Florida Real Property Appraisal Guidelines

Property Tax Oversight
XXXX 2024

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1.0 INTRODUCTION

1.1 Overview and Specific Authority. Section 195.002(1), Florida Statutes (F.S.), identifies the Florida Department of Revenue (Department) as a state administrative agency with the statutory responsibility of general supervision of the assessment and valuation of property, and the administration and collection of property taxes. The Department's supervision is necessary to ensure all property is placed on the tax rolls and valued in accordance with the requirements of the state constitution.

Every four years, the voters in each Florida county elect a property appraiser as directed by Article VIII, section 1(d), of the Florida Constitution. Section 192.001(3), F.S., states the property appraiser is "the county officer charged with determining the value of all property within the county, with maintaining certain records connected therewith, and with determining the tax on taxable property after taxes have been levied." In the course of discharging its statutory duties, the Department provides general supervision to the property appraiser of each of the 67 counties in the state of Florida.

Property Appraisers have the statutory responsibility to list and appraise all real property in their respective county each year for purposes of ad valorem taxation, as stated in ss. 192.011 and 193.085(1), F.S.

Section 192.011, F.S., states, in pertinent part *"[t]he property appraiser shall assess all property located within the county, except inventory, whether such property is taxable, wholly or partially exempt, or subject to classification reflecting a value less than its just value at its present highest and best use*." Section 193.085(1), F.S., states, in pertinent part *"[t]he property appraiser shall ensure that all real property within his or her county is listed and valued on the real property assessment roll*."

Sections 195.062(1) and 195.032, F.S. specifically direct the Department to establish standard measures of value, which include these *Real Property Appraisal Guidelines* to aid and assist property appraisers in performing their assessment and valuation responsibilities. Statute provides the specific authority and legislative directive for the Department's development of these guidelines, as well as underscore's the Legislature's intent to limit the scope of their use.

Section 195.062(1), F.S., states, in pertinent part:

> *The department shall prepare and maintain a current manual of instructions for property appraisers and other officials connected with the administration of property taxes. This manual shall contain all:*
>
> *(a) Rules and regulations.*
> *(b) Standard measures of value.*
> *(c) Forms and instructions relating to the use of forms and maps.*

Section 195.032, F.S., states:

> *In furtherance of the requirement set out in section 195.002, the Department of Revenue shall establish and promulgate standard measures of value not inconsistent with those standards provided by law, to be used by property appraisers in all counties, including taxing districts, to aid and assist them in arriving at assessments of all property. The standard measures of value shall provide guidelines for the valuation of property and methods for property appraisers to employ in arriving at the just valuation of particular types of property consistent with sections 193.011 and 193.461. The standard measures of value shall assist the property appraiser in the valuation of property and be deemed prima facie correct, but shall not be deemed to establish the just value of any property. However, the presumption of correctness accorded an assessment made by a property appraiser shall not be impugned merely because the standard measures of value do not establish the just value of any property*.

1.2 Description of Guidelines. The standard measures of value are provided through three sets of guidelines: the *Tangible Personal Property Appraisal Guidelines*, the *Agricultural Classified Use Real Property Appraisal Guidelines*, and this document, the *Real Property Appraisal Guidelines*. The full set of documents that comprise the manual of instructions, in accordance with s. 195.062(1), are available here: https://floridarevenue.com/property/Pages/Cofficial_MOI.aspx.

The required scope of the components of the appraisal process will vary among the diverse real property markets in Florida's 67 counties. Resources (e.g., availability of information, equipment, and personnel) may differ among Florida counties and affect how property appraisers specifically apply the appraisal process. Property appraisers should apply these *Real Property Appraisal Guidelines* based on the economic factors and market dynamics present in their county. These guidelines are not a substitute for compliance with current Florida ad valorem tax law.

Section 195.0012, F.S., states: "*It is declared to be the legislative purpose and intent in this entire chapter to recognize and fulfill the state's responsibility to secure a just valuation for ad valorem tax purposes of all property and to provide for a uniform assessment as between property within each county and property in every other county or taxing district*." General application of the principles detailed in these guidelines, even among counties experiencing different market conditions or varying resources, should yield uniform assessments.

1.3 Purposes of These Guidelines. These *Real Property Appraisal Guidelines* have three primary purposes:

1) To aid and assist property appraisers and staff in developing just valuations of real property for ad valorem tax purposes in accordance with Florida ad valorem tax law
2) To promote and facilitate the accuracy and equity of just valuations of real property for ad valorem tax purposes, both within and among counties
3) To meet the Department's statutory obligation to aid and assist property appraisers as stated in ss. 195.062(1), 195.002(1), and 195.032, F.S.

In accordance with s. 194.035(3), F.S., these guidelines are also statutorily cross-referenced as necessary source materials for purposes of the Department's duty to provide Value Adjustment Board (VAB) special magistrate training. For more information, the VAB training materials are available on the Department's website: https://floridarevenue.com/property/Pages/VAB.aspx.

1.4 Context of These Guidelines. Section 195.062(1), F.S., dictates these guidelines do not have the force and effect of rules. As such, these guidelines do not function as the complete reference source on any of the following or similar subjects: valuation theory, approaches, methods, or procedures; assessment administration; or applicable provisions of Florida ad valorem tax law, manual of instructions, or regulatory requirements. In accordance with the limitations imposed by s. 195.062(1), F.S., these guidelines do not constitute a determinative legal standard for the valuation of real property. The statutory valuation legal standards are described in further detail in s. 194.301, F.S., and sections 2.1 and 2.2 of these guidelines.

The user should not solely rely on these guidelines. A thorough and independent knowledge of Florida ad valorem tax law and professionally accepted appraisal practices and appropriate appraisal methodologies is necessary. Property appraisers should use other professionally accepted sources of appraisal guidance (see section 2.2 of these guidelines). These sources should not conflict with current Florida ad valorem tax law.

Users should review all statements contained within the context of this entire document and should refer to this document in conjunction with other professionally accepted source materials. Citation to information from a particular source does not imply that all applicable information from that source is cited or relevant to the appraisal of property for ad valorem tax purposes in Florida. These guidelines do not establish the value of any

property and could not and do not encompass or address every methodological detail, legal premise, appraisal practice or educational treatise that might be applicable in the valuation of every property.

These guidelines do not address the procedure for approving or disapproving applications for real property exemptions. Chapter 12D-7, Florida Administrative Code (F.A.C.), sets forth the administrative rules for real property exemptions.

1.5 Content of These Guidelines. These guidelines address the general procedures for producing just valuations of real property in compliance with Florida ad valorem tax law. The methods and approaches for establishing the just value of real property have not changed significantly since these guidelines were last published. These guidelines have been updated to reflect current Florida ad valorem tax law and reorganized as described below. This version of the *Real Property Appraisal Guidelines* replaces the 2002 version which was organized into 16 sections. In this update, related topics have been consolidated, repetition has been minimized, and some information has been moved to addendums:

New Section Number/Title	Old Section Number/Title
1.0 Introduction	1.0 Introduction
2.0 Foundational Principles	2.0 Foundations of Mass Appraisal in Florida
3.0 The Mass Appraisal Process in Florida	4.0 The Mass Appraisal Process in Florida
	5.0 Defining the Mass Appraisal Process
4.0 Mass Appraisal Data	6.0 Collecting and Managing Mass Appraisal Data
	7.0 Geographic Stratification for Mass Appraisal
	8.0 Exploratory Analysis of Mass Appraisal Data
5.0 Quality Assurance for Mass Appraisal	10.0 Valuation Planning
	16.0 Quality Assurance for Florida Mass Appraisal
6.0 Mass Appraisal Valuation	9.0 Consideration of Highest and Best Use
	11.0 Consideration of Valuation Approaches
	12.0 Land Valuation
	13.0 The Cost Less Depreciation Approach
	14.0 The Sales Comparison Approach
	15.0 The Income Capitalization Approach
Addendum A - Definitions	3.1 Important Definitions
Addendum B - Relevant Valuation Concepts	3.2 Relevant Concepts
Addendum C - Managing Sale Data for Parcels that Change	6.12.6 Special Considerations in Sale Data Management
Addendum D - Topical Index for Sales Ratio Studies	16.7.2-16.7.14 Various titles

As stated in the 2002 version, these guidelines are not intended to replicate existing textbooks on real property appraisal and, therefore, do not contain all of the knowledge required by property appraisers or other interested parties. Toward that end, edits have been made to these guidelines to remove valuation discussion that is either very basic or extremely specialized. This document should be used in conjunction with other applicable professionally accepted appraisal sources but only to the extent that other sources do not conflict with current Florida ad valorem tax law.

The footnotes to this document reference the primary sources of published information used to develop these guidelines. A reference to a particular source does not imply that all information from such source is applicable to the appraisal of real property for ad valorem tax purposes in Florida.

2.0 FOUNDATIONAL PRINCIPLES

Definitions for these key foundational mass appraisal terms are available in Addendum A:		
Ad valorem tax	Just value	Quality control
Assessed value	Mass appraisal	Real property

2.1 Legal and Regulatory Foundations. Section 192.042(1), F.S., requires that all real property must be assessed according to just value each year on January 1. Section 193.011, F.S., provides direction to property appraisers for the just valuation of real property for ad valorem tax purposes. It states:

> ***Factors to consider in deriving just valuation***.*--In arriving at just valuation as required under s. 4, Art. VII of the State Constitution, the property appraiser shall take into consideration the following factors:*
>
> *(1) The present cash value of the property, which is the amount a willing purchaser would pay a willing seller, exclusive of reasonable fees and costs of purchase, in cash or the immediate equivalent thereof in a transaction at arm's length;*
> *(2) The highest and best use to which the property can be expected to be put in the immediate future and the present use of the property, taking into consideration the legally permissible use of the property, including any applicable judicial limitation, local or state land use regulation, or historic preservation ordinance, and any zoning changes, concurrency requirements, and permits necessary to achieve the highest and best use, and considering any moratorium imposed by executive order, law, ordinance, regulation, resolution, or proclamation adopted by any governmental body or agency or the Governor when the moratorium or judicial limitation prohibits or restricts the development or improvement of property as otherwise authorized by applicable law. The applicable governmental body or agency or the Governor shall notify the property appraiser in writing of any executive order, ordinance, regulation, resolution, or proclamation it adopts imposing any such limitation, regulation, or moratorium;*
> *(3) The location of said property;*
> *(4) The quantity or size of said property;*
> *(5) The cost of said property and the present replacement value of any improvements thereon;*
> *(6) The condition of said property;*
> *(7) The income from said property; and*
> *(8) The net proceeds of the sale of the property, as received by the seller, after deduction of all of the usual and reasonable fees and costs of the sale, including the costs and expenses of financing, and allowance for unconventional or atypical terms of financing arrangements. When the net proceeds of the sale of any property are utilized, directly or indirectly, in the determination of just valuation of realty of the sold parcel or any other parcel under the provisions of this section, the property appraiser, for the purposes of such determination, shall exclude any portion of such net proceeds attributable to payments for household furnishings or other items of personal property*.

Section 193.011, F.S., requires the property appraiser to consider each of these eight criteria. These guidelines present other relevant statutes applicable to each of the eight factors listed above where appropriate.

Section 193.011, F.S. is specific to real property; the factors for valuation of land classified for agricultural use are listed in s. 193.461(6), F.S. The *Agricultural Classified Use Real Property Appraisal Guidelines* provide guidance for use valuation of such land.

In addition to the eight statutory criteria for the derivation of just value, there are four determinative legal standards for appraisal development and reporting for the purpose of ad valorem taxation in Florida. Those determinative standards are described in ss. 194.301 and 194.3015, F.S. The standards are:

1) Compliance with professionally accepted appraisal practices
2) Avoidance of arbitrarily different appraisal practices within groups of comparable property within the same county
3) Avoidance of superseded case law
4) The correct application of an appropriate appraisal methodology

Property appraisers should be aware that ss. 194.301 and 194.3015, F.S., make clear the Florida Legislature's intent to supersede contradicting case law. Specifically, s. 194.301(1), F.S., states: "*The provisions of this subsection preempt any prior case law that is inconsistent with this subsection*" and s. 194.3015(1), F.S., provides: *"… any cases published since 1997 citing the every-reasonable-hypothesis standard are expressly rejected to the extent that they are interpretative of legislative intent*." Yet, some case law does not apply current statutory standards and instead reflects the statutorily superseded burden of proof. While it is not practical to include an exhaustive list of superseded case law in these guidelines, some examples of such obsolete case law applying the superseded burden of proof legal standard include:

Powell v. Kelly 223 So. 2d 305 (Fla. 1969)

City National Bank v. Blake, 257 So.2d 264 (Fla. 3d DCA 1972)

Deltona Corp. v. Bailey, 336 So.2d 1163, 1167 (Fla. 1976)

Blake v. Xerox, 447 So.2d 1348 (Fla. 1984)

Bystrom v. Whitman, 488 So.2d 520, 521 (Fla. 1986)

Bystrom v. Bal Harbour 101 Condominium Association, Inc., 502 So.2d 1312 (Fla. 3d DCA 1987)

Walmart v. Todora, 791 So. 2d 29,30 (Fla. DCA 2001)

Mazourek v. Walmart, 831 So.2d 85, 91 (Fla. 2002), quoting Walmart v. Todora

Fla. Dept. of Revenue v. Howard, 916 So.2d 640 (Fla. 2005) In re Lifestream Technologies, LLC, 337 B.R. 705, 710 (Bkrtcy. M.D. Fla. 2006), quoting Mazourek v, Walmart

The Department publishes informational bulletins on statutory changes that may affect assessment practice in Florida, however property appraisers cannot rely on the bulletins as the only source of information. The bulletins are electronically communicated to property appraisers at the time of publication and are subsequently archived in the Department's tax law library located here: https://floridarevenue.com/TaxLaw/Pages/results.aspx.

Section 193.023, F.S., lists duties of the property appraiser in making assessments. It states:

Duties of the property appraiser in making assessments.—

(1) The property appraiser shall complete his or her assessment of the value of all property no later than July 1 of each year, except that the department may for good cause shown extend the time for completion of assessment of all property.

(2) In making his or her assessment of the value of real property, the property appraiser is required to physically inspect the property at least once every 5 years. Where geographically suitable, and at the discretion of the property appraiser, the property appraiser may use image technology in lieu of

physical inspection to ensure that the tax roll meets all the requirements of law. The Department of Revenue shall establish minimum standards for the use of image technology consistent with standards developed by professionally recognized sources for mass appraisal of real property. However, the property appraiser shall physically inspect any parcel of taxable or state-owned real property upon the request of the taxpayer or owner.

(3) In revaluating property in accordance with constitutional and statutory requirements, the property appraiser may adjust the assessed value placed on any parcel or group of parcels based on mass data collected, on ratio studies prepared by an agency authorized by law, or pursuant to regulations of the Department of Revenue.

(4) In making his or her assessment of leasehold interests in property serving the unit owners of a condominium or cooperative subject to a lease, including property subject to a recreational lease, the property appraiser shall assess the property at its fair market value without regard to the income derived from the lease.

(5) In assessing any parcel of a condominium or any parcel of any other residential development having common elements appurtenant to the parcels, if such common elements are owned by the condominium association or owned jointly by the owners of the parcels, the assessment shall apply to the parcel and its fractional or proportionate share of the appurtenant common elements.

(6) In making assessments of cooperative parcels, the property appraiser shall use the method required by s. 719.114.

Florida law may establish jurisdictional exceptions to some professionally accepted appraisal practices described in published appraisal and assessment standards (see section 2.2 below). The property appraiser is responsible for ensuring the valuation and assessment of real property in the county comply with Florida ad valorem tax law.

2.2 Other Sources of Appraisal Guidance. Property appraisers should consult other professionally accepted sources of appraisal guidance, such as the Uniform Standards of Professional Appraisal Practice (USPAP), published and maintained by the Appraisal Standards Board, a board of the Appraisal Foundation. Property appraisers should understand and apply relevant USPAP standard rules to the extent they do not conflict with Florida law. USPAP standard rules 5 and 6 address mass appraisal, while standard rules 1 and 2 address single appraisal.

The technical standards published by the International Association of Assessing Officers (IAAO) are another valuable source of guidance. The IAAO is a nationally and internationally recognized professional association of assessment and mass appraisal professionals. Property appraisers should understand and apply the relevant assessment standards to the extent they do not conflict with Florida law. The primary IAAO technical standards for assessment of real property are: the *Standard on Mass Appraisal of Real Property*, the *Standard on Ratio Studies*, the *Standard on Verification and Adjustment of Sales*, and the *Standard on Data Quality*. These technical standards are the source for a variety of topics covered in these guidelines. In addition, IAAO publishes a glossary of terms, entitled *IAAO Glossary for Property Appraisal and Assessment, Third Edition*, which is the source for the majority of definitions provided in Addendum A of these guidelines.

The Appraisal Institute is a renowned professional association and a leading publisher of property appraisal and property valuation textbooks and courses. Their primary textbook, *The Appraisal of Real Estate, 15th Edition*, is the source of several valuation concepts and standards in these guidelines. The Appraisal Institute also publishes *The Dictionary of Real Estate Appraisal, 7th Edition* which is another source for definitions provided in Addendum A of these guidelines.

The property appraiser is responsible for understanding and adhering to professionally accepted appraisal practices and appropriate appraisal methodologies to ensure that current standards of practice, as prescribed by Florida ad valorem tax law and the professional organizations cited above, are followed in arriving at just values.

2.3 Foundations of Mass Appraisal in Florida. Mass appraisal provides a structure for property appraisers to value large quantities of properties with a variety of uses as of the date of assessment. The process systematically considers the just values of other property within groups for equity. Because just valuations of real property for ad valorem tax purposes in Florida are generally performed using mass appraisal, these guidelines focus on the real property mass appraisal process.

> *"Mass appraisal refers to methods that have been developed to solve large-scale valuation problems, such as when many properties must be appraised for the same purpose, often as of the same date and at low per-property cost. Mass appraisal is characterized by standardized procedures, common data, and statistical testing. It is a challenging activity rooted in economics that draws on statistical and spatial analysis of data from property markets. Like all spheres of appraisal, it requires experience and judgment*."[1]

> *"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*."[2]

To fulfill the statutory duty to value real property, property appraisers may leverage the use of mass appraisal techniques. Mass appraisal is recognized by Florida ad valorem tax law as a professionally accepted appraisal practice (see ss. 193.023(2)(3) and 194.301(1), F.S.).

The following sections discuss fundamental topics relevant to the annual assessment of real property in Florida. These include:

- Real property rights
- Purpose and intended use
- Intended users
- Date of assessment
- Comparison of single-property appraisal and mass appraisal
- Education and training of assessment personnel

2.3.1 Real Property Rights. For ad valorem tax purposes in Florida, the real property rights to be valued are the unencumbered fee simple estate, unless specified otherwise.[3]

[1] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 1.

[2] International Association of Assessing Officers, *Standard on Mass Appraisal of Real Property* (Kansas City, MO: International Association of Assessing Officers, 2017), page 1.

[3] See Schultz v. TM Florida-Ohio Realty Ltd Partnership, 577 So.2d 573 (Fla. 1991).

2.3.2 Purpose and Intended Use. The purpose of the annual valuation of real property is to produce just valuations of the unencumbered fee simple estate in real property, as of the date of assessment. The intended use of the annual just valuation of real property is to provide a basis for ad valorem taxation of real property according to Florida law, administrative rules, and regulatory activities. This annual just valuation of real property is not intended and should not be used for any other purpose.

2.3.3 Intended Users. The intended users of the annual real property valuation performed by property appraisers include: the real property taxpayers of each county; the Department, tax collectors, taxing authorities; and the Auditor General.

2.3.4 Date of Assessment. Section 192.042(1), F.S., requires property appraisers to assess all real property according to its just value "*on January 1 of each year*."

2.3.5 Comparison of Single-Property Appraisal and Mass Appraisal. "*Mass appraisal is the systematic appraisal of groups of properties as of a given date using standardized procedures and statistical testing. In contrast, single-property appraisal, or fee appraisal, is the valuation of a particular property as of a given date. The valuation steps in both approaches are similar, but market analysis and quality control are handled differently.*"[4] Single-property appraisal and mass appraisal are similar and follow a similar process; they differ primarily in scope and quality control. "*Both mass appraisal and single-property appraisal are exercises in applied economic analysis. They represent logical, systematic methods for collecting, analyzing, and processing data to produce intelligent, well-reasoned value estimates*."[5]

Both single-property appraisal and mass appraisal are used by property appraisers. "*Typically, mass appraisal is used to produce the initial values in a revaluation. Single-property appraisal can be used to defend assessed values on appeal and to appraise special-purpose properties not easily valued by mass appraisal. Both mass appraisal and single-property appraisal require market research. The principal differences are in scale and in the nature of quality control.*"[6]

Depending on the circumstances and available resources, property appraisers may use single-property appraisal techniques for individual properties. The methods and procedures in these guidelines are also generally applicable to single-property appraisal of real property for ad valorem tax purposes in Florida.

2.3.6 Education and Training of Assessment Personnel. Proper education and training of personnel involved in the real property mass appraisal process are essential to a reliable mass appraisal system. Ideally, training programs are:

- Tailored to the needs of the property appraiser's jurisdiction
- Designed for each function in the mass appraisal process
- Based on thorough knowledge of Florida ad valorem tax law and real property mass appraisal processes and procedures

USPAP's Standards Rule 5-1 clearly states the importance of education and training in order to produce credible mass appraisal valuation:

[4] International Association of Assessing Officers, *Property Assessment Valuation* (Kansas City, MO: International Association of Assessing Officers, 2010), page 403.

[5] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 7.

[6] Ibid, page 6.

> "*To keep abreast of […] changes and developments, the appraisal profession is constantly reviewing and revising 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*."[7]

Effective education and training for county management and staff are essential to an accurate and equitable mass appraisal process. Education and training should be appropriate and resulting knowledge and skills learned are used throughout the mass appraisal process. Education is accomplished primarily through courses offered by professional organizations. Training may be accomplished through seminars, in-house training, and on-the-job training. These guidelines may be part of an education and training program for county management and staff.

Section 195.002, F.S., states in part "*The supervision of the department shall consist primarily of aiding and assisting county officers in the assessing and collection functions, with particular emphasis on the more technical aspects. In this regard, the department shall conduct schools to upgrade assessment skills of both state and local assessment personnel*." The schedule of courses offered by the Department are available here: https://floridarevenue.com/property/Pages/Cofficial_Training.aspx.

[7] Appraisal Standards Board, *Uniform Standards of Professional Appraisal Practice* (Washington, DC: The Appraisal Foundation, 2024), page 35.

3.0 THE MASS APPRAISAL PROCESS IN FLORIDA

Definitions for these key mass appraisal terms are available in Addendum A:		
Ad valorem tax	Fee simple	Personal property
Assessment roll	Just value	Ratio study

3.1 Overview. These guidelines address the steps for an effective mass appraisal process for just valuations of real property in Florida. The steps are not necessarily done in the sequence given since many of these steps are ongoing and may be performed not only sequentially, but also concurrently and interactively.

3.2 Annual Just Valuation Cycle. Property appraisers have many deadlines and significant calendar requirements they must meet, several of which apply to operations other than the just valuation of real property. These guidelines describe the activities and timeframes involved in just valuation. This is a limited description provided as a brief overview, and users should not rely solely on it for regulatory compliance.

The assessment date, or date of value, is January 1. Real property assessment for ad valorem tax purposes in Florida is an annual process. The scope of the mass appraisal in any given year includes:

- Updating the just values of the previous year
- Producing just values for newly platted land, new construction, parcels with changes in land use regulations, new parcels resulting from splits and combinations, etc.
- Preparing and submitting assessment rolls to the Department
- Responding to study results, evaluations, procedures reviews, or report findings from the Department
- Preparing and mailing truth in millage (TRIM) notices to taxpayers
- Participating in value adjustment board (VAB) proceedings
- Communicating with interested parties, including taxpayers, taxing authorities, elected and appointed officials

The process of updating just values for existing parcels and producing just values for new parcels is an independent function of the property appraiser and staff. It includes collecting and managing data, qualifying or disqualifying real property transfers, discovering and classifying property, defining market areas, specifying and calibrating valuation models, applying adjustments to reflect market changes over time, and conducting ratio studies and other applicable analyses.

Property appraisers are required to prepare and submit assessment rolls to the Department several times a year and respond to study results, evaluations, procedures reviews, or report findings from the Department. The Department communicates these requirements and the standards for the evaluation of the tax rolls in the annual *Tax Roll Production, Submission and Evaluation Standards*. The standards are sent annually to property appraisers at the time of publication and are available online at this location: https://floridarevenue.com/property/Pages/Cofficial_CompleteSubRollEval.aspx

3.3 Identification of Real Property. The first step in the valuation process is to identify the real property, as defined by s. 192.001(12), F.S., to be assessed. Just valuations should exclude personal property, as defined in s.192.001(11), F.S.

The Department prescribes the parcel data required for the assessment rolls in the *Tax Roll Production, Submission and Evaluation Standards*. The real property assessment roll is comprised of the Name-Address-Legal (NAL) data file and the sale data file (SDF). The NAL has 92 data fields while the SDF has 14. Please refer to the *Tax Roll Production, Submission and Evaluation Standards* for the details of each field. Property appraisers must

determine if additional parcel data, beyond what is required by the Department for the real property assessment rolls, should be collected and maintained to credibly value the real property in the jurisdiction. A summary of the basic data requirements is provided here.

Each real property parcel in the county must have a unique parcel identification code. It should be based on a parcel coding system applied uniformly throughout the county. Additional parcel data includes physical property address, owner name(s) and mailing address(es), a legal description, geographic information (location, land features, and size), improvement details (type, age, size, quality, and condition), and other property characteristics.

The property appraiser must evaluate a property's use and assign a land use code for each parcel of real property (see section 6.1 of these guidelines). To foster credible valuation and accurate assessment, property appraisers may apply additional internal land use codes appropriate for the property types in the jurisdiction. If a parcel has two or more land uses, the assigned land use code should represent the parcel's predominant use.

3.4 Property Inspection. Section 193.023(2), F.S., requires property appraisers to inspect real property every five years. This statute allows property appraisers to use image technology in lieu of physical inspection where geographically suitable. The minimum technology standards for physical inspection are provided in the Department's annual *Tax Roll Production, Submission and Evaluation Standards*.

Property appraisers should inspect properties as frequently as necessary to produce accurate and credible valuations of real property. In the event of a natural disaster, the property appraiser should attempt to reinspect all affected parcels to document damage caused by the disaster as of January 1 and consider the impact it may have on the just value.

The Department performs data checks and random sampling to ensure property inspections are completed according to statute.

4.0 MASS APPRAISAL DATA

Definitions for these key mass appraisal data terms are available in Addendum A:

Arm's-length transaction	Market participants	Ratio study
Cadastral map	Measure of central tendency	Specific data
CAMA system	Qualified sale	Stratification
Data edit	Quality assurance	
General data	Quality control	

4.1 Overview of Mass Appraisal Data. All data used in the mass appraisal process must be as complete, accurate, and consistent as possible. The following excerpts emphasize both the relative and absolute importance of data collection, management, and quality control in the mass appraisal process.

> "*Quality control is critical; the data (must be) thoroughly edited and tested to ensure their consistency and accuracy before they are used for valuation. The quality of the available data, more than anything else, determines valuation accuracy and the effectiveness of the revaluation*."[8]
>
> "*The data management system is the heart of the mass appraisal system and should be carefully planned and designed. Quality control is vital because the accuracy of the values depends on the reliability of the data from which they were generated.*"[9]
>
> "*The quality of characteristics data, more than anything else, determines the reliability of values generated in the reappraisal. … A field canvass requires organization, planning, and close supervision. In-office preparation, selection and training of staff, entry and validation of collected data, and quality control should all be carefully planned*."[10]
>
> "*The findings of a ratio study can only be as accurate as the data used in the study.*"[11]

Assuring data completeness and accuracy should be an ongoing task in the mass appraisal process. It is the responsibility of all participants in the annual mass appraisal process to take all reasonable steps to verify and assure the completeness and accuracy of all applicable legal, physical, and economic data.

Awareness and understanding of the basic categories of mass appraisal data facilitates clear thinking, consistency, and quality control in the mass appraisal process. Three basic and interactive categories of mass appraisal data are legal, physical, and economic. Examples of legal data include zoning information, deeds, subdivision plats, and building permits. Examples of physical data include improvement type and size, parcel size, and neighborhood. Examples of economic data include costs, sale prices, rents, and operating expenses.

Data is vital to the assessment responsibilities of property appraisers. The property appraiser should take steps to secure and protect data from theft, corruption, damage from catastrophic events, and loss of access during emergency situations. Preventative measures and solutions may include cloud storage, remote access abilities,

[8] International Association of Assessing Officers, *Property Assessment Valuation, Third Edition* (Kansas City, MO: International Association of Assessing Officers, 2010), page 408.
[9] Ibid, pages 405-406.
[10] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), pages 55, 57-58.
[11] International Association of Assessing Officers, *Standard on Ratio Studies* (Kansas City, MO: International Association of Assessing Officers, 2013), page 9.

insurance, and well-developed back-up procedures and strategies. Additionally, steps must be taken to ensure computer-assisted mass appraisal (CAMA) system software is stable, reliable and data is accessible.

4.2 Data Collection and Management. Data collection and management are the most expensive and time-consuming part of the mass appraisal process. Property appraisers should carefully determine what data to collect and how to manage the data. The considerations for making these decisions may include:

- The number and type of real property parcels involved
- The quality and quantity of available data
- The quality and quantity of available resources
- The requirements of the valuation approach(es) used
- The capabilities of the CAMA system used
- Florida ad valorem tax law

4.3 General Data. General data useful for the real property mass appraisal process may include: articles from local news publications; economic reports; planning information; and real property market reports. These sources may contain information such as:

- Proposed developments
- Proposed changes in zoning or land uses
- Demolitions of real property
- Real property rentals, vacancies, listings, and sales
- Information on real property expenses
- Market and neighborhood trends
- Market participants' perceptions, expectations, and preferences

General data may not always be applied directly in the appraisal process, but it is helpful to be aware of the information, as it can affect the perceptions and expectations of market participants. It is important to consider that these sources may sometimes contain incomplete or inaccurate information for appraisal purposes, but still provide useful leads for additional research.

4.4 Specific Data. One or more categories of specific data may not apply to a particular group of property. Categories of specific real property appraisal data include:

- Title transfer documents
- Cadastral mapping data
- Aerial photography
- Regulatory data
- Physical characteristics
- Cost and depreciation data
- Sale data
- Income data

4.4.1 Title Transfer Documents. To maintain accurate ownership and other basic information on real property parcels such as addresses, legal descriptions, and assessment maps, property appraisers must continually collect source documents transferring title to real property. These documents may also provide information on real property sales (see section 4.4.7 of these guidelines). Title transfer documents primarily include deeds but may also include other types of documents such as articles of agreement, judgments, and certificates of title. The primary source for these documents is the clerk's office in each county. The clerk's office is responsible for

recording and maintaining public records. Property appraisers should facilitate the timely receipt of all recorded documents pertaining to real property transfers, as well as all orders of taking. The information from title transfer documents should be processed completely, accurately, and timely.

4.4.2 Cadastral Mapping Data. Rule 12D-1.009, F.A.C., requires each property appraiser to maintain property ownership maps (cadastral maps). Cadastral maps should show the legal description boundary, parcel identifier, and related information on each parcel of real property in the county for assessment purposes. These maps should also show items such as roads, streets, and major bodies of water.

The primary sources of information used to produce cadastral maps are title transfer documents, survey books, and recorded subdivision plats. The cadastral mapping process should be designed to meet the needs of end-users such as field staff and appraisal analysts.

Property appraisers should facilitate the timely receipt and processing of all documents and information required to maintain complete, accurate cadastral maps in accordance with the *Florida Cadastral Mapping Guidelines* (located here: floridarevenue.com/property/Pages/Cofficial_GIS.aspx) and rule 12D-1.009, F.A.C.

The Department annually reviews GIS/mapping data, which is due by April 1 each year. Property appraisers should have an established and continuous quality control process to effectively resolve errors, omissions, and other problems that may arise during the ongoing maintenance of cadastral maps.

4.4.3 Aerial Photography. Rule 12D-1.009, F.A.C., requires each property appraiser to maintain aerial photography suitable for assessment needs. Aerial photography is used to ensure that all real property is listed on assessment rolls. Section 195.022, F.S., requires the Department to furnish aerial photography to property appraisers at least once every three years. Some counties opt to obtain aerial photography from private vendors. Aerial photography from other sources must meet the standards published in the *Florida County Digital Orthoimagery Program Standards* (located here: floridarevenue.com/property/Pages/Cofficial_GIS.aspx).

Aerial photography is useful for locating and analyzing real property, especially vacant land. Additionally, it can be used to identify previously undiscovered improved property by comparing recent photographs with those of a prior period. For field inspections and appraisal research, it is helpful to have aerial photographs accurately overlaid with cadastral maps.

When real property is damaged due to disaster, aerial photography may be helpful to identify areas requiring reinspection to document damage caused by the disaster (see section 3.4 of these guidelines).

4.4.4 Regulatory Data. County or municipal agencies are the primary sources for regulatory data. Property appraisers should work with local government agencies to ensure the timely receipt of all regulatory data required by law, regulations, and the annual real property appraisal process. Property appraisers should establish office procedures that ensure all relevant regulatory data is processed completely, accurately, and timely.

Regulatory data relevant to mass appraisal include:

- Building permits and plans (new construction and renovation)
- Development plans and maps
- Demolition permits
- Current zoning ordinances and maps
- Current future land use elements and maps
- Annexations
- Flood zones and maps

4.4.5 Physical Characteristics. Property appraisers must collect and maintain data on certain physical characteristics of all real property to ensure credible valuations in the county. Data on the physical characteristics of real property may be evident in title transfer documents, cadastral maps, aerial photography, and building plans or other regulatory data sources, as discussed above. However, the primary source for physical characteristics is property inspection which is statutorily required every 5 years (see section 3.4 of these guidelines). Other sources, which would require verification, are marketing materials, multiple listing services, and owner-reported details.

The annual *Tax Roll Production, Submission and Evaluation Standards* document provides details for the minimum data on physical characteristics that must be included on the real property assessment rolls. Property appraisers may collect and consider additional land and building characteristics in the mass appraisal process. Property appraisers must determine what physical characteristics, beyond the minimum requirements, should be collected and managed in order to produce credible valuations for each property type and/or market area.

4.4.6 Cost and Depreciation Data. Cost and depreciation data for improved real property is necessary for the cost approach (see section 6.4 of these guidelines). Cost and depreciation data is collected during field inspection of the property and similar properties. Other sources may include published cost manuals, market-adjusted base rates, and other costs developed from sales ratio studies, and recent, actual, and verified cost data from local contractors and developers.

Cost data should be current and include all direct and indirect costs of construction, including reasonable contractor's profit and developer's profit. Cost data should be collected, analyzed, and considered annually. In CAMA systems, replacement costs for real property are directly impacted by the physical characteristics collected by field staff since applied costs vary with the real property type and construction grade (as recorded by field staff).

Depreciation data for mass appraisal may be in the form of depreciation tables applicable to a property group or may be specific to individual property. However, property appraisers should collect and retain documentation to justify any depreciation separately applied to individual property. Sources for depreciation data may include published manuals and market-based depreciation developed from sales ratio studies or other appraisal analyses. Depreciation tables from published manuals may be tested for reasonableness using any available local market data. In CAMA systems, depreciation rates applied to real property are directly impacted by the property characteristics collected by field staff, since applied depreciation varies with the effective age or effective year built (as recorded by field staff).

4.4.7 Sale Data. Sale data are the legal, physical, and economic characteristics of real property parcels that have sold and of the corresponding sale transactions, as of the date of sale. Sale data are used throughout the administrative and mass appraisal processes and systems in a property appraiser's office. Sale data may be used in:

- All three approaches to value (see sections 6.4, 6.5, and 6.6 of these guidelines)
- Sales ratio studies for mass appraisal planning and quality assurance (see section 5.8 and Addendum D of these guidelines)
- Explaining real property values to taxpayers
- Defending values in quasi-judicial and judicial proceedings

Title transfer documents recorded with a county clerk of court are the primary source of sale data for property appraisers. Sale data are also an integral part of the assessment roll evaluation function of the Department.

Property appraisers may conduct additional sale data collection activities such as:

- Physically inspecting properties that have sold
- Researching multiple listing services
- Interviewing market participants
- Obtaining sale verification data directly from buyers and/or sellers

Complete, accurate, and timely processing of sale data are part of assessment administration and the mass appraisal process.

The following table provides relevant information regarding collecting and managing sale data.

Arm's-Length Activity/Sale Qualification: The property appraiser should make an informed determination whether each sale was an arm's-length transaction and whether the sale was for vacant land or improved property. Unless a property appraiser finds a sale was not conducted at arm's-length, the property appraiser may presume that the sale prices, which the documentary stamps on deeds indicate, are prima facie evidence of the just value of the sold property.[12] "*The position should be taken that all sales are candidates as valid sales unless sufficient information can be documented to show otherwise. If sales are excluded for ratio studies without substantiation, the study may appear to be subjective*."[13] Section 195.0995, F.S., requires property appraisers to properly qualify or disqualify sale transactions and to document the reason for any disqualification in a manner prescribed by the Department. Section 193.114(2)(n), F.S., requires property appraisers to record their determination of whether a sale was arm's-length within 3 months, stating, in part: "*A decision qualifying or disqualifying a transfer of property as an arms-length transaction must be recorded on the assessment roll within 3 months after the date that the deed or other transfer instrument is recorded or otherwise discovered. If, subsequent to the initial decision qualifying or disqualifying a transfer of property, the property appraiser obtains information indicating that the initial decision should be changed, the property appraiser may change the qualification decision and, if so, must document the reason for the change in a manner acceptable to the executive director or the executive director's designee. Sale or transfer data must be current on all tax rolls submitted to the department. As used in this paragraph, the term "ownership transfer date" means the date that the deed or other transfer instrument is signed and notarized or otherwise executed*."
Assessment Roll Requirements: Section 193.114(2)(n), F.S., requires property appraisers to include sale data on their tax roll, specifying "*for each deed or other instrument transferring ownership of real property and recorded or otherwise discovered during the period beginning 1 year before the assessment date and up to the date the assessment roll is submitted to the department*." In addition to the sale-specific real property assessment roll requirements detailed in that section, the Department provides property appraisers with specific reporting requirements for sale data in the annual *Tax Roll Production, Submission and Evaluation Standards* (as allowed under s. 193.1142(1)(b), F.S.). The standards describe the requirements for the Sale Data File (SDF) and include the list of prescribed real property transfer (qualification) codes and their corresponding descriptions for qualifying or disqualifying sales. During the processing and qualification of sale data, property appraisers may use other coding schemes but must translate them to the Department's prescribed coding system on the SDF the property appraiser submits to the Department. The property appraiser's coding system may be useful for accountability and quality control in sale data management.

[12] See Southern Bell Telephone and Telegraph Company v. County of Dade, 275 So.2d 4 (Fla. 1973).

[13] International Association of Assessing Officers, *Standard on Verification and Adjustment of Sales* (Kansas City, MO: International Association of Assessing Officers, 2020), page 12.

Sale History: A separate sale file, preferably computerized, for each sale transaction should be retained to preserve, as of the date of sale, the relevant legal, physical, and economic characteristics of both the sold property and the sale transaction.[14] This may help to ensure that the parcel and sale characteristics are maintained and available for appraisal analysis.
Parcel Changes After Sale: Property appraisers must ensure that sales of parcels that change prior to the date of assessment are properly identified. Changes include parcel splits, combines, new construction, deletion, disaster, remodel/renovation, and legal characteristics (zoning changes for example). Such sales, if determined to be arm's length, are not appropriate for ratio studies.[15] Field inspections and review of regulatory data are helpful in identifying these changes. Addendum C, *Managing Sale Data for Parcels that Change*, provides guidance for property appraisers to consider.
Multiparcel Sales: Property appraisers must ensure that sales involving multiple parcels are properly identified. Such sales, if determined to be arm's-length, are not appropriate for sales ratio studies because of the technical difficulty in matching the relevant legal, physical, and economic characteristics of all sold parcels with those of the assessed parcels. For these reasons, the Department excludes all multiple parcel sales from ratio studies. However, these sales may be arm's-length and useful to property appraisers for valuation purposes and for explaining just values, and these sales should be preserved for such uses.

4.4.8 Income Data. Income data is necessary for the income approach (see section 6.6 of these guidelines). This data may include rent income, vacancy and collection loss, operating expenses, capitalization rates, and income multipliers. Commercial property owners and managers are good sources for rent income, vacancy and collection rates, and operating expenses. Property appraisers should actively solicit this information through direct contact and surveys. The collection of capitalization rates and income multipliers generally requires research and verification of sales of income-producing property.

Cooperative responses from property owners and their agents are essential to the equitable and fair administration of ad valorem property tax for all taxpayers. Property appraisers and the Department must keep certain types of information from property owners confidential.

Section 195.027(3), F.S., states in part:

> "*The property appraiser, the Department of Revenue, and the Auditor General shall be able to obtain access, where necessary, to financial records relating to nonhomestead property which records are required to make a determination of the proper assessment as to the particular property in question. Access to a taxpayer's records shall be provided only in those instances in which it is determined that such records are necessary to determine either the classification or the value of the taxable nonhomestead property. Access shall be provided only to those records which pertain to the property physically located in the taxing county as of January 1 of each year and to the income from such property generated in the taxing county for the year in which a proper assessment is made. All records produced by the taxpayer under this subsection shall be deemed to be confidential in the hands of the property appraiser, the department, the tax collector, and the Auditor General and shall not be divulged to any person, firm, or corporation, except upon court order or order of an administrative body having quasi-judicial powers in ad valorem tax matters, and such records are exempt from the provisions of s. 119.07(1)*."

[14] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), pages 82-83.

[15] International Association of Assessing Officers, *Standard on Ratio Studies* (Kansas City, MO: International Association of Assessing Officers, 2013), page 9.

When sufficient income capitalization data are available, the property appraiser may create a database and organize the data into similar property groups for reference and analysis. These income capitalization data should be reviewed for completeness, accuracy, and consistency, and then reconciled within and among property groups. The reconciliation process is necessary because the information from the various sources may be unclear, incomplete, inaccurate, inapplicable, or unreasonable. Available income capitalization data should be reviewed and updated each year as applicable.

4.5 Quality Control for Data Collection and Management. Quality control is an ongoing task and should be a part of all considerations and communications relating to mass appraisal data. Accurate coding of mass appraisal data is a crucial part of effective stratification of real property in a county. Coding means to assign a unique identifier to major characteristics of real property such as property use, geographic unit, construction quality grade, and effective age. Coding schemes should be both exhaustive and mutually exclusive. The coding of real property begins with inspecting, classifying, and coding the use of real property for valuation purposes.

Data completeness, accuracy, and consistency at all levels of the mass appraisal organization require constant attention. The property appraiser's office should have continuous, collaborative feedback mechanisms among departments, teams, individuals, and management and staff. This cooperation can address problems and implement corrective actions as needed. Specific items that property appraisers may implement to assure quality control of mass appraisal data include:

- Data collection manuals
- Education and training for management and staff
- Internal procedural reviews
- Internal quality audits
- Data entry edits within CAMA systems
- Data edit reports within CAMA systems
- Exploratory data analysis

4.5.1 Data Collection Manuals. A data collection manual, maintained by each county property appraiser office, is a well-documented manual describing in detail all aspects of collecting and coding data on physical characteristics of improved real property. It is a useful tool that provides a readily available reference for staff on items such as: field conduct; collection and measurement methods; how to determine qualitative measurements such as construction grade, condition, effective year built, and effective age; and how to apply accurate and consistent coding of property characteristics. The manual should explain available codes for various property types and building features and how to properly choose among them. Data collection manuals should be current, complete, clearly written, and well-illustrated with examples and photographs of construction grades and building features for each property type.

4.5.2 Education and Training for Management and Staff. Management and staff should understand how the data are used in the mass appraisal process and why the data should be collected and maintained in a specified way. Relevant education and training are important for management and staff involved in data collection and analysis (see section 2.3.6 of these guidelines). The data collection manual may be the primary training tool for management and staff involved in field data collection. Training for field data collection should include training in the classroom, in the field, and on-the-job.

4.5.3 Internal Procedural Reviews. It may be helpful to implement quality control teams selected from management and staff to review cross-functional processes and procedures to ensure the complete, accurate, and consistent collection and management of mass appraisal data.

4.5.4 Internal Quality Audits. Internal quality audits should be a part of every mass appraisal system, especially for field data collection. The audit should implement procedures specified in the data collection manual and any other supporting documentation. If performed consistently, supervisory review may also serve this function. Training programs may address recurring opportunities for improvement that the audits identify.

4.5.5 Data Entry Edits Within CAMA Systems. Programmed data entry edits within CAMA systems may help to prevent entering erroneous data. Programmed edits should prohibit entering invalid data into CAMA systems. Edits should question and not accept unusual data on the first entry attempt and should require manual override by the person entering the data. Examples of programmed data entry edits within CAMA systems may include: hard edits; soft edits; exception edits; range edits; consistency edits; datatype edits; value or table edits; cross edits; and check digits.[16]

4.5.6 Data Edit Reports Within CAMA Systems. After mass appraisal data are entered into the CAMA system, programmed data edit reports may be produced to identify and list any missing, unusual, inaccurate, or inconsistent data, which should be corrected. These reports may be useful tools for ensuring the accuracy and consistency of a mass appraisal database.

4.5.7 Exploratory Data Analysis. Exploratory data analysis may be useful for discovering potential problems in a mass appraisal database (see section 4.7 of these guidelines).

4.6 Geographic Stratification. Section 193.114(2)(I), F.S., requires property appraisers to have a market area code on each real property parcel on the assessment roll. Assigning a market area code is known as geographic stratification. Geographic stratification means to divide, or stratify, the real property parcels within a county into groups, or strata, based on geographic influences. Terms that describe these influences may include market areas, sub-market areas, neighborhoods, and corridors. Collectively, these terms are known as geographic units. Geographic stratification is a useful part of a mass appraisal system.

In these guidelines, geographic stratification is discussed in the context of mass appraisal, which may be somewhat different from the discussions of market areas and neighborhoods found in single-property appraisals. Single property appraisers are concerned with the time-distance relationships, or linkages, between different types of real property. Mass appraisers are more concerned with geographically stratifying groups of real property to allow more detailed analysis of specific property groups.

Market areas are generally the first level of geographic stratification. Other levels may include sub-market areas and neighborhoods. A corridor is a geographic unit that may be applied to situations such as all commercial property located along a major street. The *Florida Uniform Market Area Guidelines* (which can be found here: https://floridarevenue.com/property/Pages/Cofficial_MOI.aspx) address the question of whether different types or similar types of real property should comprise geographic units.

Depending on the situation, geographic unit boundaries may be based on natural features, man-made features, or legal boundaries. Examples of natural boundaries may include rivers and oceans. Examples of man-made boundaries may include: major streets; expressways; subdivisions; canals; changes in real property type; and changes in real property construction quality. Examples of legal boundaries may include future land use classifications, zoning classifications, city limits, and county lines. The considerations for determining geographic unit boundaries may vary by the property types within the geographic unit.

[16] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), pages 42-44.

Geographic stratification may have multiple uses in the mass appraisal process. These uses may include:

- Creating modeling areas, independent locational variables, or analysis units for mass appraisal applications
- Creating specific property groups for quality assurance activities such as sales ratio studies and evaluating assessment performance for unsold properties
- Providing a useful criterion for appraisal research
- Serving as a work allocation tool for mass appraisal field operations

4.7 Exploratory Data Analysis. Exploratory data analysis means to analyze the mass appraisal data, which has already been collected, coded, and computerized, in order to identify and understand:

- The number, type, and classifications of parcels within real property groups
- The legal, physical, and economic characteristics within real property groups
- The tendencies and relationships within and among real property groups

The following excerpt describes the importance of data analysis for ratio studies, one of the most important mass appraisal tools.

> "*The type of properties, market conditions, and composition of the population in terms of age, size, value range, and so forth are essential to the proper design of the study and interpreting the results*."[17]

The analysis of mass appraisal data will help to facilitate the application of professionally accepted appraisal practices and appropriate methodologies in the mass appraisal process.

The application of the analysis techniques in this section may vary significantly based on factors such as the number of real property parcels of each type, the availability of market data, and the availability of resources. The efficient application of these analytical tools requires adequate technical resources, adequate computer skills, and mass appraisal knowledge. These analyses may be programmed and performed within CAMA systems, or the mass appraisal data may be downloaded from CAMA systems and analyzed using spreadsheet or statistical software. Not all analytical methods presented here will apply in a particular situation.

The complete, accurate, and consistent coding of the factors having the most influence on the value of real property allows useful stratification, which is required for effective exploratory data analysis. Stratification yields property groups with one or more shared characteristics that are useful for data analysis.

Exploratory data analysis may be helpful for a variety of uses in the mass appraisal process. Some of these uses may include:

- Facilitating the accurate and efficient design and interpretation of sales ratio studies
- Developing indicators for items such as property type, quality grade, size, age, unit rents, unit expenses, unit prices, and unit values within real property strata as training and research references for management and staff involved in data collection, sale analysis, valuation analysis, and quality assurance activities
- Determining typical combinations of property characteristics within strata to use as references for training, research, and data cleaning
- Revealing characteristics of a property population for comparison with a sample's (e.g., sold properties) characteristics to help determine the degree of representativeness for appraisal analysis

[17] International Association of Assessing Officers, *Standard on Ratio Studies* (Kansas City, MO: International Association of Assessing Officers, 2013), page 10.

- Facilitating an understanding of local real property inventory and market tendencies, and provide a basis for applying professionally accepted appraisal practices and appropriate appraisal methodologies in the mass appraisal process

The tools available for analyzing mass appraisal data within properly stratified real property groups may include measures of central tendency, measures of dispersion, and one- or two-variable profiles, charts, and graphs.

4.7.1 Measures of Central Tendency. Measures of central tendency may be calculated for items such as building size, building age or year built, quality grade, land size, price per square foot, price per acre, price per lot, rent per square foot, and operating expenses per square foot. The three common measures of central tendency are the mean, median, and mode.[18] Comparing measures of central tendency among real property strata may clarify market tendencies.

4.7.2 Measures of Dispersion. Measures of dispersion, also called measures of spread, are descriptive statistics that generally reflect the degree of dispersion or variation within a data set. These indicators may also be calculated for items such as building size, building age or year built, quality grade, land size, price per square foot, price per acre, price per lot, rent per square foot, and operating expenses per square foot. Measures of dispersion for mass appraisal may include ranges, quartiles, percentiles, average deviations, coefficients of dispersion (COD), standard deviations, and coefficients of variation.[19] Comparing measures of dispersion among real property strata may clarify market tendencies.

4.7.3 One-Variable Profiles, Charts, and Graphs. These analytical tools include arrays, frequency distributions, bar charts, pie charts, and histograms.[20] They visually depict the data set for a single variable such as building size or price per square foot. For some, these tools may provide a more useful graphic depiction of a data set's dispersion than relying solely on the numeric measures of central tendency and dispersion.

4.7.4 Two-Variable Profiles, Charts, and Graphs These analytical tools include cross tabulations, box plots, scatter plots, and line charts.[21] They may be useful for analyzing the relationship between two variables.

[18] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 111-113.
[19] Ibid, pages 115-121.
[20] Ibid, pages 121-126.
[21] Ibid, pages 126-133.

5.0 QUALITY ASSURANCE FOR MASS APPRAISAL

Definitions for these key mass appraisal data terms are available in Addendum A:

Coefficient of Dispersion (COD)	Model calibration	Reconciliation
Data edit	Price-related differential (PRD)	Sales ratio study
Just value	Quality assurance	Spatial analysis/Thematic maps
Level of assessment (LOA)	Real property	Stratification
Mass appraisal		

5.1 Quality Assurance Overview. The mass appraisal quality assurance process may involve:

- Valuation planning
- Organization and communication
- Personnel management
- Education and training
- Data collection and management
- Valuation edits, data edits, and reviews
- Sales ratio studies
- Model calibration
- Value reconciliation
- Just value comparison
- Taxpayer communication and value appeals

Professionally accepted appraisal practices and appropriate appraisal methodologies are required throughout the quality assurance process.

5.2 Valuation Planning. Valuation planning is part of quality assurance for the annual real property mass appraisal process. It helps to determine the scope of the required appraisal activities for the annual appraisal cycle. Valuation planning also helps to determine the resources needed, and to prioritize and maximize the use of limited resources. Property appraisers must have the resources necessary for compliance with Florida ad valorem law and should plan accordingly. Valuation planning is useful as a way of meeting regulatory deadlines and other time sensitive requirements for the annual production of real property assessment rolls. Project management tools and methods may be useful for valuation planning. A sales ratio study may be part of valuation planning (see section 5.8 below). In addition to sales ratio studies, other market research and analysis may be required to determine the appropriate scope of appraisal for properly stratified real property groups. Once the scope is determined, value changes should be made to all property affected by the factor causing the need for the change, not to individual properties that may appear on a sales ratio study.

5.3 Organization and Communication. A well-run organization is key to assuring the assessment activities produce credible results. As the lead manager, the property appraiser is responsible for the overall organization of the office and assessment activities including proper planning, budgeting, organizing, and procedure control within the assessment office. Effective internal communication systems among departments or functional units in a property appraiser's office may reveal specific data or appraisal items requiring attention. Effective communication between valuation staff and CAMA system staff is especially important.

5.4 Personnel Management. Important aspects of personnel management that may affect the quality and credibility of assessments include: establishing and maintaining a productive and efficient organizational structure; hiring, training, motivating, and retaining effective staff; clearly defining staff roles and responsibilities;

documenting procedures. Communication and delegation are also key aspects of personnel management. As the lead manager, the property appraiser is responsible for ensuring assessment office personnel perform effectively and efficiently.

5.5 Education and Training. Education and training are essential in the mass appraisal process and to ensure credible mass appraisal valuations that are fair and equitable. As the lead manager, the property appraiser is responsible for ensuring assessment staff are adequately trained and resources are available for continuing education. See sections 2.3.6 and 4.5.2 of these guidelines for more information on education and training.

5.6 Data Collection and Management. Section 4.0 of these guidelines describes systems and processes for collecting and managing complete, accurate, and consistent data essential to the Florida mass appraisal process. The data is the most important component of an effective mass appraisal system. Evaluating the quality of mass appraisal data collection and management is the first of two steps in evaluating whether a mass appraisal process is effective. A detailed discussion of quality control for mass appraisal data is in section 4.5 of these guidelines. The second step is evaluating whether the just valuations of real property derived from the mass appraisal data comply with Florida ad valorem tax law. Valuation edits, data edits, data reviews, sales ratio studies, and model calibration are tools to evaluate the just valuations of real property (see sections 5.7, 5.8, and 5.9 of these guidelines).

5.7 Valuation Edits, Data Edits, and Reviews. Valuation and data edits are programmed reports that may be produced in CAMA systems. Designing valuation and data edits involves two primary considerations. The first is to determine the criteria for selecting the properties to appear on the report, and the second is to select the data fields and calculations to appear on the report. Valuation edits may show just values and unit just values for real property. These reports allow the user to identify any unusual just value indications such as extremely high or low values, extremely high or low unit values, or unusually high or low changes in value, both in dollar terms and percentage terms. Any parcels with unusual indications may need further review for valuation accuracy and reasonableness, and either validated or corrected. Data edits can identify incorrect or inconsistent information.

Desk reviews may include reviews of valuation and data quality/quantity edits as well as other reviews. As tests of reasonableness, other desk review activities may include calculating measures of central tendency and dispersion for just values and unit just values in properly stratified real property groups, and then comparing these to the same measures for the prices and unit prices of the sold properties in the corresponding real property groups. These measures may be compared for reasonableness and consistency using relative comparison analysis.

Field review may involve physically inspecting individual properties or samples in real property groups with any unusual just value indications, and then updating the CAMA system if the inspection reveals any errors in the property characteristics, change of property use, or shift in market area or geographic stratification. Appraisal staff should make updates to all affected properties, not just to individual properties that may appear on a sales ratio study.

5.8 Sales Ratio Studies. Sales ratio studies are useful planning tools and are commonly used quality assurance tools for the mass appraisal process.

As a planning tool, a sales ratio study may not provide complete information on the appropriate scope of appraisal activities in each year; additional market research and analysis may be required. Sales ratio studies for planning purposes may begin with using sales that occurred during the 12-month period immediately preceding the January 1 date of assessment. Initially, sales ratio studies may be run by groups of real property use codes, sorted by sales ratio, and then analyzed to identify any correlation between high or low ratios and other major property characteristics such as property use code, geographic unit, or size. To obtain more information on the

assessment project's required scope, more detailed studies may be conducted based on any specific identified trends. To increase sample size for a particular analysis, these detailed studies may include sales that occurred more than 12 months before the date of assessment. In cases with no specific identified trends between high or low sales ratios and property characteristics, more detailed research and analysis of each sale and the corresponding sold property may be required.

Sales ratio studies may be useful for several quality assurance aspects of the mass appraisal process: monitoring the appraisal work of teams or individuals; evaluating appraisal level and uniformity; and proactively evaluating regulatory compliance.

During the assessment roll evaluation process, the Department performs certain statistical analyses on applicable statutory real property strata. Relevant to these guidelines are three statistical indicators the Department calculates: the level of assessment (LOA), the COD, and the price-related differential (PRD). The annual *Tax Roll Preparation, Submission and Evaluation Standards* publication contains details for the Department's standards for these indicators (also see Addendum D).

For quality assurance and to proactively evaluate regulatory compliance, property appraisers may also perform these statistical analyses. The Department may also use other statistical indicators in the assessment roll evaluation process. Whether for a planning tool or quality assurance tool, sales ratios may be expressed as percentages. Sales ratio studies may be programmed and performed in CAMA systems, or the mass appraisal data may be downloaded from CAMA systems and the sales ratio studies performed using spreadsheet or statistical software.

There are two primary considerations for designing sales ratio studies for mass appraisal planning or quality assurance purposes. The first is to determine the criteria for selecting which sales appear on the report, and the other is to select which data fields appear on the report.

Addendum D provides an index of topics that property appraisers should consider in preparing for or analyzing results of a sales ratio study. These include:

- Selective reappraisal
- Parcel changes
- Stratification
- Measures of appraisal level
- Adjustment for the eighth criterion
- Adjustment for market changes over time
- LOA
- Appraisal uniformity
- Appraisal equity
- Graphic displays
- Spatial analysis/thematic maps

5.9 Model Calibration. "*Model calibration is the process of adjusting mass appraisal formulas, tables, and schedules to the current market. During model calibration, the relationships are quantified, that is, the coefficient (as an amount or percentage adjustment) for each independent variable is determined, for example, dollars per square foot of living area*."[22] Property appraisers should analyze sales ratio study results to determine

[22] International Association of Assessing Officers, *Property Assessment Valuation* (Kansas City, MO: International Association of Assessing Officers, 2010), page 415.

appropriate adjustments for model calibration. Spatial analysis and thematic maps are useful model calibration tools. See Addendum D.

5.10 Value Reconciliation. "*In mass appraisal, reconciliation involves a determination of which valuation approach or method to emphasize for a given group of properties, for example, a market area or neighborhood*."[23] "*In general, the approach rooted in the best market evidence and requiring the fewest assumptions is the most reliable*."[24] In reaching a final conclusion of just value, the factors for consideration may include: the quality and quantity of the data used in each approach; the applicability of each approach used; and the approach or reconciliation that produces the best indicators of appraisal performance. Property appraisers should use professionally accepted appraisal practices and appropriate appraisal methodologies when completing reconciliation.

5.11 Just Value Comparison. Sales ratio studies evaluate appraisal performance for sold property. For quality assurance purposes, evaluating appraisal performance for unsold property is helpful. Two practical types of analysis for this evaluation are percent change in just value methods and the unit just value method. The reports may be designed to reflect just value changes from the prior year to the current year for specified groups of real property or for individual properties.

The percent change in value method may have variants for evaluating appraisal performance for unsold properties. One variant involves listing all real property parcels in a properly stratified group, including just values for the current and prior years for all parcels and sale prices for any sold parcels, and calculating the percent change in just value for each parcel. The property appraiser may review these just value percent change indicators for consistency, reasonableness, and validity. The property appraiser may analyze these data sets for significant differences in value changes between sold and unsold property. Any differences or any extreme changes in value may require further research to validate or correct. Another variant of this method involves comparing the average percent change in just value between the sold and unsold subgroups of properly stratified real property groups. Any significant differences in the percent changes in value between the sold and unsold subgroups may require further research to validate or correct.

The unit just value method requires use of the appropriate just value unit of comparison for the property type under analysis. It involves comparing the average unit just values for unsold parcels in properly stratified property groups with those of sold parcels in the same groups. If sold and unsold properties are valued equitably, their average unit values should be similar, other factors held constant. Any significant differences between the average unit just values of sold property and those of unsold property may require further research to validate or correct.

5.12 Taxpayer Communication and Value Appeals. Taxpayers' responses to valuation and assessment are part of the mass appraisal quality assurance process. Property appraisers and their staff should be open to taxpayer communication. Informal inquiries, petitions filed with the county VAB, and litigation are avenues for taxpayers to communicate. Depending on the time of year, informal inquiries may be the preferred form of receiving and responding to taxpayer feedback.

During the 30 to 40-day period after taxpayers receive truth-in-millage (TRIM) notices, property appraisers may receive very high volumes of taxpayer inquiries regarding just values. This is an opportunity for taxpayers to ask

[23] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 13.
[24] Ibid, page 194.

questions, express concerns, and provide verifiable information regarding the preliminary just valuation of real property.

Value Adjustment Board hearings typically begin a few weeks after TRIM notices are mailed. These hearings are another opportunity for taxpayers to express concerns and provide verifiable evidence in support of changes to preliminary just values.

6.0 MASS APPRAISAL VALUATION

Definitions for these key mass appraisal valuation terms are available in Addendum A:

Actual age	Fee simple	Market participants
Contract rent	Functional obsolescence	Model specification
Deferred maintenance	Gross income multiplier (GIM)	Multiple regression analysis (MRA)
Direct capitalization	Highest and best use	Physical deterioration
Effective age	Just value	Replacement cost new (RCN)
External obsolescence	Market rent	Yield capitalization

6.1 Highest and Best Use. Florida ad valorem tax law guides the scope of highest and best use analysis in the just valuation of real property for ad valorem tax purposes. For just valuation purposes in Florida, present use means the real property's existing use as of the date of assessment. As specified in s. 193.011(2), F.S., the highest and best use and the present use of real property comprise the second of the eight factors property appraisers must consider in determining just value of real property. Specifically, this statute states: "*The highest and best use to which the property can be expected to be put in the immediate future and the present use of the property, taking into consideration the legally permissible use of the property, including any applicable judicial limitation, local or state land use regulation, or historic preservation ordinance, and any zoning changes, concurrency requirements, and permits necessary to achieve the highest and best use, and considering any moratorium imposed …*".

The data collection and management activities described in these guidelines are the primary mechanisms by which the property appraiser considers the real property's present use. Assigning the use code to real property is the first step in valuation. The Department's annual *Tax Roll Production, Submission and Evaluation Standards* includes the list of land use codes and descriptions. Property use codes applied to each real property parcel on the assessment roll should reflect the real property's present, or current use. Unless a change in highest and best use is reasonably probable in the immediate future, the present use may represent the highest and best use of real property. In that case, the highest and best use consideration may be obvious and require no further research or analysis. In other cases, the present use may not be the highest and best use. For example, if a property is subject to a below-market lease, the present use should be disregarded since it is not the highest and best use of the unencumbered fee simple estate.

There are four sequential tests for highest and best use considerations.[25] These tests involve consideration of the legally permissible uses, physically possible uses, financially feasible uses, and maximally productive uses within real property groups. Consideration of these four tests is reflected in the property appraiser's annual real property mass appraisal activities. These activities include data collection and management, geographic stratification, exploratory data analysis, application of professionally accepted appraisal practices and appropriate appraisal methodologies, highest and best use considerations, and compliance with current Florida ad valorem tax law. When applied to appraisals for some private sector purposes, the third and fourth tests may involve in-depth market and/or feasibility studies. These studies are beyond the scope of highest and best use considerations required for mass appraisal in accordance with Florida ad valorem tax law.

Highest and best use may shift as a result of changes in zoning and future land use classifications, new subdivisions, improvements to infrastructure, new construction, substantial renovation, demolition, sales, and rentals. These changes may be observed directly through field inspection of real property, or indirectly by reviewing permits, ordinances, and market transactions and tendencies. Mapping these types of changes may

[25] International Association of Assessing Officers, *Property Assessment Valuation, Third Edition* (Kansas City, MO: International Association of Assessing Officers, 2010), pages 29-30.

enhance research and analysis. Because this type of research and analysis is directly focused on the observed behavior of market participants, it is a useful method for considering the highest and best use "*in the immediate future*" as required by s. 193.011(2), F.S.

Highest and best use may change within real property groups. Changes occurring in one area may influence the just value or highest and best use of real property in nearby areas. Typically, many changes in just value occur without resulting in changes in highest and best use. Changes in the legal or actual use may reveal changes in the highest and best use of real property.

6.2 Overview of Valuation Approaches. There are three approaches to the valuation of real property:

- The cost less depreciation approach
- The sales comparison approach
- The income capitalization approach

Each of these three approaches has variants, depending in part on whether the subject property is vacant land or improved property, and depending on the considerations discussed below. The methods for valuing vacant land are variants of either the sales comparison approach or the income approach while the methods for valuing improved land are variants of all three approaches. These guidelines do not address all acceptable variants of these approaches that may be used to produce just valuations of real property in compliance with Florida ad valorem tax law.

As discussed in section 2.1 of these guidelines, s. 193.011, F.S., lists the factors property appraisers must consider in the just valuation of real property for ad valorem tax purposes while ss. 194.301 and 194.3015, F.S., discuss the four determinative legal standards that must be applied in the just valuation process. Unless specified otherwise, fee simple estate is the interest in real property to be valued for ad valorem tax purposes in Florida (see section 2.3.1 of these guidelines).

The property appraiser is required by Florida law to use professionally accepted appraisal practices and appropriate appraisal methodologies in determining the method of valuation, which may include developing more than one approach to value. The selection of a valuation approach, or approaches, may vary both within and among counties.

In mass appraisal courses and publications, the terms model structure, model specification, and model calibration are technical alternatives for describing the application of one or more of the three approaches to real property valuation. The following excerpts, from leading appraisal and assessment entities, further address the relationship of valuation models to the three approaches to value.

USPAP's Standards Rule 5-4(b) states:

> "*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."[26]

IAAO's *Fundamentals of Mass Appraisal* states:

"*Property valuation models express the forces of supply and demand at work in the local market and seek to explain or predict the market value of properties from available real estate data. They are based on the sales comparison, cost, and income approaches to value*."[27]

"*Model specification and calibration are distinct steps. Model specification is the design and determination of the mathematical form of the model based on appraisal theory and market analysis. It includes determining relevant data items and selecting the variables to be constructed from them and considered in the model. Model calibration is the process of solving for unknown quantities in a model, for example, construction costs and depreciation in a cost model, valuation rates and adjustments in a sales comparison model, and market rents and capitalization rates in an income model.*

Model specification comes before model calibration and largely determines the potential accuracy of the model. Model calibration involves determination of the rates and adjustments associated with the variables in the model and testing of the predictive accuracy of the model. If calibration results in unreasonable rates or adjustments or fails to produce acceptable accuracy, the model should be respecified and recalibrated."[28]

The Appraisal Institute's *A Guide to Appraisal Valuation Modeling* states:

"*In essence, valuation models developed for mass appraisal purposes must reflect supply and demand patterns for groups of properties rather than for a single property. Valuation models attempt to perform several related functions:*

- *To predict, replicate, or explain the market value of properties from real estate data*
- *To represent the forces of supply and demand within particular markets*

To replicate one of the three theories of valuation – the cost approach, the sales comparison approach or the income capitalization approach"[29]

IAAO's *Standard on Mass Appraisal* states:

"*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*."[30]

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[26] Appraisal Standards Board, *Uniform Standards of Professional Appraisal Practice* (Washington, DC: The Appraisal Foundation, 2024), pages 38.

[27] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 249.

[28] Ibid, page 250.

[29] Appraisal Institute, *A Guide to Appraisal Valuation Modeling* (Chicago: Appraisal Institute. 2000), page 6.

[30] International Association of Assessing Officers, *Standard on Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2019), page 6.

6.3 Land Valuation. All land parcels, both vacant and improved, must be valued each year for ad valorem tax purposes in Florida. Land values are required for vacant and improved parcels on assessment rolls submitted to the Department (see section 4 of the Department's annual *Tax Roll Production, Submission and Evaluation Standards*). Accurate and equitable land values are part of a reliable mass appraisal system.

Land valuation relies on proper stratification of land parcels, which, in turn, relies on accurate coding of the primary influences on land value. Land data should be stratified into groups based on three key factors:

1. Property use
2. Location
3. Size

Stratification of land data into groups based on these three factors allows useful land market analysis. Additional stratification may be appropriate depending on the complexity of the appraisal problem and the amount of market data available.

As applied to land valuation, units of comparison are the economic units into which the prices or value indications of land may be divided for appraisal analysis. Selecting the appropriate land unit of comparison for mass appraisal purposes involves consideration of two primary criteria:

- The unit of comparison market participants use most frequently in their decision-making for the land type under analysis
- The unit of comparison resulting in the lowest measures of dispersion within land sale data sets

Before valuation analysis, all land sale data should be compiled by the appropriate unit of comparison.

After land sale data have been appropriately stratified and compiled by units of comparison, analysis of these data may reveal relationships affecting land value. Useful land market analysis techniques may include: plotting and reviewing sale data on maps; calculating and considering measures of central tendency and measures of dispersion; and performing graphic analyses.[31]

> "*The sales comparison approach is the most reliable method of land valuation. It involves comparisons and assumes that market evidence is available. Unfortunately, good, reliable sales data are sometimes unavailable. For this reason, the appraiser must resort to other methods of valuation. The alternative methods of land valuation are allocation, abstraction, anticipated use or development, capitalization of ground rent, and land residual capitalization.*"[32]

These guidelines provide general information for valuation of land by the sales comparison approach, allocation, abstraction, capitalization of ground rent, and land residual capitalization in the following subsections. The property appraiser should be familiar with applying these variants of the sales comparison approach and the income approach. These guidelines do not cover land valuation using the anticipated use or development method, which is essentially a discounted cash flow analysis (see section 6.6.4 of these guidelines).

6.3.1 The Sales Comparison Approach to Land Valuation. "*The primary methods of land valuation for mass appraisal are applications of the sales comparison approach. The sales comparison approach is* always *the preferred approach when sufficient sales data are available*."[33] The sale comparison approach is a set of procedures where the results of arm's length transactions within properly stratified land groups are analyzed for

[31] International Association of Assessing Officers, *Property Assessment Valuation* (Kansas City, MO: International Association of Assessing Officers, 2010), pages 187-189.
[32] Ibid, page 190.
[33] Ibid, page 187.

just value indications, which then may be applied to all properties in those groups. The sales comparison approach is discussed in section 6.5 of these guidelines.

6.3.2 The Allocation Method. The first step in the allocation method is to research and develop typical ratios of land value to total value for an improved property group with land use regulations similar to those of the subject land group. Then, these ratios may be applied to the improved sales in the subject area for an indication of the prices paid for the land. The last step is to use these extracted land prices in the sales comparison approach to land valuation.

6.3.3 The Abstraction Method. The first step in the abstraction method is to collect and analyze sales of improved property in the subject or similar areas. These improved sold properties should have land use regulations similar to those of the subject land group. The next step is to estimate the contributory value of the improvements to each of the improved sale prices, and then subtract this indicated improvement value from the improved sale prices for an indication of the price paid for the land. The last step is to use these extracted land prices in the sales comparison approach to land valuation.

6.3.4 The Capitalization of Ground Rent Method. This method of land valuation requires market rental rates for a land group similar to those of the subject land group. These rented properties are compared to the subject land group to develop an indication of the net market ground rent for the subject land group. The last step is to divide the net market ground rent for the subject land group by a land capitalization rate for an indication of land value for the subject group.

6.3.5 The Land Residual Technique. The first step in the land residual technique is to determine the highest and best use of the subject land groups as though vacant. From this, the market net operating income for the hypothetical improved property may be estimated and then divided by an overall capitalization rate, resulting in a value indication for the improved property. The replacement cost new (RCN) of the hypothetical improvements is then subtracted from the estimated value of the improved property, resulting in an indication of value for the subject land group.

6.3.6 Considerations in Land Valuation. Some situations in land valuation vary from normal reappraisal activities involving existing parcels and may require special attention. Each year, some land parcels may undergo economic change resulting from changes in legal and physical characteristics.

The most common examples of legal changes to land include changes to zoning and future land use classifications. These legal changes may have an impact on the just value of the affected land parcels. The most common examples of physical changes to land include splits, combinations, and new subdivisions (see Addendum C). The property appraiser should review the just value of each affected parcel and make any appropriate just value changes for the effective and subsequent years.

6.4 The Cost Approach. The just valuation of real property by the cost approach is calculated by subtracting depreciation from RCN and then adding the just value of the land. The just value of land is discussed in section 6.3 of these guidelines. The effectiveness of the cost less depreciation approach in mass appraisal depends in part on reliable data collection and management, effective exploratory data analysis, good market knowledge, professionally accepted appraisal practices and appropriate methodologies, and application of mass appraisal quality assurance tools. The collection and management of cost and depreciation data is described in section 4.4.6 of these guidelines. In its basic applications, the cost approach is a set of procedures in which the RCN of the improvements is determined, the depreciation of these improvements is determined and subtracted, and the land value is determined and added, for an indication of the just value for the real property.

The cost approach relies on proper stratification of real property into strata, or groups, with similar characteristics. Stratification criteria may include property type, construction grade, structural type, or number of stories. The appropriate level of stratification may vary based on the property type involved.

As applied in the cost approach, units of cost are the economic units into which the costs of real property may be divided for appraisal analysis. The most common unit of cost is cost per square foot, although other units of cost such as linear feet or cubic feet may apply in some cases.

6.4.1 Cost Data/Cost Models. Cost manuals or web-based subscriptions are available for purchase from various vendors specializing in tracking real property construction costs and maintaining databases of cost information. These cost manuals are useful for mass appraisal because they provide standardized and flexible cost systems that reflect relative costs between items such as property types, construction grades, and building components. The relative costs of these items may be useful for deriving cost adjustments.

CAMA systems may apply many types of RCN models. One that is commonly used is an adjusted base rate model in which the RCN of real property improvements is determined primarily by multiplying the adjusted base rate by the adjusted building area. This model type begins with an unadjusted base rate, which is the base cost per unit for the effective building area of a main improvement structure.

Any available and applicable local market data may be used to test the accuracy of published cost data. One example is to compare RCN from a published manual to any known, reliable, and current local costs and either validating or adjusting the published cost as appropriate. If adequate sale data are available, sales ratio studies may be useful for adjusting cost data to the local market. Sales ratio studies with a property type stratified by quality grade may validate the rates and data applied or may reveal needed adjustments to base rates or problems with the determination of the quality grade.

The two components of profit in RCN are contractor's profit and developer's anticipated profit. Developer's anticipated profit is sometimes referred to as entrepreneurial incentive. The cost data from published cost manuals may include contractor's profit, but developer's anticipated profit typically is not. However, all determinations of RCN of real property should include both. The two methods of deriving RCN that are commonly applied in mass appraisal are the comparative unit method and the unit-in-place method.

6.4.2 Depreciation. Depreciation represents the difference between the RCN and the just value of real property improvements. Depreciation may result from physical deterioration, functional obsolescence, or external obsolescence. In mass appraisal, depreciation is applied primarily using depreciation tables or their complement, percent good tables. Depreciation tables are available from published cost manuals. To the extent possible, these depreciation tables should be tested for reasonableness.

Effective age may be determined through onsite evaluation by field inspectors. The effective age is the link between each improved parcel and the appropriate field in the depreciation table. Effective age is determined by considering the actual age of the property, the quality of maintenance, any renovation, and any observed deferred maintenance. As applied in mass appraisal, effective age may, but does not typically, consider other forms of depreciation such as any functional obsolescence or any external obsolescence. The accurate and consistent determination of effective age necessary for depreciation calculations requires effective training and diligence. Application of any other types of depreciation not reflected in the effective age or depreciation table, should be supported with documentation.

Assuming availability of adequate sale data, sales ratio studies may be useful for adjusting published depreciation schedules to the local market. Sales ratio studies with a property type stratified by age of

improvements may validate the applied rates and data or may reveal needed adjustments to depreciation rates or reevaluation of effective age.

6.5 The Sales Comparison Approach. The effectiveness of the sales comparison approach in mass appraisal depends in part on reliable data collection and management, effective exploratory data analysis, good market knowledge, professionally accepted appraisal practices and appropriate appraisal methodologies, and application of mass appraisal quality assurance tools. The collection and management of sale data and exploratory data analysis are described in sections 4.4.7 and 4.7 of these guidelines. The sales comparison approach is a set of procedures in which the results of arm's-length transactions within properly stratified real property groups are analyzed for just value indications, which then may be applied to all properties in those groups.

The sales comparison approach relies on proper stratification of real property. Stratification criteria may include property use code, location, quality grade, effective age, or size. The appropriate level of stratification may vary based on the number and type of real property parcels involved and the amount of market data available.

The sales comparison approach also relies on adjusting qualified sale prices to accurately reflect market changes over time. Adjusting qualified sale prices to the date of assessment is a recommended best practice by the IAAO (see Addendum D). The Department provides training on the process for developing time adjustment factors.

As applied in the sales comparison approach, units of comparison are the economic units into which the prices or value indications of real property may be divided for analysis. An example of a unit of comparison would be price per square foot. Selecting the appropriate unit of comparison for mass appraisal purposes involves two primary criteria. One is the unit of comparison market participants use most frequently in their decision-making for the property type under analysis, and the other is the unit of comparison resulting in the lowest measures of dispersion in sale data sets. In most cases, sale data should be compiled by the appropriate unit of comparison before valuation analysis. However, some quantitative valuation models may directly employ total sale prices and produce total just value indications.

Sales comparison analysis may involve both quantitative and qualitative analyses. After sale data have been appropriately stratified and compiled by units of comparison, analysis of these groups may reveal relationships affecting just value. Useful quantitative analyses may include calculating and considering measures of central tendency and measures of dispersion for unit prices and conducting other exploratory data analyses. Any quantitative adjustments or conclusions should be reviewed for reasonableness, consistency, and stability and, if necessary, overridden by relative comparison analysis. Qualitative analysis is useful in the mass appraisal process and may be used to consider the overall significant differences within and among real property groups.

6.5.1 Multiple Regression Analysis (MRA). "*Multiple regression analysis (MRA) is a statistical technique for estimating unknown data on the basis of known data. MRA is the workhorse of mass appraisal*."[34] This is a highly complex statistical procedure that analyzes the relationships between the property characteristics and sale prices of sold property to develop a mathematical equation to determine the just valuations of groups of real property. The effective implementation of this method requires relatively large quantities of market data, highly sophisticated statistical software, highly skilled staff, and usually the hiring of external consultants. The feasibility of using MRA in Florida may be limited to counties with larger resource bases and the required quantities of market data.

[34] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 279.

6.5.2 Adaptive Estimation Procedure. Adaptive estimation procedure, also referred to as "feedback," is another useful mass appraisal tool in the sales comparison approach.[35] Like MRA, this is a highly complex statistical procedure that analyzes the relationships between the property characteristics and sale prices of sold property to develop a mathematical equation to determine the just valuations of groups of real property. Separate feedback models may be developed for residential market areas and other real property groups. The adaptive estimation procedure has requirements, possible limitations, and assumptions like those of MRA.

6.6 The Income Approach. The effectiveness of the income capitalization approach in mass appraisal may depend in part on reliable data collection and management, effective exploratory data analysis, good market knowledge, professionally accepted appraisal practices and appropriate appraisal methodologies, and application of mass appraisal quality assurance tools. In its basic applications, the income approach is a set of procedures in which stabilized income from income-producing real property is capitalized into a just value indication by dividing stabilized net operating income by an overall capitalization rate, or by multiplying stabilized gross income by a gross income multiplier (GIM). A buyer of income-producing property exchanges current dollars for the expectation of receiving future dollars. The collection and management of income data and exploratory data analysis are described in section 4.4.8 and 4.7 of these guidelines.

The income approach relies on proper stratification of real property. Stratification criteria may include property use code, location, quality grade, effective age, or size. The appropriate level of stratification may vary based on the number and type of real property parcels involved and the amount of market data available.

As applied in the income approach, units of comparison are the economic units into which the income, operating expenses, or value indications of real property may be divided for analysis. Examples of units of comparison are rent per square foot or expenses per square foot. Selecting the appropriate unit of comparison for income and expenses involves two primary criteria. One is the unit of comparison market participants use most frequently in their decision-making for the property type under analysis, and the other is the unit of comparison resulting in the lowest measures of dispersion in income and operating expense data sets. Before valuation analysis, all income and operating expense data should be reduced to the appropriate unit of comparison.

6.6.1 Market Rent and Expense Analysis. Market rent, which is distinct from contract rent, corresponds to the fee simple estate. Contract rent corresponds to the leased fee estate. Therefore, contract rent is irrelevant to real property valuation for ad valorem tax purposes in Florida, unless independent support is available indicating that contract rent is equal to market rent. Market rent may be less than, equal to, or greater than contract rent.

Reliable market rent and expense analysis involves both quantitative and qualitative analyses. After market rent and expense data have been appropriately stratified and compiled by units of comparison, analysis of these groups may reveal relationships affecting these data. Useful quantitative analyses may include calculating and considering measures of central tendency and dispersion for unit rent and expenses and conducting other exploratory data analyses.

6.6.2 Direct Capitalization. Direct capitalization is used to convert a single year's income expectancy into a value indication. This conversion is accomplished in one step, either by dividing the net operating income by an appropriate income rate or by multiplying the gross income estimate by an appropriate factor or multiplier.[36]

The market factors to consider may include:

1) The recent income and expense histories of properly stratified real property groups

[35] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), pages 269-271.

[36] Appraisal Institute, *The Appraisal of Real Estate, Fifteenth Edition* (Chicago: Appraisal Institute, 2020), page 459.

2) The current trends for income and expenses of properly stratified real property groups
3) The market participants' expectations for income and expenses of properly stratified real property groups
4) The recent history, current trends, and market participants' expectations for income and expenses of individual properties in properly stratified real property groups
5) Commercially available and published reports on the recent history, current trends, and market participants' expectations for income and expenses of property that may be compared to the properly stratified real property groups

An overall capitalization rate, or overall rate, is a number in decimal form that may be divided into net operating income to produce an indication of just value by the income approach.

Direct capitalization is a common, but somewhat complex income approach method. To produce credible just valuation using direct capitalization for income producing properties, the property appraiser and valuation staff should have a good working knowledge of the method and understand how to apply it effectively.

6.6.3 Gross Income Multiplier (GIM). In this variant of direct capitalization, a value indication may be formed in two ways. One way is to multiply potential gross income by a market-extracted potential GIM, and the other is to multiply effective gross income by a market-extracted effective GIM. GIMs may be extracted from sales by dividing the sale price by potential gross income or effective gross income. GIMs should be applied the same way they were extracted. Various indicators of GIMs may be reconciled using relative comparison analysis. Because the GIM method does not explicitly consider operating expenses, the operating expense ratios of sold properties from which multipliers may be extracted and those of the property groups to which multipliers may be applied should be reasonably consistent.

6.6.4 Yield Capitalization. Discounted cash flow analysis is a common variant of yield capitalization, when appropriate. Discounted cash flow analysis is a set of procedures in which a value indication is produced by projecting the future annual net operating income over a typical investment holding period, along with the net proceeds of resale at the end of the holding period, and then discounting these future economic benefits back to the present using an appropriate discount rate. In evaluating the potential use of any yield capitalization method in particular situations, property appraisers must apply professionally accepted appraisal practices and appropriate appraisal methodologies.

Addendum A - DEFINITIONS

NOTE: This addendum is not intended to represent a complete glossary of related terms, but rather is intended to include those most applicable. Terms are listed in alphabetical order. A list of related terms is provided at the beginning of each section of these guidelines.

Actual Age	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 4	"*The number of years that have elapsed since the completed construction of an improvement; also referred to as historical age or chronological age*."
Ad Valorem Tax	
Section 192.001(1), F.S.	"*A tax based upon the assessed value of property*."
Arm's-Length Transaction	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 10	"A *sale between a willing buyer and a willing seller that are unrelated parties, each of whom is reasonably knowledgeable about market conditions and under no undue pressure to buy or sell*."
Assessed Value	
Section 192.001(2), F.S.	"*"Assessed value of property" means an annual determination of:* *(a) The just or fair market value of an item or property;* *(b) The value of property as limited by Art. VII of the State Constitution; or* *(c) The value of property in a classified use or at a fractional value if the property is assessed solely on the basis of character or use or at a specified percentage of its value under Art. VII of the State Constitution*."
Assessment Roll	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 11	"*The basis on which property tax levies are allocated among assessable property within a taxing jurisdiction. A public record of the assessed value of every property in a taxing jurisdiction. Often includes a parcel identification number (account number), name of owner of record, location address, mailing address, assessed value of land, assessed value of building, assessed value of other real property improvements, assessed value of personal property, and exemption codes*." For these guidelines, an assessment roll is a systematic listing of parcel, ownership, and valuation data of all real property in a county for ad valorem taxation purposes. The Department's annual *Tax Roll Preparation, Submission and Evaluation Standards* detail requirement for the assessment rolls.
Cadastral Map	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 17	"*A scale map displaying property ownership boundaries and showing the dimensions of each parcel with related information such as parcel identifier, survey lines, and easements. Annotations on recent sale prices and land value are sometimes added*."
Coefficient of Dispersion (COD)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 22	"*Expresses as a percentage the average deviation of the ratios from the median. The COD is used throughout the property assessment field as a measure of appraisal uniformity*." See Addendum D, **Appraisal Uniformity**
Computer-Assisted Mass Appraisal (CAMA)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 23	"*A software package used by governmental agencies and assessing offices to establish real and personal property valuations for property tax purposes. It is composed of several applications that systemically value property. Often includes statistical analysis such as multiple regression analysis to assist the appraiser in determining the value of property for property taxation purposes*." CAMA systems are used in all 67 Florida counties. The CAMA systems currently employed vary in their capability to store, retrieve, analyze, and report mass appraisal data. However, all Florida CAMA systems must be capable of storing and maintaining the data necessary to produce the reports and files the Department requires.

Contract Rent	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 25	"*The actual amount of rent that is specified in the lease*."
Cost Approach	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 28	"*1) One of the three approaches to value, the cost approach is based on the principle of substitution—that a rational, informed purchaser would pay no more for a property than the cost of building an acceptable substitute with like utility. The cost approach seeks to determine the replacement cost new of an improvement less depreciation plus land value; and 2) The method of estimating the value of property by: (a) Estimating the cost of construction based on replacement or reproduction cost new or trended historical cost (often adjusted by a local multiplier); (b) Subtracting depreciation; and (c) Adding the estimated land value. (The land value is most frequently determined by the sales comparison approach.)*"
Data Edit	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 30	"*The process of examining recorded data to ensure that each element of data is reasonable and consistent with others recorded for the same object, such as a parcel of real estate. Data editing, which may be done by human beings or by computer, is essentially a mechanical process, distinct from verifying the correctness of the recorded information by calling or writing property owners*."
Deferred Maintenance	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 32	"*Postponed maintenance and repairs to real or personal property that were not performed and have been delayed*."
Direct Capitalization	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 35	"*A method of converting a single year's income into an estimate of value by dividing the expected annual net operating income by an overall capitalization rate*."
Economic Rent (Market Rent)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 108	"*In appraisal, the annual rent that is justified for the property on the basis of a careful study of comparable properties in the area; market rent*."
Effective Age	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 39	*"The age of a property based on the amount of observed deterioration and obsolescence, which may be less than, greater than, or equal to the chronological age."*
External Obsolescence	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 43	"*A type of temporary or permanent depreciation caused by negative factors outside of the property*."
Fee Simple/Fee Simple Absolute	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 44	"*An estate of infinite duration, freely alienable. The most complete ownership in real estate possible, although still subject to the four powers of government. May still be subject to other private encumbrances or restrictions*." The four powers of government are taxation, police power, eminent domain, and escheat.
Functional Obsolescence	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 47	"*The loss of value in a property improvement due to impairment, deficiency in design, changes in style, taste, technology, needs, and demands. Can be either curable or incurable. Functional obsolescence exists when a property suffers from poor or inappropriate architecture, lack of modern equipment, wasteful floor plans, inappropriate room sizes, inadequate heating or cooling capacity, deficiencies, and so on. It is the inability of a structure to perform adequately the function for which it is currently used*."

General Data	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 48	"*A category of data that includes trends that affect value and might occur on the national, regional, and neighborhood levels. These data also include physical (environmental), economic, governmental, and social forces that affect value*." See Addendum B, **Value Influences in Real Estate Markets**.
Gross Income Multiplier (GIM)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 52	"*A capitalization technique that uses a ratio between the sale price of a property and its potential gross income. It is a factor that can be multiplied by the potential gross income (PGI) to obtain the market value of a property. Referred to as the Potential Gross Income Multiplier (PGIM)*."
Highest and Best Use	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 53	*"The appraisal principle that requires evaluation of all physically possible, legally permissible, financially feasible, and maximally productive (most profitable) uses of a property to determine the use that provides the owner with the highest net return on investment in the property. Highest and best use is evaluated as if vacant land, and as improved."* See section 6.1 of these guidelines.
Income Approach	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 56	"*One of the three approaches to value that converts expected economic benefits of owning a property into value through a direct capitalization method or yield capitalization process. Also called Income Capitalization Approach.*"
Jurisdictional Exception	
The Appraisal Foundation, *USPAP, 2024,* page 5	"*An assignment condition established by applicable law or regulation, which precludes an appraiser from complying with USPAP*."
Just Value or Fair Market Value	
Rule 12D-1.002(2), F.A.C.	**Just value is** "*The price at which a property, if offered for sale in the open market, with a reasonable time for the seller to find a purchaser, would transfer for cash or its equivalent, under prevailing market conditions between parties who have knowledge of the uses to which the property may be put, both seeking to maximize their gains and neither being in a position to take advantage of the exigencies of the other.*"
Level of Assessment (LOA)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 66	*"The common or overall ratio of assessed values to market values."* See Addendum D, **Level of Assessment.**
Market Participants	
Appraisal Institute, *The Dictionary of Real Estate Appraisal, 7th Edition*, 2022, page 116 and Appraisal Institute, *The Appraisal of Real Estate, 15th Edition*, 2020, pages 112, 137-138	"*Individuals actively engaged in transactions. In real property markets, primary market participants invest in real property or use real estate, such as buyers, sellers, owners, lenders, and tenants. Secondary market participants include those who advise primary market participants, such as agents and brokers, advisors, counselors, underwriters, and appraisers*." *"The essential appraisal activity of real estate market analysis focuses on the motivations, attitudes, and interaction of market participants as they respond to the particular characteristics of real estate and to external influences that affect its value*." The property appraiser's valuation should reflect how the collective perceptions, expectations, and preferences of market participants influence real property value.
Mass Appraisal/Mass Appraisal System	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 74	*"The process of valuing a group of properties as of a given date, using standard methods, employing common data, and allowing for statistical testing*." For these guidelines, the term "mass appraisal system" is synonymous with the IAAO definition of "mass appraisal." "System," in the phrase "mass appraisal system," does not represent a computer system; rather it represents a system of processes and procedures organized according to functional groups. These guidelines assume the mass appraisal system is in place and operational. Otherwise, the implicit time required to design and implement the mass appraisal system and produce the annual just valuations would exceed Florida's one-year revaluation cycle.

Measure of Central Tendency	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 74	*"Single values representing the center point of a set of data. Common measures of central tendency are the mode, median, arithmetic mean, and weighted mean."*
Model Calibration	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 77	*"A process used to develop adjustment factors based on market analysis that identifies specific factors with an actual effect on market value."*
Model Specification	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 77	*"A process used for identifying and defining the property characteristics used in a valuation model and how they related mathematically with one another."*
Multiple Regression Analysis (MRA)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 79	"*Also known as Multiple Regression. It is a statistical technique used to analyze data in order to predict the value of one variable (the dependent variable), such as market value, from the known value of other variables (independent variables), such as lot size, number of rooms, and so on. If there is one independent variable used, the technique is known as simple regression. With two or more independent variables the technique is referred to as multiple regression*."
Personal Property	
Section 192.001(11), F.S.	Personal property is divided into four categories: household goods, intangible personal property, inventory, and tangible personal property. Generally, personal property is property other than real property.
Physical Characteristics	
The Appraisal Foundation, *USPAP, 2024,* page 5	"*Attributes of a property that are observable or measurable as a matter of fact, as distinguished from opinions or conclusions, which are the result of some level of analysis or judgment*."
Physical Deterioration	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 92	"*A cause of depreciation that is a loss in value due to ordinary wear and tear and the forces of nature. The loss in value begins immediately following the completion or installation of a building component. Man-made objects begin to suffer from deterioration as soon as they are created, simply because of the passage of time. Decay may be due to normal chemical changes in materials' composition or may result from mechanical cause. The loss in value may be curable or incurable*."
Price-Related Differential (PRD)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 97	"*A statistical measure of vertical property tax equity. The PRD is calculated by dividing the mean ratio by the weighted mean ratio in a ratio study. If the result exceeds 1.03, assessments are considered regressive. If the result is less than 0.98, assessments are considered progressive*." See Addendum D, **Appraisal Uniformity**.
Qualified Sale	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 102	"*A property transfer that satisfies the conditions of a valid sale and meets all other technical criteria for inclusion in a ratio study sample. If a property has undergone significant changes in physical characteristics, use, or condition in the period between the assessment date and sale date, it would not technically qualify for use in ratio study*."
Quality Assurance	
IAAO Standard on Data Quality, 2019, page 10	"*The proactive maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production*."
Quality Control	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 102	"*The activities involved in ensuring that data accuracy standards are achieved and maintained*."

Ratio Study	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 104	"*A statistical study of the relationship between appraised or assessed values and market values; based on an analysis of the ratio derived by dividing the appraised or assessed values of property by the market values of such property. Sale prices or independent appraisals are used as proxies for market values*."
Real Property	
Section 192.001(12), F.S.	"*Land, buildings, fixtures, and all other improvements to land*."
Reconciliation	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 106	"*The final step in the valuation process wherein consideration is given to the relative strengths and weaknesses of the three approaches to value: cost, income, and sales comparison. Consideration is given to the nature of the property appraised and the quantity and quality of available data in formation of an overall opinion of value, as either a specific value or a range of value. Referred to as Correlation*."
Replacement Cost New (RCN)	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 109	"*The current cost of producing a building or improvement, or item of personal property with the same utility with modern materials, design, and workmanship. This cost is less than the amount indicated by the reproduction cost new method. It implies that the cost is based on a modern improvement that affords utility equivalent to that provided by the subject property*."
Sales Comparison Approach	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 114	"*One of three approaches to value, the sales comparison approach estimates a property's value (or some other characteristic, such as depreciation) by reference to comparable sales. The sales comparison approach compares recently sold properties to the subject property. Adjustments are made to comparable properties to reflect the characteristics of the subject property*."
Sales Ratio Study	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 114	"*A ratio study that uses sale prices as benchmarks for market values. A relationship between sales prices and value (market value, assessed value, equalized value), that is used to measure the level of appraisal. Used to evaluate the effectiveness of assessment practices, reappraisals, or revaluations*."
Spatial Data Analysis	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 118	"*The study of the relationship between location-related data and property data, including property characteristics, market data, estimated values, and sales ratios*." See Addendum D.
Specific Data	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 119	"*A category of data that consists principally of site and improvement data*."
Stratification/Stratum/Strata	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 124	Stratification: "*The division of a sample of observations into two or more subsets according to some criterion or set of criteria. Such a division may be made to analyze disparate property types, locations, or characteristics, for example*." Stratum/strata: "*Class or subset that results from stratification*." The main criteria for stratification are property use, location, and property characteristics. Stratification results in property groups with one or more shared characteristics. These groups, or strata, are useful for data collection and management, appraisal analysis, and quality assurance. The appropriate level of stratification may range from general with only one criterion to detailed with several criteria. In mass appraisal, the term "stratum" means one group, and the term "strata" means more than one group. For regulatory analysis by the Department, s. 195.096(3)(a), F.S., specifies seven real property classes, or strata.

Thematic Maps	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 130	"*Digital maps that allow various performance standards to be displayed spatially*." See Addendum D.
Yield capitalization	
IAAO Glossary for Property Appraisal and Assessment, Third Edition, 2022, page 143	"*The method of converting a series of future net benefits into present value where the future net benefits are discounted at a proper yield rate or discount rate (Yo). Yield capitalization can also be accomplished by developing an overall rate (Ro) that specifically reflects the investment's pattern of income, change in value, and yield rate*."

Addendum B – RELEVANT VALUATION CONCEPTS

NOTE: This addendum is not intended to represent a complete listing of related concepts, but rather is intended to include those most applicable.

Fairness in Real Property Ad Valorem Taxation	
IAAO *Fundamentals of Tax Policy*, 2008, page 28 and 210	"*Fairness and equity have to do with a sense that there is no favoritism or bias in the design or administration of a tax*:" "*Public acceptance of property taxes depends in large measure on the perception that the taxes are fair. The perception of fairness is reinforced when data are accurate, valuations appear accurate and uniform, and all taxpayers are treated without prejudice or favoritism*." The best assurance for fairness in real property ad valorem taxation in Florida is to facilitate accurate and equitable just valuations.
Principle of Anticipation	
IAAO *Glossary for Property Appraisal and Assessment, Third Edition*, 2022, page 97	"*The principle of value that states that value is the present worth of all the anticipated future benefits to be derived from a property. The benefits, in the form of an income stream or amenities, are those benefits anticipated by the market*." The concept of anticipation means that real property value is heavily influenced by the collective expectations of market participants of receiving future benefits of owning real property. These future benefits may include personal use, business use, or investment income and resale.
Principle of Substitution	
IAAO *Glossary for Property Appraisal and Assessment, Third Edition*, 2022, page 98	"*The principle of value that states that a property's market value tends to be set by the cost of acquiring an equally desirable and valuable substitute property, assuming that no costly delay is encountered in making the substitution. This principle underlies each of the three approaches to value: cost sales comparison, and income*." The concept of substitution means that real property value may be influenced by the cost of developing a substitute parcel of real property, less accrued depreciation, or by the price of acquiring existing substitute real property of similar personal, business, or economic utility. Real property cost and depreciation, arm's-length transactions involving real property, and investment decisions regarding real property may reflect the concept of substitution.
Principle of Change	
IAAO *Glossary for Property Appraisal and Assessment, Third Edition*, 2022, page 97	"*The principle of value that states that market value is never constant because physical, environmental, economic, governmental, and social forces are at work to change the property and its environment. When these forces are in balance, the market achieves a temporary state of rest called equilibrium.*" Real property markets are constantly responding to the forces of change. Change may occur at a rate anywhere on the spectrum between relatively fast and very slowly and, at times, may be practically imperceptible. The rates of change in real property markets generally are much slower than in other economic markets such as the stock or commodities markets. The four major stages of change in real property markets are growth, stability, decline, and revitalization. Different real property markets experience different degrees of the four stages of change. The Florida annual mass appraisal cycle facilitates frequent response to the forces of change. See **Value Influences in Real Estate Markets** below.
Cost/Price/Value	
The Appraisal Foundation, *USPAP*, 2024, pages 4, 5, and 6	"*Cost: the actual or estimated amount required to create, produce, replace, or obtain a property*." "*Price: the amount asked, offered, or paid for a property.* Comment: Once stated, *price* is a fact, whether it is publicly disclosed or retained in private. Because of the financial capabilities, motivations, or special interests of a given buyer or seller, the price paid for a property may or may not have any relation to the *value* that might be ascribed to that property by others." "*Value: the monetary relationship between properties and those who buy, sell, or use those properties, expressed as an opinion of the worth of a property at a given time.*

	Comment: In appraisal practice, value will always be qualified – for example, market value, liquidation value, or investment value." Cost, price, and value are different economic concepts. Property appraisers may use all three in their valuation activities and must understand the concepts well. Cost is the total dollar amount required to create an improved parcel of real property. Cost may be an actual historical amount or may be an appraiser's determination. To exist, the cost of real property requires the action of only a single person or entity. Price is the actual total amount one party paid to another in exchange for real property in an actual transaction. Price is a historical fact. Value is not a fact; it is the present worth, as of a specified date, of the collective market expectations of the future benefits of owning a specified interest in real property, such as personal use, business use, or investment income and resale.
Real Estate (Real Property) Markets	
Appraisal Institute, *The Appraisal of Real Estate, 15th Edition*, 2020, pages 114-115	"*Real estate markets can differ significantly from the markets for other goods and services, and real estate markets have historically been considered less efficient than many other types of markets*." Real estate markets reflect the following general characteristics which make them inefficient compared to other markets: • *No two parcels of real estate are physically identical There are usually only a few buyers and sellers interested in a particular type of property at one time, in one price range, and in one location* • *An individual buyer or seller can influence price through exertion of control on supply or demand or both* • *Supply or demand often shifts suddenly during periods of no activity or increased activity or when properties are in transition* • *Buyers and sellers of real estate may not be well informed* • *Market inefficiencies lead to high transaction costs* • *Market participants are not able to act quickly on new information* These factors may contribute to inefficiencies in the decision-making behavior of market participants. This is important in considering the price paid for real property. The property appraiser is responsible for determining whether particular real property sale prices are indicative of just value.
Value Influences in Real Estate Markets	
Appraisal Institute, *The Appraisal of Real Estate, 15th Edition*, 2020, page 142	"*… The four forces that influence value (i.e., social, economic, governmental, and environmental forces) interact in the marketplace, creating unique combinations of factors. Careful study of general data related to a real estate market's character is a prerequisite to the more formal application of market analysis, highest and best use analysis, and the approaches to value*." The combined influence of these four forces is reflected in real property market activities such as land sales, improved sales, rentals, new subdivisions of land, new construction, renovation, maintenance, demolition, annexations, and changes in zoning or future land use classifications. • **Legal/Regulatory Forces**, such as zoning codes, future land use classifications, and building codes. • **Physical/Environmental Forces** are significant natural or man-made features that characterize a geographic area, such as land uses, bodies of water, public improvements (i.e., roads), building type/quality, and building age and condition. • **Economic Forces** include employment, personal income trends, and business revenue and earnings. These economic forces can affect costs, prices, rents, and expenses paid for real property. • **Social Forces**. Market transactions reflect social forces through the perceptions, expectations, and preferences of market participants. Costs, prices, and rents paid for real property may reveal social influences on real property value.

Addendum C – MANAGING SALE DATA FOR PARCELS THAT CHANGE

In managing sale data for a sales ratio study, property appraisers must properly identify sales of parcels that change prior to the date of assessment. Changes include parcel splits, parcel combines, new construction, demolition, disaster, remodel/renovation, and legal characteristics (zoning changes for example). The Department specifies the change codes property appraisers should use to identify these sales in the annual *Tax Roll Preparation, Submission and Evaluation Standards*. If determined to be arm's-length, these sales are not appropriate for ratio studies, however, the sale data may be useful for other analysis. The property appraisers should heed the following special considerations.

Parcel splits	Splits typically occur when the title to a portion of an existing parcel is transferred, creating new physical parcels for both the split-out parcel and for the remaining portion of the original parent parcel. If a separate sale file is not a part of a CAMA system, special consideration is required for accurately maintaining any prior sales of the original parent parcel. The property appraiser should assign any prior sales a special disqualification code indicating a change in property characteristics since the date of sale. This prevents mismatching data on sold property as of the date of sale and as of the date of assessment, and any resulting errors in valuations or sales ratio studies. Property appraisers should save the relevant data, as of the date of sale, on any such prior sales of the original parent parcel. The accurate maintenance of both property data and sale data is much easier if the affected parcels are assigned new parcel identification numbers during the processing of parcel splits.
Parcel combines	Combinations typically occur when title to all or part of more than one parcel is transferred on a single transfer document, creating at least one new physical parcel. Combinations may have the characteristics of both splits and subdivisions regarding parcel and sale data maintenance. Property appraisers should take appropriate steps to prevent inaccurate sale data and to maintain accurate sale data. The accurate maintenance of both property data and sale data is much easier if the affected parcels are assigned new parcel identification numbers during the processing of parcel combines. Relevant data on sales of land tracts subsequently developed with subdivisions or condominiums should be preserved in a separate file since, typically, the tract parcel identification numbers become inactive when the newly developed parcels are placed on the assessment roll. These sale data may be scarce and should be preserved for appraisal purposes and for explaining just values.
New Construction	A common real property market scenario is the purchase of a vacant land parcel and the subsequent construction of a building on the site. This frequently results in a mismatch between property characteristics at the time of sale (vacant land) and those on the date of assessment (improved property). These sales of vacant land may be arm's-length transactions and should be preserved for appraisal purposes, but they should not be used in sales ratio studies of improved property. Sales must be accurately coded as either vacant land or improved property.
Demolition	After the date of sale, real property improvements are occasionally demolished to make way for new construction. These sales may represent land sales. Because these sold properties typically will have improved property use codes at the time of sale, property appraisers should be especially careful to identify them and apply proper coding for use in valuation activities and sales ratio studies. Field inspections and review of demolition permits are helpful in identifying these sales, which may be useful in highly developed areas where land sales are scarce.
Disaster	If real property is damaged by disaster after a sale but before the date of assessment, the sale may not be appropriate for inclusion in a ratio study. When disaster affects parcels in the jurisdiction during the assessment year, the appraiser should attempt to reinspect the parcels to ascertain the status of the real property as of the date of assessment and ensure that status is reflected in the assessment. The reinspection should occur as close to the date of assessment as possible. Building permits and other regulatory data may help determine the status of the real property as of the date of assessment.
Remodel/ Renovation	After the date of sale, real property improvements may be remodeled, renovated, or otherwise modified. Such modifications to a property's physical characteristics may result in changes to the quality rating, condition rating, improvement size (increase or decrease), room count, extra features, functionality. If these modifications occur prior to the date of assessment, the sale may not be appropriate for inclusion in a ratio study. These sales may be preserved for valuation of properties comparable to the pre-modified property. Review of permits and field inspections are helpful in identifying these sales.

Legal Characteristics	If the legally allowable uses for a parcel changes after a sale but before the date of assessment, the sale may not be appropriate for inclusion in a ratio study. It is possible that the parcel sold with the potential legal change being known to some or all market participants, however this cannot be assumed and would require extensive verification. Regulatory data, such as zoning/special district changes or recorded community covenants and restrictions, may help determine changes to the legal characteristics of a parcel.

Addendum D – TOPICAL INDEX FOR SALES RATIO STUDIES

This addendum provides an index of topics property appraisers should consider in preparing for or analyzing results of a sales ratio study. In addition, the *Standard on Ratio Studies*, published by the IAAO, is a valuable source of professionally accepted appraisal practices for conducting ratio studies and analyzing the ratio study results.

Selective Reappraisal	Property appraisers must avoid selective reappraisal. To ensure assessment uniformity and equitable taxation, the property appraiser should establish valuation procedures that discourage and avoid selective reappraisal and conduct analyses to detect indications of selective reappraisal. In the review and approval of tax rolls, the Department conducts an analysis to identify selective reappraisal tendencies.
Property Changes	Property appraisers must ensure the relevant legal and physical characteristics of the sold property, as of the date of sale, accurately match the property's characteristics as of the date of assessment. In managing sale data for sales ratio studies, property appraisers must properly identify sales of parcels that change prior to the date of assessment and exclude them from sales ratio studies. Changes include parcel splits, parcel combines, new construction, demolition, disaster, remodel/renovation, and legal characteristics (zoning changes for example). See **Addendum C**.
Stratification	Proper stratification of sold properties into groups with one or more common characteristic greatly enhances a sales ratio study's usefulness. Sales are first stratified using general criteria and then may be further stratified depending on the data available and the indications reflected in an initial or prior study. Appropriate stratification criteria may include: the seven statutory real property strata (see below), property use, geographic unit, market area, effective age, size, quality grade, or value range. Section 195.096(3)(a), F.S., requires the Department to compute statistical and analytical measures on the following seven real property classes, or strata, when the classes constituted 5 percent or more of the total assessed value of real property in a county on the previous assessment roll. Section 195.096(3)(a), F.S., specifies these strata: 1. *Residential property that consists of one primary living unit, including, but not limited to, single-family residences, condominiums, cooperatives, and mobile homes.* 2. *Residential property that consists of two to nine primary living units.* 3. *Agricultural, high-water recharge, historic property used for commercial or certain nonprofit purposes, and other use-valued property.* 4. *Vacant lots.* 5. *Nonagricultural acreage and other undeveloped parcels.* 6. *Improved commercial and industrial property, including apartments with more than nine units.* 7. *Taxable institutional or governmental, utility, locally assessed railroad, oil, gas and mineral land, subsurface rights, and other real property.* Property appraisers may also perform statistical analyses on these seven strata for valuation planning, quality assurance, and to proactively evaluate regulatory compliance.
Measures of Appraisal Level	In sales ratio studies, measures of appraisal level are generally reflected by measures of central tendency. Measures of central tendency and dispersion are calculated for the sales ratios to evaluate the accuracy and equity of just values the sales reflect. The three common measures of appraisal level for sales ratio studies are the median, mean, and weighted mean. These three items are required inputs for calculating measures of appraisal uniformity. These measures of appraisal level are also useful for evaluating horizontal equity and vertical equity). Other important sales ratio study statistics include coefficient of dispersion (COD) and price-related differential (PRD). If these indicators do not fall within the ranges of acceptability, then additional research, and perhaps reappraisal, is required.
Adjustment for the Eighth Criterion	Section 193.011, F.S., contains the statutorily mandated eight factors, or criteria, that property appraisers must consider in the annual just valuations of real property. Property appraisers may apply aggregate adjustments to the just value-to-sale price ratios within real property strata to account for the eighth criterion. Any adjustments for the eighth criterion apply in the aggregate to specified strata of real property and to real property assessment rolls.

Adjustment for Market Changes Over Time	To accurately reflect market changes over time, adjusting qualified sale prices to the date of assessment prior to conducting a sales ratio study is a recommended best practice by the IAAO. "*There should be a program to track changes in price levels over time and adjust sale prices for time as required. This step is an important component of a ratio study. Time adjustments must be based on market analysis and supported with appropriate documentation*."[37] The Department uses time adjustment factors as part of the sales ratio study for residential improved and residential unimproved property. Property appraisers should apply appropriate, market-based time adjustments to sales used in a sales ratio study.
Level of Assessment (LOA)	The measure of appraisal level the Department uses to evaluate assessment rolls and to certify assessment rolls to the Department of Education is called the level of assessment (LOA). In Florida, the LOA is based on the adjusted weighted mean ratio for specified strata of real property and for real property assessment rolls. For proactively evaluating regulatory compliance, property appraisers may calculate the LOA by dividing the unadjusted weighted mean sales ratio by one minus any aggregate percentage adjustment for the eighth criterion. The annual *Tax Roll Preparation, Submission and Evaluation Standards* publication contains details for the Department's LOA standards.
Appraisal Uniformity	Appraisal uniformity may be evaluated both within and among real property groups. Appraisal uniformity among groups may be evaluated by comparing measures of appraisal level for real property groups. Common indicators of appraisal uniformity within groups are array, range, COD, and PRD. Arranging the sales in ascending ratio order creates an array, and the lowest and highest ratios reflect the range. These two indicators are simple, directly observable, and useful for small groups of sales. However, the COD and the PRD are generally applied as indicators of appraisal uniformity within real property groups. The COD is the most common indicator of appraisal uniformity in sales ratio studies. It measures the variation of sales ratios in a group of sold properties. Because the COD is based on the median, it is not influenced by extreme sales ratios, as are measures of appraisal uniformity based on the mean. The PRD measures appraisal uniformity between low- and high-value properties in real property groups. A PRD below the acceptable range may indicate that high-value properties are over appraised relative to low-value properties, and the mass appraisal may be "progressive." A PRD above the acceptable range may indicate that high-value properties are under appraised relative to low-value properties, and the mass appraisal may be "regressive." The annual *Tax Roll Preparation, Submission and Evaluation Standards* publication contains details for the Department's uniformity standards for both COD and PRD.
Appraisal Equity	Horizontal equity relates to equity in appraisal level between real property groups stratified by criteria other than value range. Horizontal equity may be evaluated by comparing measures of appraisal level for real property groups stratified by indicators such as geographic units, site codes, age groups, and size groups. Graphic analysis may also be useful for evaluating horizontal equity. If any significant horizontal inequity is apparent, additional analysis, and model calibration, may be required. Vertical equity pertains to equity in appraisal level related to the value of real property. Vertical equity may be evaluated by calculating the PRD for real property groups stratified by indicators such as geographic units, site codes, age groups, and size groups, and by comparing measures of appraisal level for value range groups. Graphic analysis may also be useful for evaluating vertical equity. If any significant vertical inequity is apparent, additional analysis, and model calibration, may be required.
Graphic Displays	"*Graphs and diagrams help clarify ratio study statistics and often provide a more complete picture of appraisal performance than statistics alone*."[38] Useful tools for displaying sales ratio study results may include arrays, frequency distributions, histograms, scatter plots, and box plots. Scatter plots, or scatter diagrams, are especially useful for displaying the relationship between sales ratios and a single continuous variable such as size, age, price, or value. Box plots are especially useful for displaying the relationship between sales ratios and a single discrete variable such as market area, neighborhood, quality grade, age range, size range, price range, or value range. Interpreting and acting on the apparent relationship between sales ratios and a single variable such as value range, requires diligence because there could be a correlation between value range and another variable such as market area. This could

[37] International Association of Assessing Officers, *Standard on Ratio Studies* (Kansas City, MO: International Association of Assessing Officers, 2013), page 51.

[38] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 232.

	cause a mistaken conclusion that a valuation inaccuracy is attributable to factors within a value range, when in fact the valuation inaccuracy is attributable to factors in a market area.
Spatial Analysis/ Thematic Maps	Like graphic displays, spatial analysis using thematic maps is a useful tool for analyzing and refining data prior to a sales ratio study and for analyzing sales ratios study results to determine appropriate changes to model specification or model calibrations. "*GIS software allows the analyst to plot data, analyze patterns, and create geographically based variables. Property characteristics and market data maintained in the CAMA database can be joined based on a common identifier (usually parcel number) to GIS files. Analysts can then display relevant features, such as sale prices or sales ratios, in various colors or symbols on the maps. Patterns help evaluate possible actions or, alternatively, where no action is required. Patterns in sale prices per unit, for example, can help in the construction of neighborhood boundaries … patterns in sales ratios provide feedback on whether values are equitable geographically*."[39]

[39] International Association of Assessing Officers, *Fundamentals of Mass Appraisal* (Kansas City, MO: International Association of Assessing Officers, 2011), page 136.