IV	I	III
Whiteoak fine sandy loam, 2 to 8 percent slopes	I	I	I
Whiteoak fine sandy loam, 8 to 15 percent slopes, stony	II	I	II
Whiteoak fine sandy loam, 15 to 30 percent slopes, very stony	IV	I	III
Whiteside-Tuckasegee complex, 2 to 8 percent slopes	I	I	I

Map Unit Name	Agri	For	Hort
Alluvial land, wet	III	III	III
Alpin, ALL	IV	II	IV
Altavista. ALL	I	I	I
Altavista-Urban land complex, 0 to 3 percent slopes, rarely flooded	IV	I	IV
Augusta, ALL	I	I	I
Autryville loamy sand, ALL	III	II	III
Autryville, ALL OTHER	IV	II	IV
Autryville-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Aycock very fine sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Aycock, ALL OTHER	I	II	I
Ballahack fine sandy loam	I	I	I
Barclay very fine sandy loam	I	I	I
Bethera loam, 0 to 1 percent slopes	II	I	II
Bibb and Johnston soils, frequently flooded	IV	III	IV
Bibb, ALL	IV	III	IV
Blaney, ALL	IV	II	IV
Blanton, ALL	IV	V	IV
Bojac loamy fine sand, 0 to 3 percent slopes	III	II	III
Bonneau loamy fine sand, 0 to 4 percent slopes	II	II	II
Bonneau loamy sand, 0 to 4 percent slopes	II	II	II
Bonneau loamy sand, 0 to 6 percent slopes	II	II	II
Bonneau loamy sand, 6 to 12 percent slopes	III	II	III
Bonneau sand, 0 to 3 percent slopes	II	II	II
Butters fine sand, 0 to 2 percent slopes	II	II	II
Butters loamy sand, 0 to 2 percent slopes	II	II	II
Byars loam	II	I	II
Candor sand, 1 to 8 percent slopes	IV	V	IV
Candor sand, 8 to 15 percent slopes	IV	V	IV
Cape Fear loam	I	I	I
Caroline sandy loam, 0 to 2 percent slopes	II	II	II
Caroline sandy loam, 2 to 6 percent slopes	II	II	II
Centenary sand	IV	II	IV
Chastain and Bibb soils, 0 to 1 percent slopes, frequently flooded	IV	III	IV
Chastain silt loam, frequently flooded	IV	III	IV
Chewacla and Chastain soils, frequently flooded	IV	III	IV
Chewacla and Congaree loams, frequently flooded	III	III	III
Chewacla and Wehadkee soils, 0 to 1 percent slopes, frequently flooded	IV	III	IV
Chewacla loam	II	III	II
Chewacla loam, 0 to 1 percent slopes, occasionally flooded	II	III	II
Chewacla loam, frequently flooded	IV	III	IV
Chewacla silt loam	II	III	II
Chipley loamy sand (Pactolus)	IV	II	IV
Chipley sand, 0 to 2 percent slopes	IV	II	IV
Conetoe loamy sand, ALL	III	II	III
Congaree silt loam	I	III	I
Congaree silt loam, frequently flooded	I	III	I
Cowarts loamy sand, 2 to 6 percent slopes	II	I	II
Cowarts loamy sand, 6 to 10 percent slopes	III	I	III
Cowarts sandy loam, 6 to 12 percent slopes, eroded	IV	I	IV
Coxville loam	II	I	II
Coxville sandy loam	II	I	II
Craven fine sandy loam, 0 to 1 percent slopes	II	I	II

Map Unit Name	Agri	For	Hort
Craven fine sandy loam, 1 to 4 percent slopes	II	I	II
Craven fine sandy loam, 4 to 10 percent slopes	III	I	III
Craven loam, 1 to 4 percent slopes	II	I	II
Craven sandy clay loam, 1 to 4 percent slopes, eroded	II	I	II
Craven sandy loam, 2 to 6 percent slopes, eroded	II	I	II
Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney)	II	I	II
Craven sandy loam, 6 to 10 percent slopes, eroded (Gritney)	III	I	III
Craven-Urban land complex, 0 to 4 percent slopes	IV	I	IV
Croatan muck	I	V	I
Deloss loam	I	III	I
Dogue, ALL	II	I	II
Dothan loamy sand, 2 to 6 percent slopes	II	I	II
Dothan, ALL OTHER	I	I	I
Dragston loamy sand	I	III	I
Dunbar, ALL	II	I	II
Duplin, ALL	II	I	II
Duplin-Urban land complex, 0 to 5 percent slopes	IV	I	IV
Dystrochrepts, steep	IV	II	IV
Emporia, ALL	II	II	II
Emporia-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Emporia-Wedowee complex, 2 to 6 percent slopes	II	II	II
Eustis, ALL	IV	II	IV
Exum, ALL	I	II	I
Faceville fine sandy loam, ALL	II	II	II
Faceville loamy sand, 6 to 10 percent slopes, eroded	IV	II	IV
Faceville loamy sand, ALL OTHER	II	II	II
Faceville sandy loam, 0 to 2 percent slopes	II	II	II
Faceville sandy loam, 2 to 6 percent slopes	II	II	II
Faceville sandy loam, 2 to 6 percent slopes, eroded	III	II	III
Faceville sandy loam, 6 to 10 percent slopes, eroded	IV	II	IV
Faceville-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Foreston loamy sand, ALL	II	II	II
Fuquay, ALL	IV	II	IV
Gilead loamy sand, 0 to 2 percent slopes	III	II	III
Gilead loamy sand, 10 to 15 percent slopes	IV	II	IV
Gilead loamy sand, 2 to 6 percent slopes	IV	II	IV
Gilead loamy sand, 2 to 6 percent slopes, eroded	III	II	III
Gilead loamy sand, 6 to 10 percent slopes	IV	II	IV
Gilead loamy sand, 6 to 10 percent slopes, eroded	IV	II	IV
Gilead sandy loam, 2 to 8 percent slopes	III	II	III
Gilead sandy loam, 8 to 15 percent slopes	IV	II	IV
Goldsboro, ALL	I	I	I
Goldsboro-Urban land complex, ALL	IV	I	IV
Grantham, ALL	I	I	I
Grantham-Urban land complex	IV	I	IV
Grifton-Meggett complex, occasionally flooded	IV	I	IV
Gritney fine sandy loam, 2 to 6 percent slopes	II	II	II
Gritney fine sandy loam, 2 to 7 percent slopes	II	II	II
Gritney fine sandy loam, 4 to 8 percent slopes	III	II	III
Gritney fine sandy loam, 5 to 12 percent slopes, eroded	IV	II	IV
Gritney fine sandy loam, 6 to 10 percent slopes	III	II	III
Gritney fine sandy loam, 7 to 15 percent slopes	IV	II	IV

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Map Unit Name	Agri	For	Hort
Gritney fine sandy loam, 10 to 15 percent slopes	IV	II	IV
Gritney loamy fine sand, 2 to 7 percent slopes	II	II	II
Gritney sandy clay loam, ALL	III	II	III
Gritney sandy loam, 2 to 5 percent slopes, eroded	III	II	III
Gritney sandy loam, 2 to 6 percent slopes	II	II	II
Gritney sandy loam, 5 to 12 percent slopes, eroded	IV	II	IV
Gritney sandy loam, 6 to 10 percent slopes	III	II	III
Gritney-Urban land complex, 2 to 12 percent slopes	IV	II	IV
Hoffman loamy sand, 6 to 10 percent slopes, eroded (Gilead)	IV	II	IV
Hoffman loamy sand, 10 to 20 percent slopes (Gilead)	III	II	III
Johns, ALL	II	I	II
Johnston, ALL	IV	III	IV
Kalmia loamy sand, 0 to 2 percent slopes	II	II	II
Kalmia loamy sand, 0 to 3 percent slopes	II	II	II
Kalmia loamy sand, 2 to 6 percent slopes	II	II	II
Kalmia loamy sand, 10 to 15 percent slopes	III	II	III
Kalmia loamy sand, 15 to 25 percent slopes	IV	II	IV
Kenansville, ALL	III	II	III
Kinston, ALL	IV	III	IV
Kureb sand, 1 to 8 percent slopes	IV	V	IV
Lakeland, ALL	IV	V	IV
Leaf loam	III	I	III
Lenoir loam	III	I	III
Leon sand, ALL	IV	V	IV
Liddell very fine sandy loam	I	I	I
Lillington-Turbeville complex, 8 to 15 percent slopes	III	II	III
Lucy loamy sand	II	II	II
Lumbee, ALL	II	I	II
Lynchburg, ALL	I	I	I
Lynchburg-Urban land complex	IV	I	IV
Lynn Haven and Torhunta soils	II	II	II
Mantachie soils, local alluvium	II	III	II
Marlboro, ALL	II	II	II
Marlboro-Cecil complex, 2 to 8 percent slopes	II	II	II
Marvyn and Gritney soils. 6 to 15 percent slopes	IV	I	IV
Marvyn loamy sand, 6 to 12 percent slopes	IV	I	IV
Maxton loamy sand, 0 to 2 percent slopes	II	II	II
McColl loam	III	II	III
McQueen loam, 1 to 6 percent slopes	II	II	II
Meggett, ALL	IV	I	IV
Muckalee, ALL	IV	III	IV
Myatt very fine sandy loam	II	I	II
Nahunta, ALL	I	I	I
Nankin ,ALL	II	II	II
Nixonton very fine sandy loam	I	I	I
Norfolk and Faceville soils, 6 to 10 percent slopes	II	II	II
Norfolk loamy fine sand, ALL	I	II	I
Norfolk loamy sand, 0 to 2 percent slopes	I	II	I
Norfolk loamy sand, 2 to 6 percent slopes	I	II	I
Norfolk loamy sand, 2 to 6 percent slopes, eroded	II	II	II
Norfolk loamy sand, 6 to 10 percent slopes	II	II	II
Norfolk loamy sand, 6 to 10 percent slopes, eroded	III	II	III

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Map Unit Name	Agri	For	Hort
Norfolk sandy loam, 0 to 2 percent slopes	I	II	I
Norfolk sandy loam, 2 to 6 percent slopes	I	II	I
Norfolk sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Norfolk sandy loam, 6 to 10 percent slopes	II	II	II
Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes	II	II	II
Norfolk-Urban land complex, 0 to 3 percent slopes	IV	II	IV
Norfolk-Wedowee complex, 2 to 6 percent slopes	II	II	II
Ocilla, ALL	III	II	III
Okenee loam (Paxville)	II	III	II
Orangeburg loamy sand, eroded, ALL	II	II	II
Orangeburg loamy sand, ALL OTHER	I	II	I
Pactolus, ALL	IV	II	IV
Pamlico muck	III	V	III
Pantego, ALL	I	I	I
Paxville fine sandy loam	II	III	II
Paxville loam	II	III	II
Peawick, ALL	II	II	II
Pits-Tarboro complex	IV	VI	IV
Plummer and Osier soils	IV	I	IV
Plummer, ALL	IV	V	IV
Pocalla loamy sand, 0 to 3 percent slopes	III	II	III
Polawana loamy sand, frequently flooded	IV	III	IV
Ponzer muck, siliceous subsoil variant	I	V	I
Portsmouth, ALL	I	I	I
Rains, ALL	I	I	I
Rains-Toisnot complex, 0 to 2 percent slopes	IV	I	IV
Rains-Urban land complex, ALL	IV	I	IV
Rimini sand	IV	V	IV
Riverview loam, 0 to 1 percent slopes, occasionally flooded	I	III	I
Roanoke and Wahee loams	II	III	II
Roanoke, ALL	II	III	II
Roanoke-Urban land complex	IV	III	IV
Ruston loamy sand, ALL	III	II	III
Ruston sandy loam, 2 to 6 percent slopes, eroded	IV	II	IV
Rutlege loamy sand	IV	V	IV
Seabrook loamy sand, rarely flooded	IV	II	IV
Smoothed sandy land	IV	VI	IV
St. Lucie sand (Kureb)	IV	V	IV
Stallings, ALL	II	II	II
State, ALL	I	I	I
Swamp	IV	III	IV
Tarboro, ALL	IV	II	IV
Toisnot, ALL	IV	II	IV
Tomahawk sand	III	II	III
Tomotley, ALL	I	I	I
Torhunta and Lynn Haven soils	II	I	II
Torhunta, ALL	I	I	I
Trebloc loam	I	I	I
Troup sand	IV	II	IV
Turbeville fine sandy loam, 2 to 6 percent slopes	I	II	I
Turbeville gravelly sandy loam, 2 to 8 percent slopes	II	II	II
Turbeville loamy sand, 0 to 2 percent slopes	I	II	I

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Map Unit Name	Agri	For	Hort
Turbeville loamy sand, 2 to 6 percent slopes	I	II	I
Turbeville sandy clay loam, 2 to 6 percent slopes, eroded	II	II	II
Turbeville sandy loam, 0 to 2 percent slopes	I	II	I
Turbeville sandy loam, 2 to 6 percent slopes	I	II	I
Turbeville sandy loam, 2 to 8 percent slopes	I	II	I
Turbeville sandy loam, 6 to 12 percent slopes	II	II	II
Turbeville-Urban land complex, 0 to 8 percent slopes	IV	II	IV
Uchee, ALL	III	V	III
Udorthents, loamy	IV	VI	IV
Urban land	IV	VI	IV
Varina, ALL	II	II	II
Vaucluse loamy sand, 10 to 15 percent slopes	IV	II	IV
Vaucluse loamy sand, 10 to 15 percent slopes, eroded	IV	II	IV
Vaucluse loamy sand, 2 to 6 percent slopes	III	II	III
Vaucluse loamy sand, 2 to 6 percent slopes, eroded	III	II	III
Vaucluse loamy sand, 6 to 10 percent slopes	III	II	III
Vaucluse loamy sand, 6 to 10 percent slopes, eroded	III	II	III
Wagram fine sand, 0 to 6 percent slopes	II	II	II
Wagram loamy sand, 0 to 2 percent slopes	II	II	II
Wagram loamy sand, 0 to 6 percent slopes	II	II	II
Wagram loamy sand, 2 to 6 percent slopes	II	II	II
Wagram loamy sand, 6 to 10 percent slopes	III	II	III
Wagram loamy sand, 10 to 15 percent slopes	III	II	III
Wagram sand, thick surface, 0 to 6 percent slopes	II	II	II
Wagram sand, thick surface, 6 to 10 percent slopes	III	II	III
Wagram sand, thick surface, 10 to 15 percent slopes	III	II	III
Wagram-Troup sands, 0 to 4 percent slopes	IV	II	IV
Wagram-Urban land complex, ALL	IV	II	IV
Wahee, ALL	I	I	I
Wakulla, ALL	IV	V	IV
Wehadkee and Chewacla loams	IV	III	IV
Wehadkee, ALL	IV	III	IV
Wehadkee-Chastain association, frequently flooded	IV	III	IV
Weston loamy sand	III	I	III
Wickham fine sandy loam, 6 to 15 percent slopes, rarely flooded	II	I	II
Wickham fine sandy loam, ALL OTHER	I	I	I
Wickham loamy sandy, ALL	I	I	I
Wickham sandy loam, 0 to 4 percent slopes	I	I	I
Wickham sandy loam, 2 to 6 percent slopes, eroded	II	I	II
Wickham-Urban land complex, 1 to 6 percent slopes	IV	I	IV
Wilbanks loam, frequently flooded	IV	III	IV
Wilbanks silt loam	IV	III	IV
Winton fine sandy loam, ALL	IV	I	IV
Woodington loamy sand	II	II	II

Map Unit Name	Agri	For	Hort
Ailey-Appling complex, 2 to 8 percent slopes	II	II	II
Ailey-Appling complex, 8 to 15 percent slopes, bouldery	IV	II	III
Alamance silt loam, gently sloping phase	II	II	II
Alamance variant gravelly loam, ALL	IV	II	II
Altavista fine sandy loam, 2 to 6 percent slopes, eroded	II	I	I
Altavista fine sandy loam, 7 to 10 percent slopes	II	I	I
Altavista fine sandy loam, 0 to 2 percent slopes occasionally flooded	I	I	II
Altavista fine sandy loam, ALL OTHER	I	I	I
Altavista fine sandy loam, clayey variant	I	I	I
Altavista loam, 0 to 3 percent slopes, rarely flooded	I	I	I
Altavista sandy loam, ALL	I	I	I
Altavista silt loam, ALL	I	I	I
Appling coarse sandy loam, eroded gently sloping phase	II	II	II
Appling coarse sandy loam, eroded sloping phase	II	II	II
Appling coarse sandy loam, ALL OTHER	II	II	I
Appling fine sandy loam, 2 to 6 percent slopes	II	II	I
Appling fine sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Appling fine sandy loam, 2 to 7 percent slopes	II	II	I
Appling fine sandy loam, 2 to 7 percent slopes, eroded	II	II	II
Appling fine sandy loam, 6 to 10 percent slopes	II	II	I
Appling fine sandy loam, 6 to 10 percent slopes, eroded	II	II	II
Appling fine sandy loam, 7 to 10 percent slopes(Wedowee)	II	II	I
Appling fine sandy loam, 7 to 10 percent slopes, eroded (Wedowee)	II	II	II
Appling fine sandy loam, 10 to 14 percent slopes (Wedowee)	III	II	II
Appling fine sandy loam, 10 to 14 percent slopes, eroded (Wedowee)	III	II	II
Appling fine sandy loam, (Wedowee), ALL OTHER	IV	II	II
Appling gravelly sandy loam, 2 to 6 percent slopes	II	II	I
Appling gravelly sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Appling gravelly sandy loam, 6 to 10 percent slopes	II	II	I
Appling gravelly sandy loam, 6 to 10 percent slopes, eroded	II	II	II
Appling loamy sand, 2 to 6 percent slopes	II	II	I
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	III	II	II
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	IV	II	II
Appling sandy clay loam, severely eroded sloping phase	III	II	III
Appling sandy loam, 1 to 6 percent slopes	II	II	I
Appling sandy loam, 2 to 6 percent slopes	II	II	I
Appling sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Appling sandy loam, 2 to 8 percent slopes	II	II	I
Appling sandy loam, 6 to 10 percent slopes	II	II	I
Appling sandy loam, 6 to 10 percent slopes, eroded	II	II	II
Appling sandy loam, 6 to 12 percent slopes	II	II	II
Appling sandy loam, 8 to 15 percent slopes	II	II	II
Appling sandy loam, 10 to 15 percent slopes	III	II	II
Appling sandy loam, 10 to 15 percent slopes, eroded	III	II	II
Appling sandy loam, 10 to 25 percent slopes, eroded (Wedowee)	IV	II	II
Appling sandy loam, 15 to 25 percent slopes (Wedowee)	IV	II	II
Appling sandy loam, 15 to 25 percent slopes, eroded (Wedowee)	IV	II	II
Appling sandy loam, eroded gently sloping phase	II	II	II
Appling sandy loam, eroded sloping phase	II	II	II
Appling sandy loam, eroded strongly sloping phase	III	II	II
Appling sandy loam, gently sloping phase	II	II	I
Appling sandy loam, moderately steep phase (Wedowee)	III	II	II

Map Unit Name	Agri	For	Hort
Appling sandy loam, sloping phase	II	II	II
Appling sandy loam, strongly sloping phase	II	II	II
Appling-Marlboro complex, 1 to 6 percent slopes	II	II	II
Appling-Urban land complex, ALL	IV	II	IV
Armenia, ALL	IV	III	III
Ashlar-Rock outcrop complex, ALL	IV	V	IV
Augusta, ALL	III	I	II
Ayersville gravelly loam, ALL	IV	V	II
Badin channery loam, 8 to 15 percent slopes	III	II	II
Badin channery silt loam, 2 to 8 percent slopes	III	II	II
Badin channery silt loam, 8 to 15 percent slopes	III	II	II
Badin channery silt loam, ALL OTHER	IV	II	II
Badin channery silty clay loam, eroded, ALL	III	II	II
Badin silty clay loam, 2 to 8 percent slopes, moderately eroded	III	II	II
Badin silty clay loam, 8 to 15 percent slopes, moderately eroded	IV	II	II
Badin-Goldston complex, 2 to 8 percent slopes	III	II	II
Badin-Goldston complex, 8 to 15 percent slopes	IV	II	III
Badin-Goldston complex, 15 to 25 percent slopes	IV	II	IV
Badin-Nanford complex, 15 to 30 percent slopes	IV	II	IV
Badin-Tarrus complex, 2 to 8 percent slopes	II	II	I
Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded	III	II	I
Badin-Tarrus complex, 8 to 15 percent slopes	III	II	II
Badin-Tarrus complex, 8 to 15 percent slopes, moderately eroded	IV	II	II
Badin-Tarrus complex, 15 to 25 percent slopes	IV	II	II
Badin-Tarrus complex, 25 to 45 percent slopes	IV	II	IV
Badin-Urban land complex, ALL	IV	II	IV
Banister loam, 1 to 6 percent slopes, rarely flooded	II	I	I
Bethlehem gravelly sandy loam, 2 to 8 percent slopes	III	II	II
Bethlehem gravelly sandy loam, 8 to 15 percent slopes	IV	II	II
Bethlehem-Hibriten complex, 6 to 15 percent slopes	IV	II	III
Bethlehem-Urban land complex, 2 to 15 percent slopes	IV	II	IV
Buncombe, ALL	IV	III	IV
Callison-Lignum complex, 2 to 6 percent slopes	III	II	II
Callison-Misenheimer complex, 6 to 10 percent slopes	III	II	II
Carbonton-Brickhaven complex, ALL	IV	II	IV
Cartecay and Chewacla soils	II	III	III
Cecil clay loam, 2 to 6 percent slopes, eroded	III	II	II
Cecil clay loam, 2 to 6 percent slopes, severely eroded	III	II	II
Cecil clay loam, 2 to 7 percent slopes, severely eroded	III	II	II
Cecil clay loam, 2 to 8 percent slopes, eroded	III	II	II
Cecil clay loam, 6 to 10 percent slopes, eroded	III	II	II
Cecil clay loam, 6 to 10 percent slopes, severely eroded	IV	II	II
Cecil clay loam, ALL OTHER	IV	II	II
Cecil fine sandy loam, 2 to 6 percent slopes	II	II	I
Cecil fine sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Cecil fine sandy loam, 2 to 7 percent slopes	II	II	I
Cecil fine sandy loam, 2 to 7 percent slopes, eroded	II	II	II
Cecil fine sandy loam, 2 to 8 percent slopes	II	II	I
Cecil fine sandy loam, 6 to 10 percent slopes	III	II	II
Cecil fine sandy loam, 6 to 10 percent slopes, eroded	III	II	II
			II
Cecil fine sandy loam, 7 to 10 percent slopes, eroded (Pacolet)	III	II	II

Map Unit Name	Agri	For	Hort
Cecil fine sandy loam, 8 to 15 percent slopes	III	II	II
Cecil fine sandy loam, 10 to 14 percent slopes (Pacolet)	III	II	II
Cecil fine sandy loam, 10 to 14 percent slopes, eroded (Pacolet)	III	II	II
Cecil fine sandy loam, 10 to 15 percent slopes	III	II	II
Cecil fine sandy loam, 10 to 15 percent slopes (Pacolet)	III	II	II
Cecil fine sandy loam, 10 to 15 percent slopes, eroded (Pacolet)	III	II	II
Cecil fine sandy loam, 14 to 25 percent slopes (Pacolet)	IV	II	II
Cecil fine sandy loam, 14 to 25 percent slopes, eroded (Pacolet)	IV	II	II
Cecil fine sandy loam, 25 to 40 percent slopes (Pacolet)	IV	II	III
Cecil fine sandy loam, 25 to 40 percent slopes, eroded (Pacolet)	IV	II	III
Cecil fine sandy loam, eroded gently sloping phase	II	II	II
Cecil fine sandy loam, eroded sloping phase	II	II	II
Cecil fine sandy loam, eroded strongly sloping phase	III	II	II
Cecil fine sandy loam, gently sloping phase	II	II	I
Cecil fine sandy loam, moderately steep phase	III	II	II
Cecil fine sandy loam, sloping phase	III	II	II
Cecil fine sandy loam, strongly sloping phase	III	II	II
Cecil gravelly fine sandy loam, 2 to 6 percent slopes	II	II	I
Cecil gravelly fine sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Cecil gravelly fine sandy loam, 2 to 7 percent slopes	II	II	I
Cecil gravelly fine sandy loam, 2 to 7 percent slopes, eroded	III	II	II
Cecil gravelly fine sandy loam, 6 to 10 percent slopes	III	II	II
Cecil gravelly fine sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Cecil gravelly fine sandy loam, 7 to 10 percent slopes	III	II	II
Cecil gravelly fine sandy loam, 7 to 10 percent slopes, eroded (Pacolet)	III	II	II
Cecil gravelly fine sandy loam, 10 to 14 percent slopes (Pacolet)	III	II	II
Cecil gravelly fine sandy loam, 10 to 14 percent slopes, eroded (Pacolet)	III	II	II
Cecil gravelly fine sandy loam, 10 to 15 percent slopes	III	II	II
Cecil gravelly fine sandy loam, 10 to 15 percent, eroded (Pacolet)	III	II	II
Cecil gravelly fine sandy loam, ALL OTHER	IV	II	II
Cecil gravelly sandy clay loam, 2 to 8 percent slopes, eroded	III	II	II
Cecil gravelly sandy clay loam, 8 to 15 percent slopes, eroded	IV	II	II
Cecil gravelly sandy loam, 2 to 6 percent slopes	II	II	I
Cecil gravelly sandy loam, 2 to 6 percent slopes, eroded	II	II	I
Cecil gravelly sandy loam, 6 to 10 percent slopes	III	II	II
Cecil gravelly sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Cecil gravelly sandy loam, 10 to 15 percent slopes	IV	II	IV
Cecil loam, 2 to 6 percent slopes	II	II	I
Cecil loam, ALL OTHER	III	II	II
Cecil sandy clay loam, 8 to 15 percent slopes, eroded	IV	II	II
Cecil sandy clay loam, 8 to 15 percent slopes, moderately eroded	IV	II	II
Cecil sandy clay loam, ALL OTHER	III	II	II
Cecil sandy loam, 2 to 6 percent slopes	II	II	I
Cecil sandy loam, 2 to 6 percent slopes, eroded	III	II	II
Cecil sandy loam, 2 to 8 percent slopes	II	II	I
Cecil sandy loam, 2 to 8 percent slopes, eroded	III	II	II
Cecil sandy loam, 6 to 10 percent slopes	III	II	I
Cecil sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Cecil sandy loam, 8 to 15 percent slopes	III	II	II
Cecil sandy loam, 8 to 15 percent slopes, eroded	IV	II	II
Cecil sandy loam, 10 to 15 percent slopes	III	II	II
Cecil sandy loam, 10 to 15 percent slopes, eroded	III	II	II

Map Unit Name	Agri	For	Hort
Cecil sandy loam, 10 to 15 percent slopes, eroded (Pacolet)	III	II	II
Cecil sandy loam, 15 to 45 percent slopes (Pacolet)	IV	II	II
Cecil sandy loam, eroded gently sloping phase	III	II	II
Cecil sandy loam, eroded sloping phase	III	II	II
Cecil sandy loam, gently sloping phase	II	II	I
Cecil sandy loam, sloping phase	III	II	I
Cecil soils, (Pacolet), ALL	IV	II	II
Cecil stony fine sandy loam, (Uwharrie), ALL	IV	II	II
Cecil-Urban land complex, ALL	IV	II	IV
Chastain silty clay loam	IV	III	III
Chenneby silt loam, 0 to 2 percent slopes, frequently flooded	III	III	III
Chewacla and Chastain soils, 0 to 2 percent slopes, frequently flooded	IV	III	III
Chewacla and Wehadkee, ALL	IV	III	III
Chewacla silt loam, frequently flooded	III	III	III
Chewacla, ALL OTHER	II	III	III
Cid, ALL	III	II	II
Cid-Lignum complex, 1 to 6 percent slopes	II	II	II
Cid-Misenheimer complex, 0 to 4 percent slopes	III	II	II
Cid-Urban land complex, 1 to 5 percent slopes	IV	II	IV
Meadowfield-Fairview complex, 15 to 25 percent slopes	IV	IV	IV
Meadowfield-Rhodhiss complex, 25 to 60 percent slopes, very stony	IV	IV	IV
Meadowfield-Woolwine complex, 8 to 15 percent slopes	IV	IV	IV
Claycreek fine sandy loam, 0 to 2 percent slopes	III	I	II
Colfax sandy loam, ALL	III	II	II
Colvard sandy loam, 0 to 3 percent slopes, occasionally flooded	I	III	III
Colfax silt loam	III	II	II
Congaree, frequently flooded	II	III	III
Congaree, ALL OTHER	I	III	III
Coronaca clay loam, ALL	II	II	I
Coronaca-Urban land complex, 2 to 10 percent slopes	IV	II	IV
Creedmoor coarse sandy loam, ALL	III	I	II
Creedmoor fine sandy loam, 8 to 15 percent slopes	IV	I	II
Creedmoor fine sandy loam, ALL OTHER	III	I	II
Creedmoor loam, 2 to 8 percent slopes	III	I	II
Creedmoor sandy loam, 10 to 15 percent slopes	IV	I	II
Creedmoor sandy loam, 10 to 20 percent slopes	IV	I	II
Creedmoor sandy loam, ALL OTHER	III	I	II
Creedmoor silt loam, ALL	III	I	II
Cullen clay loam, ALL	II	II	II
Cullen-Wynott complex, 15 to 35 percent slopes	IV	II	III
Cut and fill land	IV	VI	IV
Davidson clay, severely eroded strongly sloping phase	III	I	II
Davidson sandy clay loam, 15 to 25 percent slopes	III	I	I
Davidson, ALL OTHER	II	I	I
Dillard fine sandy loam, 2 to 8 percent slopes, rarely flooded	I	III	I
Dogue, ALL	II	I	I
Dogue-Roanoke complex, 0 to 6 percent slopes, rarely flooded	II	I	III
Durham coarse sandy loam, gently sloping phase	II	I	I
Durham coarse sandy loam, sloping phase	III	I	I
Durham loamy sand, 6 to 10 percent slopes, eroded	III	I	I
Durham loamy sand, ALL OTHER	II	I	I
Durham sandy loam, eroded sloping phase	II	I	I

Map Unit Name	Agri	For	Hort
Durham sandy loam, ALL OTHER	III	I	I
Efland silt loam, eroded gently sloping phase (Badin)	II	II	II
Efland silt loam, eroded sloping phase (Badin)	III	II	II
Efland silt loam, gently sloping phase (Badin)	II	II	II
Efland silt loam, sloping phase (Badin)	II	II	II
Efland silt loam, strongly sloping phase (Badin)	III	II	II
Efland silty clay loam severely eroded strongly sloping phase (Badin)	III	II	II
Efland silty clay loam, severely eroded sloping phase (Badin)	III	II	II
Enon clay loam, 2 to 6 percent slopes, eroded	III	II	II
Enon clay loam, 6 to 10 percent slopes, eroded	III	II	II
Enon clay loam, 10 to 15 percent slopes, eroded	IV	II	II
Enon clay loam, severely eroded sloping phase	III	II	II
Enon clay loam, severely eroded strongly sloping phase	IV	II	II
Enon cobbly loam, 2 to 8 percent slopes	II	II	II
Enon cobbly loam, 8 to 15 percent slopes	III	II	II
Enon complex, gullied	IV	II	IV
Enon fine sandy loam, 2 to 15 percent slopes, very stony	IV	II	II
Enon fine sandy loam, 2 to 6 percent slopes	II	II	II
Enon fine sandy loam, 2 to 6 percent slopes, eroded	III	II	II
Enon fine sandy loam, 2 to 8 percent slopes	II	II	II
Enon fine sandy loam, 6 to 10 percent slopes	III	II	II
Enon fine sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Enon fine sandy loam, 8 to 15 percent slopes	III	II	II
Enon fine sandy loam, 10 to 15 percent slopes	III	II	II
Enon fine sandy loam, 10 to 15 percent slopes, eroded	III	II	II
Enon fine sandy loam, eroded gently sloping phase	II	II	II
Enon fine sandy loam, eroded sloping phase	III	II	II
Enon fine sandy loam, gently sloping phase	II	II	II
Enon fine sandy loam, sloping phase	III	II	II
Enon gravelly loam, 2 to 8 percent slopes	II	II	II
Enon gravelly loam, 8 to 15 percent slopes	III	II	II
Enon loam, 2 to 6 percent slopes	II	II	II
Enon loam, 6 to 10 percent slopes	II	II	II
Enon loam, 6 to 12 percent slopes	III	II	II
Enon loam, eroded gently sloping phase	II	II	II
Enon loam, eroded sloping phase	III	II	II
Enon loam, eroded strongly sloping phase	III	II	II
Enon loam, gently sloping phase	II	II	II
Enon loam, sloping phase	III	II	II
Enon loam, strongly sloping phase	III	II	II
Enon sandy loam, 2 to 8 percent slopes	II	II	II
Enon sandy loam, 8 to 15 percent slopes	III	II	II
Enon very cobbly loam, very stony, ALL	IV	II	IV
Enon very stony loam, ALL	IV	II	IV
Enon-Mayodan complex, 15 to 35 percent slopes, very stony	IV	II	III
Enon-Urban land complex, ALL	IV	II	IV
Enon-Wynott complex, 2 to 8 percent slopes	II	II	II
Enon-Wynott complex, 4 to 15 percent slopes, very bouldery	IV	II	IV
Fairview sandy clay loam, 2 to 8 percent slopes, moderately eroded	II	II	II
Fairview sandy clay loam, 8 to 15 percent slopes, moderately eroded	III	II	II
Fairview sandy clay loam, 15 to 25 percent slopes, moderately eroded	IV	II	II
Fairview-Urban land complex, ALL	IV	II	IV

Map Unit Name	Agri	For	Hort
Fluvaquents-Udifluvents complex, 0 to 3 percent slopes, mounded, occasionally flooded	IV	VI	IV
Gaston clay loam, 2 to 8 percent slopes, eroded	II	II	II
Gaston clay loam, 8 to 15 percent slopes, eroded	III	II	II
Gaston loam, 15 to 25 percent slopes	III	II	II
Gaston sandy clay loam, 2 to 8 percent slopes, eroded	II	II	II
Gaston sandy clay loam, 8 to 15 percent slopes, eroded	III	II	II
Georgeville clay loam, 2 to 6 percent slopes, eroded	II	I	II
Georgeville clay loam, 2 to 8 percent slopes, eroded	II	I	II
Georgeville clay loam, 8 to 15 percent slopes, eroded	III	I	II
Georgeville gravelly loam, 2 to 6 percent slopes	II	I	I
Georgeville gravelly loam, 2 to 8 percent slopes, stony	III	I	II
Georgeville gravelly loam, 6 to 10 percent slopes	II	I	I
Georgeville gravelly loam, 10 to 25 percent slopes	IV	I	II
Georgeville gravelly silt loam, 2 to 8 percent slopes	II	I	I
Georgeville gravelly silt loam, 8 to 15 percent slopes	III	I	II
Georgeville loam, 2 to 6 percent slopes	II	I	I
Georgeville loam, 2 to 8 percent slopes	II	I	I
Georgeville loam, 6 to 10 percent slopes	II	I	I
Georgeville loam, 8 to 15 percent slopes	III	I	I
Georgeville loam, ALL OTHER	IV	I	II
Georgeville silt loam, 2 to 6 percent slopes	II	I	I
Georgeville silt loam, 2 to 6 percent slopes, eroded	III	I	II
Georgeville silt loam, 2 to 8 percent slopes	II	I	I
Georgeville silt loam, 2 to 10 percent slopes, eroded	III	I	II
Georgeville silt loam, 4 to 15 percent slopes, extremely stony	IV	I	IV
Georgeville silt loam, 6 to 10 percent slopes	II	I	I
Georgeville silt loam, 6 to 10 percent slopes, eroded	III	I	II
Georgeville silt loam, 8 to 15 percent slopes	III	I	I
Georgeville silt loam, 10 to 15 percent slopes	III	I	I
Georgeville silt loam, 10 to 15 percent slopes, eroded	III	I	II
Georgeville silt loam, 10 to 25 percent slopes	IV	I	II
Georgeville silt loam, 15 to 45 percent slopes, extremely bouldery	IV	I	IV
Georgeville silt loam, eroded gently sloping phase	II	I	II
Georgeville silt loam, eroded sloping phase	III	I	II
Georgeville silt loam, eroded strongly sloping phase	III	I	II
Georgeville silt loam, gently sloping phase	II	I	I
Georgeville silt loam, moderately steep phase	III	I	II
Georgeville silt loam, sloping phase	II	I	I
Georgeville silt loam, strongly sloping phase	III	I	I
Georgeville silty clay loam, 2 to 6 percent slopes, moderately eroded	II	I	II
Georgeville silty clay loam, 2 to 8 percent slopes	II	I	II
Georgeville silty clay loam, 2 to 8 percent slopes, eroded	II	I	II
Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded	II	I	II
Georgeville silty clay loam, 6 to 10 percent slopes, moderately eroded	III	I	II
Georgeville silty clay loam, 8 to 15 percent slopes, eroded	IV	I	II
Georgeville silty clay loam, 8 to 15 percent slopes, moderately eroded	IV	I	II
Georgeville silty clay loam, severely eroded gently sloping phase	III	I	II
Georgeville silty clay loam, severely eroded moderately steep phase	IV	I	III
Georgeville silty clay loam, severely eroded sloping phase	III	I	III
Georgeville silty clay loam, severely eroded strongly sloping phase	IV	I	III
Georgeville-Badin complex, ALL	IV	I	II
Georgeville-Montonia complex, very stony ALL	IV	I	III

Map Unit Name	Agri	For	Hort
Georgeville-Urban land complex, ALL	IV	I	IV
Goldston, ALL	IV	II	III
Goldston-Badin complex, ALL	IV	II	III
Granville gravelly sandy loam, 2 to 8 percent slopes	II	II	I
Granville sandy loam, 2 to 6 percent slopes	II	II	I
Granville sandy loam, 2 to 6 percent slopes, eroded	II	II	I
Granville sandy loam, 2 to 8 percent slopes	II	II	I
Granville sandy loam, 6 to 10 percent slopes	III	II	I
Granville sandy loam, 6 to 10 percent slopes, eroded	III	II	I
Granville sandy loam, 10 to 15 percent slopes	IV	II	I
Grover, ALL	IV	II	III
Gullied land, ALL	IV	VI	IV
Halewood stony sandy loam, (Edneyville), ALL	IV	III	II
Hatboro sandy loam, 0 to 2 percent slopes, frequently flooded	IV	III	IV
Hayesville and Cecil clay loams, 7 to 14 percent slopes, severely eroded (Cecil and Cecil)	II	II	II
Hayesville and Cecil clay loams, 7 to 14 percent slopes, severely eroded (Cecil and Cecil)	III	II	II
Hayesville and Cecil clay loams, 14 to 25 percent slopes, severely eroded (Pacolet and Pacolet)	IV	II	II
Hayesville and Cecil fine sandy loam, eroded, ALL	IV	II	II
Helena clay loam, severely eroded sloping phase	IV	II	II
Helena coarse sandy loam, sloping phase	IV	II	II
Helena coarse sandy loam, ALL OTHER	III	II	II
Helena fine sandy loam, 2 to 8 percent slopes	III	II	II
Helena sandy loam, 10 to 15 percent slopes	IV	II	II
Helena sandy loam, ALL OTHER	III	II	II
Helena-Sedgefield sandy loams, ALL	III	II	II
Helena-Urban land complex, ALL	IV	II	IV
Helena-Worsham complex, 1 to 6 percent slopes	IV	II	III
Herndon loam, 2 to 6 percent slopes	II	II	I
Herndon loam, 6 to 10 percent slopes	II	II	I
Herndon silt loam, 2 to 6 percent slopes	II	II	I
Herndon silt loam, 2 to 6 percent slopes, eroded	II	II	II
Herndon silt loam, 2 to 8 percent slopes	II	II	I
Herndon silt loam, 6 to 10 percent slopes	III	II	I
Herndon silt loam, 6 to 10 percent slopes, eroded	III	II	II
Herndon silt loam, 8 to 15 percent slopes	III	II	I
Herndon silt loam, 10 to 15 percent slopes, eroded	III	II	II
Herndon silt loam, 15 to 25 percent slopes	III	II	I
Herndon silt loam, eroded gently sloping phase	II	II	II
Herndon silt loam, eroded sloping phase	III	II	II
Herndon silt loam, eroded strongly sloping phase	III	II	II
Herndon silt loam, gently sloping phase	II	II	I
Herndon silt loam, moderately steep phase	III	II	I
Herndon silt loam, sloping phase	II	II	I
Herndon silt loam, strongly sloping phase	III	II	I
Herndon silty clay loam, ALL	IV	II	II
Herndon stony silt loam, 2 to 10 percent slopes	III	II	II
Hibriten very cobbly sandy loam, ALL	IV	V	III
Hiwassee clay loam, 8 to 15 percent slopes, eroded	III	II	II
Hiwassee clay loam, 8 to 15 percent slopes, moderately eroded	III	II	II
Hiwassee clay loam, 10 to 15 percent slopes, eroded	III	II	II

Map Unit Name	Agri	For	Hort
Hiwassee clay loam, 15 to 30 percent slopes, moderately eroded	IV	II	II
Hiwassee clay loam, ALL OTHER	II	II	II
Hiwassee gravelly loam, 2 to 8 percent slopes	II	II	I
Hiwassee gravelly loam, 8 to 15 percent slopes	II	II	II
Hiwassee loam, 2 to 6 percent slopes	II	II	I
Hiwassee loam, 2 to 6 percent slopes, eroded	II	II	II
Hiwassee loam, 2 to 7 percent slopes, eroded	II	II	II
Hiwassee loam, 2 to 8 percent slopes	II	II	I
Hiwassee loam, 6 to 10 percent slopes	II	II	I
Hiwassee loam, 6 to 10 percent slopes, eroded	II	II	II
Hiwassee loam, 8 to 15 percent slopes	II	II	I
Hiwassee loam, 10 to 15 percent slopes	II	II	I
Hiwassee loam, 10 to 15 percent slopes, eroded	III	II	II
Hiwassee loam, 15 to 25 percent slopes	IV	II	II
Hornsboro, ALL	I	I	I
Hulett, ALL	IV	II	II
Hulett-Saw complex, 4 to 15 percent slopes, very rocky	IV	II	III
Hulett-Urban Land complex, 2 to 8 percent slopes	IV	II	IV
Iotla sandy loam, 0 to 2 percent slopes, occasionally flooded	II	III	III
Iredell clay loam, 2 to 6 percent slopes	III	II	III
Iredell fine sandy loam, 10 to 14 percent slopes (Wilkes)	IV	II	III
Iredell fine sandy loam, 10 to 14 percent slopes, eroded (Wilkes)	IV	II	III
Iredell fine sandy loam, ALL OTHER	III	II	III
Iredell gravelly loam, 1 to 4 percent slopes	III	II	III
Iredell loam, ALL	III	II	III
Iredell sandy loam, ALL	III	II	III
Iredell very stony loam, gently sloping phase (Enon)	IV	II	IV
Iredell-Urban land complex, ALL	IV	II	IV
Iredell-Urban land-Picture complex, 0 to 10 percent slopes	IV	II	IV
Kirksey silt loam, ALL	II	II	II
Kirksey-Cid complex, 2 to 6 percent slopes	III	II	II
Leaksville silt loam, 0 to 4 percent slopes	III	III	III
Leaksville-Urban land complex, 0 to 4 percent slopes	IV	III	IV
Leveled clayey land	IV	VI	IV
Lignum gravelly silt loam, 2 to 8 percent slopes	II	III	II
Lignum loam, 2 to 6 percent slopes	II	III	II
Lignum silt loam, 7 to 12 percent slopes	III	III	II
Lignum silt loam, ALL OTHER	II	III	II
Lloyd clay loam, 2 to 6 percent slopes, severely eroded (Gaston)	II	II	II
Lloyd clay loam, 2 to 10 percent slopes, severely eroded (Pacolet)	II	II	II
Lloyd clay loam, 6 to 10 percent slopes, severely eroded (Gaston)	II	II	II
Lloyd clay loam, 10 to 14 percent slopes, severely eroded (Pacolet)	III	II	III
Lloyd clay loam, 10 to 15 percent slopes, severely eroded (Gaston)	III	II	III
Lloyd clay loam, 14 to 25 percent slopes, severely eroded (Pacolet)	IV	II	IV
Lloyd clay loam, 15 to 25 percent slopes, severely eroded (Gaston)	IV	II	IV
Lloyd clay loam, severely eroded gently sloping phase (Gaston)	II	II	II
Lloyd clay loam, severely eroded sloping phase (Gaston)	II	II	II
Lloyd clay loam, severely eroded strongly sloping phase (Gaston)	III	II	III
Lloyd clay loam, severely eroded, moderately steep phase (Cecil)	IV	II	III
Lloyd fine sandy loam, 2 to 6 percent slopes (Cecil)	II	II	II
Lloyd fine sandy loam, 2 to 6 percent slopes, eroded (Cecil)	II	II	II
Lloyd fine sandy loam, 6 to 10 percent slopes (Cecil)	III	II	II

Map Unit Name	Agri	For	Hort
Lloyd fine sandy loam, 6 to 10 percent slopes, eroded (Cecil)	III	II	II
Lloyd fine sandy loam, 10 to 15 percent slopes (Pacolet)	II	II	II
Lloyd fine sandy loam, 10 to 15 percent slopes, eroded (Pacolet)	III	II	II
Lloyd fine sandy loam, 15 to 25 percent slopes (Pacolet)	IV	II	II
Lloyd fine sandy loam, 15 to 25 percent slopes, eroded (Pacolet)	IV	II	III
Lloyd loam, 2 to 6 percent slopes (Gaston)	II	II	I
Lloyd loam, 2 to 6 percent slopes, eroded (Davidson)	II	II	II
Lloyd loam, 2 to 6 percent slopes, eroded (Gaston)	II	II	I
Lloyd loam, 2 to 7 percent slopes (Pacolet)	II	II	I
Lloyd loam, 2 to 7 percent slopes, eroded (Pacolet)	II	II	II
Lloyd loam, 6 to 10 percent slopes (Cecil)	III	II	II
Lloyd loam, 6 to 10 percent slopes, eroded (Cecil)	III	II	II
Lloyd loam, 6 to 10 percent slopes, eroded (Davidson)	II	II	II
Lloyd loam, 7 to 10 percent slopes (Pacolet)	III	II	II
Lloyd loam, 7 to 10 percent slopes, eroded (Pacolet)	III	II	II
Lloyd loam, 10 to 14 percent slopes (Pacolet)	IV	II	II
Lloyd loam, 10 to 14 percent slopes, eroded (Pacolet)	IV	II	III
Lloyd loam, 10 to 15 percent slopes (Cecil)	IV	II	II
Lloyd loam, 10 to 15 percent slopes, eroded (Davidson)	II	II	III
Lloyd loam, 10 to 15 percent slopes, eroded (Pacolet)	III	II	III
Lloyd loam, 14 to 25 percent slopes (Pacolet)	IV	II	II
Lloyd loam, 14 to 25 percent slopes, eroded (Pacolet)	IV	II	III
Lloyd loam, 15 to 25 percent slopes (Pacolet)	IV	II	II
Lloyd loam, 15 to 25 percent slopes, eroded (Pacolet)	IV	II	III
Lloyd loam, 25 to 40 percent slopes (Pacolet)	IV	II	IV
Lloyd loam, eroded gently sloping phase (Gaston)	III	II	II
Lloyd loam, eroded sloping phase (Cecil)	III	II	II
Lloyd loam, eroded strongly sloping phase (Cecil)	IV	II	II
Lloyd loam, gently sloping phase (Gaston)	II	II	I
Lloyd loam, level phase (Gaston)	II	II	I
Lloyd loam, moderately steep phase (Cecil)	II	II	II
Lloyd loam, sloping phase (Cecil)	II	II	II
Lloyd loam, strongly sloping phase (Cecil)	IV	II	II
Local alluvial land, ALL	IV	III	III
Louisa fine sandy loam, 25 to 45 percent slopes	IV	II	III
Louisa sandy loam, 25 to 45 percent slopes	IV	II	III
Louisburg and Louisa soils, 25 to 55 percent slopes	IV	II	II
Louisburg and Louisa soils, ALL OTHER	IV	II	III
Louisburg coarse sandy loam, ALL	IV	II	II
Louisburg loamy coarse sand, ALL	IV	II	IV
Louisburg loamy sand, 2 to 6 percent slopes	III	II	II
Louisburg loamy sand, 6 to 10 percent slopes	III	II	II
Louisburg loamy sand, 6 to 15 percent slopes	IV	II	II
Louisburg loamy sand, 10 to 15 percent slopes	IV	II	II
Louisburg loamy sand, 15 to 45 percent slopes	IV	II	III
Louisburg sandy loam, ALL	IV	II	II
Louisburg-Wedowee complex, 15 to 25 percent slopes	IV	II	II
Louisburg-Wedowee complex, ALL OTHER	III	II	II
Made land	IV	VI	IV
Madison clay loam, 2 to 6 percent slopes, eroded	III	II	II
Madison clay loam, 6 to 10 percent slopes, eroded	III	II	II
Madison clay loam, eroded, ALL OTHER	IV	II	II

Map Unit Name	Agri	For	Hort
Madison complex, gullied	IV	II	IV
Madison fine sandy loam, 2 to 6 percent slopes	II	II	II
Madison fine sandy loam, 2 to 7 percent slopes	II	II	II
Madison fine sandy loam, 2 to 7 percent slopes, eroded	II	II	II
Madison fine sandy loam, 6 to 10 percent slopes	III	II	II
Madison fine sandy loam, 7 to 10 percent slopes	III	II	II
Madison fine sandy loam, 7 to 10 percent slopes, eroded	III	II	II
Madison fine sandy loam, 10 to 14 percent slopes	III	II	II
Madison fine sandy loam, 10 to 14 percent slopes, eroded	IV	II	II
Madison fine sandy loam, 10 to 15 percent slopes	III	II	II
Madison fine sandy loam, 14 to 25 percent slopes	IV	II	II
Madison fine sandy loam, 15 to 45 percent slopes	IV	II	II
Madison gravelly fine sandy loam, 2 to 6 percent slopes	II	II	II
Madison gravelly fine sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Madison gravelly fine sandy loam, 6 to 10 percent slopes	III	II	II
Madison gravelly fine sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Madison gravelly fine sandy loam, 7 to 10 percent slopes	III	II	II
Madison gravelly fine sandy loam, 10 to 14 percent slopes	III	II	II
Madison gravelly fine sandy loam, 10 to 15 percent slopes	III	II	II
Madison gravelly fine sandy loam, ALL OTHER	IV	II	II
Madison gravelly sandy clay loam, 2 to 8 percent slopes, moderately eroded	III	II	II
Madison gravelly sandy clay loam, 8 to 15 percent slopes, moderately eroded	IV	II	II
Madison gravelly sandy loam, 10 to 25 percent slopes, eroded	IV	II	II
Madison gravelly sandy loam, ALL OTHER	III	II	II
Madison sandy clay loam, 2 to 8 percent slopes, eroded	III	II	II
Madison sandy clay loam, 8 to 15 percent slopes, eroded	IV	II	II
Madison sandy clay loam, 15 to 25 percent slopes, eroded	IV	II	II
Madison sandy loam, 2 to 6 percent slopes	II	II	II
Madison sandy loam, 2 to 6 percent slopes, eroded	II	II	II
Madison sandy loam, 6 to 10 percent slopes	II	II	II
Madison sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Madison sandy loam, 8 to 15 percent slopes	III	II	II
Madison sandy loam, 10 to 15 percent slopes	III	II	II
Madison sandy loam, ALL OTHER	IV	II	II
Madison-Bethlehem complex, 2 to 8 percent slopes, stony, moderately eroded	III	II	II
Madison-Bethlehem complex, 8 to 15 percent slopes, very stony, moderately eroded	IV	II	III
Madison-Bethlehem-Urban Land complex, 2 to 8 percent slopes	IV	II	IV
Madison-Udorthents complex, 2 to 15 percent slopes, gullied	IV	II	IV
Madison-Urban land complex, 2 to 10 percent slopes	IV	II	IV
Mantachie soils	III	III	II
Masada fine sandy loam, ALL	I	II	I
Masada gravelly sandy clay loam, eroded, ALL	II	II	I
Masada loam, 2 to 8 percent slopes	I	II	I
Masada loam, 8 to 15 percent slopes	II	II	I
Masada sandy clay loam, eroded ALL	II	II	I
Masada sandy loam, 2 to 8 percent slopes	I	II	I
Masada sandy loam, 8 to 15 percent slopes	II	II	I
Masada sandy loam, 15 to 25 percent slopes	IV	II	II
Masada-Urban land complex, 2 to 15 percent slopes	IV	II	IV
Mayodan fine sandy loam, 2 to 6 percent slopes	II	I	I
Mayodan fine sandy loam, 2 to 6 percent slopes, eroded	II	I	I
Mayodan fine sandy loam, 2 to 7 percent slopes	II	I	I

Map Unit Name	Agri	For	Hort
Mayodan fine sandy loam, 2 to 8 percent slopes	II	I	I
Mayodan fine sandy loam, 6 to 10 percent slopes	III	I	I
Mayodan fine sandy loam, 7 to 10 percent slopes	III	I	I
Mayodan fine sandy loam, 7 to 10 percent slopes, eroded	III	I	I
Mayodan fine sandy loam, 8 to 15 percent slopes	III	I	I
Mayodan fine sandy loam, 10 to 14 percent slopes	III	I	I
Mayodan fine sandy loam, 10 to 14 percent slopes, eroded	III	I	II
Mayodan fine sandy loam, ALL OTHER	IV	I	II
Mayodan gravelly sandy loam, 2 to 6 percent slopes	II	I	I
Mayodan gravelly sandy loam, 2 to 6 percent slopes, eroded	II	I	I
Mayodan gravelly sandy loam, 2 to 8 percent slopes	II	I	I
Mayodan gravelly sandy loam, 6 to 10 percent slopes	III	I	I
Mayodan gravelly sandy loam, 6 to 10 percent slopes, eroded	IV	I	I
Mayodan gravelly sandy loam, 8 to 15 percent slopes	III	I	II
Mayodan gravelly sandy loam, 10 to 15 percent slopes	III	I	II
Mayodan gravelly sandy loam, 15 to 25 percent slopes	IV	I	II
Mayodan sandy clay loam, 2 to 8 percent slopes, eroded	II	I	II
Mayodan sandy clay loam, 8 to 15 percent slopes, eroded	III	I	II
Mayodan sandy clay loam, 15 to 25 percent slopes, eroded	IV	I	II
Mayodan sandy loam, 2 to 6 percent slopes	II	I	I
Mayodan sandy loam, 2 to 6 percent slopes, eroded	II	I	I
Mayodan sandy loam, 2 to 8 percent slopes	II	I	I
Mayodan sandy loam, 6 to 10 percent slopes	III	I	I
Mayodan sandy loam, 6 to 10 percent slopes, eroded	III	I	I
Mayodan sandy loam, 8 to 15 percent slopes	III	I	II
Mayodan sandy loam, 10 to 15 percent slopes	III	I	II
Mayodan sandy loam, 10 to 15 percent slopes, eroded	IV	I	II
Mayodan sandy loam, 15 to 25 percent slopes	IV	I	II
Mayodan sandy loam, 15 to 25 percent slopes, stony	IV	I	IV
Mayodan silt loam, 2 to 8 percent slopes	II	I	I
Mayodan silt loam, 8 to 15 percent slopes	III	I	II
Mayodan silt loam, 15 to 25 percent slopes	IV	I	II
Mayodan silt loam, 25 to 45 percent slopes	IV	I	III
Mayodan silt loam, thin, ALL	III	I	II
Mayodan silty clay loam, 2 to 8 percent slopes, eroded	III	I	II
Mayodan silty clay loam, 8 to 15 percent slopes, eroded	IV	I	II
Mayodan-Brickhaven complex, 15 to 30 percent slopes	IV	I	III
Mayodan-Exway complex, eroded, ALL	III	I	II
Mayodan-Pinkston complex, 25 to 45 percent slopes	IV	I	III
Mayodan-Urban land complex, ALL	IV	I	IV
McQueen loam, 1 to 6 percent slopes	II	II	II
Mecklenburg clay loam, 2 to 8 percent slopes, eroded	II	II	II
Mecklenburg clay loam, 2 to 8 percent slopes, moderately eroded	II	II	II
Mecklenburg clay loam, 6 to 15 percent slopes, severely eroded	IV	II	II
Mecklenburg clay loam, 8 to 15 percent slopes, eroded	III	II	II
Mecklenburg clay loam, 8 to 15 percent slopes, moderately eroded	III	II	II
Mecklenburg clay loam, severely eroded sloping phase	IV	II	II
Mecklenburg fine sandy loam, 2 to 6 percent slopes	II	II	I
Mecklenburg fine sandy loam, 2 to 8 percent slopes	II	II	II
Mecklenburg fine sandy loam, 8 to 15 percent slopes	III	II	II
Mecklenburg loam, 2 to 6 percent slopes	II	II	I
			II

Map Unit Name	Agri	For	Hort
Mecklenburg loam, 2 to 7 percent slopes, eroded	II	II	II
Mecklenburg loam, 2 to 8 percent slopes	II	II	I
Mecklenburg loam, 6 to 10 percent slopes	II	II	II
Mecklenburg loam, 6 to 10 percent slopes, eroded	II	II	II
Mecklenburg loam, 7 to 14 percent slopes, eroded	III	II	II
Mecklenburg loam, 8 to 15 percent slopes	III	II	II
Mecklenburg loam, 10 to 15 percent slopes, eroded	III	II	II
Mecklenburg loam, ALL OTHER	IV	II	II
Mecklenburg loam, dark surface variant, 2 to 6 percent slopes	II	II	I
Mecklenburg loam, dark surface variant, 6 to 10 percent slopes	II	II	II
Mecklenburg loam, dark surface variant, 10 to 15 percent slopes	III	II	II
Mecklenburg loam, eroded gently sloping phase	II	II	II
Mecklenburg loam, eroded sloping phase	II	II	II
Mecklenburg loam, eroded strongly sloping phase	III	II	II
Mecklenburg sandy clay loam, eroded, ALL	III	II	II
Mecklenburg-Urban land complex, ALL	IV	II	IV
Miscellaneous water	IV	VI	IV
Misenheimer channery silt loam, 0 to 4 percent slopes	IV	V	III
Misenheimer-Callison complex, 0 to 3 percent slopes	IV	V	III
Misenheimer-Cid complex, 0 to 3 percent slopes	IV	V	III
Misenheimer-Kirksey complex, 0 to 5 percent slopes	IV	V	III
Mixed alluvial land, ALL	IV	III	III
Mocksville sandy loam, 2 to 8 percent slopes	II	II	II
Mocksville sandy loam, 8 to 15 percent slopes	III	II	II
Mocksville sandy loam, 15 to 45 percent slopes	IV	II	III
Moderately gullied land, ALL	IV	VI	IV
Monacan and Arents soils	I	III	IV
Monacan loam	I	III	III
Montonia very channery silt loam, 25 to 60 percent slopes, very stony	IV	V	IV
Mooshaunee-Hallison complex, 2 to 8 percent slopes	III	II	II
Mooshaunee-Hallison complex, 8 to 15 percent slopes	IV	II	III
Mooshaunee-Hallison complex, 15 to 25 percent slopes	IV	II	IV
Mooshaunee-Hallison complex, ALL OTHER	IV	II	IV
Nanford gravelly fine sandy loam, 8 to 15 percent slopes	III	II	II
Nanford silt loam, 2 to 6 percent slopes	II	II	I
Nanford silt loam, 2 to 8 percent slopes	II	II	I
Nanford silt loam, 8 to 15 percent slopes	III	II	II
Nanford silty clay loam, 2 to 6 percent slopes, moderately eroded	III	II	II
Nanford-Badin complex, 6 to 10 percent slopes	III	II	II
Nanford-Badin complex, 10 to 15 percent slopes	IV	II	II
Nanford-Emporia complex, 2 to 8 percent slopes	II	II	I
Nason gravelly loam, 2 to 6 percent slopes	III	II	I
Nason gravelly loam, 6 to 10 percent slopes	III	II	II
Nason gravelly loam, 10 to 25 percent slopes	IV	II	II
Nason gravelly loam, 25 to 50 percent slopes	IV	II	III
Nason gravelly silt loam, 2 to 8 percent slopes	II	II	I
Nason gravelly silt loam, 8 to 15 percent slopes	III	II	II
Nason loam, 2 to 6 percent slopes	II	II	I
Nason loam, 6 to 10 percent slopes	III	II	I
Nason silt loam, 2 to 6 percent slopes	II	II	I
Nason silt loam, 2 to 8 percent slopes	II	II	I
Nason silt loam, 6 to 12 percent slopes	III	II	I

Map Unit Name	Agri	For	Hort
Nason silt loam, 8 to 15 percent slopes	III	II	I
Nason silt loam, 10 to 15 percent slopes	III	II	I
Nason silt loam, 15 to 25 percent slopes	IV	II	II
Nason stony silt loam, 10 to 15 percent slopes (Uwharrie)	IV	II	IV
Oakboro silt loam, ALL	III	III	III
Orange gravelly loam, 2 to 7 percent slopes	II	II	II
Orange loam, 0 to 2 percent slopes	II	II	II
Orange silt loam, 0 to 3 percent slopes	II	II	II
Orange silt loam, eroded gently sloping moderately well drained variant	III	II	II
Orange silt loam, eroded gently sloping phase	III	II	II
Orange silt loam, eroded sloping moderately well drained variant	III	II	II
Orange silt loam, gently sloping moderately well drained variant	III	II	II
Orange silt loam, gently sloping phase	II	II	II
Orange silt loam, nearly level phase	II	II	II
Orange silt loam, sloping moderately well drained variant	III	II	II
Pacolet clay loam, 2 to 6 percent slopes, eroded	II	II	II
Pacolet clay loam, 2 to 8 percent slopes, moderately eroded	II	II	II
Pacolet clay loam, 6 to 10 percent slopes, eroded	III	II	II
Pacolet clay loam, 6 to 10 percent slopes, severely eroded	III	II	II
Pacolet clay loam, 8 to 15 percent slopes, moderately eroded	III	II	II
Pacolet clay loam, 10 to 15 percent slopes, eroded	III	II	II
Pacolet clay loam, 15 to 45 percent slopes, eroded	IV	II	II
Pacolet complex, 10 to 25 percent slopes, severely eroded	IV	II	III
Pacolet fine sandy loam, 2 to 6 percent slopes	II	II	I
Pacolet fine sandy loam, 6 to 10 percent slopes	III	II	I
Pacolet fine sandy loam, 8 to 15 percent slopes	III	II	II
Pacolet fine sandy loam, 10 to 15 percent slopes	III	II	II
Pacolet fine sandy loam, ALL OTHER	IV	II	II
Pacolet gravelly fine sandy loam, 2 to 6 percent slopes	II	II	I
Pacolet gravelly fine sandy loam, 6 to 10 percent slopes	III	II	II
Pacolet gravelly fine sandy loam, 8 to 15 percent slopes	III	II	II
Pacolet gravelly fine sandy loam, 15 to 25 percent slopes	IV	II	II
Pacolet gravelly sandy clay loam, 15 to 30 percent slopes, eroded	IV	II	II
Pacolet gravelly sandy loam, 2 to 8 percent slopes	II	II	I
Pacolet gravelly sandy loam, 8 to 15 percent slopes	III	II	II
Pacolet gravelly sandy loam, ALL OTHER	IV	II	II
Pacolet loam, 10 to 15 percent slopes	III	II	II
Pacolet loam, 15 to 25 percent slopes	IV	II	II
Pacolet sandy clay loam, 2 to 6 percent slopes, eroded	II	II	II
Pacolet sandy clay loam, 2 to 6 percent slopes, moderately eroded	II	II	II
Pacolet sandy clay loam, 2 to 8 percent slopes, eroded	II	II	II
Pacolet sandy clay loam, 6 to 10 percent slopes, moderately eroded	III	II	II
Pacolet sandy clay loam, 8 to 15 percent slopes, eroded	III	II	II
Pacolet sandy clay loam, 8 to 15 percent slopes, moderately eroded	III	II	II
Pacolet sandy clay loam, 10 to 15 percent slopes, moderately eroded	III	II	II
Pacolet sandy clay loam, ALL OTHER	IV	II	II
Pacolet sandy loam, 2 to 6 percent slopes	II	II	I
Pacolet sandy loam, 2 to 8 percent slopes	II	II	I
Pacolet sandy loam, 6 to 10 percent slopes	III	II	II
Pacolet sandy loam, 8 to 15 percent slopes	III	II	II
Pacolet sandy loam, 10 to 15 percent slopes	III	II	II
Pacolet sandy loam, ALL OTHER	IV	II	II

Map Unit Name	Agri	For	Hort
Pacolet soils, 10 to 25 percent slopes	IV	II	III
Pacolet-Bethlehem complex, 2 to 8 percent slopes, eroded	III	II	II
Pacolet-Bethlehem complex, 2 to 8 percent slopes, moderately eroded	III	II	II
Pacolet-Bethlehem complex, ALL OTHER	IV	II	II
Pacolet-Bethlehem complex, 15 to 25 percent slopes, stony	IV		
Pacolet-Bethlehem-Urban Land complex, ALL	IV	II	IV
Pacolet-Madison-Urban land complex, ALL	IV	II	IV
Pacolet-Saw complex, 2 to 8 percent slopes, eroded	III	II	II
Pacolet-Saw complex, 2 to 8 percent slopes, moderately eroded	III	II	II
Pacolet-Saw complex, ALL OTHER	IV	II	II
Pacolet-Udorthents complex, gullied, ALL	IV	II	IV
Pacolet-Urban land complex, ALL	IV	II	IV
Pacolet-Wilkes complex, 8 to 15 percent slopes	III	II	II
Pacolet-Wilkes complex, 15 to 25 percent slopes	IV	II	II
Picture loam, 0 to 3 percent slopes	IV	II	III
Pinkston, ALL	IV	II	III
Pinoka, ALL	IV	II	III
Pinoka-Carbonton complex, 2 to 8 percent slopes	IV	II	III
Pits, ALL	IV	VI	IV
Poindexter and Zion sandy loams, 2 to 8 percent slopes	III	II	II
Poindexter and Zion sandy loams, 8 to 15 percent slopes	IV	II	II
Poindexter and Zion sandy loams, ALL OTHER	IV	II	III
Poindexter fine sandy loam, 25 to 60 percent slopes	IV	II	III
Poindexter loam, 2 to 8 percent slopes	III	II	II
Poindexter loam, 8 to 15 percent slopes	IV	II	II
Poindexter loam, 15 to 45 percent slopes	IV	II	III
Poindexter-Mocksville complex, 2 to 8 percent slopes	IV	II	II
Poindexter-Mocksville complex, 8 to 15 percent slopes	IV	II	II
Poindexter-Mocksville complex, ALL OTHER	IV	II	III
Poindexter-Zion-Urban land complex, 2 to 15 percent slopes	IV	II	IV
Polkton-White Store complex, 2 to 8 percent slopes, severely eroded	III	II	III
Polkton-White Store complex, ALL OTHER	IV	II	III
Quarry, ALL	IV	VI	IV
Rhodhiss, ALL	IV	II	II
Rhodhiss-Bannertown complex, 25 to 50 percent slopes	IV	II	III
Rion fine sandy loam, 2 to 8 percent slopes	III	II	II
Rion fine sandy loam, 8 to 15 percent slopes	IV	II	II
Rion fine sandy loam, 15 to 25 percent slopes	IV	II	II
Rion fine sandy loam, 25 to 60 percent slopes	IV	II	III
Rion loamy sand, 8 to 15 percent slopes	IV	II	II
Rion loamy sand, 15 to 25 percent slopes	IV	II	III
Rion sandy loam, 2 to 8 percent slopes	III	II	II
Rion sandy loam, 8 to 15 percent slopes	III	II	II
Rion sandy loam, 15 to 25 percent slopes	IV	II	II
Rion sandy loam, 15 to 30 percent slopes	IV	II	II
Rion sandy loam, ALL OTHER	IV	II	III
Rion, Pacolet, and Wateree soils, 25 to 60 percent slopes	IV	II	IV
Rion-Ashlar complex, 15 to 35 percent slopes, stony	IV	II	III
Rion-Ashlar complex, 25 to 60 percent slopes, rocky	IV	II	IV
Rion-Ashlar-Rock outcrop complex, 45 to 70 percent slopes	IV	II	IV
Rion-Cliffside complex, 25 to 60 percent slopes, very stony	IV	II	IV
Rion-Hibriten complex, 25 to 45 percent slopes, very stony	IV	II	IV

Map Unit Name	Agri	For	Hort
Rion-Urban land complex, 2 to 10 percent slopes	IV	II	IV
Rion-Wateree-Wedowee complex, 8 to 15 percent slopes	IV	II	III
Rion-Wedowee complex, ALL	III	II	II
Rion-Wedowee-Ashlar complex, ALL	IV	II	III
Riverview and Buncombe soils, 0 to 3 percent slopes, frequently flooded	II	III	III
Riverview and Toccoa soils, 0 to 4 percent slopes, occasionally flooded	II	III	III
Riverview, frequently flooded, ALL	II	III	III
Riverview, occasionally flooded, ALL	I	III	III
Roanoke, ALL	II	III	III
Roanoke-Wahee complex, 0 to 3 percent slopes, occasionally flooded	II	III	III
Rock outcrop	IV	VI	IV
Rock outcrop-Ashlar complex, 2 to 15 percent slopes	IV	VI	IV
Rock outcrop-Wake complex, ALL	IV	VI	IV
Sauratown channery fine sandy loam, 25 to 60 percent slopes, very stony	IV	IV	IV
Saw-Pacolet complex, ALL	IV	II	II
Saw-Wake Complex, very rocky, ALL	IV	II	IV
Secrest-Cid complex, 0 to 3 percent slopes	III	II	II
Sedgefield fine sandy loam, 1 to 4 percent slopes	II	II	II
Sedgefield fine sandy loam, 1 to 6 percent slopes	III	II	II
Sedgefield sandy loam, 1 to 6 percent slopes	III	II	II
Sedgefield sandy loam, 2 to 8 percent slopes	III	II	II
Severely gullied land, ALL	IV	VI	IV
Shellbluff loam, 0 to 2 percent slopes, occasionally flooded	II	III	III
Shellbluff silt loam, 0 to 2 percent slopes, frequently flooded	IV	III	III
Skyuka clay loam, 2 to 8 percent slopes, eroded	II	I	II
Skyuka loam, 2 to 8 percent slopes	I	I	II
Spray loam, 0 to 5 percent slopes	IV	II	III
Spray-Urban land complex, 0 to 5 percent slopes	IV	II	IV
Starr loam, ALL	II	I	III
State, ALL	I	I	I
Stoneville loam, 2 to 8 percent slopes	II	II	I
Stoneville loam, 8 to 15 percent slopes	III	II	I
Stoneville loam, 15 to 25 percent slopes	IV	II	II
Stoneville-Urban land complex, 2 to 10 percent slopes	IV	II	IV
Stony land	IV	VI	IV
Swamp	IV	III	IV
Tallapoosa fine sandy loam, ALL	IV	II	III
Tarrus gravelly silt loam, 2 to 8 percent slopes	II	II	I
Tarrus-Georgeville complex, 8 to 15 percent slopes	II	II	I
Tatum and Nason channery silt loams, 15 to 25 percent slopes	IV	II	II
Tatum channery silt loam, ALL	III	II	I
Tatum channery silty clay loam, ALL	III	II	II
Tatum gravelly loam, 2 to 8 percent slopes	II	II	I
Tatum gravelly loam, 8 to 15 percent slopes	III	II	I
Tatum gravelly loam, ALL OTHER	IV	II	II
Tatum gravelly silt loam, 2 to 8 percent slopes	II	II	I
Tatum gravelly silt loam, 8 to 15 percent slopes	III	II	I
Tatum gravelly silt loam, ALL OTHER	IV	II	II
Tatum gravelly silty clay loam, eroded, ALL	III	II	II
Tatum loam, 2 to 6 percent slopes	II	II	I
Tatum loam, 10 to 15 percent slopes	III	II	II
Tatum loam, ALL OTHER	IV	II	II

Map Unit Name	Agri	For	Hort
Tatum silt loam, 2 to 8 percent slopes	II	II	I
Tatum silt loam, 8 to 15 percent slopes	III	II	I
Tatum silt loam, ALL OTHER	IV	II	II
Tatum silty clay loam, eroded, ALL	III	II	II
Tatum-Badin complex, 2 to 8 percent slopes	III	II	I
Tatum-Badin complex, 2 to 8 percent slopes, eroded	III	II	II
Tatum-Badin complex, 8 to 15 percent slopes	III	II	II
Tatum-Montonia complex, 15 to 30 percent slopes			
Tatum-Montonia complex, ALL OTHER	III	II	II
Tatum-Urban land complex, 2 to 8 percent slopes	IV	II	IV
Tetotum fine sandy loam, 1 to 4 percent slopes	I	I	I
Tetotum silt loam, 0 to 3 percent slopes	I	I	I
Tirzah silt loam, eroded gently sloping phase (Tatum)	III	II	I
Tirzah silt loam, eroded sloping phase (Tatum)	II	II	I
Tirzah silt loam, eroded strongly sloping phase (Tatum)	III	II	II
Tirzah silt loam, gently sloping phase (Stoneville)	II	II	II
Tirzah silt loam, sloping phase (Stoneville)	III	II	II
Tirzah silt loam, strongly sloping phase (Stoneville)	III	II	II
Tirzah silty clay loam, severely eroded gently sloping phase (Tatum)	III	II	II
Tirzah silty clay loam, severely eroded sloping phase (Tatum)	III	II	II
Tirzah silty clay loam, severely eroded strongly sloping phase (Tatum)	IV	II	II
Toast sandy loam, 2 to 8 percent slopes	II	I	I
Toast sandy loam, 8 to 15 percent slopes	III	I	II
Toccoa, ALL	I	III	III
Turbeville fine sandy loam, 0 to 3 percent slopes	I	II	I
Udorthents, ALL	IV	VI	IV
Udorthents-Pits complex, mounded, 0 to 2 percent slopes, occasionally flooded	IV	VI	IV
Udorthents-Urban land complex, ALL	IV	VI	IV
Urban land, ALL	IV	VI	IV
Urban land-Arents complex, occasionally flooded	IV	III	IV
Urban land-Iredell-Creedmoor complex, 2 to 10 percent slopes	IV	II	IV
Urban land-Masada complex, 2 to 15 percent slopes	IV	II	IV
Uwharrie clay loam, 2 to 8 percent slopes, eroded	III	II	III
Uwharrie clay loam, 8 to 15 percent slopes, eroded	IV	II	III
Uwharrie loam, 15 to 25 percent slopes	IV	II	III
Uwharrie loam, very stony, ALL	IV	II	III
Uwharrie silt loam, 2 to 8 percent slopes	II	II	I
Uwharrie silty clay loam, 2 to 8 percent slopes, eroded	III	II	II
Uwharrie silty clay loam, 2 to 8 percent slopes, moderately eroded	III	II	II
Uwharrie silty clay loam, 8 to 15 percent slopes, eroded	IV	II	II
Uwharrie stony loam, ALL	IV	II	III
Uwharrie stony loam, very bouldery, ALL	IV	II	IV
Uwharrie-Badin complex, ALL	IV	II	III
Uwharrie-Tatum complex, 8 to 15 percent slopes	III	II	III
Uwharrie-Tatum complex, 8 to 15 percent slopes, moderately eroded	IV	II	III
Uwharrie-Urban Land, 2 to 8 percent slopes	IV	II	IV
Vance clay loam, severely eroded sloping phase	IV	II	II
Vance coarse sandy loam, 2 to 8 percent slopes	II	II	II
Vance coarse sandy loam, eroded gently sloping phase	III	II	II
Vance coarse sandy loam, eroded sloping phase	III	II	II
Vance coarse sandy loam, gently sloping phase	II	II	II

Map Unit Name	Agri	For	Hort
Vance sandy clay loam, ALL	III	II	II
Vance sandy loam, 2 to 6 percent slopes	II	II	II
Vance sandy loam, 2 to 6 percent slopes, eroded	III	II	II
Vance sandy loam, 2 to 8 percent slopes	II	II	II
Vance sandy loam, 6 to 10 percent slopes	III	II	II
Vance sandy loam, 6 to 10 percent slopes, eroded	III	II	II
Vance sandy loam, 8 to 15 percent slopes	III	II	II
Vance sandy loam, 10 to 15 percent slopes	III	II	II
Vance sandy loam, eroded gently sloping phase	III	II	II
Vance sandy loam, eroded moderately sloping phase	III	II	II
Vance sandy loam, eroded strongly sloping phase	IV	II	II
Vance sandy loam, gently sloping phase	II	II	II
Vance-Urban land complex, 2 to 10 percent slopes	IV	II	IV
Wadesboro clay loam, 2 to 8 percent slopes, moderately eroded	II	I	II
Wadesboro clay loam, 8 to 15 percent slopes, moderately eroded	III	I	II
Wadesboro fine sandy loam, 2 to 7 percent slopes (Mayodan)	II	I	II
Wadesboro fine sandy loam, 2 to 7 percent slopes, eroded (Mayodan)	II	I	II
Wadesboro fine sandy loam, 7 to 10 percent slopes (Mayodan)	III	I	II
Wadesboro fine sandy loam, 7 to 10 percent slopes, eroded (Mayodan)	III	I	II
Wadesboro fine sandy loam, 10 to 14 percent slopes (Mayodan)	III	I	II
Wadesboro fine sandy loam, 10 to 14 percent slopes, eroded (Mayodan)	IV	I	II
Wadesboro fine sandy loam, 14 to 30 percent slopes (Mayodan)	IV	I	II
Wahee, ALL	II	III	I
Wake soils, ALL	IV	II	III
Wake-Saw-Wedowee complex, 2 to 8 percent slopes, rocky	IV	II	III
Wake-Wateree complex, 15 to 30 percent slopes, very rocky	IV	II	III
Wake-Wateree-Wedowee complex, 8 to 15 percent slopes, rocky	IV	II	III
Warne and Roanoke fine sandy loams (Dogue)	IV	III	II
Wateree fine sandy loam, ALL	IV	II	II
Wateree-Rion complex, 40 to 95 percent slopes	IV	II	III
Wateree-Rion-Wedowee complex, 15 to 30 percent slopes	IV	II	III
Wedowee coarse sandy loam, 2 to 6 percent slopes	II	I	I
Wedowee coarse sandy loam, 6 to 10 percent slopes	III	I	II
Wedowee loam, 2 to 8 percent slopes	II	I	I
Wedowee loam, 8 to 15 percent slopes	III	I	II
Wedowee loam, 15 to 25 percent slopes	IV	I	II
Wedowee sandy clay loam, 8 to 15 percent slopes, eroded	IV	I	II
Wedowee sandy loam, 2 to 10 percent slopes, extremely bouldery	IV	I	IV
Wedowee sandy loam, 2 to 15 percent slopes, bouldery	IV	I	III
Wedowee sandy loam, 2 to 6 percent slopes	II	I	I
Wedowee sandy loam, 2 to 6 percent slopes, eroded	II	I	II
Wedowee sandy loam, 2 to 8 percent slopes	II	I	I
Wedowee sandy loam, 6 to 10 percent slopes	III	I	II
Wedowee sandy loam, 6 to 10 percent slopes, eroded	III	I	II
Wedowee sandy loam, 6 to 15 percent slopes	III	I	II
Wedowee sandy loam, 8 to 15 percent slopes	III	I	II
Wedowee sandy loam, 10 to 15 percent slopes	III	I	II
Wedowee sandy loam, 10 to 15 percent slopes, eroded	III	I	II
Wedowee sandy loam, 10 to 25 percent slopes	III	I	II
Wedowee sandy loam, 15 to 25 percent slopes	IV	I	II
Wedowee sandy loam, 15 to 35 percent slopes, bouldery	IV	I	III
Wedowee sandy loam, 15 to 40 percent slopes	IV	I	II

Map Unit Name	Agri	For	Hort
Wedowee-Louisburg complex, 2 to 6 percent slopes	II	I	II
Wedowee-Louisburg complex, ALL OTHER	III	I	III
Wedowee-Urban land-Udorthents complex, 2 to 10 percent slopes	IV	I	IV
Wehadkee and Bibb soils	IV	III	III
Wehadkee, ALL	IV	III	III
White Store clay loam, ALL	IV	II	III
White Store fine sandy loam, moderately eroded, ALL	IV	II	III
White Store loam, 8 to 15 percent slopes	IV	II	III
White Store loam, ALL OTHER	III	II	III
White Store sandy loam, 2 to 6 percent slopes	III	II	III
White Store sandy loam, ALL OTHER	IV	II	III
White Store silt loam, 8 to 15 percent slopes	IV	II	III
White Store silt loam, ALL OTHER	III	II	III
White Store-Polkton complex, ALL	IV	II	III
White Store-Urban land complex, ALL	IV	II	IV
Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded	I	I	I
Wickham fine sandy loam, 2 to 6 percent slopes	I	I	I
Wickham fine sandy loam, 2 to 6 percent slopes, eroded	II	I	I
Wickham fine sandy loam, 2 to 7 percent slopes, eroded	II	I	I
Wickham fine sandy loam, 2 to 8 percent slopes	II	I	I
Wickham fine sandy loam, 6 to 10 percent slopes	II	I	I
Wickham fine sandy loam, 6 to 10 percent slopes, eroded	III	I	II
Wickham fine sandy loam, 7 to 14 percent slopes, eroded	III	I	II
Wickham fine sandy loam, 10 to 15 percent slopes	III	I	II
Wickham sandy loam, ALL	I	I	I
Wilkes, ALL	IV	II	III
Wilkes-Poindexter-Wynott complex, ALL	IV	II	III
Wilkes-Urban land complex, 8 to 15 percent slopes	IV	II	IV
Winnsboro fine sandy loam, 2 to 8 percent slopes	II	II	I
Winnsboro loam, 2 to 8 percent slopes	III	II	I
Winnsboro loam, 8 to 15 percent slopes	IV	II	II
Winnsboro-Wilkes complex, 2 to 8 percent slopes	III	II	II
Winnsboro-Wilkes complex, ALL OTHER	IV	II	III
Woolwine-Fairview complex, 2 to 8 percent slopes, moderately eroded	III	II	II
Woolwine-Fairview complex, moderately eroded, ALL OTHER	IV	II	II
Woolwine-Fairview-Urban land complex, ALL	IV	II	IV
Worsham, ALL	IV	III	III
Wynott cobbly loam, 2 to 10 percent slopes, extremely stony	IV	II	IV
Wynott loam, 2 to 8 percent slopes	III	II	II
Wynott-Enon complex, 2 to 8 percent slopes	II	II	II
Wynott-Enon complex, 2 to 8 percent slopes, moderately eroded	II	II	II
Wynott-Enon complex, 8 to 15 percent slopes	II	II	II
Wynott-Enon complex, 8 to 15 percent slopes, moderately eroded	III	II	II
Wynott-Enon complex, 15 to 25 percent slopes	IV	II	II
Wynott-Enon complex, extremely bouldery, ALL	IV	II	IV
Wynott-Wilkes-Poindexter complex, 2 to 8 percent slopes	IV	II	II
Wynott-Winnsboro complex, 2 to 8 percent slopes	II	II	II
Wynott-Winnsboro complex, 8 to 15 percent slopes	II	II	II
Wynott-Winnsboro complex, 15 to 25 percent slopes	IV	II	II
Zion gravelly loam, 2 to 8 percent slopes	III	II	II
Zion gravelly loam, 8 to 15 percent slopes	IV	II	II
Zion-Enon complex, 2 to 8 percent slopes	III	II	III

Map Unit Name	Agri	For	Hort
Zion-Enon complex, 8 to 15 percent slopes	IV	II	II
Zion-Mocksville complex, 25 to 45 percent slopes	IV	II	III
Zion-Wilkes complex, 8 to 15 percent slopes	IV	II	II
Zion-Winnsboro-Mocksville complex, ALL	IV	II	II

MLRA137 – Sandhills

Map Unit Name	Agri	For	Hort
Ailey gravelly loamy sand, 8 to 15 percent slopes	III	V	III
Ailey gravelly loamy sand, 15 to 25 percent slopes	IV	V	IV
Ailey loamy sand, ALL	III	V	III
Ailey sand, moderately wet, 0 to 6 percent slopes	II	V	II
Ailey-Urban land complex, ALL	IV	V	IV
Bibb loam, 0 to 2 percent slopes, frequently flooded	IV	III	IV
Blaney loamy sand, 2 to 8 percent slopes	II	II	II
Blaney loamy sand, 8 to 15 percent slopes	III	II	III
Blaney-Urban land complex, ALL	IV	II	IV
Bragg sandy loam, 1 to 4 percent slopes	IV	V	IV
Candor and Wakulla soils, 8 to 15 percent slopes	IV	V	IV
Candor sand, ALL	IV	V	IV
Candor-Urban land complex, 2 to 12 percent slopes	IV	V	IV
Dothan gravelly loamy sand, 0 to 6 percent slopes	I	II	I
Dothan loamy sand, ALL	I	II	I
Emporia loamy sand, ALL	II	II	II
Faceville sandy clay loam, 2 to 6 percent slopes, eroded	II	II	II
Fuquay, ALL	II	II	II
Fuquay-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Gilead loamy sand, ALL	II	II	II
Johns fine sandy loam, 0 to 2 percent slopes	I	I	I
Johnston, ALL	IV	III	IV
Kalmia sandy loam, wet substratum, 0 to 2 percent slopes	I	II	I
Kenansville loamy sand, 0 to 4 percent slopes	II	I	II
Lakeland, ALL	IV	V	IV
Lakeland-Urban land complex, 1 to 8 percent slopes	IV	V	IV
Lillington gravelly sandy loam, 2 to 8 percent slopes	III	II	III
Lillington gravelly sandy loam, 8 to 15 percent slopes	IV	II	IV
Lillington gravelly sandy loam, 15 to 25 percent slopes	IV	II	IV
Pactolus sand, 0 to 3 percent slopes	IV	II	IV
Paxville fine sandy loam, 0 to 2 percent slopes	I	III	I
Pelion loamy sand, 0 to 2 percent slopes	II	II	II
Pelion loamy sand, 1 to 4 percent slopes	IV	II	IV
Pelion loamy sand, 2 to 8 percent slopes	III	II	III
Pelion loamy sand, 8 to 15 percent slopes	IV	II	IV
Pelion-Urban land complex, ALL	IV	II	IV
Pelion-Urban land complex, 8 to 15 percent slopes	IV	II	IV
Pocalla loamy sand, 0 to 6 percent slopes			
Rains fine sandy loam, 0 to 2 percent slopes	III	I	III
Tetotum silt loam, 0 to 3 percent slopes, rarely flooded	I	I	I
Udorthents, ALL	IV	VI	IV
Urban land, ALL	IV	VI	IV
Vaucluse gravelly loamy sand, 2 to 8 percent slopes	III	II	III
Vaucluse gravelly loamy sand, 8 to 15 percent slopes	IV	II	IV
Vaucluse gravelly loamy sand, 15 to 25 percent slopes	IV	II	IV
Vaucluse gravelly sandy loam, ALL	III	II	III
Vaucluse gravelly sandy loam, 8 to 15 percent slopes	III	II	III
Vaucluse gravelly sandy loam, 15 to 25 percent slopes	III	II	III
Vaucluse loamy sand, 2 to 8 percent slopes	II	II	II
Vaucluse loamy sand, 8 to 15 percent slopes	III	II	III
Vaucluse loamy sand, 15 to 25 percent slopes	IV	II	IV
Vaucluse very gravelly loamy sand, ALL	IV	II	IV

MLRA137 – Sandhills

Map Unit Name	Agri	For	Hort
Vaucluse-Gilead loamy sands, 15 to 25 percent slopes	IV	II	IV
Vaucluse-Urban land complex, ALL	IV	II	IV
Wakulla and Candor soils, 0 to 8 percent slopes	IV	V	IV
Wakulla sand, ALL	IV	V	IV
Wakulla-Candor-Urban land complex, 0 to 10 percent slopes	IV	V	IV
Wehadkee fine sandy loam	IV	III	IV
Wehadkee loam, 0 to 2 percent slopes, frequently flooded	IV	III	IV

MLRA153A – Lower Coastal Plain

Map Unit Name	Agri	For	Hort
Alaga, ALL	IV	II	IV
Alpin, ALL	IV	II	IV
Altavista, ALL	I	I	I
Altavista-Urban land complex, 0 to 2 percent slopes	IV	I	IV
Arapahoe fine sandy loam	II	I	II
Augusta, ALL	II	I	II
Autryville fine sand, 1 to 4 percent slopes	IV	II	IV
Autryville, ALL OTHER	III	II	III
Aycock, ALL ERODED	II	I	II
Aycock, ALL OTHER	I	I	I
Ballahack loam, 0 to 2 percent slopes, occasionally flooded	I	I	I
Bayboro, ALL	I	I	I
Baymeade and Marvyn soils, 6 to 12 percent slopes	IV	V	IV
Baymeade fine sand, ALL	IV	V	IV
Baymeade-Urban land complex, 0 to 6 percent slopes	IV	V	IV
Bethera, ALL	II	I	II
Bibb and Johnston loams, frequently flooded	IV	III	IV
Bibb, ALL	IV	III	IV
Bladen, ALL	III	I	III
Blanton, ALL	IV	V	IV
Bohicket, ALL	IV	VI	IV
Bonneau loamy fine sand, 0 to 6 percent slopes	II	II	II
Bonneau loamy sand, 0 to 4 percent slopes	II	II	II
Bonneau loamy sand, 0 to 6 percent slopes	II	II	II
Bonneau loamy sand, 6 to 10 percent slopes	III	II	III
Bonneau loamy sand, 6 to 12 percent slopes	III	II	III
Borrow pits	IV	VI	IV
Bragg, ALL	IV	VI	IV
Brookman loam, frequently flooded	IV	III	IV
Butters loamy fine sand, 0 to 3 percent slopes	III	II	III
Byars loam	II	III	II
Cainhoy, ALL	IV	V	IV
Cape Fear loam, ALL	I	I	I
Caroline fine sandy loam, ALL	II	II	II
Carteret, ALL	IV	VI	IV
Centenary fine sand	IV	II	IV
Chastain and Chenneby soils, frequently flooded	IV	III	IV
Chastain silt loam, frequently flooded	IV	III	IV
Chewacla and Chastain soils, frequently flooded	IV	III	IV
Chewacla loam, frequently flooded	IV	III	IV
Chipley sand	IV	II	IV
Chowan silt loam	IV	III	IV
Conetoe, ALL	III	II	III
Congaree silt loam, 0 to 4 percent slopes, occasionally flooded	I	III	I
Corolla fine sand	IV	VI	IV
Coxville, ALL	II	I	II
Craven clay loam, 4 to 12 percent slopes, eroded	IV	I	IV
Craven fine sandy loam, 0 to 1 percent slopes	II	I	II
Craven fine sandy loam, 1 to 4 percent slopes	II	I	II
Craven fine sandy loam, 1 to 6 percent slopes, eroded	III	I	III
Craven fine sandy loam, 4 to 8 percent slopes	III	I	III
Craven fine sandy loam, 4 to 8 percent slopes, eroded	IV	I	IV

MLRA153A – Lower Coastal Plain

Map Unit Name	Agri	For	Hort
Craven fine sandy loam, 6 to 10 percent slopes	IV	I	IV
Craven fine sandy loam, 8 to 12 percent slopes, eroded	IV	I	IV
Craven loam, 1 to 4 percent slopes	II	I	II
Craven loam, 1 to 4 percent slopes, eroded	III	I	III
Craven silt loam, 1 to 4 percent slopes	II	I	II
Craven very fine sandy loam, 1 to 4 percent slopes	II	I	II
Craven very fine sandy loam, 4 to 8 percent slopes	IV	I	IV
Craven-Urban land complex, 0 to 2 percent slopes	IV	I	IV
Croatan muck, frequently flooded	III	V	III
Croatan muck, ALL OTHER	II	V	II
Dogue sandy loam, 0 to 2 percent slopes	II	I	II
Dogue sandy loam, 2 to 6 percent slopes	III	I	III
Dogue sandy loam, 6 to 12 percent slopes	IV	I	IV
Dorovan, ALL	IV	V	IV
Duckston fine sand	IV	VI	IV
Echaw, ALL	IV	V	IV
Exum fine sandy loam, 0 to 1 percent slopes	I	II	I
Exum fine sandy loam, 1 to 6 percent slopes	II	II	II
Exum loam, 0 to 2 percent slopes	I	II	I
Exum silt loam, 0 to 2 percent slopes	I	II	I
Exum very fine sandy loam, 0 to 2 percent slopes	I	II	I
Exum very fine sandy loam, 2 to 5 percent slopes	II	II	II
Exum-Urban land complex, 0 to 2 percent slopes	IV	II	IV
Foreston loamy fine sand, ALL	II	II	II
Goldsboro sandy loam, 1 to 6 percent slopes	I	I	I
Goldsboro, ALL OTHER	I	I	I
Goldsboro-Urban land complex, ALL	IV	I	IV
Grantham, ALL	I	I	I
Grifton, ALL	II	I	II
Hobonny muck	IV	VI	IV
Icaria fine sandy loam, ALL	II	I	II
Invershiel-Pender complex, 0 to 2 percent slopes	I	II	I
Johns, ALL	II	I	II
Johnston and Pamlico soils, 0 to 1 percent slopes, frequently flooded	IV	III	IV
Johnston soils	IV	III	IV
Kalmia, ALL	II		
Kenansville, ALL	III	II	III
Kinston loam, frequently flooded	IV	III	IV
Kureb, ALL	IV	V	IV
Lafitte muck	IV	VI	IV
Lakeland sand, 0 to 6 percent slopes	IV	V	IV
Leaf, ALL	III	I	III
Lenoir, ALL	III	I	III
Leon, ALL	IV	V	III
Leon-Urban land complex	IV	V	IV
Liddell silt loam	II	I	II
Lucy loamy sand, 0 to 6 percent slopes	II	II	II
Lumbee, ALL	II	I	II
Lynchburg, ALL	II	I	II
Lynchburg-Urban land complex	IV	I	IV
Lynn Haven sand	IV	II	IV
Mandarin, ALL	IV	V	IV

Map Unit Name			
Mandarin-Urban land complex	IV	V	IV
Marvyn and Craven soils, 6 to 12 percent slopes	IV	I	IV
Marvyn, ALL	IV	I	IV
Masada sandy loam, 0 to 4 percent slopes	I	II	I
Masontown, ALL	IV	III	IV
Masontown mucky fine sandy loam and Muckalee sandy loam, frequently flooded	IV	III	IV
Meggett fine sandy loam, frequently flooded	IV	III	IV
Meggett, ALL OTHER	III	I	III
Mine pits	IV	VI	IV
Muckalee loam, ALL	IV	III	IV
Murville, ALL	IV	V	IV
Nahunta, ALL	I	I	I
Nakina fine sandy loam	I	I	I
Nawney loam, 0 to 2 percent slopes, frequently flooded	IV	III	IV
Newhan, ALL	IV	VI	IV
Newhan-Corolla complex, 0 to 30 percent slopes	IV	VI	IV
Newhan-Corolla-Urban land complex, 0 to 30 percent slopes	IV	VI	IV
Noboco fine sandy loam, 0 to 2 percent slopes	I	I	I
Noboco fine sandy loam, 2 to 6 percent slopes	II	I	II
Norfolk, ALL	II	II	II
Norfolk-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Ocilla loamy fine sand, 0 to 4 percent slopes	IV	II	IV
Olustee loamy sand, sandy subsoil variant (Murville)	IV	II	IV
Onslow, ALL	II	II	II
Osier loamy sand, loamy substratum	IV	I	IV
Pactolus, ALL	IV	II	IV
Pamlico muck, frequently flooded	IV	V	IV
Pamlico muck, ALL OTHER	III	V	III
Pantego, ALL	I	I	I
Paxville sandy loam	II	III	II
Pender fine sandy loam	II	I	II
Pender-Urban land complex	IV	I	IV
Pits, ALL	IV	VI	IV
Pocalla loamy sand, 0 to 6 percent slopes	III	II	III
Rains, ALL	I	I	I
Rains-Urban land complex	IV	I	IV
Rimini sand 1 to 6 percent slopes	IV	V	IV
Roanoke, frequently flooded	IV	III	IV
Roanoke, ALL OTHER	II	III	II
Rumford, ALL	III	II	III
Rutlege mucky loamy fine sand	IV	V	IV
Seabrook, ALL	IV	II	IV
Seabrook-Urban land complex	IV	II	IV
Stallings, ALL	II	II	II
State fine sandy loam, 0 to 2 percent slopes	I	I	I
State fine sandy loam, 2 to 6 percent slopes	II	I	II
State loamy sand, 0 to 2 percent slopes	I	I	I
Stockade fine sandy loam	I	I	I
Suffolk loamy sand, 10 to 30 percent slopes	I	II	I
Swamp	IV	III	IV
Tarboro, ALL	IV	II	IV
Tarboro-Urban land complex, 0 to 6 percent slopes	IV	II	IV

Map Unit Name	Agri	For	Hort
			IV
Tomahawk loamy fine sand	IV	II	IV
Tomahawk loamy fine sand	IV	II	IV
Tomahawk loamy sand, 0 to 3 percent slopes	III	II	III
Tomotley, ALL	I	I	I
Torhunta, ALL	II	I	II
Torhunta-Urban land complex	IV	I	IV
Tuckerman fine sandy loam	II	II	II
Udorthents, ALL	IV	VI	IV
Udults, steep	IV	VI	IV
Umbric Ochraqualfs	IV	VI	IV
Urban land	IV	VI	IV
Valhalla fine sand, 0 to 6 percent slopes	III	II	III
Wagram loamy fine sand, 0 to 6 percent slopes	II	II	II
Wagram loamy sand, 6 to 10 percent slopes	III	II	III
Wagram loamy sand, 0 to 6 percent slopes	II	II	II
Wagram loamy sand, 10 to 15 percent slopes	IV	II	IV
Wahee, ALL	II	I	II
Wando fine sand, 0 to 6 percent slopes	IV	II	IV
Wando-Urban land complex, 0 to 6 percent slopes	IV	II	IV
Wakulla sand, ALL	IV	V	IV
Wasda muck	I	I	I
Wehadkee silt loam	IV	III	IV
Wickham fine sandy loam, 0 to 2 percent slopes	I	I	I
Wickham fine sandy loam, 2 to 6 percent slopes	II	I	II
Wickham fine sandy loam, 6 to 10 percent slopes	II	I	II
Wickham loamy sand, 1 to 6 percent slopes	II	I	II
Wickham sandy loam, 0 to 2 percent slopes	I	I	I
Wickham sandy loam, 0 to 6 percent slopes	II	I	II
Wickham sandy loam, 0 to 6 percent slopes, rarely flooded	II	I	II
Wickham sandy loam, 2 to 6 percent slopes	II	I	II
Wickham-Urban land complex, 2 to 10 percent slopes	IV	I	IV
Wilbanks, ALL	IV	III	IV
Winton, ALL	IV	I	IV
Woodington, ALL	II	II	II
Wrightsboro fine sandy loam 0 to 2 percent slopes	I	I	I
Yaupon silty clay loam, 0 to 3 percent slopes	III	VI	III

MLRA153B – Tidewater Area

Map Unit Name	Agri	For	Hort
Acredale silt loam, 0 to 2 percent slopes, rarely flooded	I		
Altavista ,ALL	I	I	I
Altavista-Urban land complex, 0 to 2 percent slopes	IV	I	IV
Arapahoe, ALL	I	I	I
Argent, ALL	II	I	II
Augusta ,ALL	II	I	II
Augusta-Urban land complex	IV	I	IV
Backbay mucky peat, 0 to 1 percent slopes, very frequently flooded	IV	VI	IV
Ballahack fine sandy loam, occasionally flooded	I	I	I
Barclay very fine sandy loam	I	I	I
Bayboro, ALL	I	I	I
Baymeade ,ALL	IV	V	IV
Baymeade-Urban land complex 1 to 6 percent slopes	IV	V	IV
Beaches, ALL	IV	VI	IV
Beaches-Newhan association	IV	VI	IV
Beaches-Newhan complex, ALL	IV	VI	IV
Belhaven muck, 0 to 2 percent slopes, frequently flooded	IV	V	IV
Belhaven muck, ALL OTHER	II	V	II
Bertie ,ALL	II	I	II
Bibb soils	IV	III	IV
Bladen ,ALL	III	I	III
Bohicket silty clay loam	IV	VI	IV
Bojac, ALL	III	II	III
Bolling loamy fine sand, 0 to 3 percent slopes, rarely flooded	II	I	II
Borrow pits	IV	VI	IV
Brookman loam, 0 to 2 percent slopes, rarely flooded	II	I	II
Brookman mucky loam, frequently flooded	IV	III	IV
Brookman mucky silt loam	I	I	I
Cape Fear, ALL	I	I	I
Carteret, ALL	IV	VI	IV
Chapanoke silt loam, ALL	I	I	I
Charleston loamy fine sand	III	II	III
Chowan, ALL	IV	III	IV
Conaby muck, ALL	II	I	II
Conetoe, ALL	III	II	III
Corolla, ALL	IV	VI	IV
Corolla-Duckston complex, ALL	IV	VI	IV
Corolla-Urban land complex	IV	VI	IV
Currituck, ALL	IV	VI	IV
Dare muck	IV	V	IV
Deloss fine sandy loam	I	III	I
Deloss mucky loam, frequently flooded	IV	III	IV
Delway muck, 0 to 1 percent slopes, very frequently flooded	IV	VI	IV
Dogue, ALL	II	I	II
Dorovan, ALL	IV	V	IV
Dragston, ALL	II	I	II
Duckston, ALL	IV	VI	IV
Duckston-Corolla complex, 0 to 6 percent slopes, rarely flooded	IV	VI	IV
Dune land, ALL	IV	VI	IV
Dune land-Newhan complex, 2 to 40 percent slopes	IV	VI	IV
Elkton, ALL	II	I	II
Engelhard loamy very fine sand, 0 to 2 percent slopes, frequently flooded	IV	III	IV

Map Unit Name	Agri	For	Hort
Engelhard loamy very fine sand, 0 to 2 percent slopes, rarely flooded	II	III	II
		I	IV
Fork fine sandy loam, 0 to 2 percent slopes, rarely flooded	I	I	I
Fork loamy fine sand	II	I	II
Fortescue, ALL	I	III	I
Fripp fine sand, 2 to 30 percent slopes	IV	VI	IV
Galestown loamy fine sand	IV	II	IV
Gullrock muck, 0 to 2 percent slopes, rarely flooded	II	I	II
Hobonny muck, 0 to 1 percent slopes, frequently flooded	IV	VI	IV
Hobucken, ALL	IV	VI	IV
Hyde, ALL	I	I	I
Hydeland silt loam, 0 to 2 percent slopes, rarely flooded	I	I	I
Icaria loamy fine sand, 0 to 2 percent slopes, rarely flooded	II	I	II
Johns loamy sand, 0 to 2 percent slopes	II	I	II
Klej loamy fine sand	IV	II	IV
Kureb sand 1 to 8 percent slopes	IV	V	IV
Kureb-Urban land complex 1 to 8 percent slopes	IV	V	IV
Lafitte muck, ALL	IV	VI	IV
Lakeland sand 1 to 8 percent slopes	IV	V	IV
Leaf silt loam	III	I	III
Lenoir, ALL	III	I	III
Leon fine sand, 0 to 2 percent slopes, rarely flooded	IV	V	III
Leon sand	IV	V	III
Longshoal mucky peat, 0 to 1 percent slopes, very frequently flooded	IV	VI	IV
Lynn Haven, ALL	IV	II	IV
Made land and dumps	IV	VI	IV
Masontown mucky fine sandy loam	IV	III	IV
Matapeake fine and very fine sandy loams	I	II	I
Mattapex, ALL	II	I	II
Munden, ALL	II	I	II
Newhan, ALL	IV	VI	IV
Newhan-Beaches complex,	IV	VI	IV
Newhan-Corolla complex, ALL	IV	VI	IV
Newhan-Corolla-Urban land complex, 0 to 30 percent slopes	IV	VI	IV
Newhan-Urban land complex, ALL	IV	VI	IV
Newholland mucky loamy sand, 0 to 2 percent slopes, frequently flooded	IV	V	IV
Newholland mucky loamy sand, 0 to 2 percent slopes, rarely flooded	I	V	I
Nimmo, ALL	II	I	II
Nixonton very fine sandy loam	I	I	I
Osier fine sand, ALL	IV	I	IV
Othello, ALL	I	II	I
Ousley fine sand, ALL	IV	V	IV
Pactolus fine sand	IV	II	IV
Pasquotank, ALL	I	I	I
Paxville mucky fine sandy loam	II	III	II
Perquimans, ALL	I	I	I
Pettigrew muck, ALL	II	I	II
Pits, mine	IV	VI	IV
Pocomoke, ALL	II	I	II
Ponzer, ALL	II	V	II
Portsmouth, ALL	I	I	I
Psamments, 0 to 6 percent slopes	IV	VI	IV

MLRA153B – Tidewater Area

Map Unit Name	Agri	For	
	III	V	III
Roanoke, ALL	II	I	II
Roper muck, ALL	I	I	I
Sassafras loamy fine sand	II	I	II
Scuppernong muck, ALL	II	V	II
Seabrook, ALL	IV	II	IV
Seabrook-Urban land complex	IV	II	IV
Seagate fine sand	IV	II	IV
Seagate-Urban land complex	IV	II	IV
State fine sandy loam, ALL	I	I	I
State loamy fine sand, ALL	II	I	II
State sandy loam, ALL	I	I	I
State-Urban land complex, 0 to 2 percent slopes	IV	I	IV
Stockade loamy fine sand	I	III	I
Stockade mucky loam, ALL	IV	III	IV
Stono, ALL	I	I	I
Tarboro sand, ALL	IV	II	IV
Tidal marsh	IV	VI	IV
Tomotley fine sandy loam, ALL	I	I	I
Udorthents, ALL	IV	VI	IV
Urban land ALL	IV	VI	IV
Wahee, ALL	II	I	II
Wakulla sand, ALL	IV	V	IV
Wando, ALL	IV	II	IV
Wasda muck ALL	I	I	I
Weeksville loam, 0 to 2 percent slopes, frequently flooded	IV	I	IV
Weeksville, ALL OTHER	I	I	I
Wickham loamy sand, 0 to 4 percent slopes	II	I	II
Woodstown fine sandy loam	I	I	I
Wysocking very fine sandy loam, 0 to 3 percent slopes, rarely flooded	I	III	I
Yaupon fine sandy loam, 0 to 3 percent slopes	III	VI	III
Yeopim loam, 0 to 2 percent slopes	I	I	I
Yeopim loam, 2 to 6 percent slopes	II	I	II
Yeopim silt loam, ALL	I	I	I
Yonges, ALL	I	I	I

Uniform Standards of Professional Appraisal Practice

As promulgated by the Appraisal Standards Board of The Appraisal Foundation

The purpose of the Uniform Standards of Professional Appraisal Practice (USPAP) is to promote and maintain a high level of public trust in appraisal practice by establishing requirements for appraisers. It is essential that appraisers develop and communicate their analyses, opinions, and conclusions to intended users of their services in a manner that is meaningful and not misleading.

The Appraisal Standards Board promulgates USPAP for both appraisers and users of appraisal services. The appraiser's responsibility is to protect the overall public trust, and it is the importance of the role of the appraiser that places ethical obligations on those who serve in this capacity. USPAP reflects the current standards of the appraisal profession.

USPAP addresses the ethical and performance obligations of appraisers through DEFINITIONS, Rules, Standards, Standards Rules, and Statements (there are currently no active Statements).

- The DEFINITIONS establish the application of certain terminology in USPAP
- The ETHICS RULE sets forth the requirements for integrity, impartiality, objectivity, independent judgment, and ethical conduct.
- The RECORD KEEPING RULE establishes the work file requirements for appraisal and appraisal review assignments.
- The COMPETENCY RULE presents pre-assignment and assignment conditions for knowledge and experience.
- The SCOPE OF WORK RULE presents obligations related to problem identification, research, and analyses.
- The JURISDICTIONAL EXCEPTION RULE preserves the balance of USPAP if a portion is contrary to law or public policy of a jurisdiction.
- The Standards establish the requirements for appraisal and appraisal review and the manner in which each is communicated.
    - STANDARDS 1 and 2 establish requirements for the development and communication of a real property appraisal.
    - STANDARDS 3 and 4 establish requirements for the development and communication of an appraisal review.
    - STANDARDS 5 and 6 establish requirements for the development and communication of a mass appraisal.
    - STANDARDS 7 and 8 establish requirements for the development and communication of a personal property appraisal.
    - STANDARDS 9 and 10 establish requirements for the development and communication of a business or intangible asset appraisal.

- There are currently no active Statements on Appraisal Standards.
- <u>Comments</u> are an integral part of USPAP and have the same weight as the component they address. These extensions of the DEFINITIONS, Rules, and Standards Rules provide interpretation and establish the context and conditions for application.

When do USPAP Rules and Standards Apply?

USPAP does not establish who or which assignments must comply. Neither The Appraisal Foundation nor its Appraisal Standards Board is a government entity with the power to make, judge, or enforce law. An appraiser must comply with USPAP when either the service or the appraiser is required by law, regulation, or agreement with the client. Individuals may also choose to comply with USPAP any time that individual is performing the service as an appraiser. In order to comply with USPAP, an appraiser must meet the following obligations:

- An appraiser must act competently and in a manner that is independent, impartial, and objective. • An appraiser must comply with the ETHICS RULE in all aspects of appraisal practice.
- An appraiser must maintain the data, information, and analysis necessary to support his or her opinions for appraisal and appraisal review assignments in accordance with the RECORD KEEPING RULE.
- An appraiser must comply with the COMPETENCY RULE and the JURISDICTIONAL EXCEPTION RULE for all assignments.
- When an appraiser provides an opinion of value in an assignment, the appraiser must also comply with the SCOPE OF WORK RULE, the RECORD KEEPING RULE, the applicable development and reporting Standards, and applicable Statements (there are currently no active Statements).
- When an appraiser provides an opinion about the quality of another appraiser's work that was performed as part of an appraisal or appraisal review assignment, the appraiser must also comply with the SCOPE OF WORK RULE, the RECORD KEEPING RULE, applicable portions of STANDARDS 3 and 4, and applicable Statements (there are currently no active Statements).
- When preparing an appraisal or appraisal review that is a component of a larger assignment with additional opinions, conclusions, or recommendations, the appraisal or appraisal review component must comply with the applicable development and reporting Standards and applicable Statements (there are currently no active Statements), and the remaining component of the assignment must comply with the ETHICS RULE, the COMPETENCY RULE, and the JURISDICTIONAL EXCEPTION RULE.

STANDARD 5: MASS APPRAISAL, DEVELOPMENT

In developing a mass appraisal, an appraiser must identify the problem to be solved, determine the scope of work necessary to solve the problem, and correctly complete research and analyses necessary to produce a credible mass appraisal.

Comment: STANDARD 5 applies to all mass appraisals of real or personal property regardless of the purpose or use of such appraisals. The reporting and jurisdictional exceptions applicable to public mass appraisals prepared for ad valorem taxation do not apply to mass appraisals prepared for other purposes.

A mass appraisal includes:

1) identifying properties to be appraised.
2) defining market area of consistent behavior that applies to properties.
3) identifying characteristics (supply and demand) that affect the creation of value in that market area.
4) developing a model structure that reflects the relationship among the characteristics affecting value in the market area.
5) calibrating the model structure to determine the contribution of the individual characteristics affecting value.
6) applying the conclusions reflected in the model to the characteristics of the property(ies) being appraised; and
7) reviewing the mass appraisal results.

The JURISDICTIONAL EXCEPTION RULE may apply to several sections of STANDARD 5 because ad valorem tax administration is subject to various state, county, and municipal laws.

Standards Rule 5-1, General Development Requirements

In developing a mass appraisal, an appraiser must:

(a) be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce a credible mass appraisal;

Comment: Mass appraisal provides for a systematic approach and uniform application of appraisal methods and techniques to obtain estimates of value that allow for statistical review and analysis of results.

This requirement recognizes that the principle of change continues to affect the manner in which appraisers perform mass appraisals. Changes and developments in the real property and personal property fields have a substantial impact on the appraisal profession.

To keep abreast of these changes and developments, the appraisal profession is constantly reviewing and revising the appraisal methods and techniques and devising new methods and techniques to meet new circumstances. For this reason, it is not sufficient for appraisers to simply maintain the skills and the knowledge they possess when they become appraisers. Each appraiser must continuously improve his or her skills to remain proficient in mass appraisal.

(b) not commit a substantial error of omission or commission that significantly affects a mass appraisal; and

Comment: An appraiser must use sufficient care to avoid errors that would significantly affect his or her opinions and conclusions. Diligence is required to identify and analyze the factors, conditions, data, and other information that would have a significant effect on the credibility of the assignment results.

(c) not render a mass appraisal in a careless or negligent manner.

Standards Rule 5-2, Problem Identification

In developing a mass appraisal, an appraiser must:

(a) identify the client and other intended users;

Comment: In ad valorem mass appraisal, the assessor, or party responsible for the certification of the assessment or tax roll is required to apply the relevant law or statute and identify the clients and other intended users (if any).

(b) identify the intended use of the appraisal;

Comment: An appraiser must not allow the intended use of an assignment or a client's objectives to cause the assignment results to be biased.

(c) identify the type and definition of value, and ascertain whether the value is to be the most probable price:

i. In terms of cash; or
ii. In terms of financial arrangements equivalent to cash; or
iii. In such other terms as may be precisely defined; and
iv. If the opinion of value is to be based on non-market financing or financing with unusual conditions or incentives, identify the terms of such financing and any influences on value;

(a) identify the effective date of the appraisal

(b) identify, from sources the appraiser reasonably believes to be reliable, the characteristics of the properties that are relevant to the type and definition of value and intended use, including:

i. the group with which a property is identified according to similar market influence;
ii. the appropriate market area and time frame relative to the property being valued; and
iii. their location and physical, legal, and economic characteristics;

Comment: The properties must be identified in general terms, and each individual property in the universe must be identified, with the information on its identity stored or referenced in its property record.
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When appraising proposed improvements, an appraiser must examine and have available for future examination, plans, specifications, or other documentation sufficient to identify the extent and character of the proposed improvements.

Ordinarily, proposed improvements are not appraised for ad valorem tax purposes. Appraisers, however, are sometimes asked to provide opinions of value of proposed improvements so that developers can estimate future property tax burdens. Sometimes units in condominiums and planned unit developments are sold with an interest in unbuilt community property, the pro rata value of which, if any, must be considered in the analysis of sales data.

(c) identify the characteristics of the market that are relevant to the purpose and intended use of the mass appraisal, including:
- **i. location of the market area;**
- **ii. physical, legal, and economic characteristics;**
- **iii. time frame of market activity; and**
- iv. **property interests reflected in the market;**

(d) in appraising real property or personal property;
- **i. identify the appropriate market area and time frame relative to the property being valued;**
- **ii. when the subject is real property, identify and consider any personal property, trade fixtures, or intangible assets that are not real property but are included in the appraisal;**
- **iii. when the subject is personal property, identify and consider any real property or intangible assets that are not personal property but are included in the appraisal;**
- **iv. identify known easements, restrictions, encumbrances, leases, reservations, covenants, contracts, declarations, special assessments, ordinances, or other items of similar nature; and**
- **v. identify and analyze whether an appraised fractional interest, physical segment or partial holding contributes pro rata to the value of the whole;**

Comment: The above requirements do not obligate the appraiser to value the whole when the subject of the appraisal is a fractional interest, physical segment, or a partial holding. However, if the value of the whole is not identified, the appraisal must clearly reflect that the value of the property being appraised cannot be used to develop the value opinion of the whole by mathematical extension.

(e) analyze the relevant economic conditions at the time of the valuation, including market acceptability of the property and supply, demand, scarcity, or rarity;

(f) identify any extraordinary assumptions necessary in the assignment. An extraordinary assumption may be used in an assignment only if:
- **i. the extraordinary assumption is required to properly develop**

credible opinions and conclusions;

ii. **the appraiser has a reasonable basis for the extraordinary assumption; and**

iii. **use of the extraordinary assumption results in a credible analysis;**

(g) identify any hypothetical conditions necessary in the assignment. A hypothetical condition may be used in an assignment only if:

i. **use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison; and**

ii. **use of the hypothetical condition results in a credible analysis; and**

(h) determine the scope of work necessary to produce credible results in accordance with the SCOPE OF WORK RULE.

Standards Rule 5-3, PROPERTY'S USE AND APPROPRIATE MARKET

When necessary for credible assignment results, an appraiser must:

(a) in appraising real property, identify and analyze the effect on use and value of the following factors:

i. **existing land use regulations;**

ii. **reasonably probable modifications of such regulations;**

iii. **economic supply and demand;**

iv. **the physical adaptability of the real estate;**

v. **neighborhood trends; and**

vi. **highest and best use of the real estate; and**

Comment: This requirement sets forth a list of factors that affect use and value. In considering neighborhood trends, an appraiser must avoid stereotyped or biased assumptions relating to race, age, color, gender, or national origin or an assumption that race, ethnic, or religious homogeneity is necessary to maximize value in a neighborhood. Further, an appraiser must avoid making an unsupported assumption or premise about neighborhood decline, effective age, and remaining life. In considering highest and best use, an appraiser must develop the concept to the extent required for a proper solution to the appraisal problem.

(b) in appraising personal property: identify and analyze the effects on use and value of industry trends, value-in-use, and trade level of personal property. Where applicable, analyze the current use and alternative uses to encompass what is profitable, legal, and physically possible, as relevant to the type and definition of value and intended use of the appraisal. Personal property has several measurable marketplaces; therefore, the appraiser must define and analyze the appropriate market consistent with the type and definition of value.

Comment: The appraiser must recognize that there are distinct levels of trade, and each may generate its own data. For example, a property may have a different value at a wholesale level of trade, a retail level of trade, or under various auction conditions. Therefore, the appraiser must analyze the subject property within the correct market context.

Standards Rule 5-4, APPRAISAL METHODS

In developing a mass appraisal, an appraiser must:

(a) identify the appropriate procedures and market information required to perform the appraisal, including all physical, functional, and external market factors as they may affect the appraisal;

Comment: Such efforts customarily include the development of standardized data collection forms, procedures, and training materials that are used uniformly on the universe of properties under consideration.

(b) employ recognized techniques for specifying property valuation models; and

Comment: The formal development of a model in a statement or equation is called model specification. Mass appraisers must develop mathematical models that, with reasonable accuracy, represent the relationship between property value and supply and demand factors, as represented by quantitative and qualitative property characteristics. The models may be specified using the cost, sales comparison, or income approaches to value. The specification format may be tabular, mathematical, linear, nonlinear, or any other structure suitable for representing the observable property characteristics. Appropriate approaches must be used in appraising a class of properties. The concept of recognized techniques applies to both real and personal property valuation models.

(c) employ recognized techniques for calibrating mass appraisal models.

Comment: Calibration refers to the process of analyzing sets of property and market data to

Standards Rule 5-5, APPROACHES TO VALUE

In developing a mass appraisal, when necessary for credible assignment results, an appraiser must:

(a) collect, verify, and analyze such data as are necessary and appropriate to develop:

i. the cost new of the improvements; depreciation;
ii. value of the land by sales of comparable properties;
iii. value of the property by sales of comparable properties;
iv. value by capitalization of income or potential earnings (i.e., rentals, expenses, interest rates, capitalization rates, and vacancy data);

Comment: This Standards Rule requires appraisers engaged in mass appraisal to take reasonable

and cash flow projections, to weigh historical information and trends, current market factors affecting such trends, and reasonably anticipated events, such as competition from developments either planned or under construction.

(c) identify and, as applicable, analyze terms and conditions of any available leases; and

(d) identify the need for and extent of any physical inspection.

Standards Rule 5-6, CALIBRATED MASS APPRAISAL MODEL APPLICATION

When necessary for credible assignment results in applying a calibrated mass appraisal model an appraiser must:

(a) value improved parcels by recognized methods or techniques based on the

cost approach, the sales comparison approach, and the income approach;

(b) value sites by recognized methods or techniques; such techniques include but are not limited to the sales comparison approach, allocation method, abstraction method, capitalization of ground rent, and land residual technique;

(c) when developing the value of a leased fee estate or a leasehold estate, analyze the effect on value, if any, of the terms and conditions of the lease;

Comment: In ad valorem taxation the appraiser may be required by rules or law to appraise the property as if in fee simple, as though unencumbered by existing leases. In such cases, market rent would be used in the appraisal, ignoring the effect of the individual, actual contract rents.

(d) analyze the effect on value, if any, of the assemblage of the various parcels, divided interests, or component parts of a property; the value of the whole must not be developed by adding together the individual values of the various parcels, divided interests, or component parts; and

Comment: Although the value of the whole may be equal to the sum of the separate estates or parts, it also may be greater than or less than the sum of such estates or parts. (e)when analyzing anticipated public or private improvements, located on or off the site, analyze the effect on value, if any, of such anticipated improvements to the extent they are reflected in market actions.

Standards Rule 5-7, RECONCILIATION

In developing a mass appraisal, an appraiser must:

(a) reconcile the quality and quantity of data available and analyzed within the approaches used and the applicability and relevance of the approaches, methods, and techniques used; and

(b) employ recognized mass appraisal testing procedures and techniques to ensure that standards of accuracy are maintained.

Comment: It is implicit in mass appraisal that, even when properly specified and calibrated mass evaluation of hold-out samples, or analysis of residuals.

STANDARD 6: MASS APPRAISAL, Reporting

In reporting the results of a mass appraisal, an appraiser must communicate each analysis, opinion, and conclusion in a manner that is not misleading.

Comment: Standard 6 addresses the content and level of information required in a report that communicates the results of a mass appraisal.

Standard 6 does not dictate the form, format, or style or mass appraisal reports. The substantive content of a report determines its compliance.

Standards Rule 6-1, GENERAL REPORTING REQUIREMENTS

Each written report of a mass appraisal must:

- **(a) clearly and accurately set forth the appraisal in a manner that will not be misleading;**
- **(b) contain sufficient information to enable the intended user(s) of the appraisal to understand the report properly; and**

Comment: Documentation for a mass appraisal for ad valorem taxation may be in the form of (1) property records, (2) sales ratios and other statistical studies, (3) appraisal manuals and documentation, (4) market studies, (5) model building documentation, (6) regulations, (7) statutes, and (8) other acceptable forms.

- **(c) clearly and accurately disclose all assumptions, extraordinary assumptions, hypothetical conditions, and limiting conditions used in the assignment;**

Standards Rule 6-2, CONTENT OF A MASS APPRAISAL REPORT

The content of a mass appraisal report must be appropriate for the intended use of the appraisal and, at a minimum:

- **(a) state the identity of the client, or if the client has requested anonymity, state that the identity is withheld at the client's request but is retained in the appraiser's workfile; state the identity of any intended user(s) by name or type;**

Comment: Because the client is an intended user, they must be identified in the report as such. However, if the client has requested anonymity the appraiser must use care when identifying the client to avoid violations of the Confidentiality section of the ETHICS RULE.

(b) state the intended use of the appraisal

(c) disclose any assumptions or limiting conditions that result in deviation from recognized methods and techniques or that affect analyses, opinions, and conclusions;

(d) state the effective date of the appraisal and the date of the report;

Comment: In ad valorem taxation the effective date of the appraisal may be prescribed by law. If no effective date is prescribed by law, the effective date of the appraisal, if not stated, is presumed to be contemporaneous with the data and appraisal conclusions.

(e) state the type and definition of value and cite the source of the definition;

Comment: Stating the type and definition of value also requires any comments needed to clearly indicate to intended users how the definition is being applied.

When reporting an opinion of value, state whether the opinion is:

- In terms of cash or of financing terms equivalent to cash; or
- Based on non-market financing with unusual conditions or incentives.

When an opinion of value is based on non-market financing terms or financing with unusual conditions or incentives, summarize the terms of such financing and any influences on value.

(f) state the properties appraised including the property rights; and, when the property rights to be appraised are specified in a statute or court ruling, reference the law;

Comment: The report documents the sources for location, describing and listing the property. When applicable, include references to legal descriptions, addresses, parcel identifiers, photos, and building sketches. In mass appraisal, this information is often included in property records.

(g) summarize the scope of work used to develop the appraisal; and explain the exclusion of the sales comparison approach, cost approach, or income approach;

Comment: Summarizing the scope of work includes disclosure of the research and analyses performed and might also include disclosure of research and analyses not performed.

(h) when any portion of the work involves significant mass appraisal assistance, summarize the extent of that assistance;

(i) summarize and support the model specification(s) considered, data requirements, and the model(s) chosen; provide sufficient information to enable the client and intended users to have confidence that the process and procedures used conform to accepted methods and result in credible value conclusions; and include a summary of the rationale for each model, the calibration techniques to be used, and the performance measures to be used;

Comment: In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions.

(j) summarize the procedure for collecting, validating, and reporting data; and summarize the sources of data and the data collection and validation processes;

Comment: Reference to detailed data collection manuals or electronic records must be made, as appropriate, including where they may be found for inspection.

(k) summarize calibration methods considered and chosen, including the mathematical form of the final model(s); summarize how value conclusions were reviewed; and, if necessary, state the availability and location of individual value conclusions;

(l) when an opinion of highest and best use, or the appropriate market or market level was developed, summarize how that opinion was determined, and reference case law, statute, or public policy that describes highest and best use requirements;

Comment: When actual use is the requirement, the report must summarize how use-value opinions were developed. The appraiser's reasoning in support of the highest and best use opinion must be provided in the depth and detail required by its significance to the appraisal.

(m) identify the appraisal performance tests used and the performance measures attained;

(n) summarize the reconciliation performed, in accordance with Standards Rule 5-7; and

(o) include a signed certification in accordance with Standards Rule 6-3.

Standards Rule 6-3, CERTIFICATION

A signed certification is an integral part of the appraisal report.

(a) The wording of a certification does not have to match the following verbatim, but each of the elements must be addressed:

I certify that, to the best of my knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions. I have no (or the specified) present or prospective interest in the property that is the subject of this report, and no (or the specified) personal interest with respect to the parties involved.
- I have performed no (or the specified) services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding the agreement to perform this assignment.
- I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.
- My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- My compensation for completing this assignment is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, or the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.
- I have (or have not) made a personal inspection of the properties that are the subject of this report. (If more than one person signs this certification, the certification must clearly specify which individuals did and which individuals did not make a personal inspection of the subject property).

- No one provided significant mass appraisal assistance to the person signing this certification. (If there are exceptions, the name of each individual providing significant mass appraisal assistance must be stated).

Comment: The above certification is not intended to disturb an elected or appointed assessor's work plans or oaths of office.

(b) An appraiser who signs any part of the appraisal report, including a letter of transmittal, must also sign a certification.

Comment: In an assignment that includes only assignment results developed by the real property appraiser, any appraiser who signs a certification accepts full responsibility for all elements of the certification, for the assignment results, and for the contents of the appraisal report. In an assignment that includes personal property assignment results not developed by the real property appraiser(s), any real property appraiser who signs a certification accepts full responsibility for the real property elements of the certification, for the real property assignment results, and for the real property contents of the appraisal report.

In an assignment that includes only assignment results developed by the personal property appraiser(s), any appraiser who signs a certification accepts full responsibility for all elements of the certification, for the assignment results, and for the contents of the appraisal report. In an assignment that includes real property assignment results not developed by the personal property appraiser(s), any personal property appraiser who signs a certification accepts full responsibility for the personal property elements of the certification, for the personal property assignment results, and for the personal property contents of the appraisal report.

(c) When a signing appraiser(s) has relied on work done by appraisers and others who do not sign the certification, the signing appraiser is responsible for the decision to rely on their work.

i. The signing appraiser(s) is required to have a reasonable basis for believing that those individuals performing the work are competent; and

ii. The signing appraiser must have no reason to doubt that the work of those individuals is credible.

Comment: Although a certification must contain the names of individuals providing significant mass appraisal assistance, it is not required that a summary of the extent of their assistance be located in a certification. This disclosure may be in any part(s) of the report.

IAAO *Code of Ethics and Standards of Professional Conduct*

Adopted by the IAAO Executive Board, November 14, 2015.

Preamble

As a matter of fundamental principle, IAAO members should adhere to the highest ethical standards. Public trust in our performance is the foundation of our credibility. Assessment professionals support IAAO because they trust us to be good stewards of their resources, to uphold rigorous standards of conduct and to serve as a catalyst for excellence in the assessment profession.

Nonprofit organizations must earn this trust every day. It is up to all members of the IAAO – Executive Board members, committee members, volunteers, staff and the general membership – to demonstrate their ongoing commitment to the core values of integrity, honesty, fairness, openness, respect and responsibility.

The purpose of this Code of Ethics and Standards of Professional Conduct is to establish guidelines for assessing officials and all members of the International Association of Assessing Officers (IAAO) and set forth standards by which to judge an IAAO member whose conduct is in question. Members shall conduct themselves in a professional manner that reflects favorably upon themselves, the organization, the appraisal profession, and the property tax system, and avoid any action that could discredit themselves or these entities.

Adherence to the IAAO Constitution, Bylaws, Procedural Rules and Code of Ethics is the minimum standard of expected behavior. We must do more, however, than simply obey the rules. We must embrace the spirit of the governing documents, and go beyond stated requirements, making sure that what we do is matched by what the membership perceives and expects. Transparency, openness and responsiveness to member's concerns must be integral to our behavior.

Statement of Values

The Code of Ethics of the International Association of Assessing Officers is built on a foundation of widely shared values. These values include our:

- *Commitment to the improvement of the property tax system worldwide;*
- *Accountability to the public good;*
- *Commitment to excellence in assessment administration beyond property tax law;*
- *Respect for the worth and dignity of all individuals;*
- *Promotion of inclusiveness, fairness and diversity;*
- *Obligation to organizational transparency, integrity, and honesty in all professional activities;*
- *Practice of responsible stewardship of resources;*
- *Dedication to excellence, and maintenance of the public trust;*

The values are reflected in the following Code of Ethics of the International Association of Assessing Officers.

Definitions
For definitions of terms relating to appraisal practice, refer to the definitions section of the Uniform Standards of Professional Appraisal Practice (USPAP).

Exceptions
If compliance with or adherence to any Canon or Ethical Rule set forth in the IAAO *Code of Ethics and Standards of Professional Conduct* would constitute a violation of the law of any jurisdiction, such Canon or Ethical Rule shall be void and of no force or effect in such jurisdiction.

In stating each individual Canon or Ethical Rule, no attempt has been made to enumerate all of the various circumstances and conditions that will excuse an IAAO member from strict observance; however, the IAAO recognizes that illness, acts of God, and various other events beyond the control of an IAAO member may make it inequitable to insist upon a strict observance in a particular case. When an IAAO member, in the exercise of reasonable care, commits a violation due to illness, acts of God, or other circumstances beyond his or her control, it is expected that the Ethics Committee will act in a manner that will avoid an inequitable result.

Inasmuch as there are other remedies under applicable federal, state/provincial, and local laws, nothing in this *Code* shall apply to the conduct of a member toward his or her employees and other workers in the member's workplace, including, but not limited to, employment discrimination and harassment.

Canon 1: (Professional Duties)

Members shall conduct their professional duties and any activities as a member of IAAO in a manner that reflects credit upon themselves, their profession and the organization.

Ethical Rules

ER 1-1 It is unethical for members to conduct their professional duties in a manner that could reasonably be expected to create the appearance of impropriety.

ER 1-2 It is unethical for members to accept an appraisal or assessment-related assignment which they are not qualified to perform.

ER 1-3 It is unethical for members to knowingly violate applicable laws and regulations in the performance of their duties or to apply such laws and regulations in an inequitable manner

ER 1-4 It is unethical for members to refuse (by intent or omission) to make available all public records in their custody for public review, unless access to such records is specifically limited or prohibited by law, or the information has been obtained on a confidential basis and the law permits such information to be treated confidentially. Assessing officers must make every reasonable effort to inform the public about their rights and responsibilities under the law and the property tax system.

ER 1-5 It is unethical for members to refuse to cooperate with public officials to improve the efficiency and effectiveness of the property tax in particular and public administration in general.

ER 1-6 It is unethical to engage in misconduct of any kind that leads to a conviction for a crime involving fraud, dishonesty, false statements, or moral turpitude.

ER 1-7 It is unethical to perform any appraisal, assessment, or consulting service that is not in compliance with the IAAO governing documents or the *Uniform Standards of Professional Appraisal Practice.*

Canon 2: (Truthfulness)

Members shall not make public statements (written or oral) that are untrue or tend to mislead or deceive the public in the course of performing their professional duties.

Ethical Rules

ER 2-1 It is unethical to provide inaccurate, untruthful, or misleading information to solicit assessment-related assignments or to use misleading claims or promises of relief that could lead to loss of confidence in appraisal or assessment professionals by the public.

ER 2-2 It is unethical to claim an IAAO professional designation unless authorized, whether the claim is verbal or written, or to claim qualifications that are not factual or may be misleading.

ER 2-3 It us unethical to fail to recognize the source(s) of any materials quoted or cited in writings or speeches.

Canon 3: (Conflict of Interest)

Members shall not engage in any activities in which they have, or may reasonably be considered by the public as having, a conflict of interest.

Ethical Rules

ER 3-1 It is unethical for members to accept an appraisal or assessment-related assignment that can reasonably be construed as being in conflict with their responsibility to their jurisdiction, employer, or client, or in which they have an unrevealed personal interest or bias.

ER 3-2 It is unethical to accept an assignment or responsibility in which there is a personal interest without full disclosure of that interest.

ER 3-3 It is unethical to accept an assignment or participate in an activity where a conflict of interest exists and could be perceived as a bias, or impair objectivity.

Canon 4: (Support of IAAO)

Members shall abide by and support the provisions of the IAAO Constitution, Bylaws, and Procedural Rules.

Ethical Rules

ER 4-1 It is unethical for an IAAO member to:
(a) Knowingly to make false statements or submit misleading information when completing a membership application, or to refrain from promptly submitting any significant information in the possession of such member when requested to do so as part of an IAAO membership application.

(b) Knowingly to submit misleading information to the duly authorized Ethics Committee or subcommittee; to refrain from promptly submitting any significant information in the possession of the member as requested by the committee or subcommittee; to refuse to appear for a personal interview or participate in an interview conducted by telephone as scheduled by the committee or subcommittee; or to refuse to answer promptly all relevant questions concerning an appraisal or assessment-related assignment or related testimony being investigated by the committee or subcommittee.

(c) Fail or refuse to submit promptly to an authorized IAAO committee a written appraisal report or file memorandum containing data, reasoning, and conclusions, or to fail or refuse to permit an authorized committee to review an appraisal report, assessment-related assignment, or file memorandum when requested to do so by a person or persons authorized to review such material.

(d) Fail or refuse to submit promptly any significant information in the possession of a member concerning the status of litigation related to an ethics matter when requested to do so by the chair of the Ethics Committee; or knowingly to submit misleading information to the chair of the Ethics Committee concerning the status of litigation.

ER 4-2 It is unethical to fail to comply with the terms of a summons issued by the Ethics Committee.

ER 4-3 It is unethical to refuse to cooperate fully with the IAAO Executive Board, Ethics Committee and the staff of IAAO in all matters related to the enforcement of this *Code*, as set forth in the Ethics Committee's Rules and Procedures, as amended from time to time.

ER 4-4 It is unethical to violate the IAAO Constitution, Bylaws, or Procedural Rules.

ER 4-5 Any member who has submitted misleading information to the Ethics Committee or does not comply with the terms of these Canons may be subject to ethical charges by the Committee.

Canon 5: (Professional Duties)

Members shall comply with the requirements of the *Uniform Standards of Professional Appraisal Practice.*

Ethical Rules

ER 5-1 It is unethical to knowingly fail to observe the requirements of the *Uniform Standards of Professional Appraisal Practice*. Members residing outside the United States must follow appraisal standards that govern appraisers within their jurisdiction.

Standard on Mass Appraisal of Real Property

Approved July 2017

International Association of Assessing Officers

This standard replaces the January 2012 *Standard on Mass Appraisal of Real Property* and is a complete revision. The 2012 *Standard on Mass Appraisal of Real Property* was a partial revision that replaced the 2002 standard. The 2002 standard combined and replaced the 1983 *Standard on the Application of the Three Approaches to Value in Mass Appraisal*, the 1984 *Standard on Mass Appraisal*, and the 1988 *Standard on Urban Land Valuation.* IAAO assessment standards represent a consensus in the assessing profession and have been adopted by the Executive Board of IAAO. The objective of IAAO standards is to provide a systematic means by which concerned assessing officers can improve and standardize the operation of their offices. IAAO standards are advisory in nature and the use of, or compliance with, such standards is purely voluntary. If any portion of these standards is found to be in conflict with the *Uniform Standards of Professional Appraisal Practice (USPAP*) or state laws, *USPAP* and state laws shall govern.

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314 W 10th St
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phone: 816.701.8100
fax: 816.701.8149

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Standard on Mass Appraisal of Real Property

1. Scope

This standard defines requirements for the mass appraisal of real property. The primary focus is on mass appraisal for ad valorem tax purposes. However, the principles defined here should also be relevant to CAMAs (CAMAs) (or automated valuation models) used for other purposes, such as mortgage portfolio management. The standard primarily addresses the needs of the assessor, assessment oversight agencies, and taxpayers.

This standard addresses mass appraisal procedures by which the fee simple interest in property can be appraised at market value, including mass appraisal application of the three traditional approaches to value (cost, sales comparison, and income). Single-property appraisals, partial interest appraisals, and appraisals made on an other-than-market-value basis are outside the scope of this standard. Nor does this standard provide guidance on determining assessed values that differ from market value because of statutory constraints such as use value, classification, or assessment increase limitations.

Mass appraisal requires complete and accurate data, effective valuation models, and proper management of resources. Section 2 introduces mass appraisal. Section 3 focuses on the collection and maintenance of property data. Section 4 summarizes the primary considerations in valuation methods, including the role of the three approaches to value in the mass appraisal of various types of property. Section 5 addresses model testing and quality assurance. Section 6 discusses certain managerial considerations: staff levels, data processing support, contracting for reappraisals, benefit-cost issues, and space requirements. Section 7 discusses reference materials.

2. Introduction

Market value for assessment purposes is generally determined through the application of mass appraisal techniques. Mass appraisal is the process of valuing a group of properties as of a given date and using common data, standardized methods, and statistical testing. To determine a parcel's value, assessing officers must rely upon valuation equations, tables, and schedules developed through mathematical analysis of market data. Values for individual parcels should not be based solely on the sale price of a property; rather, valuation schedules and models should be consistently applied to property data that are correct, complete, and up-to-date.

Properly administered, the development, construction, and use of a CAMA system results in a valuation system characterized by accuracy, uniformity, equity, reliability, and low per-parcel costs. Except for unique properties, individual analyses and appraisals of properties are not practical for ad valorem tax purposes.

3. Collecting and Maintaining Property Data

The accuracy of values depends first and foremost on the completeness and accuracy of property characteristics and market data. Assessors will want to ensure that their CAMA systems provide for the collection and maintenance of relevant land, improvement, and location features. These data must also be accurately and consistently collected. The CAMA system must also provide for the storage and processing of relevant sales, cost, and income and expense data.

3.1 Overview

Uniform and accurate valuation of property requires correct, complete, and up-to-date property data. Assessing offices must establish effective procedures for collecting and maintaining property data (i.e., property ownership, location, size, use, physical characteristics, sales price, rents, costs, and operating expenses). Such data are also used for performance audits, defense of appeals, public relations, and management information. The following sections recommend procedures for collecting these data.

3.2 Geographic Data

Assessors should maintain accurate, up-to-date cadastral maps (also known as assessment maps, tax maps, parcel boundary maps, and property ownership maps) covering the entire jurisdiction with a unique identification number for each parcel. Such cadastral maps allow assessing officers to identify and locate all parcels, both in the field and in the office. Maps become especially valuable in the mass appraisal process when a geographic information system (GIS) is used. A GIS permits graphic displays of sale prices, assessed values, inspection dates, work assignments, land uses, and much more. In addition, a GIS permits high-level analysis of nearby sales, neighborhoods, and market trends; when linked to a CAMA system, the results can be very useful. For additional information on cadastral maps, parcel identification systems, and GIS, see the *Standard on Manual Cadastral Maps and Parcel Identifiers* (IAAO 2016b), *Standard on Digital Cadastral Maps and Parcel Identifiers* (IAAO 2015), *Procedures and Standards for a Multipurpose Cadastre* (National Research Council 1983), and *GIS Guidelines for Assessors* (URISA and IAAO 1999).

3.3 Property Characteristics Data

The assessor should collect and maintain property characteristics data sufficient for classification, valuation, and other purposes. Accurate valuation of real property by any method requires descriptions of land and building characteristics.

3.3.1 Selection of Property Characteristics Data

Property characteristics to be collected and maintained should be based on the following:

- Factors that influence the market in the locale in question
- Requirements of the valuation methods that will be employed
- Requirements of classification and property tax policy
- Requirements of other governmental and private users
- Marginal benefits and costs of collecting and maintaining each property characteristic

Determining what data on property characteristics to collect and maintain for a CAMA system is a crucial decision with long-term consequences. A pilot program is one means of evaluating the benefits and costs of collecting and maintaining a particular set of property characteristics (see Gloudemans and Almy 2011, 46–49). In addition, much can be learned from studying the data used in successful CAMAs in other jurisdictions. Data collection and maintenance are usually the costliest aspects of a CAMA. Collecting data that are of little importance in the assessment process should be avoided unless another governmental or private need is clearly demonstrated.

The quantity and quality of existing data should be reviewed. If the data are sparse and unreliable, a major recanvass will be necessary. Data that have been confirmed to be reliable should be used whenever possible. New valuation programs or enhancements requiring major recanvass activity or conversions to new coding formats should be viewed with suspicion when the existing database already contains most major property characteristics and is of generally good quality.

The following property characteristics are usually important in predicting residential property values:

Improvement Data

- Living area
- Construction quality or key components thereof (foundation, exterior wall type, and the like)
- Effective age or condition
- Building design or style
- Secondary areas including basements, garages, covered porches, and balconies
- Building features such as bathrooms and central air-conditioning
- Significant detached structures including guest houses, boat houses, and barns

Land Data

- Lot size
- Available utilities (sewer, water, electricity)

Location Data

- Market area
- Submarket area or neighborhood
- Site amenities, especially view and golf course or water frontage
- External nuisances, (e.g., heavy traffic, airport noise, or proximity to commercial uses).

For a discussion of property characteristics important for various commercial property types, see *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapter 9).

3.3.2 Data Collection

Collecting property characteristics data is a critical and expensive phase of reappraisal. A successful data collection program requires clear and standard coding and careful monitoring through a quality control program. The development and use of a data collection manual is essential to achieving accurate and consistent data collection. The data collection program should result in complete and accurate data.

3.3.2.1 Initial Data Collection

A physical inspection is necessary to obtain initial property characteristics data. This inspection can be performed either by appraisers or by specially trained data collectors. In a joint approach, experienced appraisers make key subjective decisions, such as the assignment of construction quality class or grade, and data collectors gather all other details. Depending on the data required, an interior inspection might be necessary. At a minimum, a comprehensive exterior inspection should be conducted. Measurement is an important part of data collection.

3.3.2.2 Data Collection Format

Data should be collected in a prescribed format designed to facilitate both the collecting of data in the field and the entry of the data into the computer system.

A logical arrangement of the collection format makes data collection easier. For example, all items requiring an interior inspection should be grouped together. The coding of data should be as objective as possible, with measurements, counts, and check-off items used in preference to items requiring subjective evaluations (such as “number of plumbing fixtures” versus “adequacy of plumbing: poor, average, good”). With respect to check-off items, the available codes should be exhaustive and mutually exclusive, so that exactly one code logically pertains to each observable variation of a building feature (such as structure or roof type). The data collection format should promote consistency among data collectors, be clear and easy to use, and be adaptable to virtually all types of construction. Specialized data collection formats may be necessary to collect information on agricultural property, timberland, commercial and industrial parcels, and other property types.

3.3.2.3 Data Collection Manuals

A clear, thorough, and precise data collection manual is essential and should be developed, updated, and maintained. The written manual should explain how to collect and record each data item. Pictures, examples, and illustrations are particularly helpful. The manual should be simple yet complete. Data collection staff should be trained in the use of the manual and related updates to maintain consistency. The manual should include guidelines for personal conduct during field inspections, and if interior data are required, the manual should outline procedures to be followed when the property owner has denied access or when entry might be risky.

- Continuous or area measurement data, such as living area and exterior wall height, should be accurate within 1 foot (rounded to the nearest foot) of the true dimensions or within 5 percent of the area. (One foot equates to approximately 30 centimeters in the metric system.) If areas, dimensions, or volumes must be estimated, the property record should note the instances in which quantities are estimated.
- For each objective, categorical, or binary data field to be collected or verified, at least 95 percent of the coded entries should be accurate. Objective, categorical, or binary data characteristics include such attributes as exterior wall material, number of full bathrooms, and waterfront view. As an example, if a data collector captures 10 objective, categorical, or binary data items for 100 properties, at least 950 of the 1,000 total entries should be correct.
- For each subjective categorical data field collected or verified, data should be coded correctly at least 90 percent of the time. Subjective categorical data characteristics include data items such as quality grade, physical condition, and architectural style.
- Regardless of specific accuracy requirements, consistent measurement is important. Standards including national, local and regional practices exist to support consistent measurement. The standard of measurement should be documented as part of the process. (American Institute of Architects 1995; Marshall & Swift Valuation Service 2017; International Property Measurement Standards Coalition n.d.; Building Owners and Managers Association International 2017)

3.3.2.5 Data Collection Quality Control

A quality control program is necessary to ensure that data accuracy standards are achieved and maintained. Independent quality control inspections should occur immediately after the data collection phase begins and may be performed by jurisdiction staff, project consultants, auditing firms, or oversight agencies. The inspections should review random samples of finished work for completeness and accuracy and keep tabulations of items coded correctly or incorrectly, so that statistical tests can be used to determine whether accuracy standards have been achieved. Stratification by geographic area, property type, or individual data collector can help detect patterns of data error. Data that fail to meet quality control standards should be recollected.

The accuracy of subjective data should be judged primarily by conformity with written specifications and examples in the data collection manual. The data reviewer should substantiate subjective data corrections with pictures or field notes.

3.3.3 Data Entry

To avoid duplication of effort, the data collection form should be able to serve as the data entry form. Data entry should be routinely audited to ensure accuracy.

Data entry accuracy should be as close to 100 percent as possible and should be supported by a full set of range and consistency edits. These are error or warning messages generated in response to invalid or unusual data items. Examples of data errors include missing data codes and invalid characters. Warning messages should also be generated when data values exceed normal ranges (e.g., more than eight rooms in a 1,200-square-foot residence). The warnings should appear as the data are entered. When feasible, action on the warnings should take place during data entry. Field data entry devices provide the ability to edit data as it is entered and also eliminate data transcription errors.

3.3.4 Maintaining Property Characteristics Data

Property characteristics data should be continually updated in response to changes brought about by new construction, new parcels, remodeling, demolition, and destruction. There are several ways of updating data. The most efficient method involves building permits. Ideally, strictly enforced local ordinances require building permits for all significant construction activity, and the assessor's office receives copies of the permits. This method allows the assessor to identify properties whose characteristics are likely to change, to inspect such parcels on a timely basis (preferably as close to the assessment date as possible), and to update the files accordingly.

Another method is aerial photography, which also can be helpful in identifying new or previously unrecorded construction and land use.
Some jurisdictions use self-reporting, in which property owners review the assessor’s records and submit additions or corrections. Information derived from multiple listing sources and other third-party vendors can also be used to validate property records.

Periodic field inspections can help ensure that property characteristics data are complete and accurate. Assuming that most new construction activity is identified through building permits or other ongoing procedures, a physical review including an on-site verification of property characteristics should be conducted at least every 4 to 6 years. Reinspections should include partial remeasurement of the two most complex sides of improvements and a walk around the improvement to identify additions and deletions. Photographs taken at previous physical inspections can help identify changes.

3.3.5 Alternative to Periodic On-site Inspections

Provided that initial physical inspections are timely completed and that an effective system of building permits or other methods of routinely identifying physical changes is in place, jurisdictions may employ a set of digital imaging technology tools to supplement field reinspections with a computer-assisted office review. These imaging tools should include the following:

- Current high-resolution street-view images (at a sub-inch pixel resolution that enables quality grade and physical condition to be verified)
- Orthophoto images (minimum 6-inch pixel resolution in urban/suburban and 12-inch resolution in rural areas, updated every 2 years in rapid-growth areas or 6–10 years in slow-growth areas)
- Low-level oblique images capable of being used for measurement verification (four cardinal directions, minimum 6-inch pixel resolution in urban/suburban and 12-inch pixel resolution in rural areas, updated every 2 years in rapid-growth areas or 6–10 years in slow-growth areas).

These tool sets may incorporate change detection techniques that compare building dimension data (footprints) in the CAMA system to georeferenced imagery or remote sensing data from sources (such as LiDAR [light detection and ranging]) and identify potential CAMA sketch discrepancies for further investigation.

Assessment jurisdictions and oversight agencies must ensure that images meet expected quality standards. Standards required for vendor-supplied images should be spelled out in the Request for Proposal (RFP) and contract for services, and images should be checked for compliance with specified requirements. For general guidance on preparing RFPs and contracting for vendor-supplied services, see the *Standard on Contracting for Assessment Services* [IAAO 2008].

In addition, appraisers should visit assigned areas on an annual basis to observe changes in neighborhood condition, trends, and property characteristics. An on-site physical review is recommended when significant construction changes are detected, a property is sold, or an area is affected by catastrophic damage. Building permits should be regularly monitored and properties that have significant change should be inspected when work is complete.

3.4 Sale Data

States and provinces should seek mandatory disclosure laws to ensure comprehensiveness of sale data files. Regardless of the availability of such statutes, a file of sale data must be maintained, and sales must be properly reviewed and validated. Sale data are required in all applications of the sales comparison approach, in the development of land values and market-based depreciation schedules in the cost approach, and in the derivation of capitalization rates or discount rates in the income approach. Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 2) or *Fundamentals of Mass Appraisal (*Gloudemans and Almy 2011 chapter 2) for guidelines on the acquisition and processing of sale data.

3.5 Income and Expense Data

Income and expense data must be collected for income-producing property and reviewed by qualified appraisers to ensure their accuracy and usability for valuation analysis (see Section 4.4.). Refer to *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 2) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapter 2) for guidelines addressing the collection and processing of income and expense data.

3.6 Cost and Depreciation Data

Current cost and depreciation data adjusted to the local market are required for the cost approach (see Section 4.2). Cost and depreciation manuals and schedules can be purchased from commercial services or created in-house. See *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 4) or *Fundamentals of Mass Appraisal (*Gloudemans and Almy 2011, 180–193) for guidelines on creating manuals and schedules.

STANDARD ON MASS APPRAISAL OF REAL PROPERTY—2017

4. Valuation

Mass appraisal analysis begins with assigning properties to use classes or strata based on highest and best use, which normally equates to current use. Some statutes require that property be valued for ad valorem tax purposes at current use regardless of highest and best use. Zoning and other land use controls normally dictate highest and best use of vacant land. In the absence of such restrictions, the assessor must determine the highest and best use of the land by analyzing the four components—legally permissible, physically possible, appropriately supported, and financially feasible—thereby resulting in the highest value. Special attention may be required for properties in transition, interim or nonconforming uses, multiple uses, and excess land.

4.1 Valuation Models

Any appraisal, whether single-property appraisal or mass appraisal, uses a model, that is, a representation in words or an equation of the relationship between value and variables representing factors of supply and demand. Mass appraisal models attempt to represent the market for a specific type of property in a specified area. Mass appraisers must first specify the model, that is, identify the supply and demand factors and property features that influence value, for example, square feet of living area. Then they must calibrate the model, that is, determine the adjustments or coefficients that best represent the value contribution of the variables chosen, for example, the dollar amount the market places on each square foot of living area. Careful and extensive market analysis is required for both specification and calibration of a model that estimates values accurately. Mass appraisal models apply to all three approaches to value: the cost approach, the sales comparison approach, and the income approach.

Valuation models are developed for defined property groups. For residential properties, geographic stratification is appropriate when the value of property attributes varies significantly among areas and each area is large enough to provide adequate sales. It is particularly effective when housing types and styles are relatively uniform within areas. Separate models are developed for each market area (also known as economic or model areas). Subareas or neighborhoods can serve as variables in the models and can also be used in land value tables and selection of comparable sales. (See *Mass Appraisal of Real Property* [Gloudemans 1999, 118–120] or *Fundamentals of Mass Appraisal* [Gloudemans and Almy 2011, 139–143] for guidelines on stratification.) Smaller jurisdictions may find it sufficient to develop a single residential model.

Commercial and income-producing properties should be stratified by property type. In general, separate models should be developed for apartment, warehouse/industrial, office, and retail properties. Large jurisdictions may be able to stratify apartment properties further by type or area or to develop multiple models for other income properties with adequate data.

4.2 The Cost Approach

The cost approach is applicable to virtually all improved parcels and, if used properly, can produce accurate valuations. The cost approach is more reliable for newer structures of standard materials, design, and workmanship. It produces an estimate of the value of the fee simple interest in a property.

Reliable cost data are imperative in any successful application of the cost approach. The data must be complete, typical, and current. Current construction costs should be based on the cost of replacing a structure with one of equal utility, using current materials, design, and building standards. In addition to specific property types, cost models should include the cost of individual construction components and building items in order to adjust for features that differ from base specifications. These costs should be incorporated into a construction cost manual and related computer software. The software can perform the valuation function, and the manual, in addition to providing documentation, can be used when nonautomated calculations are required.

Construction cost schedules can be developed in-house, based on a systematic study of local construction costs, obtained from firms specializing in such information, or custom-generated by a contractor. Cost schedules should be verified for accuracy by applying them to recently constructed improvements of known cost. Construction costs also should be updated before each assessment cycle.

The most difficult aspects of the cost approach are estimates of land value and accrued depreciation. These estimates must be based on non-cost data (primarily sales) and can involve considerable subjectivity. Land values used in the cost approach must be current and consistent. Often, they must be extracted from sales of improved property because sales of vacant land are scarce. Section 4.5 provides standards for land valuation in mass appraisal.

Depreciation schedules can be extracted from sales data in several ways. See *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 4) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 189–192).

4.3 The Sales Comparison Approach

The sales comparison approach estimates the value of a subject property by statistically analyzing the sale prices of similar properties. This approach is usually the preferred approach for estimating values for residential and other property types with adequate sales.

Applications of the sales comparison approach include direct market models and comparable sales algorithms (see *Mass Appraisal of Real Property* [Gloudemans 1999, chapters 3 and 4], *Fundamentals of Mass Appraisal* [Gloudemans and Almy 2011, chapters 4 and 6], and the *Standard on Automated Valuation Models (AVMs)* [IAAO 2003]). Comparable sales algorithms are most akin to single-property appraisal applications of the sales comparison approach. They have the advantages of being familiar and easily explained and can compensate for less well-specified or calibrated models, because the models are used only to make adjustments to the selected comparables. They can be problematic if the selected comparables are not well validated or representative of market value. Because they predict market value directly, direct market models depend more heavily on careful model specification and calibration. Their advantages include efficiency and consistency, because the same model is directly applied against all properties in the model area.

Users of comparable sales algorithms should be aware that sales ratio statistics will be biased if sales used in the ratio study are used as comparables for themselves in model development. This problem can be avoided by (1) not using sales as comparables for themselves in modeling or (2) using holdout or later sales in ratio studies.

4.4 The Income Approach

In general, for income-producing properties, the income approach is the preferred valuation approach when reliable income and expense data are available, along with well-supported income multipliers, overall rates, and required rates of return on investment. Successful application of the income approach requires the collection, maintenance, and careful analysis of income and expense data.

Mass appraisal applications of the income approach begin with collecting and processing income and expense data. (These data should be expressed on an appropriate per-unit basis, such as per square foot or per apartment unit.) Appraisers should then compute normal or typical gross incomes, vacancy rates, net incomes, and expense ratios for various homogeneous strata of properties. These figures can be used to judge the reasonableness of reported data for individual parcels and to estimate income and expense figures for parcels with unreported data. Actual or reported figures can be used as long as they reflect typical figures (or typical figures can be used for all properties).

Alternatively, models for estimating gross or net income and expense ratios can be developed by using actual income and expense data from a sample of properties and calibrated by using multiple regression analysis. For an introduction to income modeling, see *Mass Appraisal of Real Property* (Gloudemans 1999, chapter 3) or *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, chapter 9). The developed income figures can be capitalized into estimates of value in a number of ways. The most direct method involves the application of gross income multipliers, which express the ratio of market value to gross income. At a more refined level, net income multipliers or their reciprocals, overall capitalization rates, can be developed and applied. Provided there are adequate sales, these multipliers and rates should be extracted from a comparison of actual or estimated incomes with sale prices (older income and sales data should be adjusted to the valuation date as appropriate). Income multipliers and overall rates developed in this manner tend to provide reliable, consistent, and readily supported valuations when good sales and income data are available. When adequate sales are not available, relevant publications and local market participants can be consulted.

4.5 Land Valuation

State or local laws may require the value of an improved parcel to be separated into land and improvement components. When the sales comparison or income approach is used, an independent estimate of land value can be made and subtracted from the total property value to obtain a residual improvement value. Some computerized valuation techniques provide a separation of total value into land and building components.

Land values should be reviewed annually. At least once every 4 to 6 years the properties should be physically inspected and revalued. The sales comparison approach is the primary approach to land valuation and is always preferred when sufficient sales are available. In the absence of adequate sales, other techniques that can be used in land appraisal include allocation, abstraction, anticipated use, capitalization of ground rents, and land residual capitalization. (See *Mass Appraisal of Real Property* [Gloudemans 1999, chapter 3] or *Fundamentals of Mass Appraisal* [Gloudemans and Almy 2011, 178–180].)

4.6 Considerations by Property Type

Table 1. Rank of typical usefulness of the three approaches to value in the mass appraisal of major types of property

Type of Property	Cost Approach	Sales Comparison Approach	Income Approach
Single-family residential	2	1	3
Multifamily residential	3	1, 2	1, 2
Commercial	3	2	1
Industrial	1, 2	3	1, 2
Nonagricultural land	–	1	2
Agricultural[a]	–	2	1
Special-purpose[b]	1	2, 3	2, 3

[a] Includes farm, ranch, and forest properties.

[b] Includes institutional, governmental, and recreation properties.

4.6.1 Single-Family Residential Property

The sales comparison approach is the best approach for single-family residential property, including condominiums. Automated versions of this approach are highly efficient and generally accurate for the majority of these properties. The cost approach is a good supplemental approach and should serve as the primary approach when the sales data available are inadequate. The income approach is usually inappropriate for mass appraisal of single-family residential properties, because most of these properties are not rented.

4.6.2 Manufactured Housing

Manufactured or *mobile* homes can be valued in a number of ways depending on the local market and ownership status. Often mobile homes are purchased separately and situated on a rented space in a mobile home park. In this case the best strategy is to model the mobile homes separately from the land. At other times mobile homes are situated on individual lots and bought and sold similar to stick-built homes. Particularly in rural areas they may be intermixed with stick-built homes. In these cases, they can be modeled in a manner similar to that for other residential properties and included in the same models, as long as the model includes variables to distinguish them and recognize any relevant differences from other homes (e.g., mobile homes may appreciate at a rate different from that for stick-built homes).

4.6.3 Multifamily Residential Property

The sales comparison and income approaches are preferred in valuing multifamily residential property when sufficient sales and income data are available. Multiple regression analysis (MRA) and related techniques have been successfully used in valuing this property type. Where adequate sales are available, direct sales models can be used. MRA also can be used to calibrate different portions of the income approach, including the estimation of market rents and development of income multipliers or capitalization rates. As with other residential property, the cost approach is useful in providing supplemental valuations and can serve as the primary approach when good sales and income data are not available.

4.6.4 Commercial and Industrial Property

The income approach is the most appropriate method in valuing commercial and industrial property if sufficient income data are available. Direct sales comparison models can be equally effective in large jurisdictions with sufficient sales. When a sufficient supply of sales data and income data is not available, the cost approach should be applied. However, values generated should be checked against available sales data. Cost factors, land values, and depreciation schedules must be kept current through periodic review.

4.6.5 Nonagricultural Land

The sales comparison approach is preferred for valuing nonagricultural land. Application of the sales comparison approach to vacant land involves the collection of sales data, the posting of sales data on maps, the calculation of standard unit values (such as value per square foot, per front foot, or per parcel) by area and type of land use, and the development of land valuation maps or computer-generated tables in which the pattern of values is displayed. When vacant land sales are not available or are few, additional benchmarks can be obtained by subtracting the replacement cost new less depreciation of improvements from the sale prices of improved parcels. The success of this technique requires reliable cost data and tends to work best for relatively new improvements, for which depreciation is minimal.

Another approach is a *hybrid* model decomposable into land and building values. Although these models can be calibrated from improved sales alone, separation of value between land and buildings is more reliable when both vacant and improved sales are available.

4.6.6 Agricultural Property

If adequate sales data are available and agricultural property is to be appraised at market value, the sales comparison approach is preferred. However, most states and provinces provide for the valuation of agricultural land at use value, making the sales comparison approach inappropriate for land for which market value exceeds use value. Thus, it is often imperative to obtain good income data and to use the income approach for agricultural land. Land rents are often available, sometimes permitting the development and application of overall capitalization rates. Many states and provinces have soil maps that assign land to different productivity classes for which typical rents can be developed. Cost tables can be used to value agricultural buildings.

4.6.7 Special-Purpose Property

The cost approach tends to be most appropriate in the appraisal of special-purpose properties, because of the distinctive nature of such properties and the general absence of adequate sales or income data.

4.7 Value Reconciliation

When more than one approach or model is used for a given property group, the appraiser must determine which to use or emphasize. Often this can be done by comparing ratio study statistics. Although there are advantages to being consistent, sometimes an alternative approach or method is more reliable for special situations and atypical properties. CAMA systems should allow users to document the approach or method being used for each property.

4.8 Frequency of Reappraisals

Section 4.2.2 of the *Standard on Property Tax Policy* (IAAO 2010) states that current market value implies annual assessment of all property. Annual assessment does not necessarily mean, however, that each property must be re-examined each year. Instead, models can be recalibrated, or market adjustment factors derived from ratio studies or other market analyses applied based on criteria such as property type, location, size, and age.

Analysis of ratio study data can suggest groups or strata of properties in greatest need of physical review. In general, market adjustments can be highly effective in maintaining equity when appraisals are uniform within strata and recalibration can provide even greater accuracy. However, only physical reviews can correct data errors and, as stated in Sections 3.3.4 and 3.3.5, property characteristics data should be reviewed and updated at least every 4 to 6 years. This can be accomplished in at least three ways:

- Reinspecting all property at periodic intervals (i.e., every 4 to 6 years)
- Reinspecting properties on a cyclical basis (e.g., one-fourth or one-sixth each year)
- Reinspecting properties on a priority basis as indicated by ratio studies or other considerations while still ensuring that all properties are examined at least every sixth year

5. Model Testing, Quality Assurance, and Value Defense

Mass appraisal allows for model testing and quality assurance measures that provide feedback on the reliability of valuation models and the overall accuracy of estimated values. Modelers and assessors must be familiar with these diagnostics so they can evaluate valuation performance properly and make improvements where needed.

5.1 Model Diagnostics

Modeling software contains various statistical measures that provide feedback on model performance and accuracy. MRA software contains multiple sets of diagnostic tools, some of which relate to the overall predictive accuracy of the model and some of which relate to the relative importance and statistical reliability of individual variables in the model. Modelers must understand these measures and ensure that final models not only make appraisal sense but also are statistically sound.

5.2 Sales Ratio Analyses

Regardless of how values were generated, sales ratio studies provide objective, bottom-line indicators of assessment performance. The IAAO literature contains extensive discussions of this important topic, and the *Standard on Ratio Studies* (2013) provides guidance for conducting a proper study. It also presents standards for key ratio statistics relating to the two primary aspects of assessment performance: level and uniformity. The following discussion summarizes these standards and describes how the assessor can use sales ratio metrics to help ensure accurate, uniform values.

5.2.1 Assessment Level

Assessment level relates to the overall or general level of assessment of a jurisdiction and various property classes, strata, and groups within the jurisdiction. Each group must be assessed at market value as required by professional standards and applicable statutes, rules, and related requirements. The three common measures of central tendency in ratio studies are the median, mean, and weighted mean. The *Standard on Ratio Studies* (2013) stipulates that the median ratio should be between 0.90 and 1.10 and provides criteria for determining whether it can be concluded that the standard has not been achieved for a property group. Current, up-to-date valuation models, schedules, and tables help ensure that assessment levels meet required standards, and values can be statistically adjusted between full reappraisals or model recalibrations to ensure compliance.

5.2.2 Assessment Uniformity

Assessment uniformity relates to the consistency and equity of values. Uniformity has several aspects, the first of which relates to consistency in assessment levels between property groups. It is important to ensure, for example, that residential and commercial properties are appraised at similar percentages of market value (regardless of the legal assessment ratios that may then be applied) and that residential assessment levels are consistent among neighborhoods, construction classes, age groups, and size groups. Consistency among property groups can be evaluated by comparing measures of central tendency calculated for each group.

Various graphs can also be used for this purpose. The *Standard on Ratio Studies* (IAAO 2013) stipulates that the level of appraisal for each major group of properties should be within 5 percent of the overall level for the jurisdiction and provides criteria for determining whether it can be concluded from ratio data that the standard has not been met.

Another aspect of uniformity relates to the consistency of assessment levels within property groups. There are several such measures, the preeminent of which is the coefficient of dispersion (COD), which represents the average percentage deviation from the median ratio. The lower the COD, the more uniform the ratios within the property group. In addition, uniformity can be viewed spatially by plotting sales ratios on thematic maps.

The *Standard on Ratio Studies* (IAAO 2013) provides the following standards for the COD:

- Single-family homes and condominiums: CODs of 5 to 10 for newer or fairly similar residences and 5 to 15 for older or more heterogeneous areas
- Income-producing properties: CODs of 5 to 15 in larger, urban areas and 5 to 20 in other areas
- Vacant land: CODs of 5 to 20 in urban areas and 5 to 25 in rural or seasonal recreation areas
- Rural residential, seasonal, and manufactured homes: CODs of 5 to 20.

The entire appraisal staff must be aware of and monitor compliance with these standards and take corrective action where necessary. Poor uniformity within a property group is usually indicative of data problems or deficient valuation procedures or tables and cannot be corrected by application of market adjustment factors.

A final aspect of assessment uniformity relates to equity between low- and high-value properties. Although there are statistical subtleties that can bias evaluation of price-related uniformity, the IAAO literature (see particularly *Fundamentals of Mass Appraisal* [Gloudemans and Almy 2011, 385–392 and Appendix B] and the *Standard on Ratio Studies* [IAAO 2013]) provides guidance and relevant measures, namely, the price-related differential (PRD) and coefficient of price-related bias (PRB).

The PRD provides a simple gauge of price-related bias. The *Standard on Ratio Studies* (IAAO 2013) calls for PRDs of 0.98 to 1.03. PRDs below 0.98 tend to indicate assessment progressivity, the condition in which assessment ratios increase with price. PRDs above 1.03 tend to indicate assessment regressivity, in which assessment ratios decline with price.

The PRB indicates the percentage by which assessment ratios change whenever values double or are halved. For example, a PRB of −0.03 would mean that assessment levels fall by 3 percent when value doubles. The *Standard on Ratio Studies* calls for PRBs of −0.05 to +0.05 and regards PRBs outside the range of −0.10 to +0.10 as unacceptable.

Because price is observable only for sale properties, there is no easy correction for the PRB, which is usually due to problems in valuation models and schedules. Sometimes other ratio study diagnostics will provide clues. For example, high ratios for lower construction classes may indicate that base rates should be reduced for those classes, which should in turn improve assessment ratios for low-value properties.

5.3 Holdout Samples

Holdout samples are validated sales that are not used in valuation but instead are used to test valuation performance. Holdout samples should be randomly selected with a view to obtaining an adequate sample while ensuring that the number of sales available for valuation will provide reliable results for the range of properties that must be valued (holdout samples of 10 to 20 percent are typical). If too few sales are available, later sales can be validated and used for the same purpose. (For a method of using sales both to develop and test valuation models, see "The Use of Cross-validation in CAMA Modeling to Get the Most Out of Sales" (Jensen 2011).

Since they were not used in valuation, holdout samples can provide more objective measures of valuation performance. This can be particularly important when values are not based on a common algorithm as cost and MRA models are. Manually assigning land values, for example, might produce sales ratio statistics that appear excellent but are not representative of broader performance for both sold and unsold properties. Comparable sales models that value a sold property using the sale of a property as a comparable for itself can produce quite different results when tested on a holdout group.

When a new valuation approach or technique is used for the first time, holdout sales can be helpful in validating use of the new method. In general, however, holdout samples are unnecessary as long as valuation models are based on common algorithms and schedules and the value assigned to a sale property is not a function of its price. Properly validated later sales can provide follow-up performance indicators without compromising the number of sales available for valuation.

5.4 Documentation

Valuation procedures and models should be documented. Appraisal staff should have at least a general understanding of how the models work and the various rates and adjustments made by the models. Cost manuals should be current and contain the rates and adjustments used to value improvements by the cost approach. Similarly, land values should be supported by tables of rates and adjustments for features such as water frontage, traffic, and other relevant influences. MRA models and other sales comparison algorithms should document final equations and should be reproducible, so that rerunning the model produces the same value. Schedules of rental rates, vacancy rates, expense ratios, income multipliers, and capitalization rates should document how values based on the income approach were derived.

It can be particularly helpful to prepare a manual, booklet, or report for each major property type that provides a narrative summary of the valuation approach and methodology and contains at least the more common rates and adjustments. Examples of how values were computed for sample properties can be particularly helpful. The manuals serve as a resource for current staff and can be helpful in training new staff or explaining the valuation process to other interested parties. Once prepared, the documents should be updated when valuation schedules change or methods and calculation procedures are revised.

5.5 Value Defense

The assessment office staff must have confidence in the appraisals and be able to explain and defend them. This confidence begins with application of reliable appraisal techniques, generation of appropriate valuation reports, and review of preliminary values. It may be helpful to have reports that list each parcel, its characteristics, and its calculated value. Parcels with unusual characteristics, extreme values, or extreme changes in values should be identified for subsequent individual review. Equally important, summary reports should show average values, value changes, and ratio study statistics for various strata of properties. These should be reviewed to ensure the overall consistency of values for various types of property and various locations. (See the *Uniform Standards of Professional Appraisal Practice*, Standards Rule 6-7, for reporting requirements for mass appraisals [The Appraisal Foundation 2012–2013].)

The staff should also be prepared to support individual valuations as required, preferably through comparable sales. At a minimum, staff should be able to produce a property record and explain the basic approach (cost, sales comparison, or income) used to estimate the value of the property. A property owner should never be told simply that "the computer" or "the system" produced the appraisal. In general, the staff should tailor the explanation to the taxpayer's knowledge and expertise. Equations converted to tabular form can be used to explain the basis for valuation. In all cases, the assessment office staff should be able to produce sales or appraisals of similar properties in order to support (or at least explain) the valuation of the property in question. Comparable sales can be obtained from reports that list sales by such features as type of property, area, size, and age. Alternatively, interactive programs can be obtained or developed that identify and display the most comparable properties.

Assessors should notify property owners of their valuations in sufficient time for property owners to discuss their appraisals with the assessor and appeal the value if they choose to do so (see the *Standard on Public Relations* [IAAO 2011]). Statutes should provide for a formal appeals process beyond the assessor's level (see the *Standard on Assessment Appeal* [IAAO 2016a]).

6. Managerial and Space Considerations

6.1 Overview

Mass appraisal requires staff, technical, and other resources. This section discusses certain key managerial and facilities considerations.

6.2 Staffing and Space

A successful in-house appraisal program requires trained staff and adequate facilities in which to work and meet with the public.

6.2.1 Staffing

Staff should comprise persons skilled in general administration, supervision, appraisal, mapping, data processing, ~~and secretarial~~ and clerical functions. Typical staffing sizes and patterns for jurisdictions of various sizes are illustrated in *Fundamentals of Mass Appraisal* (Gloudemans and Almy 2011, 22–25). Staffing needs can vary significantly based on factors such as frequency of reassessments.

6.2.2 Space Considerations

The following minimum space standards are suggested for managerial, supervisory, and support staff:

- *Chief assessing officer (e.g., Assessor, director)*—a private office, enclosed by walls or windows extending to the ceiling, of 200 square feet (18 to 19 square meters)
- *Management position (e.g., chief deputy assessor, head of a division in a large jurisdiction, and so on)*—a private office, enclosed by walls or windows extending to the ceiling, of 170 square feet (15 to 16 square meters)
- *Supervisory position (head of a section, unit, or team of appraisers, mappers, analysts, technicians, or clerks)*—a private office or partitioned space of 150 square feet (14 square meters)
- *Appraisers and technical staff*—private offices or at least partitioned, quiet work areas of 50 to 100 square feet (5 to 10 square meters), not including aisle and file space, with a desk and chair
- *Support staff*—adequate workspace, open or partitioned, to promote intended work functions and access.

In addition, there should be adequate space for

- File storage and access
- Training and meetings
- Mapping and drafting
- Public service areas
- Printing and photocopy equipment
- Library facilities.

6.3 Data Processing Support

CAMAs require considerable data processing support.

6.3.1 Hardware

The hardware should be powerful enough to support applications of the cost, sales comparison, and income approaches, as well as data maintenance and other routine operations. Data downloading, mass calculations, GIS applications, and Web support tend to be the most computer-intensive operations. Processing speed and efficiency requirements should be established before hardware acquisition. Computer equipment can be purchased, leased, rented, or shared with other jurisdictions. If the purchase option is chosen, the equipment should be easy to upgrade to take advantage of technological developments without purchasing an entirely new system.

6.3.2 Software

CAMA software can be developed internally, adapted from software developed by other public agencies, or purchased (in whole or in part) from private vendors. (Inevitably there will be some tailoring needed to adapt externally developed software to the requirements of the user's environment.) Each alternative has advantages and disadvantages. The software should be designed so that it can be easily modified; it should also be well documented, at both the appraiser/user and programmer levels.
CAMA software works in conjunction with various general-purpose software, typically including word processing, spreadsheet, statistical, and GIS programs. These programs and applications must be able to share data and work together cohesively.

Security measures should exist to prevent unauthorized use and to provide backup in the event of accidental loss or destruction of data.

6.3.2.1 Custom Software

Custom software is designed to perform specific tasks, identified by the jurisdiction, and can be specifically tailored to the user's requirements. The data screens and processing logic can often be customized to reflect actual or desired practices, and the prompts and help information can be tailored to reflect local terminology and convention.

After completing the purchase or license requirements, the jurisdiction should retain access to the program source code, so other programmers are able to modify the program to reflect changing requirements.

The major disadvantages of custom software are the time and expense of writing, testing, and updating. Particular attention must be paid to ensuring that user requirements are clearly conveyed to programmers and reflected in the end product, which should not be accepted until proper testing has been completed. Future modifications to programs, even those of a minor nature, can involve system administrator approval and can be a time-consuming, costly, and rigorous job. (See *Standard on Contracting for Assessment Services* [IAAO 2008].)

6.3.2.2 Generic Software

An alternative to custom software is generic software, of which there are two major types: vertical software, which is written for a specific industry, and horizontal software, which is written for particular applications regardless of industry. Examples of the latter include database, spreadsheet, word processing, and statistical software. Although the actual instruction code within these programs cannot be modified, they typically permit the user to create a variety of customized templates, files, and documents that can be processed. These are often referred to as commercial off-the-shelf software (COTS) packages.

Generic vertical software usually requires modification to fit a jurisdiction's specific needs. In considering generic software, the assessor should determine

- System requirements
- The extent to which the software meets the agency's needs
- A timetable for implementation
- How modifications will be accomplished
- The level of vendor support
- Whether the source code can be obtained.

(See Standard on Contracting for Assessment Services [IAAO 2008].)

Horizontal generic software is more flexible, permitting the user to define file structures, relational table layout, input and output procedures, including form or format, and reports. Assessment offices with expertise in such software (which does not imply a knowledge of programming) can adapt it for

- Property (data) file maintenance
- Market research and analysis
- Valuation modeling and processing
- Many other aspects of assessment operations.

Horizontal generic software is inexpensive and flexible. However, it requires considerable customization to adapt it to local requirements. Provisions should be made for a sustainable process that is not overly dependent on a single person or resource.

6.4 Contracting for Appraisal Services

Reappraisal contracts can include mapping, data collection, data processing, and other services, as well as valuation. They offer the potential of acquiring professional skills and resources quickly. These skills and resources often are not available internally. Contracting for these services not only can allow the jurisdiction to maintain a modest staff and to budget for reappraisal on a periodic basis, but also makes the assessor less likely to develop in-house expertise. (See the *Standard on Contracting for Assessment Services* [IAAO 2008].)

6.5 Benefit-Cost Considerations

6.5.1 Overview

The object of mass appraisal is to produce equitable valuations at low costs. Improvements in equity often require increased expenditures.

Benefit-cost analysis in mass appraisal involves two major issues: policy and administration.

6.5.2 Policy Issues

An assessment jurisdiction requires a certain expenditure level simply to inventory, list, and value properties. Beyond that point, additional expenditures make possible rapid improvements in equity initially, but marginal improvements in equity diminish as expenditures increase. At a minimum, jurisdictions should budget to meet statutory requirements and the performance standards contained in the *Standard on Ratio Studies* (IAAO 2013) and summarized in Section 5.2.

6.5.3 Administrative Issues

Maximizing equity per dollar of expenditure is the primary responsibility of assessment administration. To maximize productivity, the assessor and managerial staff must effectively plan, budget, organize, and control operations and provide leadership. This must be accomplished within the office's legal, fiscal, economic, and social environment and constraints (Eckert, Gloudemans, and Kenyon 1990, chapter 16).

7. Reference Materials

Reference materials are needed in an assessment office to promote compliance with laws and regulations, uniformity in operations and procedures, and adherence to generally accepted assessment principles and practices.

7.1 Standards of Practice

The standards of practice may incorporate or be contained in laws, regulations, policy memoranda, procedural manuals, appraisal manuals and schedules, standard treatises on property appraisal and taxation (see section 6.2). Written standards of practice should address areas such as personal conduct, collection of property data, coding of information for data processing. The amount of detail will vary with the nature of the operation and the size of the office.

7.2 Professional Library

Every assessment office should have access to a comprehensive professional library that contains the information staff needs. A resource library may be digital or physical and should include the following:

- Property tax laws and regulations
- IAAO standards
- Historical resources
- Current periodicals
- Manuals and schedules
- Equipment manuals and software documentation.

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NEW CONSTRUCTION PERCENTAGE OF COMPLETION GUIDE

This guide is to be used in estimating the percentage of completion of both residential and commercial buildings under construction.

PECENT COMPLETION GUIDE

CONSTRUCTION TYPE			PER ITEM	ACCUMULATIVE
Foundation			7%	7%
Frame			21%	28%
*Floor	6%			
*Walls	8%			
*Roof	7%			
Exterior Windows & Doors			2%	30%
Roof Cover			4%	34%
Plumbing (rough-in)			5%	39%
Electrical/Mechanical (rough-in)			11%	50%
Insulation			1%	51%
Exterior			7%	58%
Interior Wall/Ceiling			10%	68%
Built-in Cabinets/Trim/Doors			13%	81%
Plumbing - Fixtures			6%	87%
Floor Covers			4%	91%
Built-in Appliances			3%	94%
Light Fixtures & finish Hardware			2%	96%
Painting & Decorating			4%	100%
		Total	100%	

WEIGHTS AND MEASURES

Tables of Weights and Measures and Other Information That May Be Helpful to the Assessor/Appraiser.

Metric Measure		
Millimeter	=	0.001 meter
Centimeter	=	0.01 meter
Decimeter	=	0.1 meter
Meter	=	39.3685 inches
Kilometer	=	1000 meters
Kilometer	=	.062137 miles
Meter	=	1.0935 yards
Meter	=	3.2807 feet
1 Foot	=	0.30480 meter
1 Foot	=	3.04 centimeters
1 Inch	=	2.54 centimeters
Linear Measure		
1 Foot	=	12 inches
1 Yard	=	3 feet-36 inches
1 Rod	=	5½ yards-16½ feet
1 Furlong	=	40 rods-220 yards-660 feet
1 Mile	=	8 furlongs-320 rods-1,760 yards-5,280 feet
Surveyor's Linear Measure		
1 Link	=	7.92 inches
1 Rod	=	25 links
1 Chain	=	4 rods-100 links-66 feet
1 Furlong	=	10 chains
1 Mile	=	8 furlong-80 chains
Square Measure		
1 Square Foot	=	144 square inches
1 Square Yard	=	9 square feet-1,296 square inches
1 Square Rod	=	1 pole/perch-30¼ square yards-272¼ square feet
1 Rood	=	40 square rods
1 Acre	=	160 square rods-4,840 square yards-43,560 square ft
1 Square Mile	=	640 acres
Surveyor's Square Measure		
1 Square Rod	=	625 square links
1 Square Chain	=	16 square rods
1 Acre	=	10 square chains
1 Square Mile	=	640 acres
Cubic Measure		
1 Cubic Foot	=	1,728 cubic inches-7,481 gallons
1 Cubic Yard	=	27 cubic feet

1 Cord Foot	=	16 cubic feet
1 Cord of Wood	=	8 cord-128 cubic feet
1 Perch of Masonry	=	24¾ cubic feet
1 Bushel	=	1.2445 cubic feet
Angles And Arcs Measure		
1 Minute	=	60 seconds
1 Degree	=	60 minutes
1 Right Angle	=	90 degrees-1 quadrant
1 Circumference	=	360 degrees-4 quadrants
Board Measure		
1 Board Foot	=	Length in feet x width in feet x thickness in inches

Measurement In General Use		
1 Link	=	7.92 inches
1 foot	=	12 inches
1 yard	=	3 feet or 36 inches
1 rod	=	16½ feet, 5½ yards or 25 links
1 surveyor's chain	=	66 feet, or 4 rods, or 100 links
1 furlong	=	660 feet, or 40 rods
1 mile	=	8 furlongs, 320 rods, 80 chains, or 5,280 feet
1 square rod	=	272¼ square feet or 30¼ square yards
1 acre contains	=	43,560 square feet
1 acre contains	=	160 square rods
1 span	=	9 inches
1 hand	=	(horse measurement) 4 inches
1 knot	=	(nautical) 6,080.27 feet
1 fathom	=	(nautical) 6 feet
1 stone	=	14 pounds
1 square acre	=	Approximately 208.7 feet on each side
1 acre	=	Approx 8 rods by 20 rods, or any two combinations or rods whose product is 160

SIMPLE FORMULA CONVERTING SQUARE FEET TO ACRES

Multiply by 23 and point off 6 places (This method is not exact but is useful for rough calculations)
Example: 1500 feet x 2050 feet = 3,075,000 square feet x 23 = 70.73 acres

BOARD MEASURE

Multiply thickness in inches by width in inches, divide product by 12 and multiply result by the length in feet.
The result is board measure content.

Conversion factors for converting lineal feet of lumber into board feet.

Example: 50 –2 inches x 10 inches 20 feet long
50 x 20 feet = 1000 lineal feet
2 inches x 10 inches = 20 square inches divided by 12 =
1.667 board feet x 1000 lineal feet equals 1,667 board feet

Table For the Conversion of Lineal Feet into Board Feet

2 inches x 4 inches	(1 lineal foot)	.667 board feet
3 inches x 4 inches	(1 lineal foot)	1.000 board feet
2 inches x 6 inches	(1 lineal foot)	1.000 board feet
2 inches x 8 inches	(1 lineal foot)	1.333 board feet
2 inches x 10 inches	(1 lineal foot)	1.667 board feet
2 inches x 12 inches	(1 lineal foot)	2.000 board feet
2 inches x 14 inches	(1 lineal foot)	2.333 board feet
2 inches x 16 inches	(1 lineal foot)	2.667 board feet
3 inches x 6 inches	(1 lineal foot)	1.500 board feet
4 inches x 6 inches	(1 lineal foot)	2.000 board feet
4 inches x 8 inches	(1 lineal foot)	2.667 board feet
4 inches x 10 inches	(1 lineal foot)	3.333 board feet
4 inches x 12 inches	(1 lineal foot)	4.000 board feet
6 inches x 6 inches	(1 lineal foot)	3.000 board feet
6 inches x 8 inches	(1 lineal foot)	4.000 board feet
10 inches x 12 inches	(1 lineal foot)	10.000 board feet
12 inches x 12 inches	(1 lineal foot)	12.000 board feet

PRINCIPLES

PLANE FIGURE –A plane surface bounded by either straight or curved lines and having no thickness.

SOLID – A body, such as a barrel, building, etc.

SQUARE MEASURE – Area calculation requiring only two dimensions, length and width.

CUBIC MEASURE – Cubic or cubage means volume and gives size in terms of its bulk. Calculation requires 3 dimensions, length x width x depth or height or thickness.

MEASURES AND THEIR EQUIVALENTS

A gallon of water (U.S. Standard) weighs 8 1/3 pounds and contains 231 cubic inches.

A cubic foot of water contains 7½ gallons, 1,728 cubic inches and weighs 62½ pounds.

Doubling the diameter of a pipe increases its capacity four times.
To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434.

To find the capacity of tanks any size, given the dimensions of a cylinder in inches, to find its capacity in U.S. gallons: square the diameter, multiply by the length and by .0034 (Note: See table of tank capacities.)

Rectangular tanks multiply the length by the width by the depth (All in inches) and divide the result by 231. The answer is the capacity in gallons.

31½ gallons equals one barrel.

B.T.U. (British Thermal Unit) is the amount of the heat required to raise one pound of water one degree Fahrenheit.

A ton of refrigeration is measured by the displacement of the amount of heat required to melt a ton of ice in 24 hours. One motor horsepower of an electrically powered unit is normally required to produce one ton of refrigeration. 12,000 B.T.U. equals one tone.

Kilowatts multiplied by 1.3405 equal horsepower.

WEIGHTS & MEASURES

1 cubic inch of Cast Iron weighs	0.26 pounds
1 cubic inch Wrought Iron weighs	0.28 pounds
1 cubic inch Water weighs	0.036 pounds
1 inch of Water weighs	62.321 pounds
1 United States gallon weighs	8.33 pounds
1 Imperial gallon weighs	10.00 pounds
1 United States gallon equals	231.01 cubic inches
1 Imperial gallon equals	277.274 cubic inches
1 cubic foot of Water equals	7.48 U.S. gallons
1 gallon of water weighs	8.34 pounds
1 gallon equals	.1337 cubic feet
1 gallon equals	.1074 bushels
1 cubic foot equals	.8032 bushels
1 barrel (oil) equals	42 gallons
1 barrel (water) equals	31.5 gallons

Pressure in pounds per square inch of column of water equals .434 times the height of the column in feet.

AREAS

Square foot area of surface equals square of one side multiplied by factors shown.

Regular Shaped	Number of Sides	Factor
Equilateral Triangle	3	.433
Pentagon	5	1.721
Hexagon	6	2.598
Heptagon	7	3.634
Octagon	8	4.828
Nonagon	9	6.182
Decagon	10	7.694
Undecagon	11	9.366
Dodecagon	12	11.196

TABLES – For Use in Area and Content Capacity Computations

Capacity of Circular Tanks – Per Foot of Height in Gallons & Bushels

Diameter in Feet	Circum.	Square Foot Area	Gallons	Bushels	Barrels (Oil) (Oil-42 gals. Ea.)
3	9.42	7.07	53	6	1.26
4	12.57	12.57	94	10	2.24
5	15.71	19.63	147	16	3.5
6	18.85	28.27	212	23	5.0
7	21.99	38.48	288	31	6.8
8	25.13	50.27	376	42	9.0
9	28.27	63.62	477	51	11.3
10	31.42	78.54	587	63	14.0
11	34.56	95.03	711	76	16.9
12	37.69	113.10	846	91	20.2
13	40.84	132.73	993	107	23.7
14	43.98	153.94	1,151	124	27.4
15	47.12	176.72	1,322	142	31.5
16	50.26	201.06	1,504	162	35.8
17	53.41	226.98	1,698	182	40.4
18	56.55	254.47	1,903	204	45.3
19	59.69	283.53	2,121	228	50.5
20	62.83	314.16	2,350	252	56.0
21	65.97	346.36	2,591	278	61.7
22	69.12	380.13	2,843	305	67.7
23	72.26	415.48	3,108	334	74.0
24	75.40	452.39	3,384	364	80.6

25	78.54	490.87	3,672	394	87.4
26	81.68	530.93	3,971	427	94.6
27	84.82	572.56	4,283	460	102.0
28	87.97	615.75	4,606	495	109.7
29	91.11	660.52	4,941	531	117.6
30	94.25	706.86	5,287	568	125.8
31	97.39	754.77	5,646	606	134.4
32	100.53	804.25	6,016	646	143.2
33	103.67	855.30	6,398	687	152.3
34	106.81	907.92	6,791	730	161.6
35	109.96	962.11	7,197	773	171.3
36	113.10	1,017.88	7,614	818	181.3
37	116.24	1,075.21	8,043	864	191.5
38	119.38	1,134.11	8,483	911	202.0
39	122.52	1,194.59	8,936	960	212.7
40	125.66	1,256.64	9,400	1,010	223.8

To find the capacity in barrels (oil) =Diameter squared x height.

To find the capacity in gallons = Diameter squared x 5.8748 x height
(Diameter & height in feet).

AREAS AND MEASUREMENTS

To find the circumference of a circle, multiply the diameter by 3.1416.

To find the diameter, multiply circumference by 0.3183 or divide circumference by 3.1416.

To find the radius, multiply circumference by 0.15915.

To find the side of an inscribed square, multiply the diameter by 0.07071 or multiply the circumference by 0.2551.

To find the side of an equal square, multiply the diameter by 0.8863 or multiply the circumference by 0.2821.

Square: A side multiplied by 1.1142 equals the diameter of its circumscribing circle.
A side multiplied by 4.443 equals the circumference of its circumscribing circle.
A side multiplied by 1.126 equals the diameter of an equal circle.
A side multiplied by 3.547 equals circumference of an equal circle.

To find the area of a circle, multiply the circumference by one-quarter of the diameter or multiply the square of the diameter by 0.7854 or multiply the square of the circumference by 0.07958 or multiply the square of one-half of the diameter by 3.1416.

To find the surface of a sphere or globe, multiply the diameter by the circumference or multiply the square of the diameter by 3.1416 or multiply four times the square of the radius by 3.1416.

To find tank capacities, diameter square x .0034 = gallons per inch of height – Base 42 gallons per barrel.

To find area of a triangle – multiply base by ½ perpendicular height.

To find area of an ellipse – product of both diameters x .7854.

To find area of a parallelogram – base x altitude.

To find cu. inches in a ball – multiply cube of diameter by .5236.

To find cubic contents of a cone – multiply area of base by one-third the altitude.

Area of rectangle equals length multiplied by width.

Surface of frustum of cone or pyramid equals sum of circumference of both ends x ½ slant height plus area both ends.

Contents of frustum of cone or pyramid: multiply area of two ends and get square root – add the two areas and time 1/3 altitude.

CONVERSION TABLES

To convert bushels to ton, multiply the number of bushels by 60 and divide the product by 2000 (average maximum weight of commodities 60 pounds per bushel.)

To convert gallons to bushes, divide gallons by 9.35. Answer in bushels.

To convert cubic measure into bushels, multiply by 0.8035.

To find capacity of cylindrical tanks standing on end: To find the capacity in cubic feet of a round tank or cistern, multiply the square of the average diameter by the depth and multiply the product by .785.

STRUCTURAL COMPONENTS

DESIGN

One of the most significant factors influencing quality classification and cost of Construction is design. The design of a house relates not only to the degree of functional efficiency attained in layout, but also to its overall appearance. In this sense, appearance means the refinement of exterior elevations, interior finish, and perimeter shape. The degree of refinement is usually evident in the complexity of foundation and roof outlines, plus the elaborateness of finishing materials and attention given to details.

Lower quality houses will generally be simple rectangular shaped structures with straight lines on all four walls, and a higher ratio of floor area per lineal foot of exterior wall. Higher quality structures will generally have an irregular foundation outline and a lower ratio of floor area per lineal foot of exterior wall.
In other words, the design of a higher quality house substitutes esthetics for efficiency (economy of construction) but does not sacrifice functional utility. In fact, the integration of areas given to living, dining, food preparation, sleeping, hygiene and storage into a functional or logical whole can best be accomplished when design is not restricted by a rectangular or "boxed" perimeter shape.

An irregular perimeter or foundation outline generally denotes higher quality construction because replacement cost is increased by a greater amount of exterior wall area plus special floor and roof framing.

ELECTRICAL

In new construction, the typical electrical service consists of 120-240 volt; 3 wire, 200-amp circuit breaker systems for houses with electric heat and 150-amp services for houses with gas heat. Minimum Property Standards requires one wall switch per room with a minimum of 6' between convenience outlets. 220-volt service is required for electric ranges and clothes dryers, whereas 110-volt service is required for convenience outlets. The majority of residential wiring is done with Romex, a non-metallic sheathed cable. More expensive homes have BX or steel armored cable. Conduit wiring is seldom found in residential construction. Older homes may be wired with Knob & Tube or porcelain insulators. Houses with old style fuse boxes, Knob & Tube wiring, or 60-amp service are generally of low quality or will soon need rewiring.

EXTERIOR WALLS

Exterior wall construction represents one of the most significant components of a residential building. It normally accounts for 25% to 35% of replacement cost new and consists of (1) The Basic Structure – wood framed houses usually have 2" X 4" studs placed directly over floor joists on 16" centers - a 2" X 4"sole plate secures the studs at floor level and a 4" X 4" ceiling plate ties the studs together at the ceiling line (2) Exterior Finish- consists of sheathing, the visible exterior wall cover, trim and painting. The materials used in the basic structure and exterior wall finish will determine the type of construction, i.e., wood framed - brick veneer, etc.

(3) Interior Facing& Finish - new construction is generally 1/2" to 5/8" dry wall, taped & painted; older houses may have lath and plaster; 2" to 3 1/2" batt insulation is normally placed between the studs behind the drywall. (4) Window & Door Openings - the size and number of openings will have a significant influence on replacement cost.

FLOOR STRUCTURE & FINISH

Conventional wood floor construction consists of sill plates, girders, floor joists, bridging, sub floor and finished flooring. The sill plate is the first wood member of a frame structure; and is usually a horizontally laid 2" X 6" board secured to the foundation by 1/2" X 16" anchor bolts. A girder is the main horizontal interior supporting member of the floor structure. It may be steel or wood, but a 3-ply 2" X 10" frame girder is typical. Minimum Property Standards call for no less than 2" X 8" floor joists on 16" centers with a maximum span of 131/2'; and 2" X 10" floor joists on 16" centers if span is between 131/2' and 16'. Better quality construction will have 1" X 3" cross bridging every 8' to 10' span. However, 2" X 6" or 2" X 8" block-bridging is typical of fair and average quality construction. However, diagonally laid 1" X 5 " tongue & groove boards are found in some older homes and in high quality new construction. Basically, the finished flooring of a house will be either pine or hardwood. Generally, the kitchen will have an inlaid linoleum cover, and the bath will have ceramic or vinyl tile. Wall to wall carpets may be laid over a hardwood finished floor or over 5/8" pressboard (particleboard).

FOUNDATION

The foundation of a residence with conventional wood floor construction consists of the footings, foundation wall and interior piers. A solid perimeter foundation wall is generally constructed with 8" concrete blocks; brick-to-grade construction has 12" blocks to grade level with the balance being 8" block allowing a 4" brick to rest on the outer edge of the 12" block. Interior piers are generally of the same materials as the foundation wall. Footings are poured concrete and must be a minimum of 8" deep and 3" wider (on each side) than the foundation wall.

With concrete slab floor construction, the floor, foundation walls and footings are poured monolithically. In such, case, there are no framing members for the floor structure.

Obviously, the footings and lower levels of the foundation wall cannot be seen. Therefore, unless you are informed of structural weakness or see evidence of excessive settlement, you must assume that the foundation has been properly constructed.

INTERIOR FINISH

Interior construction and finish, as a whole can account for 10% to 30% of replacement cost new, depending on the elaborateness of trim, number and sizes of closets, kitchen cabinets, special wall finishes, etc.

Interior partitions are generally wood framed with 2" X 4" studs on 16" centers. The most common basic interior facing is 1/2" or 5/8” drywall, taped and painted.

Older houses often have walls and ceilings finished with plaster on wood or gypsum lath. However, due to the wide use and acceptance of drywall in most quality levels, plaster does not necessarily increase value in proportion to cost. The exception occurs in the luxury or mansion type house where plaster is consistent in cost and quality with the entire structure.

The type and quality of materials available for finishing the interior of a house varies greatly. However, the basic wall and ceiling finish will generally conform to the grade of materials and quality of workmanship evidenced by exterior wall finish and design. Special attention should be given to the amount and quality of kitchen cabinets, closets and the finish of special areas such as the bath and den.

MECHANICAL - CENTRAL AIR CONDITIONING

The majority of residential central air-conditioning is done with "split" refrigerated systems, ranging from one to five- ton capacity. The combination heating/ cooling or package unit utilizes the same duct work with gas heating and electric cooling. This is a central system for original construction and generally results in some savings (per system capacity) in construction costs.

The split system is usually added to an existing forced warm-air furnace. The fan coil is normally installed in the top of the furnace and the condensing unit (with compressor and condenser in the same cabinet) is located outside the house. The efficiency of this system is equal to that of the package system, although cost may be somewhat higher if it is added after original construction.

The heat-pump is an electric powered combination heating and cooling unit which consists of a compressor, condenser, throttle valve and evaporator. It operates on the principle that fluids under high pressure evaporate at a higher temperature than fluids under low pressure. The heat transfer medium is heated under low pressure in the evaporator then transferred by the compressor to the high- pressure condenser where the heat is given off and blown through a duct system in the house. The cooling system is activated by thermostatically reversing a four-way valve which reverses the cycle of the unit. The heat pump is somewhat more expensive than the comparable gas-electric package unit described above, and generally requires electric resistance heaters to provide supplementary heat during periods when the temperature drops below 25°F.

The variation in models, sizes and capacities of central air-conditioning systems is virtually boundless. The only sure way to determine the type, size and capacity of a system is to note the model number and brand name and call the dealer. Generally speaking, however, the horsepower of the compressor motor is approximately equal to the ton capacity of the cooling unit. Using the same duct work as the forced air heating system, central air-conditioning may run 20° to 30° more if separate duct work is required.

PLUMBING

A standard complement of plumbing for a fair or average quality house consists of one 2 to 3-fixture bath with shower over tub, one flat rim kitchen sink with two compartments and one 40-gallon gas or 52-gallon electric water heater. Plumbing represents a relatively fixed cost in building construction. Some nominal additional cost for laterals would be incurred in the larger house, but this would be hardly noticeable in the overall price per square foot. It is pointed out that colored fixtures cost approximately 5 % more than white fixtures. The kitchen sink and each bathroom should be vented with a metal stack extending through the roof. It is also important to determine whether waste is disposed of by public sewer or individual septic system.

ROOF

There are generally six types or styles of roof structures used in residential construction. The typical roof structure consists of 2" X 6" rafters placed on 16" centers and secured at the peak by a 2" X 8" ridge board. Sheathing is typically 3/8" to 1/2" plywood covered with felt under-lament and 235 lb. composition shingles. Ceiling joists, which are often considered part of the composite roof structure, should be at least 2" X 6" on 16" centers with a maximum span of 14'. The rafters and ceiling joists are attached to the 4" X 4" ceiling plates at the line of the exterior wall. The span of a roof is the distance between the outer edges of the ceiling plates, typically the width of the house. The rise of the roof is the distance from the level of the ceiling plates to the top of the ridge. The Run of a rafter is the horizontal distance from the outside of the ceiling plate to the right- angle intersection of the ridge. The slope of a roof is expressed in terms of the rise of the roof in inches per foot of run of rafters. The slope of a roof is typically 5/12 but should not be less than 4/12. Generally better- quality construction will be reflected by steeper pitched roofs with more overhangs at the eaves. Pitch is the ratio of the rise of the roof to the span. Therefore, to find the rise of the roof in inches per foot of run of rafters (slope), multiply pitch by 24. With exception of a trussed frame, 2" X 4" rafters do not meet Basic Standards With a residential truss roof, rafters and ceiling joists are placed on 24" centers and are constructed with 2" X 4" boards, however, the engineering design of the truss creates structural capacity similar to a conventionally framed roof and results in a savings in construction cost.

TERMS AND DEFINITIONS

ARCHITECTURAL TERMS

Apartment hotel a building designed for non-transient residential use, divided into dwelling units similar to an apartment house, but having such hotel apartment accommodations as room furnishings, lounges, public dining room, maid service, etc.

Apartment house a multi-family residence containing three or more non-transient residential living units and generally providing them with a number of common facilities and services.

Attic An unfinished or semi-finished portion of a building lying between the highest finished story and the roof and wholly within the roof framing.

Basement a building story which is wholly or partly below the grade level.

Bay (1) a horizontal area division of a building usually defined as the space between columns or division walls. (2) an internal recess formed by causing a wall to project beyond its general line.

Bay window a window, or group of continuous windows, projecting from the main wall of a building.

Beam a long structural load-bearing member which is placed horizontally or nearly so, and which is supported at both ends or, infrequently, at intervals along its length.

Beam, spandrel a wall beam supporting the wall, above, as well as the floor.

Building any structure partially or wholly above ground which is designed to afford shelter to persons, animals, or goods. See also *construction.*

Building, fireproof a building in which all parts carrying loads or resisting stresses and all exterior and interior walls, floors, and staircases are made of incombustible materials, and in which all metallic structural members are encased in materials which remain rigid at the highest probable temperature in case its contents are burned, or which provide ample insulation from such a temperature.

Building, loft a building having three or more stories with few or no interior bearing walls and designed for storage, wholesaling, or light industrial purposes.

Building, single purpose a building designed for a specific purpose, which cannot be used for another purpose without substantial alterations; e.g., a theater or church.

Bungalow a one-story dwelling unit which is somewhat more pretentious than a cottage.

Column a structurally isolated vertical member which is at least 8 to 10 times as long as its least lateral dimension and which is designed to carry loads. Compare *pier*.

Conduit a tube, pipe, or small artificial tunnel used to enclose wires or pipes or to convey water or other fluids.

Construction, brick a type of construction in which the exterior walls are bearing walls (q.v.) made of solid brick or brick and tile masonry.

Construction, brick veneer a type of construction in which the exterior walls are one-layer brick curtain walls backed by a wood frame.

Construction, fireproof *see fireproof building.*

Construction, mill a type of construction in which the exterior walls are substantial masonry bearing walls, in which the structural members are of heavy timber, and which is further characterized by an open design and by other safeguards against fire hazards. Sometimes called "slow-burning construction."

Construction, reinforced a type of construction in which the principal structural members, such

Concrete as the floors, columns, beams, etc., are made of concrete poured around isolated steel bars or steel meshwork in such manner that the two materials act together in resisting forces.

Construction, steel frame a type of construction in which there is a framework of steel structural members for the support of all loads and the resistance of all stresses.

Construction, wood frame a type of construction in which there is a framework of wooden structural members for the support of all loads and the resistance of all stresses. Loosely called "frame construction."

Coping a special capping at the top of a wall, serving principally as a watershed.

Cornice a projecting element at the top of a wall, serving principally as a decoration or as part of the coping (q.v.).

Cottage a one story to two story dwelling unit of small size and humble character.

Course a uniform horizontal layer of brick, stone, terra cotta, shingles, or some other structural material extending continuously around a building or along a wall.

Court an open space bordered on two or more sides by the walls of a single building, or of two or more buildings, and by a lot line or a yard on any side not so bordered.

Dormer	(1) a relatively small structure projecting from a sloping roof. (2) a window set upright in the face of such a structure.
Dwelling	any building or portion thereof designed or occupied in whole or in part as a place of residence.
Dwelling, attached	a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. See *terrace.*
Dwelling, double	a two-family dwelling in which the dwelling units are separated vertically, by means of a common or party wall. Synonymous with "semi-detached dwelling."
Dwelling, duplex	a two-family dwelling in which the two dwelling units are separated horizontally with a private street entrance for each; i.e., a two-family flat.
Dwelling, Multi-family	a building designed as a place of residence for more than two families or households; e.g., an apartment house or tenement.
Dwelling, row	any one of a series of similar single family, two family, or multi-family dwellings having one or more contiguous common or party walls. Compare *terrace; dwelling, double.*
Dwelling unit	any room or group of rooms designed as the living quarters of one family or household, equipped with cooking and toilet facilities, and having an independent entrance from a public hall or from the outside.
Eaves	the portion of a sloping roof which projects beyond the outside walls of a building.
Elevation	a drawing which represents a projection of any one of the vertical sides or vertical cross-sections of a building or of any other object. Compare plan.
Façade	the face of a building.
Firewall	a wall of fire-resisting material erected between two parts of a building to prevent the spread of fire from one part to the other.
Flashing	small metal strips used to prevent leaking of roofs around chimneys, dormers, hips, and valleys.
Flat	(1) any one floor of a building two or more stories high, each floor of which constitutes a single dwelling unit and has a private street entrance. (2) the building containing two or more such floors. Compare *dwelling, duplex.*

Footing a spreading base to a wall, column, or other supporting member, which serves to widen the ground area to which structural loads are transmitted.

Foundation the structural members below grade level, or below the first tier of beams above grade level, which transmit the load of a superstructure to the ground.

Gable (1) the triangular portion of a wall between the slopes of a double-sloping (i.e., gable) roof. (2) the whole of the wall containing such a triangular portion. (3) a portion of the building extending from the remainder of the building and covered with a gable roof.

Girder a large or principal beam (q.v.) used to support concentrated loads at isolated points along its length. (Girders usually support the beams and structure above).

Header (1) a structural member which is laid perpendicularly to a parallel series of similar members and against which the latter members abut. (2) a brick or other piece of masonry which is laid in a wall in such manner that its longest dimension extends along the thickness of the wall. Contrast *stretcher.*

Hip (1) a sloping line along which two roof surfaces meet to form an external angle of more than 180 degrees. (2) a hip rafter (q.v.) Compare *ridge; valley.*

Hotel a building designed for transient or semi-transient residential use, divided into furnished single rooms and suites, and having such accommodations as lounges, public dining rooms and maid service, etc.

Hotel, apartment see *apartment hotel.*

Joist one of a series of small parallel beams laid on edge and used to support floor and ceiling loads and usually supported in turn by larger beams and girders.

Lintel a beam over a wall opening, such as a door or windows, designed to carry the load of the wall over such opening.

Loft a non-partitioned or relatively open upper story of a building, designed for storage, Wholesaling, or light manufacturing. See also *loft building.*

Louver (or louvre) a ventilator containing slats which are placed lengthwise across the ventilator opening, each slat being slanted in such manner as to overlap the next lower slat and to permit ventilation but exclude rain.

Marquee a flat roof-like structure which shelters a doorway, which has no floor beneath it, and which is usually supported wholly from the walls or the building.

Mezzanine	a low story formed by placing a floor between what would ordinarily be the floor and ceiling of a high story, *note:* the mezzanine floor frequently has a smaller area than other floors and, if present at all, is usually between the first and second stories.
Millwork	all of the wooden portions of a building, whether frame construction or otherwise, which are customarily purchased in finished form from a planning mill, such as doors, windows, trim, balusters, etc.
Overhang	a finished portion of a building having full story height which extends beyond the foundation wall line if part of the ground story, or beyond the exterior walls of the ground story if part of any higher story.
Overhead structure	similar to overhang above ground story, such as O.H. bridge or passage, O.H. walk, O.H. Addition.
Partition	see *wall, partition.*
Pier	(1) a thick, solid mass of masonry which is fully or partially isolated from a structural standpoint and which is designed to transmit vertical loads to the earth. (2) a structure projecting from land into water for use in loading and unloading vessels. Compare column.
Pilaster	a flat-faced pillar projecting somewhat from, but engaged in, the wall of a building and used for decorative purposes or to help support truss and girder loads or both.
Pile	a heavy timber, metallic, or masonry pillar forced into the earth to form a foundation member.
Pitch	the slope of any structural member, such as a roof or rafter, usually expressed as a simple fraction representing the rise per lateral foot.
Plan	a drawing representing a projection of any one of the floors or horizontal cross-sections of a building or of the horizontal plane of any other object or area. Compare elevation.
Purlin	a beam running along the underside of a sloping roof surface and at right angles to the rafters, used to support the common rafters, and usually supported in turn by larger structural members, such as trusses or girders (usually run along length of building).
Rafter	a structural member placed, as a rule, in a sloping position and used as the supporting element for the structural material forming the plane of the roof. See also purlin.
Rafter, hip	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of more than 180 degrees.

Rafter, valley	a rafter placed in an inclined position to support the edges of two sloping roof surfaces which meet to form an external angle of less than 180 degrees.
Ramp	an inclined walk or passage connecting two different floor levels and used in lieu of steps.
Residence	see *dwelling.*
Ridge	a horizontal line along which the upper edges of two roof surfaces meet to form an external angle of more than 180 degrees. Compare *hip; valley.*
Rise	(1) in general, any vertical distance. (2) specifically, the rise of a roof being the distance between the top of an exterior wall and the peak of the roof; the rise of a stair being the distance from tread to tread.
Roof	the top portion of a structure. Types of roofs include double pitch, flat, gable, gambrel, hip, lean-to, single pitch.
Roof, curb (or curbed)	a roof with a ridge at the center and a double slope on each if its two sides.
Roof, flat	a roof which is flat or sloped only enough to provide proper drainage.
Roof, gable	a double-sloped roof having a cross section similar in general to the shape of the inverted letter "V".
Roof, gambrel	a ridged roof with two slopes on each side, the lower having a steeper pitch.
Roof, hip (or hipped)	(1) in general, any roof having one or more hips (q.v.) (2) usually, a roof with four sloping sides meeting along four hips or along four hips and a ridge. Compare *roof, pyramid.*
Roof, lean-to	(1) a roof having a single sloping side which is supported at the upper edge by the wall of an attached building or of a larger and higher portion of the same building (preferred). (2) any roof with a single slope. Compare *roof, flat,*
Roof, mansard	a special type of curb roof (q.v.) in which the pitch of the upper part of each of the four equally sloping sides is small or negligible and that of the lower part is very great; a series of dormers projects from the lower part.
Roof, monitor	a type of gable roof commonly found on industrial buildings - having a small, raised portion along the ridge, with openings for the admission of light and air.

Roof, pyramid	a hip roof having four sloping triangular sides, usually of equal pitch, meeting together at the peak.
Roof, ridged	a roof having one or more ridges (q.v.).
Roof, saw tooth	a roof with a series of parallel sloping surfaces interspersed between a series of vertical surfaces which rise from the lower edges of such sloping surfaces, and which contain windows for the admission of light and air.
Roof, single pitch	any roof with a single slope, other than a lean-to roof.
Sash	the wooden or metal framework in which the glass of a door or window is set.
Sheathing	the covering, usually of rough lumber, placed immediately over studding or rafters.
Sill	(1) the lower horizontal part of a door-case (the threshold) or of a window. (2) the lowest horizontal structural member of a frame building, upon which the superstructure is supported.
Sleeper	a structural member laid horizontally on the ground or upon a masonry base as a support to a floor or other superstructures.
Specifications	a detailed description of the dimensions, materials, quantities, structural procedures, etc. applicable to a projected or completed piece of construction.
Story	that portion of a building enclosed by a floor, a ceiling, and the exterior walls.
Story, ground	the first story lying wholly above the ground level. Synonymous with "first story."
Story, half (or one-half)	(1) for buildings with a mansard or gambrel roof, a finished portion of a building which lies above the wall plate or cornice, and which has a usable floor area substantially less than that of the next lower story. (2) for all other buildings, a finished portion of a building which is above one or more full stories, which is wholly or partly within the roof frame, and which has one or more exterior walls substantially lower than the full height of the story.
Story, one	a building having no finished story above the ground story.
Stretcher	a brick or other piece of masonry which is laid lengthwise in a wall. contrast header.
Strut	any structural member, which holds apart two **or** more other members by counteracting a pressure, which tends to bring them together. Contrast tie.

Stud	one of a series of small slender structural members placed vertically and used as the supporting element of exterior or interior walls. (Plural: studs or studding)
Sub floor	the flooring laid directly on top of the floor joists, but beneath the finish floor.
Tenement	a building, usually of obsolete nature, designed primarily for non-transient residential use and divided into three or more dwelling units having common stairs, halls, and street entrances, and sometimes-common bath and toilet rooms. Compare *apartment house; flat; terrace.*
Terrace	(1) an unroofed level area covered with grass or masonry, or both raised above the surrounding ground level, and having a vertical or sloping front. (2) a multi-family dwelling in which the dwelling units are separated vertically by means of common or party walls. Compare *dwelling, row; dwelling, double.*
Terra cotta	a hard-baked ceramic clay molded into decorative tiles, bricks, etc., and used particularly for facing and trim on buildings.
Tie	any structural member, which binds together two or more members by counteracting a stress which tends to draw them apart. Contrast *strut.*
Trim	(1) the wooden portions of a plastered room, such as the doors, windows, wainscoting, and molding, or the corresponding portions of a room finished otherwise than with plaster. (2) the contrasting elements on the exterior of a building which serve no structural purpose, but are intended to enhance its appearance, e.g., the cornice. (3) occasionally, the hardware of a house, such as locks, hinges, doorknobs, etc.
Truss	a combination of structural pieces fastened together into a rigid open member which is supported at both ends and upon which loads are superimposed. Compare *girder.*
Valley	a sloping line along which two roof surfaces meets to form an external angle of less than 180 degrees. Compare *hip; ridge.*
Veneer	a thin ornamental or protective facing which does not add appreciably to the strength of the body to which it is attached.
Wainscot (or wainscoting)	(1) a wooden facing on the lower portion of a contrasting interior wall. (2) by extension, a facing of marble tile, or the like, on the lower portion of interior walls.
Wall	a vertical structure serving to enclose, support, divide; such as one of the vertical enclosing sides of a building or room.

Wall, bearing	a wall designed primarily to withstand vertical pressure in addition to its own weight.
Wall, common	a wall owned by one or two parties and jointly used by both, one or both of whom is entitled to such use under the provisions of ownership.
Wall, curtain	a non-bearing wall which is supported by columns, beams, or other structural members, and whose primary function is to enclose space.
Wall, fire	*see firewall*
Wall, partition	an interior bearing or non-bearing wall which separates portions of a story. Synonymous *with partition.*
Wall, party	a wall jointly used by two parties under easement agreement and erected at or upon a line separating two parcels of land held under different ownership.
Wall, retaining	a wall designed primarily to withstand lateral pressures of earth or other filling or backing deposited behind it after construction.
Window, bay	see *bay window.*
Window, dormer	see dormer.
Wing	a subordinate part of a building extending from the main part, or any one of two or more substantially co-ordinate parts of a building which extend out from one or more common junctions.

DATA PROCESSING TERMS

BAUD	unit of signaling speed equal to the number of discrete conditions or signal events per second.
Binary	a characteristic or property involving a selection, choice, or condition in which there are two possibilities, such as the number representation with a radix of two.
Bits	the smallest unit of information in the binary number system. An abbreviation of binary digits. Normally, a bit refers to one "on", while a no bit means zero "off".
Block	a group of machine words considered or transported as a unit. In flowcharts, each block represents a logical unit of programming.
Bytes	a sequence of adjacent binary digits operated upon as a unit; a unit of computer storage capacity equal to eight binary bits.
Calculator	a keyboard machine for the automatic performance of arithmetic operations.

CAMA	Computer-Assisted Mass Appraisal - Utilizing data processing to compare parcels, calculate values, and maintain property characteristics to increase efficiency and accuracy in the appraisal process.
Columns binary	pertaining to the binary representation of data on punched cards in which adjacent positions in a column correspond to adjacent bits of data; each column in a 12-row card may be used to represent 12 consecutive bits of 36-bit word.
Computer	a computational device distinguished by its high speed, programmable operation, and large memory.
Computer program	a series of instructions, in a form acceptable to the computer, prepared so as to achieve a certain result.
CPU	central Processing Unit - The heart of the computing system, which contains the arithmetic, logical and control circuits necessary for the interpretation, execution of a program and controls the functioning of the entire system.
CRT	see *video display terminal.*
Data base	a minimally redundant stored collection of data. A collection of data maintained by a computer.
Data Base Management	A combination of hardware and software that controls and processes all requests for data in data bases.
Data element	the smallest unit of data stored on some medium to which a reference or none may be assigned.
Data entry	the process of placing information into machine-readable form.
Data path	the input-processing-output flow followed by data (often repeatedly) during normal computer operations.
Data processing	performing operations on machine-readable data, either with or without the use of a computer.
Data structure	the particular form in which data are to be treated by the computer program: whether as whole numbers, decimal fractions, or alphabetic characters, and whether as single pieces of information or as related sets or arrays of data.
Data verification	checking the accuracy of data that has been placed into a data processing system.
Direct access	an addressing scheme or random-access storage medium that permits direct addressing of data locations.
Disk file	a means for storing data on a magnetic disk or platter.

Encode	to apply a set of rules specifying the manner in which data may be represented such that a subsequent decoding is possible.
Feedback	the process of returning portions of the output of a machine, process, or system for use as input in a further operation.
Flowchart	a graphical representation of the definition, analysis, or solution of a problem using symbols to represent operations, data flow, and equipment.
Hard copy	output that appears on paper.
Hardware	the physical equipment in a data processing system.
Indexed sequential	a file in which records are organized sequentially with indexes that permit quick access to individual records as well as rapid sequential processing.
Kilobytes	(kilo = 1000, bytes = characters) byte: A form of saying a character - numerical, letter, or symbol, in machine-readable form. Data processing personnel measure the size of records by bytes, instead of number of characters. Exactly, a kilobyte (KB or K) has 1,024 "characters".
Library	a collection of standard proven computer routines, usually kept on a library tape or random-access file, by which problems or portions of problems may be solved.
Master file	a file of records containing a cumulative history or the results of accumulation; updated in each file processing cycle and carried forward to the next cycle.
Megabyte	(1 million bytes) This unit is quite large and is usually used to measure the volume of a file, a disc, etc.
Memory	the part of the computer that stores the program, holds intermediate results, and various constant data. Same as *storage,*
Modem	a contraction of "Modulator Demodulator." Its function is to interface with data processing devices and convert data to a form compatible for sending and receiving on transmission facilities.
MRA	Multivariate Regression Analysis - Also called the least squares method, is a mathematical method for producing a model for a dependent variable as a linear function of independent factors. As an example - the predicted sales price (dependent variable) is a function of independent factors such as Square Feet, Style, Neighborhood, etc.
Multiplexor	a computer hardware device used as a screening agent for the main computer. It pulls all the messages from all terminals and transmits them one by one to the main computer. It also dispatches "messages" to receiving ends.

Multiprocessing	systems software that enables several CPU's to be connected together to provide faster, more reliable computing.
Multiprogramming	systems software that enables the computer to run several programs simultaneously.
On-line	peripheral equipment or devices in direct communication with the central processing unit, and from which information reflecting current activity is introduced into the data processing system as soon as it occurs.
Operating system	the systems software that manages all other software in the computer (also known as an executive or monitor).
Operator's instructions	these are sets of operation instructions, which tell the operator what to do to get the jobs done on the computer. The instructions are designed for two types of operators: 1. Computer operators - run the computer, execute a job, mount a tape, etc. 2. Use operators - run different applications such as payroll, CAMA. The instructions tell them how to add a new record, delete a word, on a terminal or use cards.
Output	information that has been processed by the computer.
Peripheral equipment	units that work in conjunction with the computer, but are not part of the computer itself, such as tape reader, card reader, magnetic tape feed, high-speed printer, typewriter, etc.
Printer	hardware for outputting on paper.
Program	the instructions that enable a computer to process data.
Programming Language	a system for coding instructions for computer processing.
Punched cards	a storage medium similar to index cards.
Random access	for device or media, the accessing of data by address rather than by sequence.
Record	a collection of related items of data treated as a unit.
Sequence	an arrangement of items of data according to a specified set of rules.
Sequential processing	the procedure of processing data records in the same order that they occur.
Sequential storage	storing of data in sequential order.
Software	the programs and routines used to extend the capabilities of computers, such as compilers, assemblers, routines, and subroutines. Also, all documents associated with a computer, e.g., manuals, circuit diagrams.

Source	that which provides information to be entered into the computer.
Source document	a form containing raw data for entry into the computer.
Source file	a computer program in high-level language code.
Standard deviation	a statistical measure of the variation of a characteristic about its average value. Standard deviation is the square root of the variance of a characteristic about its average observed value. Variance is the sum of the squared deviations of each observed value from the average, divided by one less than the number of observations. For normally distributed observations, approximately 70% of the observations will fall within one standard deviation of the mean or average value.
Storage	the retention of information in the computer system.
Summary report	output that displays only the end product of processing in a concise format.
System software	computer software that provides overall housekeeping functions for the computer.
Systems design	the development of a computer system (hardware and software) to suit a particular application, by using the program development cycle.
Terminal	a device in a system or communication network at which point data can either enter or leave the system.
Transaction file	a file containing transient data to be processed in combination with a master file.
Turn-around document	a document or form prepared as output at one stage of the data processing cycle, and sent to a customer or other user with the intention of having it returned and used as input at a later stage.
Unit record	a record in which all data concerning each item in a transaction is punched into one card.
Variable	a quantity that, when identified by a symbolic name, can assume any of a given set of values.
Verify	To determine whether a transcription of data or other operation has been accomplished accurately. To check the results of key punching.
Video display terminal	hardware for output on a television-style picture tube (cathode-ray tube or CRT).
Word	a set of characters that occupies one storage location and is treated by the computer circuits as a unit and transported as such.

REAL ESTATE APPRAISAL TERMS

Abstract a computer-printed report of appraised and/or assessed values for each parcel of real property in a given taxing district; generally sequenced geographically.

Accrued depreciation *see depreciation.*

Actual age the number of years elapsed since the original construction, as of the effective valuation date. Compare with *effective age.*

Ad valorem tax in reference to property, a tax based upon the value of the property.

Aesthetic value a value, intangible in nature, which is attributable to the pleasing appearance of a property.

Agricultural property land and improvements devoted to or best adaptable for the production of crops, fruits, and timber, and the raising of livestock.

Air rights the right to the use of a certain specified space within the boundaries of a parcel of land and above a specified elevation.

Alley influence the enhancement to the value of a property rising out of the presence of an abutting alley; most generally applicable to commercial properties.

Amenities in reference to property, the intangible benefits arising out of ownership; *amenity value* refers to the enhancement of value attributable to such amenities.

Appraisal an estimate, usually in written form, of the value of a specifically described property as of a specified date; may be used synonymously with *valuation or appraised value.*

Appraisal schedules any standardized schedules and tables used in conjunction with a revaluation program, such as replacement cost pricing schedules, depreciation tables, land depth tables, etc.

Appraised value *see appraisal.*

Appraiser one who estimates value. More specifically, one who possesses the expertise to execute or direct the execution of an appraisal.

Assessed value *see assessment.*

Assessing the act of valuing a property for the purpose of establishing a tax base.

Assessment the value of taxable property to which the tax rate is to be applied in order to compute the amount of taxes; may be used synonymously with *assessed value, taxable value,* and *tax base.*

Assessment district an assessor's jurisdiction; it may or may not be an entire tax district.

Assessment period the period of time during which the assessment of all properties within a given assessment district must be completed; the period between tax lien dates.

Assessment ratio the ratio of assessed value to a particular standard of value, generally the appraised value. A percentage to be applied to the appraised value in order to derive the assessed value.

Assessment roll the official listing of all properties within a given taxing jurisdiction by ownership, description, and location showing the corresponding assessed values for each; also referred to as *tax list, tax book, tax duplicate,* and *tax roll.*

Assessor the administrator charged with the assessment of property for ad valorem taxes; his/her precise duties differ from state to state depending upon state statutes.

Average deviation in a distribution of values, the average amount of deviation of all the values from the mean value, equal to the total amount of deviation from the mean divided by the number of deviations. As applied to an assessment-to-sale ratio distribution, the average amount which all the ratios within the distribution deviate from the mean ratio.

Base price a value or unit rate established for a certain specified model, and subject to adjustments to account for variations between that particular model and the subject property under appraisement.

Blighted area a declining area characterized by marked structural deterioration and/or environmental deficiencies.

Board of Equalization a non-jurisdictional board charged with the responsibility of reviewing assessments across properties and taxing districts and to assure that said properties and districts are assessed at a uniform level, either raising or lowering assessments accordingly; also referred to as *Board of Appeals,* and *Board of Review.*

Building residual technique a building valuation technique which requires the value of the land to be a known factor; the value of the buildings can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the land.

Capitalization a mathematical procedure for converting the net income which a property is capable of producing into an indication of its current value. See income *approach.*

CDU rating a composite rating of the overall condition, desirability, and usefulness of a structure as developed by the Cole-Layer-Trumble Company and used nationally as a simple, direct, and uniform method of estimating accrued depreciation.

Central business district the center of a city - in which the primary commercial, governmental, and recreational activities are concentrated.

Certified assessment Evaluator a professional designation (C.A.E.) conferred upon qualifying assessors by the International Association of Assessing Officers (IAAO).

Classified property tax an ad valorem property tax under which the assessment ratio varies for different property classes.

Component part-in-place Method the application of the unit-in-place method to unit groupings or construction components. See *unit-in-place method.*

Corner influence the enhancement to the value of a property due to its corner location; most generally applicable to commercial properties.

Cost approach one of the three traditional approaches to determination of the value of a property; arrived at by estimating the value of the land, the replacement or reproduction cost new of the improvement, and the amount of accrued depreciation to the improvement. The estimated land value is then added to the estimated depreciated value of the improvements to arrive at the estimated property value. Also referred to as the "cost-to- market approach" to indicate that the value estimates are derived from market data abstraction and analysis.

Cost factor a factor or multiplier applied to a replacement or reproduction cost to account for variations in location and time, as well as for other elements of construction costs not otherwise considered.

Cubic content the cubic volume of a building within the outer surface of the exterior walls and roof and the upper surface of the lowest floor.

Deed a written instrument, which conveys an interest in real property. A *quitclaim deed* conveys the interest described therein without warranty of title. A *trust deed* conveys interest described therein to a trustee. A *warranty deed* conveys the interest described therein with the provisions that the freehold is guaranteed by the grantor, his heirs, or successors.

Depreciation loss in value from all causes; may be further classified as *physical,* referring to the loss of value caused by physical deterioration; *functional,* referring to the loss of value caused by obsolescence inherent in the property itself; and economic, referring to the loss of value caused by factors extraneous to the property.
Accrued depreciation refers to the actual depreciation existing in a particular property as of a specified date.
Normal depreciation refers to that amount of accrued depreciation one would normally expect to find in buildings of certain construction, design, quality, and age.

Depreciation allowance	a loss of value expressed in terms of a percentage of replacement or reproduction cost new.
Depth factor	a factor or multiplier applied to a unit land value to adjust the value in order to account for variations in depth from an adopted standard depth.
Depth table	a table of depth factors.
Design factor	a factor or multiplier applied to a computed replacement cost as an adjustment to account for cost variations attributable to the particular design of the subject property which were not accounted for in the particular pricing schedule used.
Deterioration	impairment of structural condition evidenced by the wear and tear caused by physical use and the action of the elements, also referred to as *physical depreciation.*
Economic depreciation	*See depreciation.*
Economic life	the life expectancy of a property during which it can be expected to be profitably utilized.
Economic obsolescence	obsolescence caused by factors extraneous to the property. Also referred to as *economic depreciation.*
Economic rent	the rent which a property can be expected to bring in the open market as opposed to *contract rent* or the rent the property is actually realizing at a given time.
Effective age	an age assigned to a structure based upon its condition as of the effective valuation date; it may be greater or less than the structure's actual age. Compare with *actual age.*
Effective depth	in reference to property valuation, that depth, expressed in feet, upon which the selection of the depth factor is based.
Effective frontage	in reference to property valuation, that total frontage, expressed in lineal feet, to which the unit land value is applied, it may or may not be the same as the actual frontage.
Effective gross income	the estimated gross income of a property less an appropriate allowance for vacancies and credit losses.
Effective valuation Date	in reference to a revaluation program, the date as of which the value estimate is applicable.
Encroachment	the displacement of an existing use by another use.
Environmental deficiency	a neighborhood condition such as adverse land uses, congestion, poorly designed streets, etc., operating to cause economic obsolescence and, when coupled with excessive structural deterioration, blight.

Equalization Program	a mass appraisal (or reappraisal) of all property within a given taxing jurisdiction with the goal of equalizing values in order to assure that each taxpayer is bearing only his fair share of the tax load; may be used synonymously with a *revaluation program.*
Equity	in reference to property taxes, a condition in which the tax load is distributed fairly or *equitably;* opposite of *inequity* which refers to a condition characterized by an unfair or unequitable distribution of the tax burden. *Inequity* is a natural product of changing economic conditions, which can only be effectively cured by periodic equalization programs. In reference to value, it is that value of the property remaining after deducting all liens and charges against it.
Excessive frontage	frontage, which because of the particular utility of the lot does not serve to add value to the lot.
Exempt property	see *tax exemption.*
Fee appraisal	see *mass appraisal.*
Field crew	the total professional staff assigned to a specific appraisal project, including listers, reviewers, staff appraisers, and clerical and administrative supporting personnel.
Functional depreciation	*see depreciation.*
Functional Obsolescence	obsolescence caused by factors inherent in the property itself. Also referred to as *functional depreciation.*
Functional utility	the composite effect of a property's usefulness and desirability upon its marketability.
Grade	the classification of an improvement based upon certain construction specifications, and quality of materials and workmanship.
Grade factor	a factor or multiplier applied to a base grade level for the purpose of interpolating between grades or establishing an intermediate grade.
Grantee	a person to whom property is transferred and property rights are granted by deed, trust instrument, or other similar documents. Compare with *grantor.*
Grantor	a person who transfers property or grants property rights by deed, trust instrument, or other similar documents. Compare with *grantee.*
Gross area	the total floor area of a building measured from the exterior of the walls.
Gross income	the scheduled annual income produced by the operation of a business or by the property itself.

Gross income Multiplier	a multiplier representing the relationship between the gross income of a property and its estimated value.
Gross sales	the total amount of invoiced sales before making any deductions for returns, allowances, etc.
Ground lease	a document entitling the lessee certain specified rights relating to the use of the land.
Ground rent	net rent from a ground lease; that portion of the total rent which is attributable to the land only.
Improved land	land developed for use by the erection of buildings and other improvements.
Income approach	one of the three traditional approaches to determination of value; measures the present worth of the future benefits of a property by the capitalization of its net income stream over its remaining economic life. The approach involves making an estimate of the potential net income the property may be expected to yield and capitalizing that income into an indication of value.
Income property	a property primarily used to produce a monetary income.
Industrial park	a subdivision designed and developed to accommodate specific types of industry.
Industrial property	land, improvements, and/or machinery used or adaptable for use in the production of goods either for materials, or by changing other materials and products.i.e. assembling, processing and manufacturing ...as well as the supporting auxiliary facilities thereof.
Inequity	see *equity.*
Influence factor	a factor serving to either devalue or enhance the value of a particular parcel of land, or portions thereof, relative to the norm for which the base unit values were established; generally expressed in terms of a percentage adjustment.
Institutional Property	land and improvements used in conjunction with providing public services and generally owned and operated by the government or other nonprofit organizations ... hospitals, schools, prisons, etc. Such property is generally held exempt from paying property taxes.
Interest rate	the rate of return from an investment.
Land classification	the classification of land based upon its capabilities for use; and/or production.

Land contract	a purchase contract wherein the grantee takes possession of the property with the grantor retaining the deed to the property until the terms of the contract are met as specified.
Land residual technique	a land valuation technique which requires the value of the buildings to be known; the value of the land can then be indicated by capitalizing the residual net income remaining after deducting the portion attributable to the building(s).
Landscaping	natural features such as lawns, shrubs and trees added to a plot of ground or modified in such a way as to make it more attractive.
Land use restrictions	legal restrictions regulating the use to which land may be put.
Land value maps	a map used in conjunction with mass appraising; generally drawn at a small scale and showing comparative unit land values on a block-to-block basis.
Lease, Lessee, Lessor	a written contract by which one party (lessor) gives to another party (lessee) the possession and use of a specified property, for a specified time, and under specified terms and conditions
Leasehold	a property held under the terms of a lease.
Leasehold Improvements	additions, renovations, and similar improvements made to a leased property by the lessee.
Leasehold Value	the value of a leasehold, the difference between the contract rent and the currently established economic or market rent.
Legal description	a description of a parcel of land which serves to identify the parcel in a manner sanctioned by law.
Lister	a field inspector or data collector whose principal duty is to collect and record property data (not an appraiser).
Market data Approach	one of the three traditional approaches to determination of the value of a property; arrived at by compiling data on recently sold property which are comparable to the subject property and adjusting their selling prices to account for variations in time, location, and property characteristics between the comparables and the subject property.
Market value	the price an informed and intelligent buyer, fully aware of the existence of competing properties, and not compelled to act, would be justified in paying for a particular property.
Mass appraisal	appraisal of property on a mass scale - such as an entire community, generally for ad valorem tax purposes, using standardized appraisal techniques and procedures to accomplish uniform equitable valuation with a minimum of detail, within a limited time period, and at a limited cost ... as opposed to a *fee appraisal* which is

generally used to refer to a rather extensive, detailed appraisal of a single property or singularly used properties for a specified purpose.

Member Appraisal Institute a professional designation (M.A.I.) conferred upon qualifying real estate appraisers by the American Institute of Real Estate Appraisers.

Mineral rights the right to extract subterranean deposits such as oil, gas, coal, and minerals, as specified in the grant.

Minimum rental that portion of the rent in a percentage lease which is fixed.

Model method a method of computing the replacement or the reproduction cost of an improvement by applying the cost of a specified model and adjusting the cost to account for specified variations between the subject improvement and the model.

Modernization the corrective action taken to update a property so that it may conform with current standards.

Mortgage, Mortgagee Mortgagor a legal document by which the owner of a property (mortgagor) pledges the property to a creditor (mortgagee) as security for the payment of a debt.

Neighborhood a geographical area exhibiting a high degree of homogeneity in residential amenities, land use, economic and social trends, and housing characteristics.

Neighborhood trend three stages in the life cycle of a neighborhood "the *improving stage* characterized by development and growth; the *static stage* characterized by a leveling off of values; and the *declining stage* characterized by infiltration and decay.

Net income the income remaining from the effective gross income after deducting all operating expenses related to the cost of ownership.

Net lease a lease wherein the lessee assumes to pay all applicable operating expenses related to the cost of ownership; also referred to as *net,* or *net lease.*

Net sales gross sales less returns and allowances.

Net sales area the actual floor area used for merchandising, excluding storage rooms, utility and equipment rooms, etc.

Non-conforming use a use which, because of modified or new zoning ordinances, no longer conforms to current use regulations, but which is nevertheless upheld to be legal so long as certain conditions are adhered to.

Observed depreciation that loss in value which is discernable through physical observation by comparing the subject property with a comparable property either new or capable of rendering maximum utility.

Obsolescence a diminishing of a property's desirability and usefulness brought about by either functional inadequacies and over-adequacies inherent in the property itself, or adverse economic factors external to the property. Refer to *functional depreciation and economic depreciation.*

Operating expenses the fixed expenses, operating costs, and reserves for replacements which are required to produce net income before depreciation, and which are to be deducted from effective gross income in order to arrive at net income.

Average income rental received in addition to the minimum contract rental, based upon a specified percentage of a tenant's business receipts.

Overall rate a capitalization rate representing the relationship of the net income (before recapture) of a property to its value as a single rate; it necessarily contains, in their proper proportions, the elements of both the land and the building capitalization rates.

Over assessed a condition wherein a property is assessed proportionately higher than comparable properties.

Parcel piece of land held in one ownership.

Percentage lease a type of lease in which the rental is stipulated to be a percentage of the tenant's gross or net sales, whichever specified.

Permanent parcel number an identification number which is assigned to a parcel of land to uniquely identify that parcel from any other parcel within a given taxing jurisdiction.

Personal property property, which is not permanently affixed to and a part of the real estate, as specified by state statutes.

Physical depreciation *see depreciation.*

Preferential assessment an assessing system which provides preferential treatment in the form of reduced rates to a particular class of property; such as a system providing for farm properties to be assessed in accordance to their value in use as opposed to their value in the open market.

Property class a division of like properties generally defined by statutes and generally based upon their present use. The basis for establishing assessment ratios in a classified property assessment system. See *classified property tax.*

Property inspection a physical inspection of a property for the purpose of collecting and/or reviewing property data.

Property record card	a document specially designed to record, and process specified property data; may serve as a source document, a processing form, and/or a permanent property record.
Public utility property	properties devoted to the production of commodities or services for public consumption under the control of governmental agencies such as the Public Utility Commission.
Quantity survey Method	a method of computing the replacement or the reproduction cost of an improvement by applying unit costs to the actual or estimated material and labor quantities and adding an allowance for overhead, profit, and all other indirect construction costs.
Real estate	the physical land and appurtenances affixed thereto; often used synonymously with *real property.*
Real property	all the interests, benefits, and rights enjoyed by the ownership of the real estate.
Reassessment	the revaluation of all properties within a given jurisdiction for the purpose of establishing a new tax base.
Rent	the amount paid for the use of a capital good. See *economic rent.*
Replacement cost	the current cost of reproducing an improvement of equal utility to the subject property; it may or may not be the cost of reproducing a replica property. Compare with *reproduction cost.*
Reproduction cost	the current cost of reproducing a replica property. Compare with *replacement cost.*
Reserve for replacements	a reserve established to cover renewal and replacements of fixed assets.
Residential property	vacant or improved land devoted to or available for use primarily as a place to live.
Revaluation program	see *equalization program.*
Sales ratio study	a statistical analysis of the distribution of assessment or appraisal-to-sale ratios of a sample of recent sales, made for the purpose of drawing inferences regarding the entire population of parcels from which the sample was abstracted.
Salvage value	the price one would be justified in paying for an item of property to be removed from the premises and used elsewhere.
Site development costs	all costs incurred in the preparation of a site for use.
Soil productivity	the capacity of a soil to produce crops.
Sound value	the depreciated value of an improvement.

Sound value estimate	an estimate of the depreciated value of an improvement made directly by comparing it to improvements of comparable condition, desirability, and usefulness without first estimating its replacement cost new.
Standard depth	that lot depth selected as the norm against which other lots are to be compared; generally, the most typical depth.
Sublease	see *lease;* the lessee in a prior lease simply becomes a lessor in a sublease.
Tax bill	an itemized statement showing the amount of taxes owed for certain property described therein and traceable to the party(s) legally liable for payment thereof.
Tax book	*see assessment roll.*
Tax district	a political subdivision over which a governmental unit has authority to levy a tax.
Tax duplicate	see *assessment roll.*
Tax exemption	either total or partial freedom from tax; total exemption such as that granted to governmental, educational, charitable, religious, and similar nonprofit organizations, and partial exemption such as that granted on homesteads, etc.
Tax levy	in reference to property taxes, the total revenue, which is to be realized, by the tax.
Tax list	*see assessment roll.*
Tax mapping	the creation of accurate representations of property boundary lines at appropriate scales to provide a graphic inventory of parcels for use in accounting, appraising and assessing; such maps show dimensions and the relative size and location of each tract with respect to other tracts.
Tax notice	a written notification to a property owner of the assessed value of certain properties described therein; often mandated by law to be given to each property owner following a revaluation.
Tax rate	the rate - generally expressed in dollars per hundred or dollars per thousand (mills) - which is to be applied against the tax base (assessed value) to compute the amount of taxes. The tax rate is derived by dividing the total tax levy, by the total assessed value of the taxing district.
Tax roll	see *assessment roll.*
Tillable land	land suitable for growing annual crops.

Under assessed	a condition wherein a property is assessed proportionately lower than computable properties.
Uniformity	as applied to assessing, a condition wherein all properties are assessed at the same ratio to market value, or other standard of value depending upon the particular assessing practices followed.
Unimproved land	vacant land; a parcel for which there is no improvement value.
Unit cost or price	the price or cost of one item of a quantity of similar items.
Unit-in-place method	a method of computing the replacement or reproduction cost of an improvement by applying established unit-in-place rates, developed to include the cost of materials, equipment, labor, overhead and profit, to the various construction units.
Use density	the number of buildings in a particular use per unit of area, such as a density of so many apartment units per acre.
Use value	the actual value of a commodity to a specific owner, as opposed to its value in exchange or market value.
Vacancy	an un-rented unit of rental property.
Vacant land	unimproved land; a parcel for which there is no improvement value.
Valuation	*see appraisal.*
View	the scene as viewed from a property.
Water frontage	land abutting on a body of water.
Woodland	land which is fairly densely covered with trees.
Zoning regulations	governmental restrictions relating to the use of land.

STATISTICAL TERMS

Aggregate ratio	as applied to real estate, the ratio of the total assessed value to the total selling price.
Average deviation	in a distribution of values, the average amount of deviation of all the values from the mean value equal to the total amount of deviation from the mean divided by the number of deviations.
Cells	the basic units making up a stratified sample; each sale representing a distinct group within the total universe.
Coefficient	a value prefixed as a multiplier to a variable or an unknown quantity.
Coefficient of dispersion	as applied to an assessment-to-sale ratio distribution, a measure of dispersion in a given distribution equal to the average deviation of the ratios from the mean ratio divided by the mean ratio.

Frequency distribution a display of the frequency with which each value in a given distribution occurs, or in *a grouped frequency distribution,* a display of the frequency with which the values within various intervals, or value groupings, occur.

Mean a measure of central tendency equal to the sum of the values divided by the number. Also referred to as *arithmetic average or arithmetic mean.*

Median a measure of central tendency equal to that point in a distribution above which 50% of the values fall and below which 50% of the values fall. The 50th percentile. The 2nd quartile.

Mode a measure of central tendency equal to that value occurring most frequently in a given distribution. In a grouped frequency distribution, the rnode is equal to the mid-point of the interval with the greatest frequency.

Normal distribution a distribution in which all the values are distributed symmetrically about the mean value, with 68.26% of the values failing between +/- 1 standard deviation, 95.44% between +/- 2 standard deviations, and 99.74% between +/- 3 standard deviations.

Percentile rank the relative position of a value in a distribution of values expressed in percentage terms; for instance, as applied to an assessment-to-sale ratio distribution, a ratio with a percentile rank of 83 would indicate that 83% of the ratios were lower and 17% of the ratios were higher than that particular ratio.

Precision as applied to real estate, it refers to the closeness of estimated value to actual selling price on an aggregate basis.

Price related differential as applied to real estate, an analytical measure of the vertical uniformity of values in a given distribution calculated by dividing the mean ratio by the aggregate ratio; a ratio of more than 1 being generally indicative of the relative undervaluation of high priced properties as compared to the less valuable properties, whereas a ratio of less than 1 would indicate the converse relationship.

Quartile positions in a distribution at 25 percentile intervals; the *first quartile* being equal to the 25th percentile, the *second quartile* being equal to the 50th percentile or the median, and the *third quartile* being equal to the 75th percentile.

Regression analysis a statistical technique for making statements as to the degree of linear association between a criterion (dependent) variable and one or more predicator (independent)variables; a simple linear regression having one independent variable, and multiple linear regression having more than one independent variable.

Range the difference between the highest and the lowest value in a distribution.

Ratio a fixed relationship between two similar things expressed in terms of the number of times the first contains the second; the quotient of one quantity divided by another quantity of the same type, generally expressed as a fraction.

Sample as applied to real estate, a set of parcels taken from a given universe which is used to make inferences about values for the universe.

A probability sample is a sample in which each parcel in the universe is given equal chance of being included. Also referred to as random *sample.*

A non-probability sample is a sample in which each parcel in the universe being chosen by other criteria is not given an equal chance of being included. Essentially all assessment-to-sale ratio studies are non-probability samples.

Sample size as applied to real estate, the number of parcels needed from a universe to achieve a desired level of precision, given the total number of parcels in the universe and the standard deviation thereof.

Standard deviation a measure of dispersion, variability or scatter of values in a given distribution equal to the square root of the arithmetic mean of the squares of the deviations from the mean.

Standard error of the mean a measure of the statistical variability of the mean equal to the standard deviation of the distribution divided by the square root of the sample size.

Stratified sampling the selection of sample parcels from distinct groups within the total universe based upon the known sizes and characteristics of these distinct groups.

Universe as applied to real estate, all the parcels of a given type in the group under study, i.e., all the parcels of a given neighborhood, district, etc. Also referred to *as population.*

CLASSIFICATION OF REAL AND TANGIBLE PERSONAL PROPERTY

In general, machinery and equipment used primarily as part of a manufacturing process (process equipment) is taken as Personal Property. Machinery and equipment which is part of the land or building improvement is taken as Real Property.

DESCRIPTION	REAL	PERSONAL
AIR CONDITIONING- BUILDING	XX	
AIR CONDITIONING- MANUFACTURING/PRODUCT		XX
AIR CONDITIONG- WINDOW UNITS		XX
AIRPLANES		XX
ALARM SYSTEMS (SECURITY OR FIRE) & WIRING		XX
ASPHALT PLANTS		XX
ATM- ALL EQUIP/ & SELF STANDING BOOTHS		XX
AUTO EXHAUST SYSTEMS FOR BUILDING	XX	
AUTO EXHAUST FOR EQUIPMENT		XX
AWNINGS		XX
BALERS (PAPER, CARDBOARD, ETC)		XX
BANK TELLER LOCKERS- MOVEABLE OR BUILT-IN		XX
BAR AND BAR EQUIPMENT- MOVEABLE OR BUILT-IN		XX
BARNS		XX
BILLBOARDS		XX
BOAT AND MOTORS- ALL		XX
BOILER- FOR SERVICE OF BUILDING	XX	
BOWLING ALLEY LANES		XX
BROADCASTING EQUIPMENT		XX
C-I-P EQUIPMENT		XX
CABINETS		XX
CABLE TV DISTRIBUTION SYSTEMS		XX
CABLE TV EQUIPMENT & WIRING		XX
CABLE TV SUBSCRIBER CONNECTIONS		XX
CAMERA EQUIPMENT		XX
CANOPIES-FABRIC, VINYL, PLASTIC		XX
CANOPIES- GENERAL	XX	
CANOPY LIGHTING	XX	
CAR WASH- ALL EQUIPMENT, FILTERS & TANKS		XX
CARPET-INSTALLED	XX	
CATWALKS		XX
CEMENT PLANTS		XX

CHAIRS- ALL TYPES		XX
CLOSED CIRCUIT TV		XX
COLD STORAGE- EQUIPMENT, ROOMS, PARTITIONS		XX
COMPRESSED AIR OR GAS SYSTEMS (OTHER THAN BLDG HEAT)		XX
COMPUTER ROOM A/C		XX
COMPUTER ROOM RAISED FLOOR		XX
COMPUTER SCANNING EQUIPMENT		XX
COMPUTERS AND DATA LINES		XX
CONCRETE PLANTS		XX
CONSTRUCTION AND GRADING EQUIPMENT		XX
CONTROL SYSTEMS- BUILDING AND EQUIPMENT		XX
CONVEYOR & MATERIAL HANDLING SYSTEM		XX
COOLERS- WALK-IN OR SELF STANDING		XX
COOLING TOWERS- PRIMARY USE FOR BUILDING	XX	
COOLING TOWERS- PRIMARY USE IN MANUFACTURING		XX
COUNTERS/RECEPTION DESKS- MOVEABLE OR BUILT-IN		XX
DAIRY PROCESSING PLANTS- ALL PROCESS ITEMS, BINS, TANKS		XX
DANCE FLOORS		XX
DATA PROCESSING EQUIPMENT- ALL ITEMS		XX
DELI EQUIPMENT		XX
DESK- ALL		XX
DIAGNOSTIC CENTER EQUIPMENT- MOVEABLE OR BUILT-IN		XX
DISPLAY CASES- MOVEABLE OR BUILT-IN		XX
DOCK LEVELERS		XX
DRAPES & CURTAINS, BLINDS, ETC		XX
DRINKING FOUNTAINS		XX
DRIVE-THRU WINDOWS- ALL		XX
DRYING SYSTEMS- PROCESS OR PRODUCT		XX
DUMPSTERS		XX

DUST CATCHERS, CONTROL SYSTEMS, ETC		XX
ELECTRONIC CONTROL SYSTEMS		XX
ELEVATORS	XX	
ESCALATORS	XX	
FARM EQUIPMENT- ALL		XX
FENCING- INSIDE		XX
FENCING- OUTSIDE	XX	
FLAGPOLE		XX
FOUNDATIONS FOR MACHINERY AND EQUIP		
FREIGHT CHARGES		XX
FUELS- NOT FOR SALE (LIST AS SUPPLIES)		XX
FURNACES- STEEL MILL PROCESS, ETC		XX
FURNITURE AND FIXTURES		XX
GAZEBOS	XX	
GOLF COURSE AND IMPROVEMENTS (DRAINAGE/IRRIGATION)	XX	
GRAIN BINS		XX
GREENHOUSE BENCHES, HEATING SYSTEM, ETC		XX
GREENHOUSES- STRUCTURE IF PERM. AFFIXED	XX	
HEATING SYSTEMS, PROCESS		XX
HOPPERS- METAL BIN TYPE		XX
HOSPITAL SYSTEMS, EQUIPMENT & PIPING		XX
HOT AIR BALLOONS		XX
HOTEL.MOTEL TELEVISIONS & WIRING		XX
HUMIDIFIERS- PROCESS		XX
INCINERATORS- EQUIPMENT AND/OR MOVEABLE		XX
INDUSTRIAL PIPING- PROCESS		XX
INSTALLATION COST		XX
IRRIGATION EQUIPMENT		XX
KILN HEATING SYSTEM		XX
KILNS- METAL TUNNEL OR MOVEABLE		XX
LABORATORY EQUIPMENT		XX
LAGOONS/SETTLING PONDS	XX	
LAUNDRY BINS		XX
LAW & PROFESSIONAL LIBRARIES		XX
LEASED EQUIPMENT- LESSOR OR LESSEE POSSESSION		XX
LEASEHOLD IMPROVEMENTS (LIST IN DETAIL YEARLY)		
LIFTS-OTHR THAN ELEVATOR		XX

LIGHTING- PORTABLE, MOVEABLE, SPECIAL		XX
LIGHTING- YARD LIGHTING	XX	
MACHINERY AND EQUIPMENT		XX
MILK HANDLING- MILKING, COOLING, PIPING, STORAGE		XX
MINERAL RIGHTS	XX	
MIRRORS (OTHER THAN BATHROOM)		XX
MONITORING SYSTEMS BUILDING OR EQUIPMENT		XX
NEWSPAPER STANDS		XX
NIGHT DEPOSITORY		XX
OFFICE EQUIPMENT- ALL		XX
OFFICE SUPPLIES (LIST AS SUPPLIES)		XX
OIL COMPANY EQUIPMENT- PUMPS, SUPPLIES, ETC		XX
OVENS- PROCESSING.MANUFACTURING		XX
OVERHEAD CONVEYOR SYSTEM		XX
PACKAGE AND LABELING EQUIPMENT		XX
PAGING SYSYTEMS		XX
PAINT SPRAY BOOTHS		XX
PAINTING- NO ADDED VALUE		
PARTITIONS		XX
PAVING	XX	
PIPING SYSTEMS- PROCESS PIPING		XX
PLAYGROUND EQUIPMENT- ALL		XX
PNEUMATIC TUBE SYSTEMS		XX
PORTABLE BUILDINGS		XX
POWER GENERATORS SYSTEM (AUXILLARY, EMERGENCY, ETC)		XX
POWER TRANSFORMERS- EQUIPMENT		XX
PUBLIC ADDRESS SYSTEM (INTERCOM, MUSIC, ETC)		XX
RAILROAD SIDINGS (OTHER THAN RAILROAD OWNERS)	XX	
REFRIGERATION SYSTEM- COMPRESSORS, ETC		XX
REPAIRS- BUILDING	XX	
REPAIRS- EQUIPMENT (50% COST)		XX
RESTAURANT FURNITURE (INCLUDE ATTACHED FLOOR OR BLDG)		XX
RESTAURANT/KITCHEN EQUIPMENT, VENT HOODS, SINKS, ETC (COMMERCIAL)		XX
RETURNABLE CONTAINERS		XX
ROLL-UP DOORS (INSIDE WALL)		XX

ROLL-UP DOORS (OUTSIDE WALL)	XX	
ROOFING	XX	
ROOM DIVIDERS/PARTITIONS- MOVEABLE OR BUILT-IN		XX
ROOMS SELF CONTAINED OR SPECIAL PUROSE (WALLS, CEILING, FLOOR)		XX
SAFES WALL OR SELF-STANDING		XX
SALES/USE TAX		XX
SATELLITE DISHES (ALL WIRING & INSTALLATION TO TV & EQUIPMENT)		XX
SCALE HOUSES (UNLESS MOVEABLE)	XX	
SCALES		XX
SECURITY SYSTEMS		XX
SERVICE STATIONS EQUIPMENT- PUMPS, TANKS, LIFTS, & RELATED		XX
SEWER SYSTEMS	XX	
SHELVING		XX
SIGNS ALL TYPES INCLUDING ATTACHED TO BUILDING		XX
SINKS- BATHROOM	XX	
SINKS- KITCHEN AREA		XX
OFTWARE- CAPITALIZED		XX
SOLAR PANELS		XX
SOUND SYSTEMS & PROJECTION EQUIPMENT		XX
SPARE PARTS-LIST AS SUPPLIES		XX
SPEAKERS- BUILT-IN OR FREESTANDING		XX
SPRAY BOOTHS		XX
SPRINKLER SYSTEM- ATTACHED TO PRODUCTS STORAGE RACKS		XX
SPRINKLER SYSTEM- BUILDING	XX	
SUPPLIES (OFFICE & OTHER)		XX
SWIMMING POOLS	XX	
TANKS (ALL ABOVE & BELOW GROUND)		XX
TELEPHONE SYSTEMS & WIRING- PRIVATE		XX
THEATRE SCREENS- INDOOR		XX
THEATRE SCREENS- OUTDOOR	XX	
THEATRE SEATS		XX
TOOLING, DIES, MOLDS		XX
TOWERS- MICROWAVE, EQUIPMENT, WIRING & FOUNDATION		XX
TOWERS- TV, RADIO, CATV, TWO-WAY RADIO, WIRING & FDN		XX
TRANSPORTATION COST-ALL		XX

TUNNELS-UNLESS PART OF PROCESS SYSTEM	XX	
UPGRADES TO EQUIPMENT		XX
VACUUM SYSTEM, PROCESS		XX
VAULT	XX	
VAULT DOOR, INNER GATES, VENTS, & EQUIPMENT		XX
VENDING MACHINES		XX
VENT FANS		XX
VENTILATION SYSTEMS- GENERAL BUILDING	XX	
VENTILATION SYSTEMS- NEEDED FOR MANUFACTUREING, PROCESS		XX
VIDEO TAPES/MOVIES/REEL MOVIES		XX
WALLCOVERING	XX	
WALLS- PARTITIONS, MOVEABLE 7 ROOM DIVIDERS		XX
WATER COOLERS-ALL		XX
WATER LINES- FOR PROCESS ABOVE OR BELOW GROUND		XX
WATER SYSTEM- RESIDENTIAL OR GENERAL BUILDING	XX	
WATER TANKS & SYSTEM- FOR PROCESS EQUIPMENT		XX
WHIRLPOOL/JACUZZI/HOT TUBS		XX
WIRING- POWER WIRING FOR MACHINERY AND EQUIPM		