



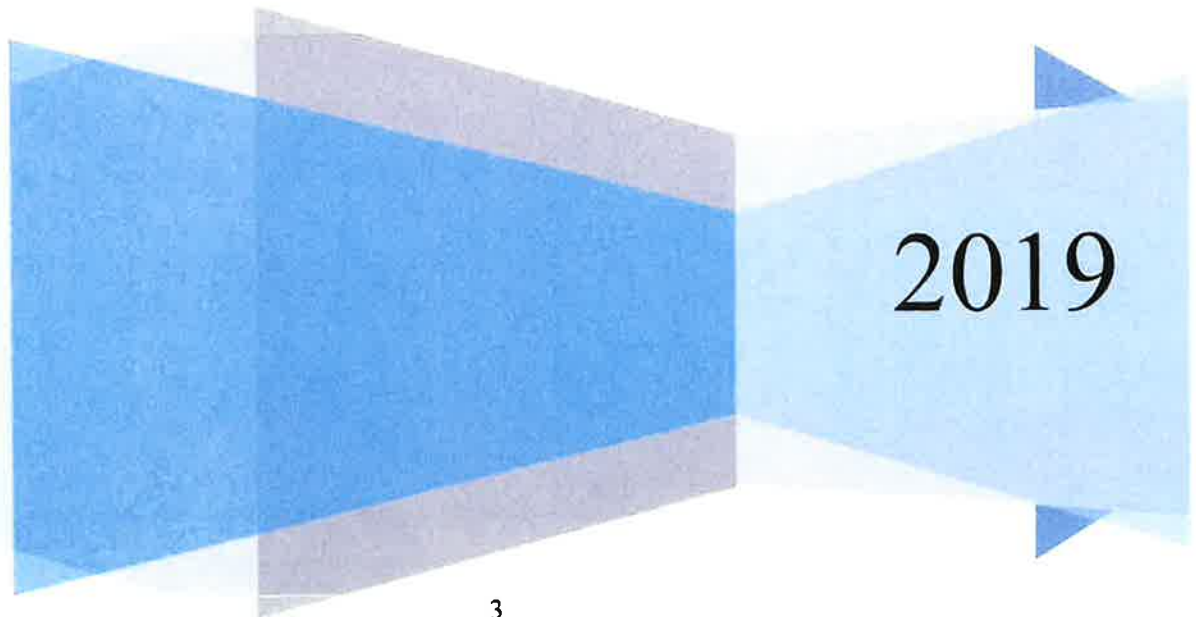
# Liberty County Central Appraisal District Summary Appraisal Report



**Lana McCarty**  
Chief Appraiser

**Dated: December 1, 1999**  
**Updated: September 09, 2019**

**Liberty County Central  
Appraisal District  
Mass Summary Appraisal Report**



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# **INTRODUCTION**

## ***Scope of Responsibility***

The Liberty County Central Appraisal District has prepared and published this report to provide our citizens and taxpayers with a better understanding of the district's responsibilities and activities. This mass appraisal report was written in compliance with Standards Rule 6-7 of the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of The Appraisal Foundation. This report has several parts: a general introduction and then several sections describing information specific to particular appraisal divisions. The CAD also adheres to the IAAO Standards, see addendum.

The 2019 mass appraisal was prepared under the provisions of the Texas Property Tax Code. Taxing jurisdictions that participate in the district must use the appraisals as the basis for imposition of property taxes. The State of Texas allocates state funds to school districts based upon the district's appraisals, as tested and modified by the State Comptroller of Public Accounts.

The 2019 mass appraisal results in an estimate of the market value of each taxable property within the district's boundaries. Where required by law, the district also estimates value on several bases other than market value. These are described where applicable later in this report.

## ***General Assumptions and Limiting Conditions***

The appraised value estimates provided by Liberty County Central Appraisal District are subject to the following conditions:

- The appraisals were prepared exclusively for ad valorem tax purposes.
- The property characteristics data upon which the appraisals are based is assumed to be correct.
- Physical inspections of the property appraised were performed as staff resources and time allowed.
- Validation of sales transactions occurred through questionnaires to buyer and seller, telephone survey and field review. In the absence of such confirmation, residential sales data obtained from vendors was considered reliable.
- No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to any property is assumed to be good and marketable, unless otherwise stated.
- All property is appraised as if free and clear of any or all liens or encumbrances, unless otherwise stated. All taxes are assumed to be current.
- All property is appraised as though under responsible, adequately capitalized ownership and competent property management.
- All engineering is assumed to be correct. Any plot plans and/or illustrative material contained with the appraisal records are included only to assist in visualizing the property.
- It is assumed that there is full compliance with all applicable federal, state and local environmental regulations and laws unless noncompliance is stated, defined and considered in this mass appraisal report.

“Agricultural or Timber Use Value” means land designated for agricultural or timber use is appraised at its value based on the land’s capacity to produce agricultural or timber products but this value cannot exceed the market value of the land.

“Real Property Inventory Value” the market value of an inventory is the price for which it would sell as a unit to a purchaser who would continue the business. An inventory is defined as residential real property which has never been occupied as a residence and is held for sale in the ordinary course of a trade or business, provided that the residential real property remains unoccupied, is not leased or rented, and produces no income.

“Dealer Inventory Value” means the market value of a dealer’s inventory on January 1, is the total annual sales from the dealer’s inventory, less sales to dealer’s fleet transactions, and subsequent sales, for the twelve (12) month period corresponding to the prior tax year, divided by twelve (12).

“Nominal Value” means a trivial value placed on the property nominally owned by a non-profit organization for the benefit of its members.

“Restricted Use Value” means the value of land devoted exclusively to recreational, park, or scenic uses considering only those factors relating to the value of land as restricted and sales of comparable land not similarly restricted may not be used to determine value.

### ***Properties Appraised***

The Liberty County Central Appraisal District operates a computer assisted mass appraisal system utilizing recognized mass appraisal techniques in conformance with USPAP and IAAO standards. Annually the District appraises in excess of 100,000 properties. These properties make up the appraisal roll for the district and are described in the District’s property records maintained by the Chief Appraiser. These properties are categorized in accordance with the use classification codes established by the State Comptroller’s Office Property Tax Division (PTD). Please see addendum for a list of these codes.

All the above definitions established by the State Property Tax Code differ from the definitions established by USPAP; therefore, a jurisdictional exception applies. Please reference Section 23 of the Property Tax Code for further guidance on appraisal methods and special valuation provisions.

All properties rights are appraised in fee and in compliance with Texas Property Tax Code Sec. 25.06. The District will take into consideration the extent to which any restriction on use of the property or how other individual characteristics of the property may affect market value.

Furthermore, the LCCAD property records contain data on property characteristics, ownership, address, situs, legal descriptions, certain allowable exemptions and new construction. These property record cards and frequently used forms may be accessed on-line at [www.libertycad.com](http://www.libertycad.com)

While there is no specific statute defining highest and best use as it applies in appraisals conducted under the Property Tax Code, Texas courts have acknowledged that highest and best use is a factor that must be considered in determining market value. *King v. Real* 466 S.W.2d 1 TEX.Civ.App., 1971, *Exxon Pipeline Co. v. Zwahr* 2002 WL 1027003 Tex.,2002.

In an unpublished opinion, the Houston Court of Appeals approved the following definition of highest and best use:

"Highest and best use" is the reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum profitability. *Clear Creek Drainage Dist. of Galveston County v. Manison* Not Reported in S.W.3d Tex.App.-Houston [14 Dist.],1997.

### ***Appraisal Performance Tests and Performance Measures Attained***

The Texas Comptroller of Public Accounts conducts a biannual study to determine the degree of uniformity of and the median level of appraisals by the appraisal district within each major category of property, as required by Section 5.10, Property Tax Code.

If the locally appraised value in a school district is within the statistical margin of error of the state value, the Comptroller's Property Tax Division (PTD) certifies a school district's local tax roll value to the Commissioner of Education. A 5% margin of error is used to establish the upper and lower value limit for each school district. If the local value is outside the acceptable range, the PTD certifies the state value, unless the school district is eligible for a grace period, which is a two-year period when local value is used even though it is determined to be invalid.

**HB 8** changes the frequency of the PVS from every year to every other year, unless the study reveals invalid findings, in which case, the study is conducted every year until the school district receives valid findings. The bill creates the Comptroller's Property Value Study Advisory Committee, including a Speaker-appointed House member, a Lieutenant Governor-appointed Senate member, two Comptroller-appointed appraisal district representatives, two Comptroller-appointed school district representatives, and three additional appointments by the Comptroller. The bill directs the Comptroller to review each CAD every other year concerning governance, taxpayer assistance and compliance with generally accepted appraisal standards, procedures and methodology. This is commonly referred to as MAPS (Methods and Procedures Study).

**Certification Statement:**

"I certify that, to the best of my knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- I have no present or prospective interest in the property that is the subject of this report, and I have no personal interest with respect to the parties involved.
- I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three year period immediately preceding acceptance of this assignment.
- My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- My compensation for completing this assignment is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice*.
- I have not made a personal inspection of the properties that are the subject of this report.
- No one provided significant mass appraisal assistance to the person signing this certification, aside from the parties named on attachment "C".

"I, Lana McCarty, Chief Appraiser for the Liberty County Central Appraisal District, solemnly swear that I have made or caused to be made a diligent inquiry to ascertain all property in the district subject to appraisal by me, and that I have included in the records all property that I am aware of at an appraised value which, to the best of my knowledge and belief, was determined as required by law."

  
Lana McCarty  
Chief Appraiser

## **Model Specification and Calibration**

### ***Market Analysis***

A market analysis relates directly to market forces affecting supply and demand. This study involves the effect of social, environmental, economic, governmental, and site conditions on the universe of property appraised by the Liberty County Central Appraisal District.

The district reviews weekly local newspapers including the Liberty Gazette, Liberty Vindicator the Cleveland Advocate to stay abreast on changes in the local market. In addition, on a daily basis the District reviews the Houston Chronicle and the Beaumont Enterprise for information on both local and regional influences affecting supply and demand. State wide publications such as the Texas Real Estate Center's "Trends" magazine, Texas Association of Appraisal District's "The Appraiser" and the Texas Association of Assessing Officers' "Texas Assessor's News" are reviewed periodically. Other local sources include Chamber of Commerce newsletters.

Since Liberty County does not have the advantage of a multiple listing service for real estate sales information, the Appraisal District maintains its own sales data base. The information in this data base is gathered from contact with buyers, sellers, appraisers and brokers. This data base is used extensively by outside appraisers and brokers.

The District's valuation schedules are divided into four (4) main classifications; land; residential improvements, commercial improvements and personal property.

### ***Land Schedules***

The land tables are built primarily from a market analysis of comparable sales. These sales must be stratified into homogeneous groups reflecting geographic areas subject to different market influences. Within strata, land tables should be built using units of comparison found in the market (i.e., acre, square foot, front foot, etc.). In some cases the appraisal staff may use the abstraction method to determine, adjust or reconcile land values. The base values reflected in the land tables are built around three (3) primary influences: location, size and access. Adjustment for special influences such as drainage, easements, and frontage may be necessary to reconcile base values to individual properties.

### ***Residential and Commercial Schedules***

All residential and commercial parcels are valued using schedules which are cost based tables adjusted by sales or income data from Liberty County. The comparative unit of measure used in these tables is price per square foot. Base values are established based on quality of construction and size and modified for locational factors by neighborhood. Additional adjustments to these bases values are made for condition of improvements based on the District's depreciation schedules. These schedules are calibrated from cost and sales data and are tested to ensure they reflect current market conditions. Adjustment factors for functional and external obsolescence are applied to individual properties or specific locations when warranted. The value of improvements not included in the base



market. Please see addenda for a comparison of value definitions and a list of questionable or invalid sales.

In prior years, district-acquired sales information was made public on our website and in Information & Assistance. HB 2188, a new Texas law that became effective June 18, 2007, makes confidential any information about properties that an appraisal district obtains from private sources. Because of this change in law, we are no longer able to publicly disclose (or display on our website) property sales information we obtain from private sources. The sales books, listing only public information are available for public inspection at the Liberty office, and sales information has been removed from the LCCAD website.

### ***Statistical Analysis***

Statistics is a way to analyze data and study characteristics of a collection of properties. In general, it is not feasible to study the entire population; therefore, statistics are introduced into the process. The District performs statistical analysis periodically to evaluate whether appraisal roll values are equitable and consistent with market values. Appraisal statistics of central tendency and dispersion are generated from sales ratios through the District's computer sales module. These ratio studies are conducted by neighborhood, property type and/or class for a predetermined time period. Ratio studies are conducted in accordance with IAAO Standards. Please see IAAO Standards on ratio studies in the addenda.

An independent test of the District's appraisal performance is conducted biannually by the Property Tax Division of the State Comptroller's Office. This study is performed and published by school district and includes those statistical measures that the Comptroller considers appropriate. In addition, a summary of the medium levels of appraisal is prepared for the appraisal district by property category.

ATTACHMENT "A"

# Taxing Units

## Liberty County

### Hospital District

#### Chambers Liberty Navigation District

Navigation—North

Navigation—South

### Schools

Cleveland Independent School District

Dayton Independent School District

Devers Independent School District

Hardin Independent School District

Hull-Daisetta Independent School District

Liberty Independent School District

Tarkington Independent School District

### Cities

Ames

Cleveland

Daisetta

Dayton

Dayton Lakes

Devers

Hardin

Liberty

Mont Belvieu

Plum Grove

### Drainage Districts

Drainage District #1—Old River

Drainage District #2—Raywood

Drainage District #4—Devers

### Emergency Service Districts

Emergency Service District #2—Hull

Emergency Service District #3—Dayton

Emergency Service District #1—Kenefick

Emergency Service District #7—Hardin

### Water Districts

Water Control Improvement District #1—Eastgate

Water Control Improvement District #5—Liberty

### Special Districts

Liberty County Municipal Management District #1

Liberty County Municipal Utility District #1

River Ranch Improvement District #1 — Dayton

Mud District #1 River Ranch— Dayton

Mud District #3 River Ranch— Dayton



**Hugh L. Landrum & Associates, Inc.**  
**Mass Appraisal Methodology Manual**

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# **Hugh L. Landrum & Associates, Inc. Mass Appraisal Methodology Manual**

## **INTRODUCTION**

Hugh L. Landrum & Associates, Inc. is a Registered Professional Engineering Firm in the State of Texas specializing in the mass appraisal of complex properties. In this role HLL&A recommends to its clients appraised values for selected properties. The recommended values are intended to be used by each client as part of the tax base of the taxing jurisdictions served by the client.

***THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE.  
IT IS ROUTINELY UPDATED TO MEET THE REQUIREMENTS OF  
THE LEGISLATURE, THE COMPTROLLER AND OUR CLIENTS.***

## **SCOPE OF RESPONSIBILITY**

The specific responsibilities of HLL&A to each of its clients are described in the contract between them. HLL&A's general responsibilities are to discover certain types of property, as required; to inspect the subject properties, where possible; and to appraise the properties or classes of property that are listed in the contract. An owner name and address record is also maintained for each property that is appraised. This set of services is typically provided to all of HLL&A's appraisal clients. These services are also typically supplied to other Texas appraisal districts by competing mass appraisal firms. Appraisal techniques and model types employed by HLL&A are similar to and/or derived from techniques and model types found in a variety of appraisal texts and appraisal courses, including but not limited to the Texas Property Tax Code, the Texas State Comptroller's guidelines, and the Uniform Standards of Professional Appraisal Practices (USPAP).

## **TYPES OF PROPERTY**

In general, Hugh L. Landrum & Associates, Inc. is retained by its clients to appraise one or more of the following types of property:

- Industrial Property, Real and Personal
- Utility, Railroad, and Pipeline Properties
- Special Purpose Properties
- Business Personal Property
- Oil and Gas Reserves


Attached to this report are individual appraisal methods and a reappraisal plan for each type of property that Hugh L. Landrum & Associates, Inc. appraises. HLL&A's methodologies set out herein are derived from USPAP standards, the Texas Property Tax Code, State Comptroller guidelines and other relevant industry standards.

**CERTIFICATION STATEMENT:**

I certify that, to the best of my knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions or are the impartial and unbiased professional analyses, opinions, and conclusions of the other appraisers who are appraising property for the appraisal district to which this report is submitted. A list of the appraisers who are appraising property for the Liberty County Central Appraisal District is attached. Based on my personal knowledge of the education, background, and experience of the appraisers listed in this report, I believe that those appraisers are competent and that their work is credible.
- I have no present or prospective interest in the property that is the subject of this report, and have no personal interest with respect to the parties involved.
- Other than the appraisal services performed under contract for the appraisal district for prior years, I have performed no other services, as an appraiser or in any other capacity, regarding any property that is the subject of this report within the three-year period immediately preceding my acceptance of this assignment.
- I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.
- My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- My compensation for completing this assignment is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- The analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practices*.
- I have not made a personal inspection of all of the properties that are the subject of this report. However, the properties have been inspected by one or more of the appraisers assigned to appraise properties in the appraisal district to which this report is submitted.
- No one provided significant mass appraisal assistance to the person signing this certification except the appraisers assigned to appraise properties in this appraisal district, a list of which is attached.

Subscribed and sworn to this 14 day of March, 2019.

  
\_\_\_\_\_  
Hugh L. Landrum, Jr.  
President  
Hugh L. Landrum & Associates, Inc.

**VALUATION METHODOLOGY SUMMARY  
FOR  
INDUSTRIAL PROPERTY  
APPRAISED BY HUGH L. LANDRUM & ASSOCIATES, INC.  
2019 - 2020**

**A. Overview**

This type of property consists of processing facilities and related personal property. Hugh L. Landrum & Associates, Inc. is contracted to reappraise this type of property annually for the appraisal district. The completed appraisals are all retrospective in nature. The purpose of the appraisals is to estimate market value as of January 1 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

- A. exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- B. both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and
- C. both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

The effective date of the appraisals is January 1 of the year for which this report is submitted unless the property owner or agent has applied for and been granted September 1 inventory valuation as allowed by Section 23.12(f) of the Texas Property Tax Code.

The client for the mass appraisal is the Texas appraisal district named on the certification page of this report. The intended users of this report are the client and the property owners of the client appraisal district.

The appraisal results will be used as the tax base upon which a property tax will be levied. A listing of the industrial properties appraised by Hugh L. Landrum & Associates, Inc. for the appraisal district is available at the appraisal district office. Industrial properties are normally re-inspected annually.

Documents relevant to an understanding of these appraisals include the confidential rendition, if any, filed with the appraisal district by the owner or agent of the property; other reports described in the Texas Property Tax Code; asset lists and other confidential data supplied by the owner or agent; Property Appraisal & Assessment Administration published by the International Association of Assessing Officers and adopted by the Texas Comptroller of Public Accounts; and Engineering Valuation and Depreciation by Marston, Winfrey, and Hempstead; the Texas Property Tax Code and other codified statutes.

HLL&A's industrial appraisal staff includes Registered Professional Engineers as well as experienced appraisers who are knowledgeable in all three approaches to value. Industrial appraisal staff stays abreast of current trends affecting industrial properties through review of published materials, attendance at conferences, course work, and continuing education. All industrial appraisers are registered with the Texas Department of Licensing & Regulation.

#### F. Valuation Approach and Analysis

Industrial properties are appraised using replacement/reproduction cost new less depreciation models. Replacement costs are estimated from published sources, other publicly available information, and comparable properties. Reproduction costs are based on actual investment in the subject or comparable properties adjusted for typical changes in cost over time. Depreciation is calculated on the age/life method using typical economic lives and depreciation rates based on published sources, market evidence, and the experience of knowledgeable appraisers. Adjustments for functional and economic obsolescence may be made if utilization and income data for the subject property justify such. Income Approach models (direct capitalization and discounted cash flow) are also used when economic and/or subject property income information is available. Capitalization and discount rates are based on published capital costs for the industry of the subject property. A market data model based on typical selling prices per unit of capacity is also used when appropriate market sales information is available.

Because cost information is the most readily available type of data, the cost approach model is always considered and used. If sufficient data is available either of both of the other two models may also be considered and used. The market data and income approach models may need to be reduced by the value of the land in order to arrive at a value of improvements and personal property.

Model calibration in the cost approach involves the selection of the appropriate service life for each type or class of property. Further calibration can occur through the use of utilization or through-put data provided by the owner or agent. Income approach calibration involves the selection of the cost of capital or discount rate appropriate to the type of property being appraised as well as adjusting the projected income stream to reflect the individual characteristics of the subject property. Model calibration in the market data approach involves adjusting sales prices of comparable properties to reflect the individual characteristics of the subject property.

The mathematical form of each model is described below.

#### Cost Approach

$$RCN - PD - FO - EO = \text{Cost Indicator of Value}$$

Where:

RCN = Replacement or Reproduction Cost New

PD = Physical Depreciation

FO = Function Obsolescence

EO = Economic Obsolescence

#### Income Approach

$$PGR - VCL - FE - VE = NOI$$

$$NOI/R = \text{Income Indicator of Value}$$

Where:

PGR = Potential Gross Rent

VCL = Vacancy and Collection Loss



analysis difficult and subjective. Performance is also measured through comparison with valid single-property appraisals submitted for staff review.

#### **H. Review, Verification & Evaluation by the CAD**

Prior to submission of the Appraisal Roll to the ARB, the Chief Appraiser shall request a random sampling of appraisals from HLL&A. HLL&A shall provide the Chief Appraiser with the requested appraisals and all non-privileged and non-proprietary supporting data and review the information with the Chief Appraiser in order for the CAD to evaluate the appraisal results of HLL&A. The HLL&A appraiser responsible for each property sampled will review the appraisal, including but not limited to methodology, technique, data used and final outcome, with the Chief Appraiser or other employee of the CAD designated by the Chief Appraiser to review the contracted work. The Chief Appraiser or designee will verify that all assigned properties were indeed appraised and valued as set out in the contract and here-in and document any failure to do so, noting what if anything is required to fulfill the contract requirements.

Further, a computer-assisted statistical review of property value changes is also conducted at various times throughout the year allowing the CAD to verify that the properties called for in the Contract were appraised and values were entered. Finally, HLL&A will make any non-privileged and non-proprietary market data supporting the values of the properties it appraises, available to the CAD and for inspection by property owners on request.

#### **I. Reappraisal Plan for Industrial Properties**

Industrial Properties covered by the contract between the CAD and HLL&A shall be reappraised each year. For each year of the contract, the following activities will be undertaken for all industrial properties assigned to HLL&A under its contract with the CAD. Estimates of value are typically provided to the CAD in mid to late May of each Tax Year, but in any event will be available as requested by the Chief Appraiser each year.

1. Identify properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photographs, land-based photographs, surveys, maps and/or property sketches;
2. Identify and update relevant characteristics of each property in the property records of the CAD;
3. Define market areas in the CAD, where applicable;
4. Identify property characteristics that affect property value in each market area or for each property, including:
  - a. The location and market area of the property;
  - b. Physical attributes of the property such as size, age and condition;
  - c. Legal and economic attributes, if any;
  - d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, exemptions or legal restrictions;
5. If applicable, develop an appraisal model that reflects the relationship among the property characteristics affecting the value in each market area and determines the contribution of individual property characteristics;
6. Apply conclusions reflected in the model to the characteristics of the property appraised; and

**VALUATION METHODOLOGY SUMMARY  
FOR  
UTILITY, RAILROAD, AND PIPELINE PROPERTIES  
APPRAISED BY HUGH L. LANDRUM & ASSOCIATES, INC.  
2019 - 2020**

**A. Overview**

This type of property consists of operating property, excluding land, owned by utility, railroad, and pipeline companies, and related personal property and improvements. Hugh L. Landrum & Associates, Inc. is contracted to reappraise this type of property annually for the appraisal district. The completed appraisals are all retrospective in nature. The purpose of the appraisals is to estimate market value as of January 1 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

- A. exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- B. both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and
- C. both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

The effective date of the appraisals is January 1 of the year for which this report is submitted unless the property owner or agent has applied for and been granted September 1 inventory valuation as allowed by Section 23.12(f) of the Texas Property Tax Code.

The client for the mass appraisal is the Texas appraisal district named on the certification page of this report. The intended users of this report are the client and the property owners of the client appraisal district

The appraisal results will be used as the tax base upon which a property tax will be levied. A listing of the utility, railroad, and pipeline properties appraised by Hugh L. Landrum & Associates, Inc. for the appraisal district is available at the appraisal district office. Such utility, railroad, and pipeline properties that are susceptible to inspection (e.g. compressor stations, pump stations, buildings, and power plants) are normally re-inspected at least every three years.

HLL&A's utility, railroad, and pipeline appraisal staff includes licensed engineers as well as experienced appraisers who are knowledgeable in all three approaches to value. The appraisal staff stays abreast of current trends affecting utility, railroad, and pipeline properties through review of published materials, attendance at conferences, course work, and continuing education. All appraisers are registered with the Texas Department of Licensing & Regulation.

#### F. Valuation Approach and Analysis

For all pipelines a value is calculated using a Replacement Cost New Less Depreciation (RCNLD) model. This involves first calculating the cost of building a new pipeline of equal utility using current prices. The Replacement Cost New (RCN) is a function of location, length, diameter, and composition. Depreciation is then subtracted from RCN to produce the final value estimate. Depreciation is defined as the loss of value resulting from any cause. The three common forms of depreciation are physical, functional, and economic. Physical depreciation is accounted for on the basis of the age of the subject pipeline. Functional and economic obsolescence (depreciation) can be estimated through the use of survivor curves or other normative techniques. Specific calculations to estimate abnormal functional and/or economic obsolescence can be made on the basis of the typical utilization of the subject pipeline. After deductions from RCN have been made for all three forms of depreciation the remainder is the RCNLD or cost approach model indicator of value.

In addition to the RCNLD indicator, a unit value model may also be used for those pipelines for which appropriate income statements and balance sheets are also available. Generally, this model is used for those pipelines that by regulation are considered to be common carriers. The unit value model must be calculated for the entire pipeline system. The unit value model typically involves an income approach to value and a rate base cost approach. The income approach is based on a projection of expected future typical net operating income (NOI). The projected NOI is discounted to a present worth using a current cost of capital that is both typical of the industry and reflective of the risks inherent in the subject property.

The unit value model cost approach is typically an estimation of the current rate base of the subject pipeline (total investment less book depreciation allowed under the current form of regulation). An additional calculation is made to detect and estimate economic obsolescence. Any economic obsolescence is deducted from the rate base cost less book depreciation to achieve a final cost indicator. The unit value model may also include a stock and debt approach in lieu of a market data approach. The stock and debt approach involves finding the total value of the owner's liabilities (equity and debt) and assuming that they are equal to the value of the assets. The two (or three, if the stock and debt approach is included) unit value indicators are then reconciled into a final unit appraisal model indicator of value. The unit value must then be reconciled with the RCNLD model indicator of value for the entire pipeline system being appraised. The final correlated value of the system can then be allocated among the various components of the system to determine the tax roll value for each pipeline segment.

Utility and railroad properties are appraised in a manner similar to pipeline except the RCNLD model is not used. For all three types of property (utility, railroad, and pipeline) the appraiser must first form an opinion of highest and best use. If the highest and best use of the operating property is the current use under current regulation, the unit value model is considered highly appropriate. If the highest and best use is something different, then the RCNLD model may be more appropriate. Compressor stations, pump stations, improvements, and related facilities are appraised using a replacement cost new less depreciation model.

Model calibration in the RCNLD model involves the selection of the appropriate service life for each type or class of property. Further calibration can occur through the use of utilization or through-put data provided by the owner or agent. Model calibration in the unit

Where:  
NOI = Net Operating Income  
DF = Discount Factor  
PW = Present Worth  
n = Last year of holding period

Stock and Debt Approach

MVE + MVD = Market Value of Assets

Where:  
MVE = Market value of Equity  
MVD = Market value of Debt

In reconciling multiple model results for a property the appraiser considers the model results that best address the individual characteristics of the subject property while maintaining equalization among like properties. Final results for each property may be found on the appraisal district's appraisal roll.

Land valuation for utility and pipeline properties is the responsibility of appraisal district staff as is the highest and best use analysis of the site. Sites are analyzed for highest and best use as though they were vacant. Highest and best use analysis of the improvements is based on the likelihood of the continued use of the improvements in their current and/or intended use. Railroad corridor land is included in the appraisal of the operating property. The highest and best use of railroad corridor land is presumed to be as operating property. An appraiser's identification of a property's highest and best use is always a statement of opinion, never a statement of fact.

The rate-base cost approach, stock and debt approach, and income approach models must be reduced by the value of the land in order to arrive at a value of improvements, personal property, and other operating property.

G. Review and Testing

Field review of appraisals is performed through the regular inspection of subject properties. The periodic reassignment of properties among appraisers or the review of appraisals by an experienced appraiser also contributes to the review process. A computer-assisted statistical review of property value changes is also conducted.

Appraisals to sales ratios are the preferred method for measuring performance, however sales are very infrequent. Furthermore, market transactions normally occur for multiple sites and include both real and personal property, tangible and intangible, making analysis difficult and subjective. Performance is also measured through comparison with valid single-property appraisals submitted for staff review. Selected appraisal results are tested annually by the Property Tax Assistance Division of the Texas Comptroller's Office. The Comptroller's review as well as comparisons with single-property appraisals indicates the validity of the models as well as the calibration techniques employed.

Generally, these types of properties will be valued as an entire unit and the result apportioned to the pieces in the whole.

### **B. Assumptions and Limiting Conditions**

All appraisals are subject to the following assumptions and limiting conditions:

1. Title to the property is assumed to be good and marketable and the legal description correct.
2. No responsibility for legal matters is assumed. All existing liens, mortgages, or other encumbrances have been disregarded and the property is appraised as though free and clear, under responsible ownership and competent management.
3. The appraisers do not necessarily inspect every property every year.
4. All sketches on the appraisal documents are intended to be visual aids and should not be construed as surveys or engineering reports unless otherwise specified.
5. All information in the appraisal documents has been obtained by members of HLL&A's staff or by other reliable sources.
6. The appraisals were prepared exclusively for ad valorem tax purposes.
7. The appraisers have inspected as far as possible, by observation, the improvements being appraised, however, it is not possible to personally observe conditions beneath the soil or hidden structural components within the improvements. Therefore no representations are made as to these matters unless specifically considered in an individual appraisal.

### **C. Data Collection and Validation**

Data on the subject properties is collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other means which require confidentiality. HLL&A receives renditions from either the CAD or directly from the taxpayer. HLL&A is responsible for identifying the accounts that have been properly rendered to the CAD. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties. Due to the unique nature of each special purpose property there is no standard data collection form or manual.

### **D. Market Data Availability**

Market data, where available, is collected and maintained for each of the various industries appraised. This data includes, but is not limited to, cap rate studies and the supporting evidence, value allocation methodologies, cost tables and expense ratio data applicable to the specific industries being appraised. All non-proprietary and non-confidential market data is available to the CAD and to taxpayers upon request.

### **E. Identification of New Property**

Identifying new special purpose properties &/or new construction is the responsibility of HLL&A. This is accomplished through a variety of means including, but not limited to obtaining and reviewing building permit and abatement requests; a visual inspection of an area; the input from others in the County who might identify any new properties in the area.

### **F. Valuation Approach and Analysis**

Special purpose properties are appraised using replacement/reproduction cost new less depreciation models. Replacement costs are estimated from published sources, other

A variation of the income model is:

NOI for year 1 x DF for year 1 = PW of year 1 NOI  
NOI for year n x DF for year n = PW of year n NOI  
Net Reversion x DF for year n = PW of Reversion  
Sum of PW's for all years 1 - n = Income Indicator of Value

Where:

NOI = Net Operating Income  
DF = Discount Factor  
PW = Present Worth  
n = Last year of holding period

#### Market Data Approach

ASPCP/U = PU  
ASPU x SU = Market Data Indicator of Value

Where:

ASPCP = Adjusted Sales Price of Comparable Property  
U = Unit of Comparison  
PU = Price per Unit of comparison  
ASPU = Adjusted Sales Price per Unit of comparison  
SU = Subject Property's number of Units of comparison

In reconciling multiple model results for a property the appraiser considers the model results that best address the individual characteristics of the subject property while maintaining equalization among like properties. Final results for each property may be found on the appraisal district's appraisal roll.

Land valuation for industrial properties is the responsibility of appraisal district staff as is the highest and best use analysis of the site. Sites are analyzed for highest and best use as though they were vacant. Highest and best use analysis of the improvements is based on the likelihood of the continued use of the improvements in their current and/or intended use. Highest and best use analysis of these improvements is essential to an accurate appraisal. Identification of a highest and best use different from the current or intended use has a significant effect on the cost and market data models. An appraiser's identification of a property's highest and best use is always a statement of opinion, never a statement of fact.

The market data and income approach models must be reduced by the value of the land and perhaps personal property in order to arrive at a value of the improvements.

#### G. Review and Testing

Field review of appraisals is performed through the regular inspection of subject properties. The periodic reassignment of properties among appraisers or the review of appraisals by an experienced appraiser also contributes to the review process. A computer-assisted statistical review of property value changes is also conducted.

Appraisal-to-sales ratios are the preferred method for measuring performance, however sales are very infrequent. Furthermore, market transactions normally occur for

6. Apply conclusions reflected in the model to the characteristics of the property appraised; and
7. Review the appraisal results to determine value.

Like industrial properties, special purpose properties will be valued on a cost approach basis since these properties have a low frequency of being bought and sold in the open market. In addition, since these properties are owner occupied, the income information is difficult to obtain and rarely applicable.



for the appraisal district is available at the appraisal district office. Personal property is normally re-inspected annually.

Documents relevant to an understanding of these appraisals include the confidential rendition, if any, filed with the appraisal district by the owner or agent of the property; other reports described in the Texas Property tax Code; asset lists and other confidential data supplied by the owner or agent; Property Appraisal & Assessment Administration published by the International Association of Assessing Officers and adopted by the Texas Comptroller of Public Accounts; and Engineering Valuation and Depreciation by Marston, Winfrey, and Hempstead; the Texas Property Tax Code and other codified statutes.

HLL&A's personal property appraisal staff includes licensed engineers as well as experienced appraisers who are knowledgeable in all three approaches to value. Personal property appraisal staff stays abreast of current trends affecting personal property through review of published materials, attendance at conferences, course work, and continuing education. All personal property appraisers are registered with the Texas Department of Licensing & Regulation.

#### **B. Assumptions and Limiting Conditions**

All appraisals are subject to the following assumptions and limiting conditions:

1. Title to the property is assumed to be good and marketable and the legal description correct.
2. No responsibility for legal matters is assumed. All existing liens, mortgages, or other encumbrances have been disregarded and the property is appraised as though free and clear, under responsible ownership and competent management.
3. All sketches on the appraisal documents are intended to be visual aids and should not be construed as surveys or engineering reports unless otherwise specified.
4. All information in the appraisal documents has been obtained by members of HLL&A's staff or by other reliable sources.
5. The appraisals were prepared exclusively for ad valorem tax purposes.

#### **C. Data Collection and Validation**

Data on the subject properties are collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other means which require confidentiality. HLL&A receives renditions from either the CAD or directly from the taxpayer. HLL&A is responsible for identifying the accounts that have been properly rendered to the CAD. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties.

#### **D. Market Data Availability**

Market data is collected and maintained for the various types of business personal property appraised. This data includes, but is not limited to, cost indices and tables, depreciation schedules, and value allocation methodologies, applicable to the specific types of properties being appraised. All non-proprietary and non-confidential market data is available to the CAD and to taxpayers upon request.

PD = Physical Depreciation  
FO = Function Obsolescence  
EO = Economic Obsolescence

Income Approach

$PGR - VCL - FE - VE = NOI$   
NOI/R = Income Indicator of Value

Where:  
PGR = Potential Gross Rent  
VCL = Vacancy and Collection Loss  
FE = Fixed Expenses  
VE = Variable Expenses  
R = Discount Rate or Cost of Capital

A variation of the income model is:

NOI for year 1 x DF for year 1 = PW of year 1 NOI  
NOI for year n x DF for year n = PW of year n NOI  
Net Reversion x DF for year n = PW of Reversion  
Sum of PW's for all years 1 - n = Income Indicator of Value

Where:  
NOI = Net Operating Income  
DF = Discount Factor  
PW = Present Worth  
n = Last year of holding period

Market Data Approach

$ASPCP/U = PU$   
 $ASPU \times SU = \text{Market Data Indicator of Value}$

Where:  
ASPCP = Adjusted Sales Price of Comparable Property  
U = Unit of Comparison  
PU = Price per Unit of comparison  
ASPU = Adjusted Sales Price per Unit of comparison  
SU = Subject Property's number of Units of comparison

In reconciling multiple model results for a property the appraiser considers the model results that best address the individual characteristics of the subject property and that are based on the most reliable data while maintaining equalization among like properties. Final results for each property may be found on the appraisal district's appraisal roll.

Highest and best use analysis of personal property is based on the likelihood of the continued use of the personal property in its current and/or intended use. An appraiser's identification of a property's highest and best use is always a statement of opinion, never a statement of fact.

- c. Legal and economic attributes, if any;
- d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, exemptions or legal restrictions;
- 4. Develop or update a cost schedule based on SIC codes and market conditions;
- 5. Create or refine valuation models using actual cost data to derive the RCN of a particular unit;
- 6. Apply these schedules and models to estimate values; and
- 7. Review the rendition information in light of the schedules to determine value.

Business personal properties are required to be rendered and will be typically be valued on a cost approach basis.

3. The appraisers do not necessarily inspect every property every year.
4. All sketches on the appraisal documents are intended to be visual aids and should not be construed as surveys or engineering reports unless otherwise specified.
5. All information in the appraisal documents has been obtained by members of HLL&A's staff or by other reliable sources.
6. The appraisals were prepared exclusively for ad valorem tax purposes.
7. The appraisers have inspected as far as possible, by observation, the improvements being appraised, however, it is not possible to personally observe conditions beneath the soil or hidden structural components within the improvements. Therefore no representations are made as to these matters unless specifically considered in an individual appraisal.

#### **C. Data Collection and Validation**

Data on the subject properties is collected as part of the inspection process and through later submissions by the property owner. Production rates for each lease are developed using monthly production reported to the Railroad Commission of Texas. Monthly lease volumes sold and the income received for them, as reported to the Comptroller's Office for severance tax purposes, are used to develop product prices and also to estimate the previous year's income.

Submitted data may be on a rendition form or in other means which require confidentiality. HLL&A receives renditions from either the CAD or directly from the taxpayer. HLL&A is responsible for identifying the accounts that have been properly rendered to the CAD. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties. Due to the varied nature of mineral properties there is no standard data collection form or manual.

#### **D. Market Data Availability**

Market data is collected and maintained for each of the various types of mineral leases appraised. This data includes, but is not limited to, discount rate studies and the supporting evidence, cost of capital information and typical capital structures for the type and area being appraised, lease operating expense data, salvage value data and property and severance tax rate data. All non-proprietary and non-confidential market data is available to the CAD and to taxpayers upon request.

#### **E. Identification of New Property**

Identifying new mineral properties is the responsibility of HLL&A. This is accomplished through a variety of means including, but not limited to obtaining and reviewing monthly production updates from the Railroad Commission and comparing the data to the lease information already being appraised; a visual inspection of an area where production is suspected; the polling of operators in the County to see if they can identify any new producing leases or new operators in the area.

At various times throughout the year, at the request of the Chief Appraiser, HLL&A provides an updated list from the Railroad Commission in order for the CAD to compare to the list of leases already being appraised by HLL&A for the CAD. In this way, the CAD can verify that HLL&A is indeed discovering all taxable mineral properties in its discovery process.

#### **H. Review, Verification & Evaluation by the CAD**

Prior to submission of the Appraisal Roll to the ARB, the Chief Appraiser shall request a random sampling of appraisals from HLL&A. HLL&A shall provide the Chief Appraiser with the requested appraisals and all non-privileged and non-proprietary supporting data and review the information with the Chief Appraiser in order for the CAD to evaluate the appraisal results of HLL&A. The HLL&A appraiser responsible for each property sampled will review the appraisal, including but not limited to methodology, technique, data used and final outcome, with the Chief Appraiser or other employee of the CAD designated by the Chief Appraiser to review the contracted work. The Chief Appraiser or designee will verify that all assigned properties were indeed appraised and valued as set out in the contract and here-in and document any failure to do so, noting what if anything is required to fulfill the contract requirements.

At various times throughout the year, at the request of the Chief Appraiser, HLL&A provides an updated list from the Railroad Commission in order for the CAD to compare to the list of leases already being appraised by HLL&A for the CAD. In this way, the CAD can verify that HLL&A is indeed discovering all taxable mineral properties in its discovery process.

Further, a computer-assisted statistical review of property value changes is also conducted at various times throughout the year allowing the CAD to verify that the properties called for in the Contract were appraised and values were entered. Finally, HLL&A will make any non-privileged and non-proprietary market data supporting the values of the properties it appraises, available to the CAD and for inspection by property owners on request.

#### **I. Reappraisal Plan for Mineral Properties**

Mineral Properties covered by the contract between the CAD and HLL&A shall be reappraised each year. For each year of the contract, the following activities will be undertaken for all business personal properties assigned to HLL&A under its contract with the CAD. Estimates of value are typically provided to the CAD in mid to late May of each Tax Year, but in any event will be available as requested by the Chief Appraiser each year.

1. Identify properties to be appraised through physical inspection or by other reliable means of identification, including Railroad Commission filings, deeds or other legal documentation, aerial photographs, land-based photographs, surveys, maps and/or property sketches;
2. Identify and update relevant characteristics of each property in the property records of the CAD;
3. Identify and update all ownership information of each property;
4. Identify property characteristics that affect property value for each property, including:

## **Hugh L. Landrum & Associates, Inc. Reappraisal Plan by Property Type**

### **INTRODUCTION**

Hugh L. Landrum & Associates, Inc. is a Registered Professional Engineering Firm in the State of Texas specializing in the mass appraisal of complex properties. In this role HLL&A recommends values to its client appraisal districts.

Pursuant to the Texas Property Tax Code, each Appraisal District is required to implement a biennial reappraisal plan. As a contractor to the Appraisal District, Hugh L. Landrum & Associates, Inc. provides this reappraisal plan in an effort to assist the taxpayers of the county in understanding the methods by which their properties are being valued; and to further aid the CAD in satisfying its requirements under the Code and those of the Comptroller's Property Tax Assistance Division.

***THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE.  
IT IS ROUTINELY UPDATED TO MEET THE REQUIREMENTS OF  
THE LEGISLATURE, THE COMPTROLLER AND OUR CLIENTS.***

### **PLAN FOR PERIODIC REAPPRAISAL**

#### **INDUSTRIAL PROPERTIES:**

Each year the following activities will be undertaken for all industrial properties assigned to HLL&A under its contract with the CAD. Estimates of value are typically provided to the CAD in mid to late May of each Tax Year.

1. Identify properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photographs, land-based photographs, surveys, maps and/or property sketches;
2. Identify and update relevant characteristics of each property in the property records of the CAD;
3. Define market areas in the CAD, where applicable;
4. Collect, update, review and analyze market data to be used to support values on properties appraised;
5. Identify property characteristics that affect property value in each market area or for each property, including:
  - a. The location and market area of the property;
  - b. Physical attributes of the property such as size, age and condition;
  - c. Legal and economic attributes, if any;
  - d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, exemptions or legal restrictions;
6. If applicable, develop an appraisal model that reflects the relationship among the property characteristics affecting the value in each market area and determines the contribution of individual property characteristics;
7. Apply conclusions reflected in the model to the characteristics of the property appraised; and

3. Define market areas in the CAD, where applicable;
4. Collect, update, review and analyze market data to be used to support values on properties appraised;
5. Identify property characteristics that affect property value in each market area or for each property, including:
  - a. The location and market area of the property;
  - b. Physical attributes of the property such as size, age and condition;
  - c. Legal and economic attributes, if any;
  - d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, exemptions or legal restrictions;
6. If applicable, develop an appraisal model that reflects the relationship among the property characteristics affecting the value in each market area and determines the contribution of individual property characteristics;
7. Apply conclusions reflected in the model to the characteristics of the property appraised; and
8. Review the appraisal results to determine value.

Like industrial properties, special purpose properties will be valued on a cost approach basis since these properties have a low frequency of being bought and sold in the open market. In addition, since these properties are owner occupied, the income information is difficult to obtain and rarely applicable.

**BUSINESS & INDUSTRIAL TANGIBLE PERSONAL PROPERTIES:**

Each year the following activities will be undertaken for all business personal property assigned to HLL&A under its contract with the CAD. Estimates of value are typically provided to the CAD in mid to late May of each Tax Year.

1. Identify properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photographs, land-based photographs, or renditions;
2. Identify and update relevant characteristics of each property in the property records of the CAD;
3. Collect, update, review and analyze market data to be used to support values on properties appraised;
4. Identify property characteristics that affect property value for each property, including:
  - a. The location and market area of the property;
  - b. Physical attributes of the property such as size, age and condition;
  - c. Legal and economic attributes, if any;
  - d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, exemptions or legal restrictions;
5. Develop or update a cost schedule based on SIC codes and market conditions;
6. Create or refine valuation models using actual cost data to derive the RCN of a particular unit;
7. Apply these schedules and models to estimate values; and
8. Review the rendition information in light of the schedules to determine value.

## ATTACHMENT "E"

### MARKET VALUE

#### **Tax Code Definition of Market Value is as Follows:**

"Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if;

- (a) Exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- (b) Both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and
- (c) Both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

#### **Two Definitions of Market Value Implied by Supreme Court Rulings May be Stated as Follows:**

Personal Property Market value is the price that the dealers in the goods are willing to receive and purchasers are willing to pay when goods are bought and sold in the ordinary course of trade.

Real property market value is the amount of money that probably would be arrived at through fair negotiations between a willing seller and a willing buyer, taking into consideration the uses to which the property may be put.

#### **The Appraisal Institute's definition of market value, disposition value and liquidation value are as follows:**

##### **Market Value**

Market value is based on the concept of an open and competitive market in which transactions are free of duress or forced liquidation. The report clarifies and rearranges the conditions set forth in the definition, as follows:

Market value is the most probable price at which a specified interest in real property is likely to bring under all of the following conditions:

1. Consummation of a sale as of a specified date.
2. Open and competitive market for the property interest appraised.



### **Liquidation Value**

Liquidation value is the most probable price which a specified interest in real property is likely to bring under all of the following conditions:

1. Consummation of sale within a severely limited future marketing period specified by the client.
2. Current actual market conditions for the property interest appraised.
3. Buyer acting prudently and knowledgeable.
4. Seller under extreme compulsion to sell.
5. Buyer typically motivated.
6. Buyer acting in what he/she considers his/her best interests.
7. Limited marketing effort made and limited time allowed for completion of sale.
8. Payment made in cash to U.S. dollars or in terms of financial arrangements comparable thereto.
9. Price represents the normal concessions granted by anyone associated with the sale.

**The following types of sales are generally NOT considered arm's-length transaction:**

1. Sales involving courts, or in which government agencies or public utilities are principals.
2. Sales in which charitable, religious or educational institutions are principals.
3. Sales in which a financial institution is the buyer and a lienholder or the seller of property taken through foreclosure.
4. Sales between relatives.
5. Sales between corporate affiliates.
6. Sales of convenience.
7. Sales of settling an estate.
8. Forced sales.
9. Sales of a doubtful title.

## ATTACHMENT "F"

# Standard on Mass Appraisal of Real Property

Approved July 2017

### International Association of Assessing Officers

This standard replaces the January 2012 *Standard on Mass Appraisal of Real Property* and is a complete revision. The 2012 *Standard on Mass Appraisal of Real Property* was a partial revision that replaced the 2002 standard. The 2002 standard combined and replaced the 1983 *Standard on the Application of the Three Approaches to Value in Mass Appraisal*, the 1984 *Standard on Mass Appraisal*, and the 1988 *Standard on Urban Land Valuation*. IAAO assessment standards represent a consensus in the assessing profession and have been adopted by the Executive Board of IAAO. The objective of IAAO standards is to provide a systematic means by which concerned assessing officers can improve and standardize the operation of their offices. IAAO standards are advisory in nature and the use of, or compliance with, such standards is purely voluntary. If any portion of these standards is found to be in conflict with the *Uniform Standards of Professional Appraisal Practice (USPAP)* or state laws, *USPAP* and state laws shall govern.

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## STANDARD ON MASS APPRAISAL OF REAL PROPERTY—2017

Various graphs can also be used for this purpose. The *Standard on Ratio Studies* (IAAO 2013) stipulates that the level of appraisal for each major group of properties should be within 5 percent of the overall level for the jurisdiction and provides criteria for determining whether it can be concluded from ratio data that the standard has not been met. Another aspect of uniformity relates to the consistency of assessment levels within property groups. There are several such measures, the preeminent of which is the coefficient of dispersion (COD), which represents the average percentage deviation from the median ratio. The lower the COD, the more uniform the ratios within the property group. In addition, uniformity can be viewed spatially by plotting sales ratios on thematic maps.

The *Standard on Ratio Studies* (IAAO 2013) provides the following standards for the COD:

- Single-family homes and condominiums: CODs of 5 to 10 for newer or fairly similar residences and 5 to 15 for older or more heterogeneous areas
- Income-producing properties: CODs of 5 to 15 in larger, urban areas and 5 to 20 in other areas
- Vacant land: CODs of 5 to 20 in urban areas and 5 to 25 in rural or seasonal recreation areas
- Rural residential, seasonal, and manufactured homes: CODs of 5 to 20.

The entire appraisal staff must be aware of and monitor compliance with these standards and take corrective action where necessary. Poor uniformity within a property group is usually indicative of data problems or deficient valuation procedures or tables and cannot be corrected by application of market adjustment factors.

A final aspect of assessment uniformity relates to equity between low- and high-value properties. Although there are statistical subtleties that can bias evaluation of price-related uniformity, the IAAO literature (see particularly *Fundamentals of Mass Appraisal* [Gloudeans and Almy 2011, 385–392 and Appendix B] and the *Standard on Ratio Studies* [IAAO 2013]) provides guidance and relevant measures, namely, the price-related differential (PRD) and coefficient of price-related bias (PRB).

The PRD provides a simple gauge of price-related bias. The *Standard on Ratio Studies* (IAAO 2013) calls for PRDs of 0.98 to 1.03. PRDs below 0.98 tend to indicate assessment progressivity, the condition in which assessment ratios increase with price. PRDs above 1.03 tend to indicate assessment regressivity, in which assessment ratios decline with price. The PRB indicates the percentage by which assessment ratios change whenever values double or are halved. For example, a PRB of  $-0.03$  would mean that assessment levels fall by 3 percent when value doubles. The *Standard on Ratio Studies* calls for PRBs of  $-0.05$  to  $+0.05$  and regards PRBs outside the range of  $-0.10$  to  $+0.10$  as unacceptable.

Because price is observable only for sale properties, there is no easy correction for the PRB, which is usually due to problems in valuation models and schedules. Sometimes other ratio study diagnostics will provide clues. For example, high ratios for lower construction classes may indicate that base rates should be reduced for those classes, which should in turn improve assessment ratios for low-value properties.

### 5.3 Holdout Samples

Holdout samples are validated sales that are not used in valuation but instead are used to test valuation performance. Holdout samples should be randomly selected with a view to obtaining an adequate sample while ensuring that the number of sales available for valuation will provide

reliable results for the range of properties that must be valued (holdout samples of 10 to 20 percent are typical). If too few sales are available, later sales can be validated and used for the same purpose. (For a method of using sales both to develop and test valuation models, see "The Use of Cross-validation in CAMA Modeling to Get the Most Out of Sales" [Jensen 2011].)

Since they were not used in valuation, holdout samples can provide more objective measures of valuation performance. This can be particularly important when values are not based on a common algorithm as cost and MRA models are. Manually assigning land values, for example, might produce sales ratio statistics that appear excellent but are not representative of broader performance for both sold and unsold properties. Comparable sales models that value a sold property using the sale of a property as a comparable for itself can produce quite different results when tested on a holdout group.

When a new valuation approach or technique is used for the first time, holdout sales can be helpful in validating use of the new method. In general, however, holdout samples are unnecessary as long as valuation models are based on common algorithms and schedules and the value assigned to a sale property is not a function of its price. Properly validated later sales can provide follow-up performance indicators without compromising the number of sales available for valuation.

### 5.4 Documentation

Valuation procedures and models should be documented. Appraisal staff should have at least a general understanding of how the models work and the various rates and adjustments made by the models. Cost manuals should be current and contain the rates and adjustments used to value improvements by the cost approach. Similarly, land values should be supported by tables of rates and adjustments for features such as water frontage, traffic, and other relevant influences. MRA models and other sales comparison algorithms should document final equations and should be reproducible, so that rerunning the model produces the same value. Schedules of rental rates, vacancy rates, expense ratios, income multipliers, and capitalization rates should document how values based on the income approach were derived.

It can be particularly helpful to prepare a manual, booklet, or report for each major property type that provides a narrative summary of the valuation approach and methodology and contains at least the more common rates and adjustments. Examples of how values were computed for sample properties can be particularly helpful. The manuals serve as a resource for current staff and can be helpful in training new staff or explaining the valuation process to other interested parties. Once prepared, the documents should be updated when valuation schedules change or methods and calculation procedures are revised.

### 5.5 Value Defense

The assessment office staff must have confidence in the appraisals and be able to explain and defend them. This confidence begins with application of reliable appraisal techniques, generation of appropriate valuation reports, and review of preliminary values. It may be helpful to have reports that list each parcel, its characteristics, and its calculated value. Parcels with unusual characteristics, extreme values, or extreme changes in values should be identified for subsequent individual review. Equally important, summary reports should show average values, value changes, and ratio study statistics for various strata of properties. These should be reviewed to ensure the overall consistency of values for various types of property and various locations. (See the *Uniform Standards of Professional Appraisal Practice*, Standards Rule 6-7, for reporting requirements for mass appraisals [The Appraisal Foundation 2012–2013].)

The staff should also be prepared to support individual valuations as required, preferably through comparable sales. At a minimum, staff should be able to produce a property record and explain the basic

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For guidelines on outlier identification and trimming, see Appendix B, “Outlier Trimming Guidelines.”

### 5.3 Measures of Appraisal Level

Estimates of appraisal level are based on measures of central tendency. They should be calculated for each stratum and for such aggregations of strata as may be appropriate. Several common measures of appraisal level (central tendency) should be calculated in ratio studies, including the median ratio, mean ratio, and weighted mean ratio. When one of these measures is calculated on the data in a sample, the result is a point estimate, which is accurate for the sample but is only one indicator of the level of appraisal in the population. Confidence intervals around the measures of level provide indicators of the reliability of the sample statistics as predictors of the overall level of appraisal of the population. Note that noncompliance with appraisal level standards cannot be determined without the use of confidence intervals or hypothesis tests.

#### 5.3.1 Median

The median ratio is the middle ratio when the ratios are arrayed in order of magnitude. If there is an even number of ratios, the median is the average of the two middle ratios.

The median always divides the data into two equal parts and is less affected by extreme ratios than the other measures of central tendency. Because of these properties, the median is the generally preferred measure of central tendency for evaluating overall appraisal level, determining reappraisal priorities, or evaluating the need for a reappraisal.

#### 5.3.2 Arithmetic Mean

The arithmetic mean (aka mean or average) ratio is the average of the ratios. It is calculated by summing the ratios and dividing by the number of ratios. In a normal distribution the mean equals the median. In a distribution skewed to the right (typical of ratio study data), the mean is greater than the median. The mean is affected more by extreme ratios than the median.

#### 5.3.3 Weighted Mean

The weighted mean ratio is the value-weighted average of the ratios in which the weights are proportional to the sales prices. The weighted mean also is the ratio of the average assessed value to the average sales price value. The weighted mean gives equal weight to each dollar of value in the sample, whereas the median and mean give equal weight to each parcel. The weighted mean is an important statistic in its own right and also is used in computing the PRD, a measure of uniformity between high- and low-value properties.

The weighted mean also can be calculated by (1) summing the appraised values, (2) summing the sales prices, and

(3) dividing the first result by the second. The weighted mean also is called the *aggregate ratio*.

### 5.3.4 Contrasting Measures of Appraisal Level

Because it gives equal weight to each ratio and is unaffected by extreme ratios, the median is the preferred measure of central tendency for evaluating appraisal performance. Although the mean ratio is also a parcel-based measure, it can be affected appreciably by extreme ratios and can be relied upon only if the sample is of adequate size and contains few outliers.

### 5.4 Measures of Variability

Measures of dispersion or variability relate to the uniformity of the ratios and should be calculated for each stratum in the study. In general, the smaller the measure, the better the uniformity, but extremely low measures can signal one of the following:

acceptable causes

- extremely homogenous properties
- very stable markets

unacceptable causes

- lack of quality control
- calculation errors
- poor sample representativeness
- sales chasing

Note that as market activity changes or as the complexity of properties increases, the measures of variability usually increase, even though appraisal procedures may be equally valid.

#### 5.4.1 Coefficient of Dispersion

The most generally useful measure of variability or uniformity is the COD. The COD measures the average percentage deviation of the ratios from the median ratio and is calculated by the following steps:

1. subtract the median from each ratio
2. take the absolute value of the calculated differences
3. sum the absolute differences
4. divide by the number of ratios to obtain the *average absolute deviation*
5. divide by the median
6. multiply by 100

The COD has the desirable feature that its interpretation does *not* depend on the assumption that the ratios are normally distributed. In general, more than half the ratios

## Standard on Ratio Studies

### Part 2. Equalization and Performance Monitoring

#### 1. Scope

This part of the standard provides guidance and supplementary information to oversight agencies that perform ratio studies. Oversight or equalization ratio studies are designed to examine the overall degree of accuracy of assessments within or among categories of property, market areas, assessment jurisdictions or political subdivisions, such as school districts, municipalities, counties, states or provinces.

#### 2. Oversight Ratio Studies

Oversight agencies are often required to monitor appraisal performance and take corrective actions when necessary. Equalization is a common tool used by oversight agencies to address problems associated with appraisal level. Reappraisal orders can be used to correct uniformity problems.

##### 2.1 Monitoring of Appraisal Performance

Oversight agencies usually perform sales ratio studies, which can include independent appraisals, to monitor local assessment performance. The findings can serve as the basis for enforcement actions, such as reappraisal or equalization orders. State/provincial agencies also often perform ratio studies to advise assessors and the public about local appraisal conditions. Many state or provincial oversight agencies have a dual role. One role is to advise and assist local appraisal offices, and the other role is to measure local appraisal performance. These two roles can create a conflict of interest, which should be minimized.

##### 2.2 Equalization

Oversight agencies can use the results of ratio studies to equalize, directly or indirectly, appraisals or assessments in taxing jurisdictions. Direct equalization is accomplished by an oversight agency which alters locally determined assessments by ordering appraisals within jurisdictions or property classes to be adjusted to market value or to the legally required level of assessment. Direct equalization can also involve adjusting appraisals of centrally assessed properties. When indirect equalization is used, appraisals are not adjusted. Instead, indirect equalization involves an oversight agency estimating total taxable value, given the legally required level of assessment or market value. Indirect equalization allows proper distribution of intergovernmental transfer payments between state or provincial and local governments despite different levels of appraisal among

jurisdictions or property classes. Equalization is not an appraisal or a substitute for reappraisal.

When equalization is based on ratio study samples, sampling error must be taken into account. When confidence intervals include an acceptable range, equalization cannot be supported statistically. When confidence intervals fail to bracket official requirements, equalization actions are supported (see section 6.5, "Measures of Reliability," and section 11.1, "Level of Appraisal").

Legal aspects of ratio studies, many of which relate to equalization, are discussed in Appendix G.

##### 2.2.1 Direct Equalization

Many states and provinces have authority and specific procedures for direct equalization. The advantage of direct equalization is that it can be applied to specified strata, such as property classes, geographic areas, and political subdivisions that fail to meet appraisal level performance standards (Dornfest [Journal of Property Tax Assessment and Administration, 2004]). Direct equalization also produces results that are generally more visible to the taxpayer and more clearly reduces perceived inequities between classes (*Standard on Property Tax Policy* [IAAO 2010]). For example, direct equalization allows proper and equal application of debt and tax rate limits and equitable partial exemptions.

Direct equalization involves use of adjustment factors, which produce effects mathematically identical to those derived through the application of "trending" or "index" factors, which are commonly used for value updating by local assessing jurisdictions. The most significant differences typically are the level of the jurisdiction originating the adjustments and the stratification of property to which the factors are applied. Local jurisdictions with primary assessment responsibility can develop value adjustment factors as an interim step between complete reappraisals. Such factors commonly are applied to properties by property type, location, size, age and other characteristics (see *Property Appraisal and Assessment Administration* [IAAO 1990, p. 310]). It is rare for equalization factors developed by oversight agencies to be applied to strata more specific than property class or broad geographic area. Often such factors are applied jurisdiction-wide.

States and provinces that employ direct equalization techniques should understand that such equalization is not a substitute for appraisal or reappraisal. Direct equalization

### 6.5 Measures of Reliability

It is good practice to calculate measures of reliability whenever the results of a ratio study are used for equalization. Measures of reliability will indicate whether there is a desired degree of confidence that a given level of appraisal has not been achieved. The most commonly used measure of ratio study sample reliability is the confidence interval. This interval brackets the unknown population parameter for any sample statistic with a specified (chosen) degree of confidence. When the interval includes a desired assessment level or a performance standard range around the desired level (see section 11 and Table 2-4), equalization adjustments are not warranted. Similarly, when the interval includes a maximum allowable COD (see Table 2-3), reappraisal or other action to correct poor uniformity is not warranted.

### 6.6 Vertical Inequities

The measures of variability discussed in section 6.4 relate to "horizontal," or random, dispersion among the ratios in a stratum, regardless of the value of individual parcels. Another form of inequity can be systematic differences in the appraisal of low- and high-value properties, termed "vertical" inequities. When low-value properties are appraised at greater percentages of market value than high-value properties, assessment *regressivity* is indicated. When low-value properties are appraised at smaller percentages of market value than high-value properties, assessment *progressivity* is the result. Appraisals made for tax purposes should be neither regressive nor progressive.

An index statistic for measuring vertical equity is the PRD, which is calculated by dividing the mean ratio by the weighted mean ratio. This statistic should be close to 1.00. Measures considerably above 1.00 tend to indicate assessment regressivity; measures below 1.00 suggest assessment progressivity. When samples are small or the weighted mean is heavily influenced by several extreme sales prices, however, the PRD may not be a sufficiently reliable measure of vertical inequities. A scatter plot of ratios versus appraised values or sale prices is a useful diagnostic tool. A downward (or upward) trend to the data indicates systematic regressivity (or progressivity). If not sufficiently representative, extreme sales prices can be excluded in calculation of the PRD. Similarly, when samples are very large, the PRD may be too insensitive to show small pockets in which there is significant vertical inequity. Standards for evaluating the PRD are given in section 9.2.7 in this part. In addition, more powerful statistical tests for vertical inequities are available and should be employed to determine the significance of the indication provided by the PRD (see section 5.7 in this part and Twark, Everly and Downing [1989]).

The coefficient of price-related bias (PRB) provides a more meaningful measure of price-related bias. It is obtained by regressing percentage difference from the median ratio on percentage differences in value (see Appendix D). A PRB of  $-.045$  indicates, for example, that assessment ratios fall by 4.5% when values double and increase by 4.5% when values are halved. Like all regression coefficients, the statistical reliability of the PRB can be gauged by noting its *t*-value and related significance level. Like all regression coefficients, the statistical reliability of the PRB can be gauged by noting its *t*-value and related significance level, and by computing confidence intervals. In table 1-4 the PRB is 0.035 and is not statistically significant.

Unacceptable vertical inequities should be addressed through reappraisal or other corrective actions. In some cases, additional stratification can help isolate the problem. Measures of level computed for value strata should not be compared as a way of determining vertical inequity because of a boundary effect that is most pronounced in the highest and lowest strata (Schultz 1996).

### 6.7 Tests of Hypotheses

An appropriate test should be used whenever the purpose of a ratio study is implicitly or explicitly to test a hypothesis. A hypothesis is essentially a tentative answer to a question, such as, Are residential and commercial properties appraised at equal percentages of market value? A test is a statistical means of deciding whether the answer "yes" to such a question can be rejected at a given level of confidence. In this case, if the test leads to the conclusion that residential and commercial properties are not appraised at equal percentages of market value, some sort of corrective action on the part of assessing officials is clearly indicated. Appropriate tests are listed in table 1-2 and discussed in Gloudeans (1999), *Property Appraisal and Assessment Administration* (IAAO 1990), and *Improving Real Property Assessment* (IAAO 1978, 137-54).

### 6.8 The Normal Distribution

Many conventional statistical methods assume the sample data conform to the shape of a bell curve, known as the normal (or Gaussian) distribution. Performance measures based on the mean or standard deviation can be misleading if the study sample does not meet the assumption of normality. As a first step in the analysis, the distribution of sample ratios should be examined to reveal the shape of the data and uncover any unusual features. Although ratio study samples typically do not conform to the normal distribution, graphical techniques and numerical tests can be used to explore the data thoroughly. Traditional choices are the binomial, chi-square, and Lilliefors tests. Newer and more powerful procedures are the Shapiro-Wilk *W*, the D'Agostino-Pearson  $K^2$ , and the Anderson-Darling  $A^2$  tests (D'Agostino and Stephens 1986).

duce a sufficiently reliable ratio study, based upon the best information available.

## 12. Personal Property Studies

Most personal property ratio studies performed by oversight agencies are performed for equalization purposes. Because indirect equalization in particular requires overall estimation of value, it is imperative for these ratio studies to focus on large accounts.

Horizontal equity requires similar levels of appraisal between real and personal property. Sales data for personal property are difficult to obtain and analyze because markets for personal property are generally less visible and more difficult to follow than real property markets. Therefore, performance reviews and appraisal ratio studies should be used in place of sales ratio studies to determine the quality of appraisal of personal property. The performance review does not quantify assessment conditions but can determine general assessment quality. The appraisal ratio study can be used to determine the level and uniformity of assessment for personal property.

### 12.1. The Performance Review

The performance review is an empirical study that evaluates the assessment method used and the ability of the jurisdiction to meet its legal requirement in the assessment of personal property. This type of study can be used to allocate tax dollars in multijurisdictional funding calculations or equalization by assuming that jurisdictions passing the performance review are assessing personal property at the general level of other classes of property analyzed with ratio studies.

#### 12.1.1. Discovery

The jurisdiction must have the ability to discover the owners or users of taxable personal property within the jurisdiction. This is accomplished using phone books, business/occupational licenses, listings, sales tax rolls, and field reviews (see IAAO Course 500, "The Assessment of Personal Property," and *Standard on Valuation of Personal Property* [IAAO 2005] for a complete list).

#### 12.1.2. Valuation

Personal property is valued by using acceptable schedules and methods including depreciation schedules published by nationally recognized valuation firms, market data from published valuation guides, and other generally accepted valuation methods and acceptable adjustments (see *Standard on Valuation of Personal Property*).

### 12.1.3. Verification

Inclusiveness of personal property returns and reports should be verified by an audit program. The audit program should focus on larger and complex accounts; however, it also should include randomly selected accounts. The audit program should provide coverage of the entire tax base regardless of the jurisdiction's reappraisal cycle.

### 12.1.4 Forms and Renditions

Comprehensive forms supplied by the assessment authority should allow the taxpayer to disclose fully all assessable personal property. The tax laws should require mandatory compliance, with meaningful penalties for noncompliance.

## 12.2. Appraisal Ratio Studies for Personal Property

The appraisal ratio study produces an estimate of the level of assessment of personal property by developing a ratio for property that is on the tax roll through the use of appraisals. The level of assessment determined in this way can be adjusted downward to account for property that has not been assessed.

### 12.2.1 Assessment Ratio for Personal Property

Personal property market values are usually derived from appraisals using a replacement cost new less depreciation (RCNLD) approach (see IAAO Course 500). A comparison of the depreciation schedules in use to nationally accepted schedules would enable the calculation of a ratio for property on the roll. A statistically sound process should be used to select a sample that is representative of personal property on the tax rolls. Such a sample can be parcel- or value-based depending on the intended use of the ratio study in indirect or direct equalization.

### 12.2.2 Stratification

Proper stratification of personal property accounts should be done for greater statistical accuracy. Strata should be based on the type and value of personal property accounts.

Stratification by type of account should occur first. Personal property accounts can be divided into residential (motor vehicles, boats, aircraft, and the like), agriculture, and business accounts. Further stratification can occur in residential and agricultural accounts but is necessary in business or commercial accounts. Business accounts are usually stratified by size into a minimum of four groups. Value ranges for these groups should be derived from the value ranges in the local market. One example would be small (less than \$250,000), medium (\$250,000 to \$1 million), moderate (\$1–\$5 million), and large (greater than



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## Additional Resources

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## Appendix B. Outlier Trimming Guidelines

### B.1 Identification of Ratio Outliers

It is first necessary to determine a procedure to identify outliers. Outlier identification based on the interquartile range (IQR) uses order statistics (see table B-1) and has been shown to be robust for a wide variety of distributions (Iglewicz and Hoaglin 1993; Barnett and Lewis 1994). The term outlier is often associated with ratios that fall outside 1.5 multiplied by the IQR. A factor of 3.0 X IQR often is chosen to identify extreme outliers. Other outlier identification procedures are found in statistical literature and can be used. Outlier identification and trimming should follow the sales validation process and precede the calculation of ratio statistics and related tests or analyses.

The example in table B-1 demonstrates the use of the 1.5 X IQR procedure to identify outlier ratios. The distribution of ratios often is skewed to the right; therefore, it may be preferable to apply appropriate transformations to the ratios prior to applying the IQR method. For example, the use of logarithmic transformations tends to identify fewer high and more low ratios as outliers.

### B.2 Scrutiny of Identified Outliers

The preferred method of handling an outlier ratio is to subject it to additional scrutiny to determine whether the sale is a non-market transaction or contains an error in fact. If an error can be corrected (for example, data entry), the property should be left in the sample. If the error cannot be corrected or inclusion of the identified outlier would reduce sample representativeness, the sale should be excluded.

### B.3 Outlier Trimming

Once outliers have been identified and scrutinized and any errors resolved, the next step is to exclude those that may unduly influence calculated statistical measures. For this reason, it is acceptable to trim outliers identified by recognized procedures (for cautionary notes on trimming small samples, see Tomberlin [2001] and Hoaglin, Mosteller, and Tukey [1983]). An example of such trimming is found in Table B-2. However, trimming of outliers using arbitrary limits, for example, eliminating all ratios less than 50 percent or greater than 150 percent, tends to distort results and should not be employed.

Detected outliers should be reported and can be treated in a variety of ways, including trimming (D'Agostino and Stephens 1986). If outliers are to be considered for removal, the analyst can select a procedure to trim all or just the extreme or influential outliers (see table B-2). If a trimming method has been used to reject ratios from the sample, this fact must be stated in the resulting statistical

**Table B-1.** A Distribution-Free Method for Locating Outliers (The following procedure identifies outlier ratios that fall more than 1.5 times beyond the range of the middle 50 percent of the arrayed sample.)

Locating trim boundaries  
Data set before trimming

Rank	Ratio (A/S)
1	0.611
2	0.756
3	0.762
4	0.853
5	0.867
6	0.909
7	0.925
8	0.944
9	1.014
10	1.052
11	1.178
12	1.367
13	1.850
14	2.500
Median ratio	0.935
Q09	32.271

Steps to locate trim boundaries

1. Locate the first quartile point

Formula to locate the first quartile:

$$(0.25 \times \text{number of ratios}) + 0.25$$

$$(0.25 \times 14 \text{ ratios}) + 0.25 = 3.75$$

3.75 is three-quarters between the third and fourth ranked ratios.

$$\text{Ratio 3} = 0.762$$

$$\text{Ratio 4} = 0.853$$

$$\text{Three-quarters between} = (0.853 - 0.762) \times 0.75 = 0.068$$

$$\text{The first quartile point} = 0.762 + 0.068 = 0.830$$

2. Locate the third quartile point

Formula to locate the third quartile

$$(0.75 \times \text{number of ratios}) + 0.75$$

$$(0.75 \times 14 \text{ ratios}) + 0.75 = 11.25$$

11.25 is one-quarter between the eleventh and twelfth ranked ratios.

$$\text{Ratio 11} = 1.178$$

$$\text{Ratio 12} = 1.367$$

$$\text{One-quarter between} = (1.367 - 1.178) \times 0.25 = 0.047$$

$$\text{The third quartile point} = 1.178 + 0.047 = 1.225$$

3. Compute the Interquartile range

The distance between the first and third quartile = Interquartile range

$$1.225 - 0.830 = 0.395$$

4. Establish the lower boundary

Lower trim point = first quartile - (interquartile range  $\times$  1.5 or 3.0)

$$0.830 - (0.395 \times 1.5) = 0.238$$

5. Establish the upper boundary

Upper trim point = (interquartile range  $\times$  1.5 or 3.0) + third quartile

$$(0.395 \times 1.5) + 1.225 = 1.818$$

Outliers identified:

1.850

2.500

## Appendix F. Alternative Uses for Ratio Study Statistics

In addition to the use of statistical measures to determine underlying assessment level and uniformity, comparisons between measures can provide useful information about sample representativeness, the distribution of the ratios, and the influence of outliers. For example, by comparing the mean and weighted mean, even without determining the PRD, the analyst should be aware that a large difference between these two measures indicates probable influence of atypical ratios on high-priced properties. This in turn could mean that outliers are still present in the sample and that the sample is not representative. Alternatively, it could indicate systematic appraisal error in the appraisal of properties within a particular price range. The geometric mean-to-mean relationship can provide similar information, especially about the presence of very low ratios, which have a greater influence on the geometric

mean. The relationship between the COD and COV can provide similar additional guidance. This standard chooses the COD as the primary recommended measure of uniformity. This choice reflects the expectation of non-normal distributions of ratios. Despite this consideration, it is useful to recognize that, in a normal distribution, the COV is approximately 1.25 times the COD. When the COV/COD ratio exceeds 1.25, the likely cause is a small number of very high ratios, which may again be non-representative.

It is incumbent on the analyst to review the ratio study sample to attempt to provide a representative sample. Comparisons of statistics, such as those given in this appendix, provide an additional tool to help the analyst in this regard.

## Appendix G. Legal Aspects of Ratio Studies

Property taxation is governed by federal, state, and provincial constitutions, statutes, and administrative rules or regulations, many of which require uniform treatment of property taxpayers. Ratio studies play an important role in judging whether uniformity requirements are met. Relevant Canadian Federal statutes based on the Constitution Acts of 1867–1975 provide that municipal councils cannot discriminate between taxpayers of the same class within municipalities.

Relevant United States federal provisions include the Bill of Rights, the commerce clause of the United States Constitution, the Fourteenth Amendment, and the Tax Injunction Act (28 U.S.C. § 1341). Together they guarantee basic protections and due process while still granting states the authority to classify property and grant reasonable exemptions. Many constitutions have clauses that require uniformity in the assessment and taxation of property, although some jurisdictions, either by constitution or statute, permit certain differences between classes. Ratio studies provide a gauge of whether uniformity requirements are being met.

A key U.S. federal statute relating to ratio studies is the U.S. Railroad Revitalization and Regulatory Reform Act ("4-R Act") of 1976 (49 U.S.C. § 11501). The 4-R Act requires that rail transportation property be assessed for tax purposes at no more than 105 percent of the assessment level of other commercial and industrial property in the same taxing jurisdiction. Similar federal statutes relate to air transportation property, motor carriers, and bus lines (49 U.S.C. §§ 14502 and 40116).

The 4-R Act provides that ratio studies be used to measure alleged discrimination. In such cases, as in any ratio study, the purpose of the study must be clearly defined and the study must be conducted so that it accurately evaluates the issues at hand. Important issues in ratio studies conducted pursuant to the 4-R Act include the proper definition of "other" commercial and industrial property, screening and adjustments to sales data, proper measures of the level of appraisal, and the combining and weighting of centrally valued and locally assessed properties.

## Standard on Professional Development

### 1. Scope

This standard recommends basic guidelines for the professional development, education, and certification of assessing officers, including appraisers, assessment managers, tax policy administrators, mappers, and assessors; those who provide professional or technical assistance to assessing officers; those who supervise or review the work of assessing officers; and those who seek employment in assessment administration.

This standard contains broad guidelines that are intended to be applicable to the varied governmental structures under which assessment personnel perform their duties. No attempt is made to specify guidelines that would be more or less appropriate in instances in which property assessment is a function of national, state or provincial, county, township, or municipal government, in which assessors are elected or appointed, or in which assessing officers work full or part time.

The Appendix describes qualifications and recommended courses for various positions in an assessment office, as well as required and recommended continuing education. Educational offerings of the International Association of Assessing Officers (IAAO) can be found at [www.iaao.org](http://www.iaao.org).

### 2. Introduction

Assessing officers require detailed knowledge related to their specific responsibilities in the assessment of fees. In-service training and continuing education of assessment personnel are essential parts of an effective program of assessment administration. Guidelines recommended in this standard are intended to promote satisfaction of basic requirements to ensure qualified personnel.

### 3. Certification and Licensing of Appraisers

The certification of assessing officers ensures that they possess adequate knowledge of the principles of property appraisal, assessment techniques, and property tax laws and the skills required by their specialties. A major benefit of certification programs is the increased self-respect of assessing officers who attain a level of professional competence and increased public confidence in property tax administration that comes with more accurate assessments and appraisals developed in a professional manner.

#### 3.1 Federal Appraiser Licensing and Certification of Appraisers

The Financial Institutions Reform, Recovery and Enforcement Act established The Appraisal Foundation as an advisory and oversight agency for appraiser licensing and certification. The foundation's Appraiser Qualifications Board promulgates Real Property Appraiser Qualification Criteria to guide state appraisal boards in setting standards for appraiser licensing and certification. Assessing officers may find it advantageous to be licensed or certified in this way.

#### 3.2 State, Provincial, and Local Government Certification of Assessing Officers

Jurisdictions (local, state, or provincial) often establish certification programs. The jurisdiction may set guidelines for the program or grant authority to an agency or board to set guidelines and implement and administer the program. The jurisdiction should establish and fund education programs supporting certification.

Certification programs can be characterized as mandatory, incentive, or voluntary. A mandatory program requires assessing officers to meet specified standards. An incentive program rewards assessing officers with increased pay, bonuses, or specific advancement opportunities for meeting specified standards. A voluntary program offers assessing officers the opportunity to complete requirements without mandate or reward.

The three types of requirements common to governmental certification programs are examination, course or workshop completion, and continuing education. Individuals may be required to pass an examination before assuming a position or within a given period of time thereafter. To attain or maintain their positions or achieve promotions, personnel often must complete a variety of examinations, perhaps given in conjunction with administrators of local civil service or merit systems. Completion of courses and workshops may be required to attain certification or achieve a position. Finally, a specified number of hours of approved continuing education within a specified period of time may be required to retain certification.

### 4. Professional Designations

Locally conferred professional designations exist in conjunction with mandatory, incentive, or voluntary certification systems administered by a state, provincial,

## **Acknowledgments**

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the date of inspection, should be used to verify ownership, the nature of the property, and the situs as of the assessment date.

Information that should be obtained about a business includes the following:

- Name of the business
- Type of business (e.g., restaurant or hotel)
- Type of ownership (e.g., sole proprietorship, partnership, franchise, or corporation)
- Mailing address of the business
- Name and address of the owner(s)
- Telephone number of the business
- Name/title of the person supplying the information
- Authorization for access by those other than the owner, such as tax reps or accountants
- Name, address, and telephone number of the party keeping records for the business
- Beginning date of the business within the assessment jurisdiction
- E-mail addresses
- North American Industrial Classification System codes (NAICS) (formerly known as Standard Industrial Codes [SIC] in the U.S.)
- The date of the visit or communication by the appraiser.

Fiscal year information that should be obtained about the personal property of the business includes the following:

- a complete listing of all tangible personal property, including machinery, equipment, furniture, fixtures, computers, and other tangible fixed assets with their location, year purchased and year manufactured, and acquisition or construction cost together with what is included in this cost amount, such as shipping, freight, sales tax, licenses, and so forth
  - a complete listing, with full descriptions and costs, of all leasehold improvements, noting which items may already be assessed as real property
  - a complete listing of leased equipment with the name and address of the lessor, information on the equipment (including name of manufacturer, date of manufacture, description, model number, serial number, list price, and original cost, if available), lease number, type of lease, and terms of lease (if possible, a copy of the lease agreement should be obtained)
  - a complete listing of loaned or consigned items including a brief description (e.g., vending machines), and the name and address of their owner(s)
  - a complete listing of items in inventory, rented or leased as part of the business' normal operation

**Principle:**

- Personal property valuers should validate the personal property statements that are received to ensure fairness and equity in the assessment process.

## 5. Reporting of Personal Property

The physical inspection and listing of individual personal property items is dictated by time, financial resources, and the availability of trained personnel. Typically, these constraints require the use of a reporting form completed by the taxpayer or the taxpayer's agent. All reporting forms should be subject to audit by the assessor, or the assessor's agent, to determine the accuracy and validity of the information provided in the return document. The assessor should mail reporting forms or make them available early enough to allow for their timely completion. Forms and instructions should also be available on the assessor's Web site. The assessor's mailing address and telephone number should always be included on the listing form. Web sites and all documents sent from the assessor's office should include the office's e-mail address.

developed approach to value are evaluated in the reconciliation phase of the appraisal.

Units of comparison, such as value of personal property estimated by use of a market based per square foot rate of comparable properties can be used to check the value estimates derived from the standard appraisal approaches. Such units of comparison can also be used when the data required for other approaches are unavailable. Examples include cost/value per square foot of FF&E in an office building or cost/value per square foot of inventory for a retail business.

The valuation method and techniques employed should be market based, subject to governing statutes and appraisal standards. In most jurisdictions, market value is defined using the value-in exchange concept, that is, the value to the next buyer as of the lien date. The Principles of value are applicable to the valuation of personal property. The principles of substitution and Highest and Best Use determinations are essential in the valuation of personal property. The highest and best use of an asset is generally when the asset is fully installed and operating for the purpose in which the asset was intended.

### **7.2.1 Cost Approach**

Costs used in the cost approach can be original construction cost, new or used acquisition cost, replacement, or reproduction costs. Allocated cost can be used if items are purchased in bulk, although often only original or acquisition costs are readily available for personal property assessment purposes. The cost approach provides an estimate of value based on the depreciated cost of the property. In applying the cost approach to personal property, the appraiser must identify make and model number, year acquired, and total acquisition costs, including installation, freight, taxes, and fees. The acquisition costs should then be trended and depreciated as appropriate to reflect current market values. Acquisition costs of equipment obtained pursuant to a lease-purchase agreement should include the total payments, not just the final payment. If financing costs are factored into the lease payments, an adjustment to the "selling price" may be required.

The assessor should recognize that appraisal and accounting practices for depreciating personal property may differ. Accounting practices provide for recovery of the cost of an asset (the return of the asset), whereas appraisal practices strive to estimate a value related to the current market and should consider both return of the asset and return on the asset. A productive asset may continue to have value at the end of its scheduled life or conversely, an asset may lose its value prior to the end of its scheduled life. Appraisal practice must consider accrued depreciation in the forms of physical deterioration, functional obsolescence, and external (economic) obsolescence. The appraiser/auditor should also be familiar with the purchase accounting methods used by businesses in their jurisdiction. A company's depreciation schedule should provide life tables for various asset categories.

The restoration or modification of machinery or equipment may be treated differently for assessment and accounting purposes. For accounting purposes, the restoration/modification cost may be entered as a different asset, whereas the appraiser/assessor would add the cost to the original item and adjust the effective age of the asset.

Useful guidelines in the form of depreciation schedules or tables are available from state or provincial assessing authorities, professional valuation companies, and appraisal publishing firms. Because the personalty of a business normally is acquired throughout the year, acceptable depreciation schedules will permit the full year's depreciation or will consider the average age of six months (half-year convention). Generally, these guides are sufficiently accurate for use in mass appraisal of property. If guides do not exist for specific types of personal property, it is recommended that they be developed. Depreciation schedules can be developed from a study of asset lives and resale prices. The schedules can be asset specific or for general categories such as personal computers

product. Examples of supplies include chemicals, clothing, pallets, paper, shipping materials, fuels, and repair parts. Unlike inventory, supplies are not held for resale. Supplies should be valued at their acquisition cost.

### **7.3.6 Consigned Goods**

Consigned goods are personal property in the possession of an agent, held for sale by that agent. They should be valued, at the appropriate level of trade, as part of the consignor's inventory.

### **7.3.7 Imports and Exports**

Assessors should be aware of the legal status of import and export merchandise in order to determine its taxable status. If there is no exemption provided by statute, then the techniques for estimating the value of inventories should be used for valuing imports and exports.

## **7.4 Valuation Guidelines for Intangible Personal Property**

The discovery, reporting, verification, and proper valuation of intangible personal property are difficult and can be expensive. The methods for discovering, reporting, verifying, and auditing intangibles are the same as for tangible personal property. Pertinent information includes type of asset, name of issuer, date of acquisition, legal life, expected useful life, face value or par value, market value, and dividends or other income. Individual research can lead to sources that provide information on the selling prices of intangible personal property.

Statutes should provide concise guidance on the assessment of intangible personal property. The benefit/cost ratio of intangible personal property taxation is such that many states have exempted intangible personal property from taxation. For a listing of state and provincial treatment of intangible property, see *Property Tax Policies and Administrative Practices in Canada and the United States* (IAAO 2000).

Those states that continue to assess intangible property primarily do so for public utilities by using a unit valuation method. When centrally assessed property is not held by a public utility, the separation of tangible from intangible value may be required. Recent letter rulings and case law should be researched to provide guidance in this area. Careful review should underscore the purpose, use, and how necessary and integral the identified intangible personal property is to the taxable tangible personal property. This review could entail the examination of the taxpayer's books, records, and filings with regulatory agencies.

## **7.5 Compliance with USPAP**

IAAO requires that all appraisal work performed by its members in the United States and Canada be compliant with the Uniform Standards of Professional Appraisal Practice (USPAP) of the Appraisal Foundation, and the IAAO Code of Ethics and Standards of Professional Conduct. USPAP Standards relevant to the valuation of personal property are Standard 5: Mass Appraisal, Development; Standard 6: Mass Appraisal, Reporting; Standard 7: Personal Property Appraisal, Development; and Standard 8: Personal Property Appraisal, Reporting.

## **Glossary of Terms**

**Ad Valorem.** According to value

**Acquisition cost.** The cost used in accounting to represent the purchase price of an asset. If installation and other associated costs are included, this cost should be referred to as total acquisition cost.

**Appraiser.** One who estimates the value of property; more commonly, one of a group



**IAAO Courses:**

- Course 500: Assessment of Personal Property, Chapt 9, pg3(online personal property forms, records and software)
- Course 501: Personal Property Auditing – Basic to Advanced
- Workshop 551: Valuation of Machinery and Equipment
- Workshop 552: Basic Personal Property Auditing
- Workshop 553: Advanced Personal Property Auditing

**IAAO Publications:**

- Glossary for Property Appraisal and Assessment
- Property Assessment Valuation, 3rd Edition

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## Standard on Public Relations—2011

- Owner's or taxpayer's name
- Mailing address
- Parcel identification number
- Legal description
- Tax district information
- Effective date of the assessment
- Property address
- Exemptions
- Total appraised value
- Taxable value if different from appraised value
- Statutory level of assessment and applicable constraints
- Prior assessment
- New assessment
- Net change in assessment
- Reason for new assessment
- Appeal rights, hearing procedures (informal and formal), and dates
- Date of notice
- Class or type of property.

In addition the notice should include a tax impact statement showing projected property taxes for the upcoming tax year, based on existing budgets (or proposed budgets if available). References to truth in taxation or other statutes placing limits on budget or levies may be helpful.

### 6.3 Special-Purpose Messages

Special-purpose messages (e.g., announcements of field inspection) should be developed and disseminated.

### 6.4 Forms and Questionnaires

Every assessment office should maintain a file of forms, questionnaires, and letters for recurring events. These files should include:

- Appeal forms
- Exemption applications
- Income and expense questionnaires
- Sales questionnaires
- Correspondence on policy
- Personal property forms.

Useful information can be obtained from carefully structured and designed questionnaires. Postage-paid return envelopes can increase the response rate.

## 6.5 Annual Reports

Local, state, and provincial agencies should prepare annual reports summarizing activities and accomplishments and providing statistical information. These reports can be used to maintain an historical record of property and property tax data.

### 6.5.1 Local Annual Reports

Some of the information that should be included in the local annual report is:

- Total number of parcels
- Total value
- Uses of property
- Types of property
- Exemption data
- Appeal data
- Ratio study analysis
- New construction
- Legislative changes.

Such a report can also include information describing increased efficiencies in the operations, achievement of higher degrees of professionalism, and a listing of the standards and policies adopted in the valuation and administrative process.

### 6.5.2 State and Provincial Annual Reports

Some of the information that should be included in the state or provincial annual report is:

- Total or proportional valuation by property class
- Total value and tax consequences of exemptions
- Intergovernmental payments in-lieu-of property tax information
- Centrally assessed property data
- Distribution of tax burden by property type
- Property tax revenue distribution
- Summary of statutory, legal, or regulatory changes
- Ratio study analysis
- Summary of major accomplishments.

Such a report can also include information describing increased efficiencies in the operations, achievement of higher degrees of professionalism, and a listing of the standards and policies adopted in the valuation and administrative process.

## **Assessment Standards of the International Association of Assessing Officers**

*Guide to Assessment Standards*

*Standard on Assessment Appeal*

*Standard on Automated Valuation Models*

*Standard on Contracting for Assessment Services*

*Standard on Digital Cadastral Maps and Parcel Identifiers*

*Standard on Manual Cadastral Maps and Parcel Identifiers*

*Standard on Mass Appraisal of Real Property*

*Standard on Oversight Agency Responsibilities*

*Standard on Professional Development*

*Standard on Property Tax Policy*

*Standard on Public Relations*

*Standard on Ratio Studies*

*Standard on Valuation of Personal Property*

*Standard on Valuation of Property Affected by Environmental Contamination*

*Standard on Verification and Adjustment of Sales*

To download the current approved version of any of the standards listed above, go to:  
IAAO Technical Standards

## Standard on Contracting for Assessment Services

### 1. Scope

This standard describes and makes recommendations on the development, awarding, and monitoring of contracts for assessment services. Each major section begins with the main principles covered in that section, followed by a description of those principles.

#### Principles

The key principles within this standard are as follows:

- The solicitation for contract services must clearly describe the project, including major deadlines and the means by which success will be measured.
- The contract for services must clearly and completely describe the project as well as the parties involved and their responsibilities.
- There must be a complete understanding of the methods and means for monitoring the project, including the determination of project completion.

### 2. Overview

Assessment contracts are developed to provide assessment services to government agencies by firms or private individuals. Throughout this standard the government agency awarding the contract is referred to as the *assessment agency* and the firm or private individual to whom the contract is awarded as the *contractor*.

Assessment contracts can cover any services relating to the discovery, listing, appraisal, and assessment of property including data collection and mapping; development of construction cost or valuation manuals; complete or partial revaluations; specialized consulting services; tax policy matters; and system design and implementation including development of appraisal and assessment software.

### 3. Soliciting for Products or Services

#### Principles

- Clearly and completely state the services or technology to be procured along with any delivery quality and quantity requirements.
- Establish a competitive environment intended to maximize the value for the department; identify only qualified solutions; and inform decision-makers of the necessary elements required to select the most qualified solution.
- Clearly define all response requirements, processes, and information that are required to enable the responder to meet any legal and department rules, laws, and requirements and to successfully communicate the offer.
- Provide decision-makers and department legal staff with as much information as possible to start the contract negotiation process.

#### 3.1 Purpose

Soliciting for products or services, at its most basic, is requesting a third party to perform services when the assessment agency does not have the time, resources, or expertise to successfully perform the required tasks. To receive optimal results from a solicitation, the assessment agency must exercise careful planning and understanding of

- The current work environment
- The separation of requirement from desires
- The scope of what the responding vendor shall deliver
- Controls over the acceptability of what is delivered.

When performed properly, a solicitation provides the assessment agency and the respondent with a clear set of uniform expectations, terms, conditions, and scope that allows for the highest level of competition from a level playing field of competing vendors.

### 3.5 Contractual and Legal Requirements

All contracts for assessment-related services should carefully discuss the scope of the project to be performed and the obligations and rights of all parties involved. Because of the wide variation in laws and regulations, all contracts for services should be reviewed by local counsel to ensure compliance with local, state, and federal laws and procurement policies. In addition, because of the potentially complicated nature of negotiations and contract preparation, awarding of the contract should be done in conjunction with the jurisdiction's procurement office or other legal counsel. If the jurisdiction does not have a procurement office, legal counsel should always be an integral part of the contract award process.

Contracting is not an administrative task to perform lightly; great care and planning in drafting the contract is essential to ensure the project's success and to protect against a contractor's failure to perform as intended. Most commercially reasonable contracts contain detailed discussion of the following provisions:

- Description of the work to be performed, including what constitutes completion of the project
- Timeframe, delivery date, and other requirements of the project
- Definition of key legal terms
- Any conditions that must be met before the parties incur obligations to perform ("conditions precedent")
- Required representations of all parties, including professional licensure
- Process for changes of scope (both seen and unforeseen/unforeseeable), amendments, and other material modification of the project
- Rights of parties to approve in advance the assignment of legal obligations to approved subcontractors
- Amount and terms of the contract delineating all expenses (travel and other expenses), including all billable expenses
- Authorized signatures of the assessment agency and other parties
- Performance standards
- Testing standards and procedures
- Performance bonds and other insurance coverage, including indemnification, duty to defend, waivers of liability, hold harmless clauses, and warranties
- Required documentation and record retention
- Implementation, installation, and delivery dates
- Payment provisions, including the use of performance bonds or the ability of the agency to "hold back" payments until satisfaction of key milestones
- Termination rights, ability to "cure" or correct failures to perform, including "force majeure events," and compensation or penalty payments to the agency in the event of failure to perform, unavailability of funds, liquidation or bankruptcy, or other factors
- Arbitration and mediation requirements (if any) for contractual and other disputes, including payment of attorney's fees and costs incurred in a breach of performance
- Responsibilities for taxes, permits, and fees
- Requirement that all work be performed in compliance with applicable laws, statutes, ordinances, codes, rules, and regulations, or other lawful orders of public authorities
- Notice provisions and authorized key contacts for all parties involved
- Confidentiality agreements and discussion of public records laws
- Miscellaneous drafting provisions, including without limitations statements that headings are for convenience only, entire agreement/partial invalidity statement, no third-party beneficiary rights, time calculations, good faith and fair dealing, counterparts, and survival of provisions

## 6.4 Governance and Progress Tracking

Project control is important for the stakeholders of both the government agency and the contractor. Having control can help the project manager/program manager compare actual performance against planned performance. The project manager can identify potential problems, evaluate alternative actions, and plan for appropriate corrective action.

Project leaders typically create a project plan that includes the tasks to be performed, the project timeline, a budget, and project resources. By monitoring the plan and the actual work performed, the project manager can measure both qualitative and quantitative progress.

If the project is deviating from the project timeline, corrective action may be necessary. Deviations can be caused by a number of issues such as change in the project scope or project resources or other setbacks. The corrective plan should be created with input from all project stakeholders.

## 6.5 Contract Changes

Change control management and coping with the associated risk is a challenge for project managers. Changes can occur for a number of reasons including increase or decrease in scope and project personnel or other resource changes. The overall project plan should define project changes so that both the government agency and contractor are aware of the process required to alert and plan for them.

Change control systems involve reporting, controlling, and recording changes to the project baseline. Most change control plans include, at a minimum, identification of the proposed change, expected effects on the project, and negotiation of changes in time and budget.

## 6.6 Delivery Assurance

Assessment agencies can ensure the quality of the delivery by carefully monitoring the project and by not committing to full payment for a product or service until it has been satisfactorily delivered and tested. Two ways of contractually holding a contractor responsible for delivery are a *holdback* and a *performance bond*. In a holdback provision, a specified percentage of the contract amount is withheld until the final approval and sign-off have taken place. In a performance bond, a third party, in effect, *insures* the contractor's performance. In some cases, it may be appropriate to require a performance bond of up to 100 percent of the amount of the contract. One method usually suffices.

If a contract is amended, the addendum should reference the original contract and clearly designate the new provisions or modifications.

# 7. Considerations by Service and Product

## 7.1 Professional Services

Professional services can fall into multiple categories such as consulting services or appraisal services including revaluations.

### 7.1.1 Data Collection

Collection of property characteristics data may be part of a contract for implementation of a mass appraisal system or it may be contracted for separately. Data collection (or reverification) is a critical and expensive phase of any appraisal project. Clear and standard coding and careful monitoring through quality control measures ensure the quality and validity of data characteristics. The contractor may develop and use a data collection manual to achieve uniformity in data collection.

The solicitation should specify the types and approximate number of parcels involved in the project, property characteristics to be examined and codified, standards for data capture and coding accuracy, and procedures for measuring achievement of accuracy standards. It should also specify the method of data collection.

#### **Advantages**

- An IFB is typically a quick process. Most jurisdictions do not allow for negotiation of terms or conditions on the resulting contract; this means the lowest cost respondent who meets the requirements of the solicitation is awarded the contract as is.
- It allows for specific dictation of what and how the work is to be performed.

#### **Disadvantages**

- The risk of unsuccessful outcomes rests more heavily on the assessment agency because it is responsible for dictating how and where the work is to be performed. If that direction is flawed, it is the sole fault of the assessment agency in terms of time loss and expense to mediate the flaw.
- The assessment agency must have a clear and concise understanding of the required services so they can be expressed in a few commoditized line items.
- In general, the assessment agency cannot select the respondent with higher qualifications if that respondent is not also the lowest cost respondent.

### **A.3 Review of Qualifications**

An ROQ is a type of award based on respondents meeting stated minimum qualifications.

#### **Uses**

An ROQ is generally used to obtain a pool of qualified vendors to perform broadly defined professional services.

#### **Advantages**

- The solicitation process is generally brief.
- It allows the assessment agency to identify a prequalified pool of vendors who can then be given specific tasks without the need of a new formal solicitation.
- It allows for a set maximum allowable charges for the service group.

#### **Disadvantages**

- The assessment agency assumes a higher responsibility for directing contractor work.
- Price flexibility and the ability to negotiate are limited.
- It is not suited for complex work in which the agency is reliant on the expertise of the contractor to develop a solution.

### **A.4 Request for Proposal**

An RFP is the most formal of the solicitation processes in that it requires the highest level of effort to create and to evaluate. The main difference between an RFP and other solicitation types is that the respondent is required to develop a proposal for services that will meet a defined set of requirements rather than a contractor performing the requirements as directed.

#### **Uses**

An RFP can be used to select a vendor to perform large-scale services or to acquire and implement software solutions.

#### **Advantages**

- It allows for a high level of scrutiny into the vendor proposal, qualifications, past performance, product, and pricing.
- It can provide the flexibility to redline requirements during negotiation based on refined understanding of the requirements or fiscal restrictions.
- The responsibility of performance and success rests more heavily on the contractor.



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## Standard on Verification and Adjustment of Sales—2010

*Trust deeds* transfer the title to the property to a trustee to be held in trust. These deeds are also known as *deeds of trust*. There are three parties involved in a deed of trust: the trustor (borrower), trustee (holder of the legal title), and the beneficiary (lender). The trustee holds the power of sale in the event of default.

*Land contracts* are executory contracts for the purchase of real property under the terms of which legal title to the property is retained by the seller until such time as all the conditions stated in the contract have been fulfilled. These contracts are commonly used for the installment purchase of real property and are often referred to as a contract for deed. The actual deed is not recorded until the title passes to the buyer upon fulfillment of the contract.

### 3.2 Sales Verification Questionnaires

Sales verification questionnaires, which can be written or in electronic format, are affirmed or sworn statements regarding the sale of the property. Typically, these forms are required to be completed prior to recordation of the deed. A more comprehensive questionnaire may limit the need for follow-up verification of the sale. (See Appendix A for a copy of a sales verification questionnaire. Also, refer to the ratio study survey results [Technical Standards Committee 2009] for the number of jurisdictions currently using a comprehensive sales verification form.) A set of instructions for completing the form should accompany or be a part of the questionnaire.

### 3.3 Buyers and Sellers

Buyers and sellers of real property should be contacted directly to secure or confirm sales data.

### 3.4 Third-Party Sources

Third-party sources are a source of sales data and are especially important when transfer and disclosure documents do not provide full disclosure or omit important data. A partial listing of third-party sources includes the following.

- Multiple listing services
- Title companies
- Financial institutions
- Leasing agencies
- Property managers
- Real estate brokers and agencies
- Government and private fee appraisers
- Attorneys
- Appraisal organizations.

## 4. Useful Sales Information

It is important to obtain the following information in the sales verification and adjustment process:

- Full consideration
- Names of buyer and seller
- Addresses, phone numbers, and other contact information of buyer and seller or their legal designee
- Relationship of buyer and seller (if any)
- Legal description, address, and parcel identifier
- Type of transfer
- Method of marketing
- Time on the market
- Interest transferred
- Type and terms of financing
- Personal property (if any)
- Date of sale (transfer)
- Deed instrument number
- Unique sale number.

These data elements should be maintained in a separate data file or sales history file component of a computer-assisted mass appraisal (CAMA) system. In addition, the file should include information useful for stratification and other analytical purposes. Sales data files should reflect the physical characteristics of the property at the time of sale. If significant legal, physical, or economic changes have occurred between the sale date and the assessment date, the sale should not be used for ratio studies. The sale may still be valid for mass appraisal modeling by matching the sale price against the characteristics that existed on the date of sale.

### 4.1 Full Consideration

Full consideration is the total amount paid for the property, including the cash down payment and amounts financed. The actual sale price is the most essential item of information concerning the sale, and its accuracy should be carefully scrutinized. In many jurisdictions it is common practice in deeds of conveyance to state considerations in terms such as "one dollar plus other due and just consideration." These amounts are rarely the actual selling price and should be ignored in favor of information from the buyer and seller or other reliable source, such as sales verification questionnaires.

### 4.2 Names of Buyer and Seller

This information permits the assessor to maintain a current record of the owners of all property in the juris-

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formation subsequent to the sale, there are several disadvantages, as follows:

- Response is not immediate.
- Additional contact may be needed.
- Information is limited to what is stated on the sales verification questionnaire.
- Printing and mailing costs are incurred.

Mailed sales verification questionnaires should be as concise as possible and should include the following:

- Postage-paid return envelope
- Official stationery
- Purpose of the sales verification questionnaire
- Contact person (name, telephone number and e-mail address for additional information)
- Authorized signature (of person completing the questionnaire)

Specialized questionnaires may be designed for a specific type of property or situation such as an income producing property or a property that sells with atypical financing. Specialized questionnaires can be developed for numerous situations; however, all should follow the guidelines for the regular questionnaire suggested above.

### 5.2.2 Telephone Interviews

Telephone interviews provide quick responses and the opportunity for immediate clarification. Disadvantages are as follows:

- Inability to prove caller's identity
- Need for trained staff
- Difficulty in reaching the party to the sale.

An opening script should be written for telephone interviews. Always state your name, the office you represent, and the purpose of the telephone call. If the individual is unable to talk, ask for a specific time that would be more convenient. It is extremely important to use simple conversational words and avoid slang and industry jargon. Interviews should be short, courteous, and to the point.

### 5.2.3 Personal Interviews

The disadvantages of the in-person interview are they are the most costly and qualified analysts or appraisers should perform this task. However, they are most effective for the following reasons:

- Refusals less frequent
- Information more reliable
- More unusual or special considerations revealed.

For personal interviews it is critical to be on time. An identification badge or business card should be present-

ed upon introduction. All paperwork and forms should be available and in order before the interview begins. The style and tone of the conversation should be geared to the interview setting. It can sometimes be helpful to establish rapport through brief small talk. Maintain eye contact, smile, and be friendly and respectful throughout the conversation.

## 5.3 Sales Generally Considered Invalid

The following types of sales are often found to be invalid and can be excluded unless a larger sample size is needed. If a larger sample size is needed, these sales require verification.

- Sales involving government agencies
- Sales involving charitable, religious, or educational institutions
- Sales involving financial institutions as buyer or seller
- Sales between relatives or between corporate affiliates
- Sales settling an estate
- Forced sales resulting from a judicial order
- Sales of doubtful title

### 5.3.1 Sales Involving Government Agencies

Sales to government agencies can involve an element of compulsion and often occur at prices higher than would otherwise be expected. When the governmental agency is the seller, values typically fall on the low end of the value range. The latter should not be considered in model calibration or ratio studies unless an analysis indicates governmental sales have affected the market in specific market areas or neighborhoods. Each sale in this category should be thoroughly researched prior to use. See Appendix C for a listing of some of the government agencies in this category.

### 5.3.2 Sales Involving Charitable, Religious or Educational Institutions

A sale to such an organization can involve an element of philanthropy, and a sale by such an organization can involve a nominal consideration or restrictive covenants. These sales often involve partial gifts and therefore are generally not representative of market value.

### 5.3.3 Sales Involving Financial Institution as Buyer

These sales are often made in lieu of foreclosure and are not exposed to the open market. However, open-market sales in which a financial institution is a willing buyer, such as the purchase of vacant land for a branch bank, may be considered potentially valid transactions.

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other), a telephone number (also e-mail address, if available). The record should contain space or fields to record multiple contact attempts (date, time, and outcome). At least three contact attempts should be made on different dates and times before declaring the verification effort unsuccessful.

### 6.4 Conclusions/Comments

Verification results should be accurately documented. Too much information is better than insufficient documentation. Professionalism in completing the form is important because of all the possible uses of the form including helping to resolve possible differences of opinion between local and oversight agencies regarding the validity of sales.

### 6.5 Sales Source or Screening Codes

Sales source or screening codes are used to identify the source of the sales information or how the sale was verified and are separate from the validity code. Screening codes afford the user the ability to extract data for further stratification. These codes are especially beneficial during changes in the market or when specific situations require tracking. They also allow the user of the data to identify those sales for which follow-up verifications have been made: multiple-parcel sales; specific uniqueness of the sale such as foreclosure-related sales and partial interest sales (Tomberlin 2001). Also see Appendix E for an example of source codes on the Documentation Form example.

### 6.6 Validity Codes

Even more important than the source codes are codes to document the validity of the sale. Codes should be assigned to indicate whether a sale is valid and, if not, the reason for exclusion or adjustment. See Appendix E for an example of validity codes on the Documentation Form example.

### 6.7 Name of Person Completing the Form

The name of the person completing the form should be on the form in case there is a question or unresolved problem regarding the sale.

### 6.8 Date Form Completed

The form should be dated to ensure interview dates are consistent with the completion date on the form.

## 7. Adjustments

Sales should be adjusted to represent only the value of the real property as of the assessment date prior to model calibration and ratio studies. Adjustments to the sale price may be considered if any of the following exist.

- Assumed long-term leases (nonmarket rates)
- Buyer's closing costs (seller paid)
- Delinquent taxes (paid by buyer)
- Financing (nonmarket rates)
- Gift programs
- Personal property (paid by buyer)
- Real estate commissions
- Repair allowances
- Special assessments
- Time

This is especially true for nonresidential properties. The real property tax is based on the market value of real property alone as of a specific date. This value may not be the same as investment value (i.e., the monetary value of a property to a particular investor) and does not include the value of personal property or financing arrangements.

If adjustments for more than one purpose are to be made, they should be made in the following order:

1. Adjustments that convert the price to a better representation of the market value as of the date of sale (these include adjustments for financing, assumed long-term leases, and special assessments).
2. Adjustments that develop or isolate the price paid for taxable real property (these include adjustments for personal property received by the buyer, property taken in trade by the seller, the combination of partial interest sales, delinquent real estate taxes, and incomplete or unbuild common property).
3. Adjustments for differences in market value levels between the date of sale and the date of analysis (time trends).

### 7.1 Assumed Long-Term Leases (Nonmarket Rates)

When a property is encumbered by a lease, the buyer receives the right to the contract rent stated in the lease. The sale price reflects the relative desirability of this lease. The sale price of a property encumbered by a long-term lease of at least three years should be adjusted if the contract rent differs significantly from market rent. The sale price should be adjusted by the difference between the present worth of the two income streams.

If the contract rent exceeds market rent, the present worth of the difference in the two income streams should be subtracted from the sale price.

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ment (IAAO 1978, section 4.6). If sale prices have generally been rising, ratios for sales that occurred after the assessment date tend to understate the overall level of appraisal. Similarly, sales ratios for sales that occurred before the assessment date tend to overstate the level of appraisal. If prices are generally declining, an opposite pattern results. When tracking sale/appraisal ratios over time (using the inverse ratio technique) for determining time adjustments, it is important that ratios for chased sales be excluded, since there is no correlation of such sales ratios with the date of sale.

Changes in price levels should be monitored and time adjustments made by geographic area and type of property, because different segments of the market tend to change in value at different rates.

Oversight agencies can make any appropriate time adjustments after making all other adjustments. Time adjustments should be applied prior to any statistical analysis; however atypical sales should be removed for the time-trend application. These atypical sales should, however, be included during the outlier trimming process which occurs during the statistical phase of the ratio study program.

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or herself and his or her heirs, undertakes to defend and protect the grantee against any loss that may be suffered by reason of the existence of any other title or interest in the property existing at the time the deed was executed and not excepted therein. Contrast deed, quitclaim.

**Deed Recordation.** The process of registering a sale of real property with the appropriate public body, usually the county recorder's office.

**Deed Restriction.** A limitation to property rights that transfers with the property regardless of the owner.

**Delinquent Taxes.** Delinquent taxes are past due and unpaid taxes.

**Disclosure.** (1) Act of disclosing. (2) Revelation. (3) To make known or public. (4) In real estate, a seller of real property must disclose facts that affect the value or desirability of the property. Unless exempt, the seller completes and signs specific disclosure forms, including the Real Estate Transfer Disclosure Statement, to disclose those material facts.

**Discounted Cash Flow Analysis.** The discounted cash flow analysis is (1) a yield capitalization method used to calculate the present value of anticipated future cash flows and (2) analysis of the present value of an income-producing property by isolating differences in the timing of cash flows. Net cash flows from all time intervals involved in the analysis are discounted to present value by an appropriate discount rate.

**Discounting.** Discounting is the process of estimating the present worth of an anticipated item of income or expense by determining the amount of money which, if presently invested and allowed to accumulate at compound interest, will exactly equal the expected item of income or expense at the time when it becomes due.

**Discount Rate.** A discount rate is (1) the rate of return on investment; the rate an investor requires discounting future income to its present worth. The discount rate is made up of an interest rate and an equity yield rate. Theoretical factors considered in setting a discount rate are the safe rate earned from a completely riskless investment (this rate may reflect anticipated loss of purchasing power due to inflation) and compensation for risk, lack of liquidity, and investment management expenses. The discount rate is most often estimated by band-of-investment analysis or sales comparison analysis that estimates typical internal rates of return. (2) In monetary policy, the rate that the Federal Reserve Bank charges member banks to borrow. Compare to recapture rate.

**Divided Rights.** Rights to property that have been divided among several owners in partnerships, joint tenancy, tenancy in common, and time-share units.

**Encumbrance.** Any limitation that affects property rights and value.

**Equitable Ownership.** The interest or estate of a person who has beneficial right in property legally owned by

another; for example, the beneficiary of a trust has equitable ownership in the trust property.

**Equity.** (1) In assessment, equity is the degree to which assessments bear a consistent relationship to market value. Measures include the Coefficient of dispersion, coefficient of variation, and price-related differential. (2) In popular usage, a synonym for equity is a synonym for tax fairness. (3) In ownership, the net value of property after liens and other charges have been subtracted.

**Equity of Redemption.** A right recognized by courts of equity whereby a person who has transferred legal title to property as security for an obligation is permitted, after defaulting on the obligation, to retain possession of the property for such period as may be prescribed by law or by the court and to reacquire legal title to the property upon fulfillment of the obligation within such period.

**Estate.** Estate refers to (1) the interest which a person possesses in a single concrete article of property; (2) the aggregate interests of any person in articles of property of all descriptions; and, (3) the aggregate property of all descriptions left by a decedent. Also see tenancy; real estate.

**Estate, Leasehold.** Any possessory interest in land less than estate of freehold, that is, an estate for years, an estate from years to year (periodic estate), an estate at will, or an estate at sufferance. See leasehold.

**Estate for Years.** A possessory interest in land which cannot endure beyond a date specified in the conveyance or a date precisely determinable at the time the interest becomes possessory.

**Estate in Fee Simple.** An inheritable, possessory interest in land that may endure until the extinction of all lineal and collateral heirs of the first owner and that may be freely conveyed by its owner; the largest possible estate in land.

**Estate of Freehold.** Any one of the three types of possessory interest in land—fee simple, fee tail, and estate for life—that in feudal time were granted only to freemen.

*Note: Estates of freehold are said to be estates of indefinite duration and any other estate is said to be "less than freehold."*

**Exchange (IRS 1031).** Internal Revenue Code Section 1031 enables a taxpayer to defer gain on the sale of a business use or investment property, provided that the seller reinvests in another business use or investment property.

*Note: The seller has 45 days from closing of their current property to identify a replacement property. Although there are requirements an exchange is much like a typical sale and purchase transaction. To defer all capital gains one must acquire a replacement property with equal or greater property value to that of the sold property. The seller must also reinvest all net equity.*

**Fannie Mae.** Defined under Federal National Mortgage Association.

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**Owner, Legal.** One who has dominion over property under the rules of law, as distinguished from rules of equity.

**Ownership.** The rights to the use of property, to the exclusion of others.

**Parcel.** A continuous area of land described in a single legal description or as one of a number of lots on a plat; separately owned, either publicly or privately; and, capable of being separately conveyed.

**Parcel Identification Number.** A numeric or alphanumeric description of a parcel that identifies it uniquely. Assessors use various systems, many with common features. A growing number of these systems include geocoding, in the thirty states where it exists, the Public Land Survey System, authorized by the United States government in 1785, is often a basis for parcel identification.

**Parcel Identifier.** A code, usually numerical, represents a specific land parcel's legal description. The purpose of parcel identifiers is to permit reference to legal descriptions by using a code of uniform and manageable size, thereby facilitating record-keeping and handling. Also called parcel identification number.

**Parcel of Land.** A contiguous urban or rural land area that is considered as a unit, is subject to single ownership, and is legally recorded as a single piece.

**Partial Interest.** An interest (in property) that is less complete than a fee simple interest.

**Partial Payment Factor.** Also known as the "amortization" or "periodic repayment" factor: The equal periodic payment that has a present worth of \$1, for a specified number of periods and at a specified discount rate.

**Patent.** (1) The exclusive right granted by a government for a limited period to an inventor, his or her heirs, legatees, or assigns, to make, use, and vend an article or process invented by him or her. (2) The instrument by which government lands are granted to private persons under the proceedings set forth in the general statutes.

**Personal Property.** Personal property consists of every kind of property that is not real property, movable without damage to itself or the real estate; subdivided into tangible and intangible. Personal property is also known as "Personalty."

**Personalty.** A synonym for personal property.

**Plot.** A plot is (1) a relatively small area of land, generally used for a specific purpose; (2) a measured area of land (lot).

**Plottage.** (1) Those factors of size, shape, and location with reference to other plots that add or detract from the value of a plot by a given purpose (preferred). (2) The assembling of adjacent parcels of land into a single unit. (3) The excess cost of assembling adjacent parcels of land into a single unit under single ownership over the estimated cost at which such parcels might be acquired individually by independent purchasers. (4) Plottage value.

*Note: Because of the variety of meanings attached to this term and its derivatives, it is suggested that the more descriptive term "assemblage" and its derivatives be used to convey all of the above meanings except the first. Compare assemblage.*

**Plottage Value.** (1) The increment of value ascribed to a plot because of its suitability in size, shape, and/or location with reference to other plots (preferred). (2) The excess of the value of a large parcel of land formed by assemblage over the sum of the values of the unassembled parcels.

**Points.** Prepaid interest on a loan; one point is equal to 1 percent of the amount of the loan. It is common to deduct points in advance of the loan, so that an individual pays interest on 100 percent of the loan, but gets cash on, say, only 99 percent.

**Possession.** Possession is the physical control of personal or real property.

**Possessory Interest.** (1) An interest of a person in an article of property arising from a physical relationship to the article of such nature as to confer on him or her degree of physical control over it, coupled with the intent so to exercise such control as to exclude the general public from use of it. (2) The right to occupy and use any benefit in a transferred property, granted under lease, license, permit, concession, or other contract. (3) A private taxable interest in public tax-exempt property, for example, a private service station in a federal military base. Assessment of this interest permits complex valuation problems. Among the issues are whether the ownership or the use is exempt, whether the parcel should be split, and whether market rent differs from contract rent.

**Precision.** The degree of refinement in the performance of an operation, or the degree of perfection in the instruments and methods used when making the measurements. Precision relates to the quality of the operation by which a result is obtained, and is distinguished from accuracy, which relates to the quality of the results. Compare to integrity; validity.

**Present Worth.** (1) The value of something after discounting future payments and receipts. (2) The present value of income that is expected to be received at some future date or dates, as ascertained by the process of discounting both the income and the anticipated expenses incident to its receipt, that is, the amount of money that if presently invested and allowed to accumulate at compound interest, would yield net income in the same amounts and at the same intervals as is anticipated of a given property. It is synonymous with capital value" and "present value."

**Present Worth of 1.** (Also called the reversion factor.) The lump-sum amount that would have to be set aside to accumulate with compound interest to \$1 at the end of a specified number of years and at a specified rate of interest. Alternatively, it can be viewed as the present value of

## Appendix A. Sales Verification Questionnaire

Parcel Identification Number _____	Instrument Number _____
Instrument Type _____	<input type="checkbox"/> Multiparcel Sale <input type="checkbox"/> Split Sale   Recording Date _____

Seller (Grantor) Name _____ Mailing _____ City/ST/ZIP _____ Phone _____ E-mail _____	Buyer (Grantee) Name _____ Mailing _____ City/ST/ZIP _____ Phone _____ E-mail _____
Brief Legal Description _____ _____ _____	Property/Situs Address _____ Name and Mailing Address for Tax Statements _____ _____

**PLEASE ANSWER THE FOLLOWING QUESTIONS:**

1. Were there special factors affecting the sale?  
 Sale between immediate family members (SPECIFY THE RELATIONSHIP) \_\_\_\_\_  
 Sale involved corporate affiliates belonging to the same parent company  
 Sale of convenience (correct defects in title; create a joint or common tenancy, etc.)  
 Auction sale  
 Deed transfer in lieu of foreclosure or repossession  
 Forced sale or sheriff's sale  
 Sale by judicial order (guardian, executor, conservator)  
 Sale involved a government agency or public utility  
 Buyer (new owner) is a religious, charitable, or benevolent organization, school or educational association  
 Land contract or contract for deed  
 Sale of only a partial interest in the real estate  
 Sale involved a trade or exchange of properties  
 **NONE OF THE ABOVE**
2. What was the use of property at the time of sale? (check one)  
 Single family residence                       Agricultural land  
 Farm/ranch with residence                       Vacant lot  
 Condominium unit                                   Commercial/Industrial  
 Other (specify) \_\_\_\_\_
3. Was the property rented or leased at the time of sale?    Yes    No
4. Did the sale price include an existing business?    Yes    No
5. Was any personal property (such as furniture, equipment, machinery, livestock, crops, business franchise or inventory, etc.) included in the sale price?  
 Yes    No  
 If yes, please describe \_\_\_\_\_  
 \_\_\_\_\_  
 Estimated value of all personal property items included in the sale price \$ \_\_\_\_\_
6. Any recent changes to the property?    Yes    No  
 New construction                                   Demolition  
 Remodeling     Additions  
 Was the work performed by a professional?    Yes    No  
 Date completed \_\_\_\_\_  
 Estimated cost of labor and materials? \$ \_\_\_\_\_
7. Was there a change in use?    Yes    No  
 If yes, please explain \_\_\_\_\_  
 \_\_\_\_\_
8. Does the buyer hold title to any adjoining property?    Yes    No
9. Was there an appraisal made on the property?    Yes    No

10. Were any **delinquent** taxes assumed by the purchaser?  
 Yes—Amount \$ \_\_\_\_\_    No
11. Were the **delinquent** taxes included in the sale price?  
 Yes    No    NA
12. How was the property marketed? (check all that apply)  
 Listed with real estate agent                       Displayed a "For Sale" sign  
 Advertised in the newspaper                       Offered by word of mouth
13. Was the property made available to other potential purchasers?  
 Yes    No  
 If not, explain \_\_\_\_\_  
 \_\_\_\_\_
14. How long was the property on the market? \_\_\_\_\_
15. What was the asking price? \_\_\_\_\_
16. What date was the sale price agreed upon?  
 \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_
17. What was the method of financing? (check all that apply)  
 New loan(s) from a financial institution  
 Name of lending institution \_\_\_\_\_  
 Cash down payment \$ \_\_\_\_\_  
 Amount \$ \_\_\_\_\_ Interest rate \_\_\_\_\_ % Term \_\_\_\_\_  
 Assumption of existing loan(s)  
 Amount \$ \_\_\_\_\_ Interest rate \_\_\_\_\_ % Term \_\_\_\_\_  
 Seller financing  
 Amount \$ \_\_\_\_\_ Interest rate \_\_\_\_\_ % Term \_\_\_\_\_  
 Trade of property; estimated value \$ \_\_\_\_\_  
 Describe traded property \_\_\_\_\_  
 All cash    Not applicable
18. What was the **Total Sale Price** \$ \_\_\_\_\_
19. Was the sale influenced by any unusual circumstances?  
 Yes    No  
 If yes, please explain \_\_\_\_\_  
 \_\_\_\_\_
20. Is the total sale price a fair reflection of the market value for the real estate on the sale date?    Yes    No   If no, please explain \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PRINT NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_

GRANTOR (SELLER)                      Daytime phone (\_\_\_\_\_) \_\_\_\_\_

GRANTEE (BUYER)                          Daytime phone (\_\_\_\_\_) \_\_\_\_\_

AGENT    Daytime phone (\_\_\_\_\_) \_\_\_\_\_



## Appendix E. Documentation Form

### Sale Verification Form

PARCEL NUMBER

JURISDICTION: \_\_\_\_\_

SALE NO: \_\_\_\_\_

Person Contacted: \_\_\_\_\_

Buyer  Seller (Phone) \_\_\_\_\_

Other (Phone) \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Attempt	Date	Time	Result
1st			
2nd			
3rd			

Person Contacted: \_\_\_\_\_

Buyer  Seller (Phone) \_\_\_\_\_

Other (Phone) \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Attempt	Date	Time	Result
1st			
2nd			
3rd			

Sale Price: \$ \_\_\_\_\_
Adjusted Sale Price: \$ \_\_\_\_\_
Sale Date: \_\_\_\_\_

MFR Y11

Reason For Adjustment: \_\_\_\_\_

COMM / IND PROPERTY ONLY

**N** Title Does Not Apply

**F** Title Issued When Sold

**P** At Least Partially Insured

**V** Vendor Not Licensed to Sell in State

**D** Title Denied/Issued

**T** Unknown/Investigating

Was the price paid for the property a fair reflection of Market Value?  Yes  No  Don't Know

Was the property exposed to the Open Market?  Yes  No

If yes, how was the property marketed? \_\_\_\_\_

If through medium, name of Realtor? \_\_\_\_\_

Was fee/appraisal prepared for Buyer?  Yes  No

Was fee/appraisal prepared for Seller?  Yes  No

Use at time of sale? \_\_\_\_\_

1 Buyer

2 Seller

3 Sales Organization

4 Agent/Broker

5 Title Company

6 Financial Institution

7 Private Use Appr

8 Multiple Listing System

9 Local Government/Municipality Co

ID Agency: \_\_\_\_\_ Source Code: \_\_\_\_\_

CONCLUSIONS/ COMMENTS

(Additional Space on Back - Continued on Back)

0 Valid

X Any Significant Defect

1 Multiple Offers

2 No Open Market

3 Property Closed After Sale

4 Split

5 Uninsured

6 Subject Condition

7 Technical Defect

8 Fair Market Value

9 Discarded Vendor List

B Discarded Vendor List

C Government/Institution Sale

G Government Sale

T Trust/Advised/Residual Supplier

U Unavailable

Validity Code: \_\_\_\_\_

RESEARCH ANALYST SIGNATURE \_\_\_\_\_
APPRAISER SIGNATURE \_\_\_\_\_
DATE FORM COMPLETED \_\_\_\_\_