



DENTON CENTRAL APPRAISAL DISTRICT

2021

MASS APPRAISAL REPORT

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INTRODUCTION

Scope of Responsibility

The Denton 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 5 & 6 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 portion and several sections describing information specific to particular appraisal divisions.

The 2021 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 2021 mass appraisal results is 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.

Client and Intended User

The client and intended users of the appraisals performed by the Appraisal District are the taxing entities that provide services to the citizens of the county and the property owners of the appraised accounts.

Purpose and Intended Use

The purpose of the appraisal is to estimate the market value of all real and personal property within the jurisdictional boundaries of Denton County in an equitable and efficient manner for ad valorem tax purposes in accordance with the laws of the State of Texas.

General Assumptions and Limiting Conditions

The appraised value estimates provided by the district are subject to the following conditions:

The appraisals were prepared exclusively for ad valorem tax purposes. The property characteristic 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, 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 ploy 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.

It is assumed that all applicable zoning and use regulations and restrictions have been complied with unless nonconformity has been stated, defined and considered in this mass appraisal report.

It is assumed that all required licenses, certificates of occupancy, consents or other legislative or administrative authority from any local, state or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.

It is assumed that the utilization of the land and improvements of the properties described are within the boundaries or property lines, and that there are no encroachments or trespasses unless noted on the appraisal record.

Unless otherwise stated in this report, the appraiser has taken into account any existence of hazardous substances or other environmental conditions that the appraiser is aware of. Diligent inquiry into any properties suffering a loss in value based on the existence of hazardous substances or other environmental conditions has been made. The value estimates are predicated on the assumption that any such conditions on or in the property or in such proximity thereto that it would cause a loss in value have been addressed. No responsibility is assumed for any such conditions, or for any expertise or engineering knowledge required to discover them

Effective Date of Appraisal and Date of Report

With the exception of certain inventories for which the property owner has elected a valuation date of September 1, 2020; all appraisals are as of January 1, 2021 (Sec. 23.01, 23.12(f)). The date of this report is 8/17/2021

Definition of Value

Except as otherwise provided by the Texas Tax Code (hereafter "Tax Code"), all taxable property is appraised at its "market value" as of January 1. Per tax code Sec. 1.04(7), "market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

Exposed for sale in the open market with a reasonable time for the seller to find a purchaser:

Both the seller and the buyer know of all 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;

Both the seller and buyer seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

The Tax Code defines special appraisal provisions for the valuation of several different categories of property. Specially appraised property is taxed on a basis other than market value as defined above. These categories include agricultural and timber property (Chapter 23, Subchapters C and D, Tax Code), certain types of dealer inventory (Sec. 23.121, 23.1211, 23.124, 23.1241 and 23.127), and nominal (Sec 23.18) or restricted use properties (Sec 23.83), and railroad rolling stock (Sec 24.37).

Section 23.12 of the Texas Property Tax Code provides the definition of market value for inventory. Inventory includes residential real property that has never been occupied as a residence and is held for sale in the ordinary course of business, if the property is unoccupied, is not leased or rented, and produces no revenue. The market value of residential inventory is the price at which it would sell as a unit to a purchaser who would continue the business.

Appraisals Generally

The district's market value appraisals are performed pursuant to Article VIII, Sec. 1., Texas Constitution, which provides that property must be taxed in proportion to its value as determined by law, Sec. 23.01. The Tax Code implements this provision as follows:

*Sec. 23.01 **Appraisals Generally***

- (a) Except as otherwise provided by this chapter, all taxable property is appraised at its market value as of January 1.*

- (b) The market value of property shall be determined by the application of generally accepted appraisal methods and techniques. If the appraisal district determines the appraised value of a property using mass appraisal standards, the mass appraisal standards must comply with the Uniform Standards of Professional Appraisal Practice. The same or similar appraisal methods and techniques shall be used in appraising the same or similar types of property. However, each property shall be appraised based upon the individual characteristics that affect the property's market value, and all available evidence that is specific to the value of the property shall be taken into account in determining the property's market value.*

- (c) Notwithstanding Section 1.04(7)(C), in determining the market value of a residence homestead, the chief appraiser may not exclude from consideration the value of other residential property that is in the same neighborhood as the residence homestead being appraised and would otherwise be considered in appraising the residence homestead because the other residential property:
 - (1) was sold at a foreclosure sale conducted in any of the three years preceding the tax year in which the residence homestead is being appraised and was comparable at the time of sale based on relevant characteristics with other residence homesteads in the same neighborhood; or*
 - (2) has a market value that has declined because of a declining economy.**

- (d) The market value of a residence homestead shall be determined solely on the basis of the property's value as a residence homestead, regardless of whether the residential use*

of the property by the owner is considered to be the highest and best use of the property.

- (e) ***[Effective January 1, 2021]*** *Notwithstanding any provision of this subchapter to the contrary, if the appraised value of property in a tax year is lowered under Subtitle F, the appraised value of the property as finally determined under that subtitle is considered to be the appraised value of the property for that tax year. In the next tax year in which the property is appraised, the chief appraiser may not increase the appraised value of the property unless the increase by the chief appraiser is reasonably supported by clear and convincing evidence when all of the reliable and probative evidence in the record is considered as a whole. If the appraised value is finally determined in a protest under Section 41.41(a)(2) or an appeal under Section 42.26, the chief appraiser may satisfy the requirement to reasonably support by clear and convincing evidence an increase in the appraised value of the property in the next tax year in which the property is appraised by presenting evidence showing that the inequality in the appraisal of property has been corrected with regard to the properties that were considered in determining the value of the subject property. The burden of proof is on the chief appraiser to support an increase in the appraised value of property under the circumstances described by this subsection.*

Properties Appraised

Denton CAD mass appraises all taxable real and personal property known to the district as of January 1, 2021 within the boundaries of Denton County. The property rights appraised were fee simple interests, with the exception of leasehold interests in property exempt to the owner of the estate or interest encumbered by possessory interest. The latter are appraised under a statutory formula described in Sec. 25.07, Tax Code. The description and identification of each property appraised is included in the appraisal records submitted to the Denton Central Appraisal Review Board (ARB).

Any taxable real and personal property discovered to be left off of the appraisal roll will be supplemented for the appraisal years omitted as prescribed under Section 25.21 of the Texas Property Tax Code. These, by law, will be appraised and supplemented to the jurisdictions after the certification of the appraisal roll.

The comptroller shall apportion the railroad rolling stock appraised value of each owner's rolling stock to each county in which the railroad using it operates according to the ratio the mileage of road owned by the railroad in the county bears to the total mileage of road the railroad owns in this state. (Sec 24.37)

Scope of Work Used to Develop the Appraisal

This mass appraisal addresses all taxable real and tangible personal property within the boundaries of the Denton Central Appraisal District, which encompasses all of Denton County, Texas. This involves approximately 469,000 accounts. The district distributes the work of the appraisal among several appraisal departments. The following sections describe, by area of responsibility, the scope of work performed and those items addressed in USPAP standard 5 & 6.

The Chief Appraiser, who is the chief executive officer of the appraisal district, manages the district. The Chief Appraiser is primarily responsible for overall planning, organizing, staffing, coordinating, and controlling all district operations. All district employees report to the chief appraiser through their immediate department manager.

The appraisal departments are made up of Residential, Commercial, and Business Personal Property. The district's appraisers are subject to the provisions of the Property Taxation Professional Certification Act and must be duly registered with The

Texas Department of Licensing and Regulations. All appraisers maintain a current registration in good standing with TDLR. The appraisers are listed in the certification statement.

The field operations activities for the appraisers are collecting and maintaining property characteristic data for all real and personal property types, which are located within the boundaries of Denton County. These activities involve the field inspection of real and personal property, as well as data entry of all data collection into the appraisal district CAMA system. Periodic reappraisal of property is required at least every 3rd year, as set forth in the Texas Property Tax Code (25.18(b))

Other departments within Denton CAD are: Customer Service, Appeals & ARB, Information Technology, Mapping & Ownership, and Administration. Customer Service encompasses homestead and related exemption applications, and assists taxpayers. The Appeals department handles lawsuits, arbitrations, and assists the ARB with items such as scheduling hearings. Administration is responsible for budget and financial matters. Information Technology operates the district's computer facilities. Mapping & Ownership are responsible for deed transfers, GIS mapping, blueprint & permit processing, and gathering & verifying sales information.

Significant Appraisal Assistance

While the appraisal district staff conducted most of the appraisal activities, the district also used 2 outside firms. Wardlaw Appraisal Group appraises oil, gas, utilities and specialty properties. The contract for the Wardlaw firm is conducted by bids for a 2 year term. The district has established procedures whereby ownership and property data information are routinely exchanged. Denton CAD also contracts Eagle Property Tax Appraisal & Consulting Inc. for agricultural valuation schedules.

Methods & Techniques

Per the Texas Property Tax Code Sec 23.01, the following are appropriate Methods & Techniques:

(h) [Effective January 1, 2020] Appraisal methods and techniques included in the most recent versions of the following are considered generally accepted appraisal methods and techniques for the purposes of this title:

- (1) the Appraisal of Real Estate published by the Appraisal Institute;
- (2) the Dictionary of Real Estate Appraisal published by the Appraisal Institute;
- (3) the Uniform Standards of Professional Appraisal Practice published by The Appraisal Foundation; and (4) a publication that includes information related to mass appraisal

In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions.

Highest & Best Use

The highest and best use of property is the reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legal, financially feasible, and productive to its maximum. The highest and best use of residential property is normally its current use. This is due in part to the fact that residential development, in many areas through use of deed restrictions and zoning, precludes other land uses. Residential Valuation undertakes reassessment of highest and best use in transition areas and areas of mixed residential and commercial use. In areas of transition, the analyst reviews the existing residential property use and makes a determination regarding highest and best use. As an example, it may be determined that a market area is undergoing urban gentrification. (Gentrification refers to the changes that result when people of higher income levels acquire property in lower income

communities.) Based on the analysis a determination will be made as to whether the use remains the same or has changed. In areas of mixed residential and commercial use, the analyst reviews properties in these areas on a periodic basis to determine if changes in the real estate market require reassessment of the highest and best use of a select population of properties.

Prior to the addition of 23.01(d) concerning residential homesteads, there was no specific statute defining highest and best use as it applies in appraisals conducted under the Property Tax Code. However Texas courts have acknowledged that highest and best use is a factor that must be considered in determining market value.

“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.

With the exception of residence homesteads, this definition of highest and best use still applies to appraisals conducted under the Property Tax Code.

Appraisal Performance Tests & Performance Measures Attained

Government Code Section 403.302 requires the Comptroller to conduct a study to determine the degree of uniformity and the median level of appraisals by the appraisal district within each major category of property, as required by Section 5.10, Tax Code. This study is required every other year. 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 Assistance Division (PTAD) 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 PTAD certifies the state value, unless the school district is eligible for a grace period, which is a period when local value is used even though it is determined to be invalid. A property value study was conducted for 2019 and will be conducted for 2021. A copy of the latest report can be reviewed upon request or on the comptroller's website.

Section 5.102, Tax Code requires the Comptroller of Public Accounts to review county appraisal district (CAD) governance, taxpayer assistance, operating standards and appraisal standards, procedures and methodology at least once every two years. CAD’S located in counties that do not receive the Methods and Assistance Program (MAP) reviews in a year will be subject to property value studies in that year. A MAP review was completed for 2020 and DCAD ratings per the review were “Pass” for all mandatory requirements and “Meets All” for Governance, Taxpayer Assistance, Appraisal Standards, Procedures, and Methodology and Taxpayer Assistance. A MAP review will be conducted for the 2022 year. A copy of the latest report can be reviewed upon request or on the comptroller's website.

Report by Appraisal Division

As noted above, the district allocated the work of the mass appraisal among several areas within the appraisal departments. The Residential, Commercial, and Personal Property departments develop, calibrate, and apply the various mass appraisal models for their respective property types.

Wardlaw Appraisal Group is contracted to perform mineral, utilities, and other specialty property appraisals. Eagle Property Tax Appraisal & Consulting Inc. is contracted to assist in agricultural valuation appraisals.

Residential Valuation

Scope of work

The Residential Department is made up of 1 manager, 2 supervisors, appraisers and support staff. The Residential group of the Denton Central Appraisal District (DCAD) is responsible for gathering and maintaining property data for all residential properties. They are also responsible for developing fair and uniform market values for residentially-classed improved properties and land for ad valorem purposes within the boundaries of Denton County. Data collected during fieldwork and analysis phases of the appraisal cycle is stored in the CAMA database and utilized to provide market values each year. All three approaches to value are considered in estimating market value for each property, but the market (sales) approach generally receives the most weight.

Significant Appraisal Assistance

Currently the residential department does not utilize any significant mass appraisal assistance.

Model Specification

Area Analysis

Data on regional economic forces such as demographic patterns, regional location factors, employment and income patterns, general trends in real property prices, rents, interest rate trends, availability of vacant land, construction trends and cost are collected from local real estate professionals, private vendors and public sources. Information is gleaned from real estate publications and sources such as Dallas Business Journal, Marshall & Swift, IAAO, and applicable sources found on the Internet and The Real Estate Center of Texas A&M. Local newspapers, builders and suppliers also provide the valuation analysts a current economic outlook on Denton County's real estate market.

Neighborhood and Market Analysis

Market Area analysis involves the examination of how physical, economic, governmental and social forces and other influences affect property values. The effects of these forces are also used to identify, classify, and stratify comparable properties into smaller, manageable subsets of the universe of properties known as market areas. Current analysis is defined within a given subdivision and then expanded to market areas. Subdivisions with common elements are grouped together. Any differences within the subdivisions are analyzed, studied, and changes made as determined by the studies.

The first step in market area analysis is the identification of a group of properties that share certain common traits. A "market area" for analysis purposes is defined as the largest geographic grouping of properties where the property's physical, economic, governmental and social forces are generally similar and uniform. Geographic stratification accommodates the local supply and demand factors that vary across a jurisdiction. Once a market area has been identified, the next step is to define its boundaries. This process is known as "delineation". Some factors used in market area delineation include location, sales price range, lot size, age of dwelling, quality of construction and condition of dwellings, square footage of living area, and story height. Delineation can involve the physical drawing of market area boundary lines on a map, but it can also involve statistical separation or stratification based on attribute analysis.

Part of market area analysis is the consideration of discernible patterns of growth that influence a market area's individual market. Few market areas are fixed in character. Each market area may be characterized as being in a stage of growth, stability, or decline. The growth period is a time of development and construction. As new market areas in a community are developed they compete with existing market areas. An added supply of new homes tends to induce population shift from older homes to newer homes. In the period of stability or equilibrium the forces of supply and demand are about equal. Generally, in the stage of equilibrium, older market areas can be more desirable due to their stability of residential character and proximity to the workplace and other community facilities. The period of decline reflects diminishing demand or desirability. During decline general property use may change from residential to a mix of residential and commercial uses. Declining market areas may also experience renewal, reorganization, rebuilding, or restoration, which promotes increased demand and economic desirability.

Market area identification and delineation is the cornerstone of the residential valuation system at the district. All the residential analysis work done in association with the residential valuation process is market area specific. Market areas are reviewed annually and delineated based on observable aspects of homogeneity. Market area boundaries are periodically reviewed to determine if further market area delineation is warranted or, if existing market areas could be combined because of similar markets. Combined market areas may provide a larger base for analysis.

Each residential market area is assigned to a market area group based on observable aspects of homogeneity between market areas. Market area grouping is highly beneficial in cost-derived areas of limited or no sales, or use in direct sales comparison analysis. Market area groups and clustered market areas increase the available market data by linking comparable properties outside a given market area. Sales ratio analysis is performed on a market area basis, market area group basis and cluster basis.

In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions.

Data Collection, Validation, Reporting and Sources

Data collection of real property involves maintaining data characteristics of the property on a CAMA system (Computer Assisted Mass Appraisal). The information contained in CAMA files includes site characteristics, such as land size and topography, and improvement data, such as square foot of living area, year built and effective age, quality of construction, and condition. Other resources that may be referenced are the Cost Appraisal Manual & Mass Appraisal Report Supplement.

Sources of Data

The sources of our data collection and verification include, but are not limited to: building permits, field inspections, data mailers, ARB hearings, newspapers, publications, property owners, and the Internet.

Building permit data obtained from Denton County, surrounding cities, and mechanic liens trigger field inspections on property experiencing significant characteristic changes due to new construction or remodeling. Unreported improvements are identified from aerial photographs, and visual inventories. Data accuracy is also enhanced by the availability of the district's property records on the Internet. Property owners frequently contact our website to report data inaccuracies such as the number of baths and bedrooms requiring a correction in characteristic of the property. Some may initiate a field inspection.

Data reviews of entire market areas are conducted when ratio studies indicate wide dispersions between the value and the sale price. Appraisers do a careful drive-by of properties to review the accuracy of our data and identify properties that have to be

updated. The sales validation effort in real property pertains to the collection of data of properties that have sold. Sales validation involves some on-site inspections by appraisers to verify the accuracy of our data.

Data Maintenance & Validation

The Mapping & Ownership department gathers, enters, and makes available items such as permits, blueprints, deed information, GIS & aerial data, and sales data into the CAMA system. Appraisers then conduct office and field reviews of properties to verify the information.

Fieldwork for appraisers work areas are generally split along school or city entity lines within Denton County. Appraisers gather & review data on new construction projects as well as inventory existing properties for any changes. Appraisers update property characteristics such as square footage, quality of construction, condition, and land characteristics in the CAMA system. Appraisers reference manuals and other training material such as the cost manual for classifying improvement structures, land tables, and other processes. Appraisers use manuals that establish uniform procedures for the correct listing of real property. All improved properties are classified according to the appraisal manuals and the approaches to value are structured and calibrated based on this classification system. Appraisers use these manuals in their initial appraisal of improved property.

Model Calibration

Cost Schedules

All residential parcels in the district are valued from cost schedules using a comparative unit method. The district's residential cost schedules have been designed to fit Denton County's local construction cost. The cost schedules are reviewed and updated as needed.

As a part of this process, newly constructed properties sold in 2017-2019 (approximately 3900) in all levels of quality of construction with a valid sale price in Denton County were reviewed. The property data characteristics of these properties were verified and photographs were taken of the properties. Random reviews of sold new construction less the land value were used in determining cost along with Marshall and Swift to indicate local construction cost.

New schedules are reviewed at each level of classification using sold properties to determine the sales ratio between appraised values and indicated sales prices. Using statistical measures the new cost schedules are tested for uniform appraisals in each class and adjusted as needed. In 2019, adjustments were made to the cost schedules where deemed necessary.

The cost data is adjusted using effective age and the appropriate depreciation schedule.

Sales Information

Sales information on sold properties is maintained within the district's CAMA system. Residential improved sales are collected from a variety of sources including, but not limited to, district questionnaires sent to buyers and sellers, field discovery, protest hearings, local real estate professionals, various sale vendors, builders, and realtors. A system of type, source, and validity codes was established to define salient facts related to a property's purchase or transfer. ISD, market area, and subdivision sales reports are generated as an analysis tool for the analyst in the development of value estimates.

In accordance with Government Code Sec. 552.149, the appraisal district must keep confidential any information about properties that an appraisal district obtains from private sources. DCAD cannot publicly disclose (or display on our website) property sales information we obtain from private sources.

Land Analysis

Residential land analysis is conducted by developing a base lot primary rate for each market area using either sold lots which are preferred, in the absence of sold lots abstraction and allocation methods are used. The square foot land table is designed to systematically value the primary and residual land based on a specified percentage of the primary rate. Specific land influences are used where necessary to adjust parcels outside the norm of the land table pricing. Adjustments are made to parcels for things such as view, shape, size, and topography, among others. Land valuation options consist of flat value, price per square foot or arce, and a land table formula.

Another method of land valuation is the comparative unit method. The appraiser determines the average or typical per unit value for each stratum of land by carefully considering the available data on the sales maps and making an informed judgment. When there are insufficient sales within strata but sales prices per unit are similar between adjoining strata, the appraiser can combine strata in order to develop per unit values. In the absence of sold lots abstraction and allocation methods are used.

Once comparative unit values have been determined for an area, those values must then be refined by applying site adjustments at the individual parcel level. Site characteristics often requiring adjustment include topography, traffic flow, limited access, flooding susceptibility, drainage, and irregular shape. Site adjustments are applied only to those parcels in the market area or stratum that are affected. The adjustments are made as a percentage adjustment to the market value. The appraisers use their informed judgment to determine the adjustment percentage.

Statistical Analysis

Statistical analysis is done on a regular basis to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on each market area to judge the primary aspects of mass appraisal; an estimate of market value and uniformity of value. Measures of central tendency are used to determine if the estimate of market value and uniformity have been met. These statistical measurements include but are not limited to, the weighted mean, mean, mode, median, standard deviation, coefficient of variation, and coefficient of dispersion provide the appraiser with tools by which to determine both the level of market value and uniformity in the appraised values for a market area.

Through the use of sales ratio reports and market area profiling the appraiser reviews each market area annually. The sales ratio report shows a comparison (ratio) between current appraised values and recent sales prices in market areas. This set of ratios is an excellent means of judging the present level of appraised value. The COD (coefficient of dispersion) will show the uniformity in the appraisals. Charts and graphs are also of benefit when reviewing data. Histogram (bar chart) shows the distribution of ratios within a class of properties, market areas, city or ISD. This distribution of ratios will show the frequency in the level of appraisals and the tightness of the distribution shows uniformity. The height of the bars in the chart indicates the number or percentage of the ratios that fall in each interval. A bell shaped curve will show the extent to which the ratios are normal. Anything outside of the curve are concerned outliers and must be looked at individually by the appraiser. Based on this analysis of data the appraiser will make a decision as to whether the level of appraisal is acceptable for each class/market area. Using the market area profiling the appraiser is able to review any bias, such as in effective age, amenities, and land value problems.

The use of ratio studies and market area profiling is helpful in determining the need for changes in the cost schedules as well as determining the accuracy in the changes in the schedule.

Market Adjustment or Trending Factors

Market adjustment factors are developed from appraisal statistics provided from ratio studies and are used to ensure that estimated values are consistent with the market. The district's primary approach to the valuation of residential properties uses a hybrid cost-sales comparison approach. This type of approach accounts for market area influences not specified in the cost approach. The following equation denotes the hybrid model used:

$$MV = LV + ((CN - D) MA)$$

$$\text{Market Value} = \text{Land Value} + ((\text{Cost New} - \text{Depreciation}) \text{Market Adjustment}) \quad \$144,218 = \$32,500 + ((\$154,350 - 23\%) \cdot .94)$$

Where the market value equals the land value plus the replacement cost new less depreciation times market adjustment factors. As the cost approach separately estimates both land and building values and uses depreciated replacement costs, which reflect only the supply side of the market, it is expected that adjustments to the cost values are needed to bring the level of appraisal to an estimate of market value. Market or location adjustments are applied uniformly within market areas to account for location variances between market areas or across a jurisdiction.

If the subdivision/market area is to be updated, the appraiser uses a ratio study that compares recent sales prices of properties within a delineated subdivision/market area with the properties' appraised value. The calculated ratio derived from the sum of the sold properties' appraised value divided by the sum of the sales prices indicates the subdivision/market area level of value based on the unadjusted value for the sold properties. This comparison of appraised value-to-sale ratio determines the market adjustment factor for each subdivision/market area. This market adjustment factor is needed to trend the values closer to the actual market evidenced by recent sales prices within a given subdivision/market area. The market adjustment factor calculated for each updated subdivision/market area is applied uniformly to all properties within a market area and as needed in the subdivision.

Once the market-trend factors are applied, a second set of ratio studies is generated that compares recent sale prices with the proposed appraised values for these sold properties. From this set of ratio studies, the appraiser judges the appraisal level and uniformity in both updated and non-updated subdivision/market areas, and finally, for the school district as a whole.

Appraisers will look for paired sales when considering adjustments for time. Preferably, several properties that have sold and then resold within a designated period of time. The difference between the first sale and then the resale indicates the percentage of the increase or the decrease in the market.

Field Review

The appraiser identifies individual properties in critical need of field review through sales ratio analysis. Sold properties with a high variance in sales ratios are field reviewed to check for accuracy of data characteristics. If data inaccuracies are found in a large percentage of the sold properties, the entire subdivision/market area is reviewed in the field by the appraiser in their annual work plan.

Although appraisers are somewhat limited in the time available to field review an entire subdivision/ market area of properties, a concerted effort is made by the appraiser to field review transition or other areas experiencing high degrees of remodeling, new construction, or wide variations in sales prices. Additionally, the appraiser frequently

field reviews subjective data items such as quality of construction, condition, and physical, functional and economic obsolescence, factors contributing significantly to the market value of the property.

After preliminary estimates of value have been determined in these target areas; the appraiser may take valuation documents to the field to test the computer-assisted values against their own appraisal judgment. During this review, the appraiser is able to physically inspect both sold properties and unsold properties for comparability and consistency of values.

Office Review

Given the resources and time required to conduct a routine field review of properties, homogeneous properties consisting of tract housing with a low variance in sales ratios and other properties having a recent field inspection date are value reviewed in the office. Valuation reports comparing previous values against proposed and final values can be generated for all residential improved properties. Previous values resulting from a formal hearing protest and others from informal hearings are individually reviewed to determine if the value remains appropriate for the current year.

When reviewing these properties, each appraiser considers all currently available cost, market, and income data before deciding on the final appraised value.

Once the appraiser is satisfied with the level and uniformity of value for each subdivision/market area within their area of responsibility, the residential department supervisor, deputy chief appraiser and the chief appraiser review the estimates of value. Although the value estimates are determined in a computerized mass appraisal environment, appraiser review helps to identify value anomalies before the value is released for noticing.

Highest and Best Use Analysis

The highest and best use of property is the reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legal, financially feasible, and productive to its maximum. The highest and best use of residential property is normally its current use. This is due in part to the fact that residential development, in many areas through use of deed restrictions and zoning, precludes other land uses. Residential Valuation undertakes reassessment of highest and best use in transition areas and areas of mixed residential and commercial use. In areas of transition, the analyst reviews the existing residential property use and makes a determination regarding highest and best use. As an example, it may be determined that a market area is undergoing urban gentrification. (Gentrification refers to the changes that result when people of higher income levels acquire property in lower income communities.) Based on the analysis a determination will be made as to whether the use remains the same or has changed. In areas of mixed residential and commercial use, the analyst reviews properties in these areas on a periodic basis to determine if changes in the real estate market require reassessment of the highest and best use of a select population of properties.

In 2009, the Texas Legislators passed a revision to the highest and best use of homesteaded properties under Section 23.01(d) which took effect on January 1st of 2010. If the resident is the owners' homestead the market value is determined solely on the basis of the property's value as a resident homestead.

Performance Tests

Sales Ratio Studies

The primary analytical tool used by the appraiser to measure and improve performance is the ratio study. This helps to insure that the appraised values that are produced meet the standards of accuracy in several ways. Overall sales ratios are generated for each ISD to allow the appraiser to review general market trends within their area of responsibility, and provide an indication of market appreciation or depreciation over a specified period of time. Sales ratio reports are run several times prior to the setting of preliminary values as well as after finalization of appraisal values in order to catch any inaccuracies, value anomalies, or outliers. The sales ratio chart is a quick view of outliers outside of a bell curve.

The use of profiling market areas is a useful tool to ensure classification, quality, and condition are all similar within similar market areas and similar type properties. The analysis tool in the profiling allows the appraiser to sort the sold properties by total living area, date of sale and indicated adjustments that appear as outliers or trends.

Commercial Valuation

Scope of Work

The Commercial Department is made up of 1 manager, 1 supervisor, appraisers, and support staff. The Commercial group of the Denton Central Appraisal District (DCAD) is responsible for developing fair and uniform market values for all multi-family, commercial, industrial properties, as well as commercially zoned land inside city limits and non-subdivided rural land outside city limits, and new residential subdivision land within the Denton County district boundaries for ad valorem purposes. Data collected during fieldwork and analysis phases of the appraisal cycle is stored in the CAMA database and utilized to provide market values each year. All three approaches to value are considered in estimating market value for each property, then the most applicable is given primary emphasis.

The commercial department is also responsible for valuing residential inventory. Section 23.12 of the Texas Property Tax Code provides the definition of market value for inventory. Inventory includes residential real property that has never been occupied as a residence and is held for sale in the ordinary course of business, if the property is unoccupied, is not leased or rented, and produces no revenue. The definition of market value of residential inventory is the price at which it would sell as a unit to a purchaser who would continue the business.

Significant Appraisal Assistance

The commercial department is also responsible for Agricultural valuation. They utilize the services of Eagle Property Tax Appraisal & Consulting Inc. for agricultural valuation schedules. Please see the *Agricultural Appraisal* section for more information.

Model Specification

Area Analysis

Data on regional economic forces such as demographic patterns, regional locational factors, employment and income patterns, general trends in real property prices and rents, interest rate trends, availability of vacant land, and construction trends and cost are collected from private vendors and public sources. Information is gleaned from real estate publications and sources such as local real estate professionals, Dallas Business Journal, Marshall & Swift, IAAO, and applicable sources found on the Internet and The Real Estate Center of Texas A&M, as well as local newspapers, local builders and suppliers provide the valuation analysts a current economic outlook on Denton County's real estate market. Continuing education in the form of TDLR (Texas Department of License and Regulation) courses and seminars, real estate seminars offered by the Texas Association of Appraisal Districts and the Texas Association of Assessing Officers.

Submarket and Market Analysis

The submarket comprises the land area and commercially classed properties located within the boundary of a taxing jurisdiction. Commercial appraisers use the property use code and neighborhood codes to delineate markets for property types.

These areas consist of a wide variety of property types including multi-family, commercial and industrial. Market area analysis involves the examination of how physical, economic, governmental and social forces and other

influences affect property values. The effects of these forces are also used to identify, classify, and organize comparable properties into smaller, manageable subsets of the universe of properties known as market areas.

Market areas are defined by each of the improved property use types (multi-family, office, flex, warehouse, industrial, general retail, shopping center, sports and entertainment, hospitality, health care, and specialty) based upon an analysis of similar economic or market forces. These include but are not limited to similarities of rental rates, class of construction, date of construction, overall market activity or other pertinent influences. Sales and income information are gathered on each market area and used to formulate overall appraised values for that market area.

Market Area analysis involves the examination of how physical, economic, governmental and social forces and other influences affect property values. The effects of these forces are also used to identify, classify, and stratify comparable properties into smaller, manageable subsets of the universe of properties known as market areas. Current analysis is defined within a given subdivision and then expanded to market areas. Subdivisions with common elements are grouped together. Any differences within the subdivisions are analyzed, studied, and changes made as determined by our studies.

The first step in market area analysis is the identification of a group of properties that share certain common traits. A “market area” for analysis purposes is defined as the largest geographic grouping of properties where the property’s physical, economic, governmental and social forces are generally similar and uniform. Geographic stratification accommodates the local supply and demand factors that vary across a jurisdiction. Once a market area has been identified, the next step is to define its boundaries. This process is known as “delineation”. Some factors used in market area delineation include location, sales price range, lot size, age of structures, quality of construction and condition of structures, square footage of living area, and story height. Delineation can involve the physical drawing of market area boundary lines on a map, but it can also involve statistical separation or stratification based on attribute analysis. Part of market area analysis is the consideration of discernible patterns of growth that influence a market area’s individual market. Few market areas are fixed in character. Each market area may be characterized as being in a stage of growth, stability or decline. The growth period is a time of development and construction. As new market areas in a community are developed they compete with existing market areas. An added supply of new homes tends to induce population shift from older homes to newer homes. In the period of stability or equilibrium the forces of supply and demand are about equal. Generally, in the stage of equilibrium, older market areas can be more desirable due to their stability of residential character and proximity to the workplace and other community facilities. The period of decline reflects diminishing demand or desirability. During decline general property use may change from residential to a mix of residential and commercial uses. Declining market areas may also experience renewal, reorganization, rebuilding, or restoration, which promotes increased demand and economic desirability.

Market area identification and delineation is the cornerstone of the residential valuation system at the district. All the residential analysis work done in association with the residential valuation process is market area specific. Market areas are reviewed annually and delineated based on observable aspects of homogeneity.

Each market area is assigned to a market area group based on observable aspects of homogeneity between market areas. Market area grouping is highly beneficial in cost-derived areas of limited or no sales, or use in direct sales comparison analysis. Market area groups and clustered market areas increase the available market data by linking comparable properties outside a given market area. Sales ratio analysis is performed on a market area basis, market area group basis and cluster basis.

In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions.

Data Collection, Validation, Reporting and Sources

Data collection of real property involves maintaining data characteristics of the property in the CAMA system (Computer Assisted Mass Appraisal). The information contained in CAMA files includes site characteristics, such as land size and topography, and improvement data, such as square foot of living area, year built and effective age, quality of construction, and condition. Other resources that may be referenced are the Cost Appraisal Manual & Mass Appraisal Report Supplement.

Sources of Data

The sources of our data collection and verification include, but are not limited to: building permits, field inspections, data mailers, ARB hearings, newspapers, publications, property owners, and the Internet.

Building permit data obtained from Denton County, surrounding cities, and mechanic liens trigger field inspections on property experiencing significant characteristic changes due to new construction or remodeling. Unreported improvements are identified from aerial photographs, and visual inventories. Data accuracy is also enhanced by the availability of the district's property records on the Internet. Property owners frequently contact our website to report data inaccuracies such as the number of baths and bedrooms requiring a correction in characteristic of the property. Some may initiate a field inspection.

Data reviews of entire market areas are conducted when ratio studies indicate wide dispersions between the value and the sale price. Appraisers do a careful drive-by of properties to review the accuracy of our data and identify properties that have to be updated. The sales validation effort in real property pertains to the collection of data of properties that have sold. Sales validation involves some on-site inspections by appraisers to verify the accuracy of our data.

Data Maintenance & Validation

The Mapping & Ownership department gathers, enters, and makes available items such as permits, blueprints, deed information, GIS & aerial data, and sales data into the CAMA system. The commercial department also gathers income data from sources such as those mentioned in the model specification section. Appraisers then conduct office and field reviews of properties to verify the information.

Fieldwork for appraisers work areas are generally split along school or city entity lines within Denton County. Appraisers gather & review data on new construction projects as well as inventory existing properties for any changes. Appraisers update property characteristics such as square footage, quality of construction, condition, and land characteristics in the CAMA system. Appraisers reference manuals and other training material such as the cost manual for classifying improvement structures, land tables, and other processes. Appraisers use manuals that establish uniform procedures for the correct listing of real property. All improved properties are classified according to the appraisal manuals and the approaches to value are structured and calibrated based on this classification system. Appraisers use these manuals in their initial appraisal of improved property.

Model Calibration

Cost Schedules

All commercial parcels in the district are valued from cost schedules using a comparative unit method. After the cost schedule is established, appraisers will review sales information and the income approach and determine the best model to value specific property categories.

The district's commercial cost schedules have been designed to fit Denton County's local construction cost. The cost schedules are reviewed annually using a nationally recognized cost publication (Marshall & Swift Valuation Service) and sold properties.

An extensive review and revision of the commercial cost schedules was performed for the 2019 tax year. As a part of this process, newly constructed properties in all levels of quality of construction in Denton County were reviewed. The property data characteristics of these properties were verified and photographs were taken of the properties. Reviews of sold new construction less the land value, as well as the Marshall & Swift valuation service, were used in determining local construction costs.

New schedules are reviewed at each level of classification using sold properties to determine the sales ratio between appraised values and indicated sales prices. Using statistical measures the new cost schedules are tested for uniform appraisals in each class and adjusted as needed.

Sales Information

Sales information on sold properties is maintained within the district's CAMA system. Commercial improved sales are collected from a variety of sources including, but not limited to, district questionnaires sent to buyer and seller, field discovery, Appraisal Review Board protest hearings, local real estate professionals, various sale vendors, builders, and realtors. A system of type, source, and validity codes was established to define salient facts related to a property's purchase or transfer. ISD, market area, and subdivision sales reports are generated as an analysis tool for the analyst in the development of value estimates.

Income Approach

The income approach to value is applied to those real properties which are typically viewed by market participants as "income producing," and for which the income methodology is considered a leading value indicator. The DCAD software program utilizes the direct capitalization method.

The first step in the income approach is to estimate the potential gross rent (PGR) for the property. Potential gross rent is the rent that would be collected if the property were fully occupied at market rent.

$$\text{PGR} = \text{UNIT RENT} \times \# \text{ UNITS}$$

PGR can be derived from a variety of sources ranging from local market study publications, to actual rent data furnished by property owners. The computer program allows for three different methods of establishing PGR. Most commercial properties lease based on a lease rate per square foot, in which case the appraiser inputs the net or gross leasable area and the monthly or annual square foot lease rate. The computer then calculates the potential gross rent. For those properties that lease by the unit, such as apartments, the appraiser may input the number of units and the annual lease rate for one unit. The computer then calculates the PGR. The appraiser can also manually calculate the PGR by entering a dollar amount in the computer.

A vacancy and collection loss allowance is the next item to consider in the income approach. Vacancy and collection loss is an allowance for reductions in potential income attributable to vacancies, tenant turnover, and nonpayment of rent. The allowance is estimated as a percentage of potential gross income, which varies depending on the type and characteristics of the physical property, and general and local economic conditions.

$$\text{V\&C LOSS} = \text{PGR} \times \% \text{ V\&C LOSS}$$

The projected allowance is established based on local market study publications, and actual data collected from property owners. This allowance accounts for periodic fluctuations in occupancy, both above and below an estimated stabilized level. The appraiser enters a vacancy and collection loss percentage that is typical within the market for the property being appraised. Once the percentage is entered, the computer will calculate the dollar amount. The market derived stabilized allowance is then subtracted from the potential gross income. Miscellaneous property income (which is not subject to v/c loss) such as parking, vending machines, and laundry are then added to arrive at an effective gross income.

$$\text{EGI} = (\text{PGR} - \text{V\&C LOSS}) + \text{MISC. INCOME}$$

Allowable expenses and expense ratio estimates are based on a study of the local market, with the assumption of prudent management. Categories of allowable operating expenses include insurance; administrative costs for the property such as legal, accounting, advertising, and management fees; repair and maintenance such as extermination, janitor's salaries, trash collection, hardware, and supplies; utilities such as fuel, water, and electricity; and property taxes. Different expense ratios are developed for different types of commercial property based on use. For instance, retail properties are most frequently leased on a triple-net basis, whereby the tenant is responsible for his pro-rata share of taxes, insurance and common area maintenance. In comparison, multi-family properties may have the tenants paying utilities, while the owner pays the remainder of the expenses. As a result, expense ratios must be implemented based on the type of commercial property being appraised. Another form of allowable expenses are the replacement of short-lived items (such as roof or floor coverings, air conditioning or major mechanical equipment or appliances) requiring expenditures of large lump sums. When these capital expenditures are analyzed for consistency and adjusted, they may be applied on an annualized basis as stabilized expenses. When performed according to local market practices by commercial property type, these annualized expenses are known as replacement reserves. The appraiser must carefully analyze the owner's operating statement to make sure all the expenses are allowable and at market rates. Expenses are entered in the computer as a dollar amount. Subtracting the allowable expenses (inclusive of replacement reserves) from the effective gross income results in an estimate of net operating income (NOI).

$$\text{NOI} = \text{EGI} - \text{OPERATING EXPENSES}$$

Capitalization rates are used to convert net operating income into an estimate of market value. These rates vary between property types, as well as by location, quality, condition, design, age, and other factors. Overall capitalization rates (for the direct capitalization method) can be derived from the market. Sales of improved properties from which actual income and expense data are obtained provide a very good indication of what a specific market participant is requiring from an investment at a specific point in time. We also rely on Henry S. Miller, "Real Estate Investment Trends," Real Estate Research Corp., Integra Realty Resources, and Korpacz Inc., for capitalization rate information for the different types of commercial properties. Additionally, we survey local fee appraisers regarding typical capitalization rates by property type.

Rent loss concessions are sometimes made to specific properties with vacancy problems. A rent loss concession accounts for the impact of lost rental income as the building is moving toward stabilized occupancy. The rent loss is calculated by multiplying the rental rate by the percent difference of the property's stabilized occupancy and its actual occupancy. Build out allowances (for first generation space or renewal/second generation space) and leasing expenses are added to the rent loss estimate. The total adjusted loss from these real property operations is discounted using an acceptable risk rate. The discounted value (inclusive of rent loss due to extraordinary vacancy, build out allowances and leasing commissions) becomes the rent loss concession and is deducted from the value indication of the property at stabilized occupancy. A list of income schedules can be found in the database.

Land Analysis

The primary method of rural and commercial land valuation is the comparative unit method. The appraiser determines the average or typical per unit value for each stratum of land by carefully considering the available data

on the sales maps and making an informed judgment. When there are insufficient sales within strata but sales prices per unit are similar between adjoining strata, the appraiser can combine strata in order to develop per unit values. In the absence of sold lots abstraction and allocation methods are used.

Once comparative unit values have been determined for an area, those values must then be refined by applying site adjustments at the individual parcel level. Site characteristics often requiring adjustment include topography, traffic flow, limited access, flooding susceptibility, drainage, and irregular shape. Site adjustments are applied only to those parcels in the market area or stratum that are affected. The adjustments are made as a percentage adjustment to the market value. The appraisers use their informed judgment to determine the adjustment percentage.

Statistical Analysis

Statistical analysis is done on a regular basis to evaluate whether values are equitable and consistent with the market. Sales ratio, income, and other ratio studies are conducted on each market area and ISD to judge the two primary aspects of mass appraisal accuracy: level and uniformity of value. Measures of central tendency are used to determine if the estimate of market value and uniformity have been met. These summary statistics including, but not limited to, the median, the mean, the weighted mean, standard deviation, coefficient of dispersion (COD), and coefficient of variation (COV), provide the appraiser a tool by which to determine both the level and uniformity of appraised value of a particular property type. The level of appraised value can be determined by the weighted mean for individual properties within a specific type, and a comparison of weighted means can reflect the general level of appraised value. Review of the standard deviation, coefficient of dispersion and the coefficient of variation can discern appraisal uniformity within a specific property type.

Every commercial property type is reviewed annually by the appraiser through the sales ratio analysis process. The first phase involves ratio studies that compare the recent sales prices of properties to the appraised values of the sold properties. This set of ratio studies affords the appraiser an excellent means of judging the present level of appraised value and uniformity of the appraised values. The appraiser, based on the sales ratio statistics and designated parameters for valuation update, makes a preliminary decision as to whether the value level of a particular property type needs to be updated in an upcoming reappraisal, or whether the level of market value is at an acceptable level.

Market Adjustment or Trending Factors

Market adjustment factors are developed from appraisal statistics provided from ratio studies and are used to ensure that estimated values are consistent with the market. One of the district's primary approaches to the valuation of commercial properties uses a hybrid cost-sales comparison approach. This type of approach accounts for market area influences not specified in the cost approach. The following equation denotes the hybrid model used:

$$MV = LV + ((CN - D) \times MA)$$

$$\text{Market Value} = \text{Land Value} + ((\text{Cost New} - \text{Depreciation}) \times \text{Market Adjustment}) \\ \$1,135,440 = \$200,000 + ((\$850,400 - 12\%) \times 1.25\%)$$

Where the market value equals the land value plus the replacement cost new less depreciation and market adjustment factors. As the cost approach separately estimates both land and building values and uses depreciated replacement costs, which reflect only the supply side of the market, it is expected that adjustments to the cost values

are needed to bring the level of appraisal to an estimate of market value. Market or location adjustments are applied uniformly within market areas to account for location variances between market areas or across a jurisdiction.

Another option that is utilized is the hybrid income-sales approach. This type of approach reviews items in the income model for adjustments such as the PGR, V&C, expense ratios, and cap rates. This type of approach accounts for market area influences.

Field Review

The appraiser identifies individual properties in critical need of field review through sales ratio analysis. Sold properties with a high variance in sales ratios are field reviewed to check for accuracy of data characteristics. If data inaccuracies are found in a large percentage of the sold properties, the entire subdivision/market area is reviewed in the field by the appraiser in their annual work plan.

Property field inspections may be initiated for a variety of reasons. A property owner might dispute the district's appraisal attributes or data concerning their property. Typically, a new field check is then requested to verify this evidence for the current year's valuation or for the next year's valuation. Additionally, if a building permit is filed for a particular property indicating a change in characteristics, a field check is then scheduled for that property. Finally, even though every property cannot be inspected each year, each appraiser typically designates certain segments of their area of responsibility to conduct field checks.

Commercial appraisers are somewhat limited in the time available to field review all commercial properties of a specific use type. Still, a major effort is made by appraisers to field review properties and economic areas experiencing large numbers of remodels, renovations or retrofits, changes in occupancy levels or rental rates, new leasing activity, new construction, or wide variations in sale prices.

Additionally, the appraiser frequently field checks subjective data items such as building class, quality of construction, condition, and physical, functional and economic obsolescence factors contributing significantly to the market value of the property. Sometimes field reviews are warranted when sharp changes in occupancy or rental rate levels occur between building classes or between economic areas. Appraisers also physically inspect sold and unsold properties for comparability and consistency of values.

Office Review

Office reviews are completed on properties not subject to field inspections. Valuation reports comparing previous values against proposed and final values are generated for all commercial improved properties. Previous values resulting from a formal hearing protest, lawsuit, and others from informal hearings are individually reviewed to determine if the value remains appropriate for the current year.

When reviewing properties, each appraiser considers all currently available cost, market, and income data before deciding on the final appraised value.

Once the appraiser is satisfied with the level and uniformity of value for each commercial property within their area of responsibility, the new values are calculated and entered in the district's computer system. Because the value estimates are determined in a computerized mass appraisal environment, appraisers review value reports for anomalies before the final appraised value is released for noticing.

Highest and Best Use Analysis

The highest and best use of property is the reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legal, financially feasible, and maximally productive. For improved properties, highest and best use is evaluated as improved and as if the site were still vacant. This assists in determining if the existing improvements have a transitional use, interim use, non-conforming use, multiple uses, speculative use, excess land, or a different optimum use if the site were vacant. Improved properties reflect a wide variety of highest and best uses that include, but are not limited to: office, retail, multi-family, warehouse, light industrial, special purpose, or interim uses. In many instances, the property's current use is the same as its highest and best use. This analysis ensures that an accurate estimate of market value is derived.

In 2009, the Texas Legislators passed a revision to the highest and best use of homesteaded properties under Section 23.01 which took effect on January 1st of 2010. If the resident is the owners' homestead the market value is determined solely on the basis of the property's value as a resident homestead.

Performance Tests

Sales Ratio Studies

The primary tool used to measure mass appraisal performance is the ratio study. A ratio study compares appraised values to market values. In a ratio study, market values (value in exchange) are typically represented by sales prices (i.e. a sales ratio study). Independent, expert appraisals may also be used to represent market values in a ratio study (i.e. an appraisal ratio study). If there are not enough sales to provide necessary representation, independent appraisals can be used as indicators for market value. This can be particularly useful for commercial, warehouse or industrial real property for which sales are limited. In addition, appraisal ratio studies can be used for properties that are by statute not appraised at market value, but reflect the use-value requirement. An example of this are multi-family housing projects subject to subsidized rent provisions or other governmental guarantees as provided by legislative statutes (affordable housing) or agricultural lands to be appraised on the basis of productivity or use value. Sales ratio studies are an integral part of establishing equitable and accurate market value estimates, and ultimately assessments for taxing jurisdictions. The primary use of sales ratio studies include the determination of a need for general reappraisal; prioritizing selected groups of property types for reappraisal; identification of potential problems with appraisal procedures; and assisting in market analyses.

Business Personal Property Valuation

Scope of Work

The Business Personal Property Department is made up of 1 manager, 1 supervisor, appraisers, and support staff. The Business Personal Property group of the Denton Central Appraisal District (DCAD) is responsible for developing fair and uniform values for all industrial, business personal property, leased assets, vehicles, multi-location assets, utilities, and minerals within the boundaries of Denton County.

Data collected during fieldwork and analysis phases of the appraisal cycle is stored in the CAMA database and utilized to provide market values each year. All three approaches to value are considered in estimating market value for each property, then the most applicable approach is given primary emphasis.

Items not permanently affixed to or part of real estate is generally considered to be personal property. To differentiate between real and personal property the appraiser must consider the manner in which the property is attached or secured in the location, the purpose for which the property is used and whether it is to remain permanently affixed or be removed at some time. A general rule is that an item is personal property if it can be removed without serious injury to the real estate or to the item itself. (Sec 1.04 4,5,6)

Significant Appraisal Assistance

While the appraisal district staff conducted most of the appraisal activities, the district also utilizes Wardlaw Appraisal Group. Wardlaw appraises oil, gas, utilities companies, co-ops, consisting of electric, telephone, gas distribution systems, pipelines, compressor & pump stations, telecommunications, cable TV, and water utilities and other specialty properties. The contract for the Wardlaw firm is conducted by bids for a 2 year term. Please see section *Contracted Appraisal Service- Minerals, Utilities, Special Appraisals* and Appendix A for more information.

Wardlaw Appraisal Group, L.C. (WAG) is a contract mass appraisal firm responsible for developing fair and uniform market values on certain complex properties for client appraisal districts in Texas. The complex properties they appraise include mineral, utility, industrial, and personal properties. The client appraisal districts use these property appraisals as part of the appraisal roll for each of the taxing jurisdictions. WAG is under contract to support Denton Central Appraisal District.

The contract between WAG and Denton Central Appraisal District specifies WAG's appraisal responsibilities in support of the district. Generally, those responsibilities are to discover, inspect, appraise, and maintain ownership records of the specific properties that are the subject of the contract. The properties covered under our contracts generally fall under the Texas Property Tax Code Categories G (minerals), J (utility), F2 (industrial real), L1 (commercial personal) and L2 (industrial personal). More information about their services can be found in the Mass Appraisal Report Supplement or by request to DCAD.

Please see Appendix A for their Mass Appraisal Report

Model Specification

Market Areas & Market Analysis

State Codes & SIC codes are used in delineating personal property by business type and to group business types that have similar personal property characteristics.

Standard Industrial Classification (SIC) codes were developed by the federal government to identify business entities having common attributes. These classifications are used as a way to delineate personal property by business type. SIC code identification and delineation is the cornerstone of the personal property valuation system.

BPP Pricing Guide

The BPP manual is the current version used by the Property Tax Division of the State Comptroller’s office utilized in ratio studies, and adopted for use by the Denton Central Appraisal District. The BPP manual gives guidelines for appraising property in this manner. The following pages detail how the density tables are to be used as supplied in the manual. All depreciation tables referred to are 1992 for purposes of these following examples; values for businesses are estimated as if being appraised for the 1992 tax year.

FIGURE 1

INVENTORY		FAIR	AVERAGE	GOOD
D	(Quality)			
E				
N	LOW	1	4	7
S				
I	AVERAGE	2	5	8
T				
Y	HIGH	3	6	9

FURNITURE, FIXTURES, & EQUIPMENT		FAIR	AVERAGE	GOOD
D				
E				
N	LOW	1	4	7
S				
I	AVERAGE	2	5	8
T				
Y	HIGH	3	6	9

Shown in Figure 1 is a blank sample of the pricing “grids” the top grid is for “Inventory” while the lower is for “Fixed Assets.” Across the grid are three (3) columns headed FAIR, AVERAGE, and GOOD.

Generally speaking, these columns represent the estimated “Quality” of the inventory or fixed assets.

Reading from top to bottom and down the left hand side, can be seen LOW, AVERAGE, and HIGH. Again, generally speaking, these headings indicate the estimated amount or quantity of inventory. As can be seen, Class “5” is the center point of the pricing system. Realistically all adjustments up or down should start from this point as “average” is the most common and therefore the easiest, most accurate point of reference.

Figure 2

Hardware Store Table 521				
INVENTORY (Quality)				
		FAIR	AVERAGE	GOOD
D E N S I T Y	LOW	1 8.00	4 15.00	7 20.00
	AVERAGE	2 12.00	5 17.50	8 23.00
	HIGH	3 14.00	6 20.00	9 25.00
FURNITURE, FIXTURES & EQUIPMENT (Quality)				
		FAIR	AVERAGE	GOOD
D E N S I T Y	LOW	1 3.50	4 6.00	7 8.00
	AVERAGE	2 4.00	5 7.00	8 9.00
	HIGH	3 4.50	6 8.00	9 10.00
Life Years	10			
Using Figure 2, the first example used is a 5,860 sq. ft. hardware store that was established in 1980. After obtaining all pertinent information to set up the account, it is estimated that this location has average quality inventory with average density. The fixed assets are estimated to be average for this business but in well-maintained condition. The effective age is estimated for the year 1985.				

By indexing the inventory table, this location is classed a “5” with a price of \$17.50 per sq. ft. The fixed asset table also indicates a class “5” for \$7.00 per sq. ft. After checking the depreciation table under a ten (10) year life, we find that the fixed assets are estimated to be 44% good for a 1985 asset purchase.

In this example, the value is estimated as follows:

$$\text{Inventory } 5,860 \text{ sq. ft. @ } \$17.50 = \$102,550 \text{ Fixed } 5,860 \text{ sq. ft. @ } \$ 7.00 \times 44\% = 18,049 \text{ } \$120,599$$

In the second example, we have another hardware store with a size of 4,725 sq. ft. The inventory quality and mix are very similar to what is normally seen. However, it appears there is more of it on the shelves rather than in the stock room. The fixtures are older wooden shelving that was normally seen in the 1940’s and 1950’s period with wear and tear typical to fixtures of that age. For this example, the date established is estimated in 1952.

In estimating the value for this location, we are classing the inventory as average with a higher density. By checking the grid, the “class” for this location for inventory is a “6” or \$20.00 per sq. ft. The fixtures will be classed “2” or \$4.00 per sq. ft. with the depreciation schedule indicating 20% good. (Not going below “normal” ten year life figure

as fixtures are still in use and in “average” condition for fixtures that old.) Therefore, the overall effective age is 1982.

The value on this business is estimated below:

Inventory 4,725 sq. ft. @ \$20.00 = \$94,500
Fixed 4,725 sq. ft. @ 4.00 X 20% = \$ 3,780
\$98,280

Cost Improvement Schedules and Development

The Historical or Original Cost

1. Cost Determination

The cost as shown on the accounting records reflects the different cost “basis” for items acquired. The property may have been acquired by cash purchase; by contract on a deferred payment plan; by exchange, or trade; by issuance of securities or other property; by self-construction; by gift or discovery; or by other cost “basis.” Accountants generally adhere to the base price established at the time the property was acquired. This principle has wide acceptance in the accounting profession. The property accounts seldom depart from the historical price base to reflect depreciated values of the assets.

However, the accounting term cost typically is referred to as the cost of acquiring an asset on the date of acquisition. Thus the value recorded for the assets of a company may be described as the “all inclusive” costs. The accounting records generally have property acquisitions reported on an “original” cost basis. These accounts may be adjusted for the determination of depreciation, etc. The cost then would be on an “adjusted” cost basis.

2. Examination of Accounting Records

The appraiser should examine the books and records of the business. The accounting records may be a complete or standard set of records or a modified system of records. The report of the appraiser should indicate what records were examined and describe the type of records examined for the appraisal. A determination must be made as to the cost basis used to record property in the records. This cost basis should reflect the minimum cash outlay necessary for the acquisition of the property. This cash outlay should also represent all the expenditures up to the time the property is put to its ultimate use. The appraiser must determine the cost basis recorded for either new or used property and if it is representative of the current value at the time of acquisition.

The historical or original cost may be the only reliable source data available for the appraisal of personal property. The source data may reflect historical costs for new or used property according to the date of acquisition. The appraiser may have to adjust the cost basis of the accounting records if these costs do not reflect “current value at the time of acquisition.” The historical or accounting cost bases, after appraisal adjustments, are factored to current replacement costs new.

Invoice Cost

Appraisers should first consider the taxpayer’s invoice cost. Such cost should include delivery or freight charges but not sales tax if any, and should be reduced by any trade quantity, cash or similar substantiated discounts allowed to the taxpayer. The condition of the goods, including depreciation and appreciation may indicate an adjustment in

value from invoice cost. Invoice cost should be reduced when losses in value occur due to damage, shrinkage, out of season, out of style, or similar factors that reduce the market value of the inventory below the invoice cost. When aging or curing or other similar factors enhance value, invoice cost should be increased to reflect this appreciation. In certain situations, the value of inventory consisting of work in process may increase as the manufacturing process continues. In this situation, the invoice cost must be increased to reflect this appreciation.

Flat Pricing

On accounts that do not fall into a “class” or where actual figures are known, do not use the Density Tables when a different figure is needed for the final value estimate. This final estimate is entered (on the worksheet and terminal) as a flat price figure. On locations where verification has been presented or obtained, the appraiser is also expected to flag the worksheet and computer (there is a specific field for this purpose on each) that the location’s value is verified. A file (referred to as a “data file”) must be set up and maintained with supporting documentation. This is then available to the personal property supervisor for checking and analysis.

In the case of mass appraisal for ad valorem taxation, stability and accuracy are important to the credibility of value opinions.

Data Collection, Validation, Reporting and Sources

It is the goal of this department to gather information that can be used to establish class schedules and verify that values placed on DCAD Appraisal Rolls are as accurate as possible. Any information that would indicate value will be considered. When information is received from whatever source, it is verified by personal contact, third party information, or direct access to financial information. Staff will work with any reliable source to acquire information. Other resources that may be referenced are the Cost Appraisal Manual & Mass Appraisal Report Supplement.

Data collection of personal property involves maintaining data characteristics of the property in the CAMA system (Computer Assisted Mass Appraisal). The information contained in CAMA files includes site characteristics, such as quality, quantity, square footage, and property type.

In addition to data collected and verified by the field appraisers, renditions, permits, certificate of occupancy, state sales tax listings and the assumed names database from the county clerk’s office are also researched to discover personal property. Tax assessors, city and local newspapers, business journals, and the public often provide the district information regarding new personal property and are also good sources of information.

Methods of Discovery

The most difficult tasks encountered by an appraiser are the discovery and assessment of personal property. The law requires that all property not specifically exempt be taxed (Sec 11.01a). Except as provided by Sec 11.02 (b), intangible personal property is not taxable. However, because personal property is easily concealed and frequently moved and because of the need to determine situs, and ownership, the valuation of personal property is more difficult than the taxation of real property.

Since most personal property is movable in nature, the most difficult step in the assessment of personal property is developing a system of property discovery. Listed below are some of the methods used in discovering personal property.

Property Rendition- The use of a personal property rendition is by far the most important method of discovering personal property. This method requires that the appraisal district develop and use suitable rendition forms and vigorously pursue their accurate completion by taxpayers. The rendition process is particularly important for commercial, industrial and utility taxpayers whose inventory, equipment and supplies constitute a large part of their taxable property.

Personal Property Rendition- The rendition is often used by the appraiser to obtain information necessary for the appraiser to apply the districts own depreciation schedules to equipment, furniture and fixtures; the rendition does not necessarily contain requisite information for such depreciation calculations.

The Business Personal Property Rendition is due on or before April 15th (TPTC 22.23). All renditions must be signed and completed. An additional 30 days, if requested in writing, will be approved. Any additional extensions past the original 30 days must show good cause and be approved by the Chief Appraiser.

Properties that do not comply with the deadlines will be subject to a 10% penalty. A property owner can request, in writing, a waiver from the 10% penalty if good cause is shown. The Appraiser is responsible to research the request and all information on the account to determine if a penalty can be waived.

Prior Year Tax Roll- A review of the prior year's tax roll is a good base from which the appraiser can work. Although particular items may change from year to year, the basic nature of the property will remain unchanged in most cases.

Published Material- The use of newspapers, press releases and trade journals will often assist the appraiser in locating the addition of personal property that results from new businesses opening or old businesses expanding within their jurisdiction.

Telephone, City Directories, and the Internet- Telephone, city directories, and the Internet are particularly valuable in locating commercial, service or industrial operations new to the jurisdiction.

Physical Inspection- Visual inspection to assure that all taxable personal property is valued by an appraiser in an assigned area.

Registration Records- County registration records such as Doing Business As (DBA) and vehicle registration are great sources for vehicle information. These lists provide good information necessary to identify personal property.

Federal Government Records- The FAA supplies data consisting of the names and addresses of airplane owners and a description of the type of planes they own.

Building Permits- Building permits also will indicate the existence of new business or the replacement of one business for another when existing commercial property is remodeled.

Sales Tax Listing- Business or "sales tax" lists from the State Comptroller's office are also good sources for discovering the existence of many businesses that otherwise may go unnoticed, along with providing ownership and good mailing address information.

The Texas Comptroller- The Texas Comptroller provides information and valuation on the railroad rolling stock.

Situs of Personal Property

Another difficult task in assessing personal property is determining the situs of the property for taxation purposes. The general rule in taxation of personal property is that a taxing jurisdiction can only assess property that has situs within its boundaries. The basic law for determining situs of personal property involves identifying the owner's intent for the property. If personal property has not acquired an actual situs of its own by being located at one place more or less permanently, it is taxable at the domicile of the owner. Expansion of situs questions can be found in the Texas comptroller manuals, the Property Tax Code, and personal property course texts.

Leased and Multi-Location Assets

The primary source of leased and multi-location assets is property owner renditions. Data may also be provided in reports of field inspections.

Measurement of Area

The appraiser must measure the area in which inventory is held for sale or stored for future use and apply the appropriate density factor tables for like property to arrive at a consistent estimate of value.

Property Inspection

The personal property appraiser should first inspect the property to be appraised. Next, the appraiser should examine or audit the books and records of the business to be appraised, if the financial statements are available. From the inspection and examination, basic data may be extracted for the appraisal of the operating unit.

The inspection and audit program should develop the following basic data:

1. Source of costs declared by the taxpayer
2. Reliability of cost information
3. Condition of property
4. Description of the property by item or class
5. Year acquired – new or used
6. Economic (Useful) Life – by item or classes

Evaluation of Inventory

Items of inventory must be evaluated in bulk as a class or category assessable to a particular taxpayer, unlike other items of "tangible personal property" (furniture and fixtures, machinery, equipment and vehicles) which, under normal circumstances, are to be evaluated and assessed separately. In the recognized methods of evaluation of inventory on an aggregate or bulk basis, the appraiser should first determine the level of trade; i.e., manufacturing, wholesale or retail at which the inventory is held. The product of this method would be the amount that would be received by the taxpayer in a sale of the total of such items of inventory assessable to them, to another person, firm or corporation who would continue the business. The principal of substitution dictates that inventory value would be the replacement cost to the owner of an acceptable substitute having comparable utility.

On-Site Appraisal

An “on-site” appraisal will be made of each individual, firm, partnership, co-partnership, association, society, corporation, or any other legal entity that owns, holds, or uses personal property in connection with a business or profession. Established accounts will be rechecked annually and new accounts will be established upon discovery.

Appraisers will make a detailed report for each business visited to include:

- Business Name and Location
- Owner, Principal Officer, or Representative
- Mailing Address (If different)
- Business Telephone Number
- Person Contacted (At the business)
- Date Business Opened (New accounts only)
- County, City, School, and/or Special District
- Refused Entry and By Whom
- Square foot area occupied and leased
- Appropriate listing and description of Personal Property
- Property by category showing quality, condition, density of material, etc.
- Method or Technique and appraisal approach utilized
- Disclose any extraordinary assumptions or limiting conditions that affect value and indicate the impact
- Appraised Value
- Initials of Appraiser and Name of any Assisting Appraiser
- Date of Appraisal

Model Calibration

Estimation of Property Value

The method used to value personal property is usually controlled by such considerations as the type of property, whether there is an active and open market for such property and specific information as age, quality or quantity. The key to mass appraisal of personal property revolves around standardizing the method of processing data and applying the three traditional approaches to value. The market-data approach, the cost approach and the income approach can be applied in assessing personal property through the use of renditions, schedules and appraisal guides that are developed and used by the appraisal district.

Inventory that is bought in bulk quantities must meet the test of an arm's length sale and should not include business liquidation. In determining the "market value" of items of inventory, the appraiser should consider the invoice cost, the condition of the inventory and other factors as required by law, or recognized using Generally Accepted Accounting Practices (GAAP), and correctly employ Generally Accepted Appraisal Techniques or methods (GAAT) to produce and communicate credible appraisals. The appraiser shall endeavor not to commit a substantial error of omission or commission that significantly affects a mass appraisal nor render a mass appraisal in a careless or negligent manner.

Fixed Asset Depreciation

As with all appraisals, depreciation based on effective age is the critical variance to the final estimate of value. Therefore, to audit depreciation more closely, the overall effective age of the fixed assets is a requisite of the appraiser to make the pricing system work. Furthermore, it requires all appraisers district wide to use the Depreciation Tables for standardization and appraisals that are more "fair and equal." This information can then be analyzed on a printout with other businesses in the same category where a comparison of values will be more meaningful with better conclusions being achieved by the appraisers.

Economic Life

1. Measuring Economic Life

The physical life of a property is that period extending from the time a piece of equipment is new until it is physically no longer usable or has had a substantial amount of life restored by rebuilding. The economic life of a property is the estimated time measured from the date the item is new until the disappearance of its capacity to produce a greater yield than its expense or upkeep. Without economic and functional obsolescence, economic and physical life may be identical. Economic life may be greater than, equal to, or less than the physical life of an item.

2. Estimation of Economic Life

The appraiser should estimate the reasonable economic life for commercial type property by item. In some instances, a determination of the economic life of the operating unit. Commercial type property usually has a longer economic life than other types of personal property. This is due to limited use, enhanced design, better maintenance and less obsolescence. Guidelines for economic lives are found in the IRS Code, the Marshall Valuation Service manual, and other sources using generally accepted appraisal practices (GAAP).

3. Economic Life Tables

The appraiser judges the economic life by physical inspection of the property and determination of the actual use of the property. As a guide the appraiser may use Depreciation Guidelines Life Expectancy Tables by the predominate use of the property. The tables are supplied with the BPP manual. The appraiser must then select the economic life for a particular property based on operating conditions, experience of the industry, and their informed judgment.

Percent Good Tables

Depreciation is estimated by the use of a remaining value or Percent Good Table. Normal depreciation allows for the decline in value of the property over its estimated economic life. The rate of depreciation or Percent Good Table relates not only to the measurement of time, but to other factors as well. Some of these particular factors are the operating policies regarding repairs, maintenance, and replacement. The other factors affect normal depreciation and must be considered by the appraiser to estimate the current value of any personal property. The use of the property has an effect on the remaining economic life and the current value. Depreciation rates are based on average condition for age.

An example of index and depreciation factors, are as follows:

$$\text{PVF} = \text{INDEX FACTOR} \times \text{PERCENT GOOD FACTOR}$$

The PVF is used as an “express” calculation in the cost approach. The PVF is applied to reported historical cost as follows:

$$\text{PVF} \times \text{HISTORICAL COST} = \text{MARKET VALUE ESTIMATE}$$

This mass appraisal PVF schedule is used to ensure that estimated values are uniform and consistent within the market.

The appraiser has determined the Replacement Cost New (RCN). An economic life has been assigned to the property. The appraiser determines the following:

Figure 3

1. Replacement Cost New (RCN) = 28,250 (assumed number for example)
2. The assigned life of 10 years, on a composite rate.
3. The age of the property is determined to be eight (1983–1991) years.
4. Using the Percent Good Table, he finds 36% remaining value for average condition. This is determined by using the 10 year Normal Depreciation column and the age of 8 years. The estimated remaining life indicated is 2 years.
5. The Replacement Cost New (RCN) multiplied by the percent good (%) (remaining value) gives the appraiser the estimate of Replacement Cost New Less Normal Depreciation (RCNLND).

The following is an example of estimating the replacement cost less normal depreciation, using the Percent Good Table:

1. Replacement Cost New, RCN = \$28,250
2. Normal Life – 10 years
3. Age of Property – 8 years
4. Percent Good Table – Normal Depreciation 10 years
5. Percent Good (Remaining Value) 36%
6. RCN \$28,250 X Percent Good 36%
7. $\$28,250 \times 36\% = \$10,170$ RCNLND Figure 1 Using Percent Good

Using Figure 3, the replacement cost new is adjusted for depreciation according to age. Next, depreciation is considered in view of the condition of the property. This depreciation is based on physical factors, and can be less, equal to or greater than depreciation from age only.

Trending Factors

A cost index is designed to show specific rates and directions of price movements. Cost Indexes are used to trend historical cost to current costs. The index is converted to factors using the year before the appraisal year as the base year. The costs data used in appraising property are generally historical costs. Historical costs are factored to current costs by the use of conversion factors.

1. Determine the historical or acquisition cost from the books and records. The cost basis must be representative of current value at the time of acquisition. These costs should be factored by compositions grouped or summarized within years of acquisition.
2. Determine the factor which is to be used based on the acquisition date.
3. Multiply the original cost by the factor.

The result is the trended historical cost or the estimate of the replacement cost new.

The following is an example of estimating Replacement Cost New (RCN) using the 1992 Cost Factors:

Figure 4

SMALL OFFICE – FURNITURE & FIXTURES

1. Cost Basis = \$10,000
2. Acquisition Date - 1983
3. Replacement Cost Factor = 132
4. Cost \$10,000 X 132% = \$13,200 = RCN Figure 2 Using Cost Index Factor

In Figure 4, the cost basis is trended to estimate Replacement Cost New (RCN). These costs are factored by the use of conversion factors. Finally, the estimate of the economic life or remaining life of the property is made. Normal depreciation is then applied to the value. The RCNLND is the result of using the cost factors and the Percent Good Column.

Obsolescence

In the appraisal of commercial personal property as in all other types of property, the problem of obsolescence must be considered in estimating value. The appraiser should consider obsolescence a factor in the valuation of any property. Obsolescence may be defined as loss of value caused by technological change or innovation, changes in demand of product, or other causes.

1. Functional Obsolescence

When the loss of value is due to technological change or innovation, it is usually referred to as functional obsolescence. It can be recognized by lack of utility in the property; inadequate capacity or size. Since the obsolescence is present in the property (i.e., lack of capacity or size) it can sometimes be overcome by remodeling.

2. Economic Obsolescence

When the loss of value is due to change in product or demand, it is customarily referred to as economic obsolescence. Economic obsolescence is caused by external factors and cannot be overcome.

3. Measurement of Obsolescence

Obsolescence is not difficult to recognize in personal property, but it is difficult to measure with accuracy. This is because obsolescence is best measured by market evidence. Adequate market evidence of value cannot always be found for all types of personal property. The appraiser should look to the market for any evidence of value loss due to obsolescence after having estimated the value using the cost approach. Appraisers must consider what an informed purchaser is willing to pay for this property as an operating unit on a going concern basis.

The appraiser will first determine Replacement Cost New Less Normal Depreciation (RCNLND.) The ratio of the RCNLND to the RCN should be compared to the overall condition of the operating unit. Then consideration must be given for an adjustment due to obsolescence; economic, functional, or both. To estimate the amount of obsolescence,

the appraiser must use good appraisal judgment. A review of all the external and internal factors, including market evidence whenever available, is the final step.

Salvage & Scrap Value of Personal Property

There are times when the appraiser in the field encounters a business that has remodeled or replaced worn out equipment, but older/idle equipment remains on the company books. This equipment has value, if only salvage or scrap, which must be considered in the valuation of the business. Salvage value is the price at which the owner can dispose of an asset after its useful service life has expired. The price usually includes removal of all or part of the property from the premises for use elsewhere, usually with refurbishing. Scrap value is the lowest value property will have and is measured for its content (pounds of iron, aluminum, copper, etc., or other component parts) to be used for recycling.

Highest & Best Use Analysis

The highest and best use of a property is the reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legal, financially feasible, and productive to its maximum. The highest and best use of personal property is normally its current use.

Performance Tests

Government Code Section 403.302 requires the Comptroller to conduct a study to determine the degree of uniformity and the median level of appraisals by the appraisal district within each major category of property, as required by Section 5.10, Tax Code. This study is required every other year. 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 Assistance Division (PTAD) 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 PTAD certifies the state value, unless the school district is eligible for a grace period, which is a period when local value is used even though it is determined to be invalid. A property value study was conducted for 2019 and will be conducted for 2021. A copy of the latest report can be reviewed upon request or on the comptroller's website.

Section 5.102, Tax Code requires the Comptroller of Public Accounts to review county appraisal district (CAD) governance, taxpayer assistance, operating standards and appraisal standards, procedures and methodology at least once every two years. CAD'S located in counties that do not receive the Methods and Assistance Program (MAP) reviews in a year will be subject to property value studies in that year. A MAP review was completed for 2020 and DCAD ratings per the review were "Pass" for all mandatory requirements and "Meets All" for Governance, Taxpayer Assistance, Appraisal Standards, Procedures, and Methodology and Taxpayer Assistance. A MAP review will be conducted for the 2022 year. A copy of the latest report can be reviewed upon request or on the comptroller's website.

Agricultural Appraisal

Scope of Work

The Texas Constitution permits special agricultural appraisal only if the land meets specific requirements defined as agricultural use. Section 23.51 of the Property Tax Code sets the standards for determining whether land qualifies. Eagle Property Tax Appraisal & Consulting Inc. is a contracted appraisal firm that DCAD utilizes in the valuation of agricultural appraisal.

The mass appraisal of agricultural (Ag) property includes all property classified as 1-d-1 and 1-d agricultural uses, which are appraised on the land's ability to produce income from agriculture or timber production. The mass appraisal of agricultural property involves applying similar values within the same agricultural categories and classes.

A publication manual by the State Comptroller's Office entitled Guidelines for the Valuation of Open-Space Land gives suggested guidelines pursuant to the Texas Constitution, Article VIII, Section 1-d and 1-d-1.

The manual is an official administrative rule that has the force of law, and has been adopted by the State Comptroller's office and approved by a committee composed of the Governor, the Comptroller, the Attorney General, the Agricultural Commissioner, and the General Land Office Commissioner.

Suggestions from this publication set the basic procedural guidelines for determination of agricultural use values.

Significant Appraisal Assistance

The commercial department is also responsible for Agricultural valuation. They utilize the services of Eagle Property Tax Appraisal & Consulting Inc. for agricultural valuation pricing schedules.

Procedure for collecting and validating Data

The property owner must apply for the agricultural use appraisal. The property tax code provides applications for 1-d (Agricultural Appraisal), 1-d-1 (Open Space Agricultural Appraisal), 1-d-1 (Open Space Land, Timber Land) and 1-d-1 (Open Space Agricultural Valuation Wildlife Management). The applications are received in January through the end of April (April 30th is the deadline to file). Currently DCAD does not have any applications filed under 1-d or 1-d-1 Timber Land. The property owner is required to notify the Appraisal District if there is a change of use or if there is any change in the application requiring updating. Applications are requested to be updated on a 5 year basis once the property is approved to keep files current.

Agricultural appraisal process begins about August 1 of each year. Field review of all agricultural accounts required to reapply are conducted annually. Applications are evaluated for approval and denial using field review

information. Appraisers use the Comptrollers “Manual for Appraisal of Agricultural Land” and “Guidelines for the Qualification of Agricultural Land in Wildlife Use.”

Lease data is collected each year and used to calculate productivity values. A modified income approach to valuation is used in calculating these values.

The appraisal methodology uses the prescribed methods in the Texas Property Tax Code or the Texas Comptroller's Property Tax Assistance Division's Ag Appraisal Manual. Ag value calculations are based on a five year average excluding the immediate past year, therefore the 2021 calculation is based on years 2015 through 2019.

All calculations are based on a "CASH LEASE BASIS" or a "SHARE LEASE BASIS". The information in both of these standards is based on normal and typical operating procedures and what the expense, income and net is to the land. The "CASH LEASE BASIS" uses the indicated dollar per acre amount for a specific use then totals all income then subtracts all expenses to arrive at the net income divided by the State set cap rate to calculate the ag value. The "SHARE LEASE BASIS" is calculated using actual production, income, and expense data from local producers based on a land owner leasing his land for crop production for a percentage return from the crop.

The information necessary to calculate these values can come from the CAD Ag Advisory Committee, the local County Agent, the local FSA office, the local USDA office, the USDA National Agricultural Statistics Services, area service contractors and CAD Operator Surveys. The central element of Ag Values is that they represent what the land would sell for if sold "ONLY" for its capacity to produce an income.

Land Categorization System

In mass appraisal for ad valorem tax purposes, the derivation of value on an individual basis is not practical or advisable. For this reason, a system of land categorization is utilized that enables homogeneous land types to fall into a land category or classification.

The development of a workable and comprehensive land categorization system is an important phase in an agricultural use evaluation. The land categorization system must adjust for physical, legal, and economic factors relative to agricultural use. The land categorizations system must also be harmonious with the market value categorization system to allow for the rollback provisions of the Texas Constitution. This co-ordination of agricultural categories and market categories facilitates the efficient use of personnel in the tax equalization process and in tax administration.

Land Productivity Valuation

Two amendments to the Texas Constitution permit agricultural and open-space land to be taxed generally on its agricultural-use or productivity value. This means that taxes would be assessed against the productive value of the land instead of the selling price of the land in the open market. This permits the land to be taxed in proportion to its ability to produce agricultural products and not based on the land's value to society in general.

The legal basis for special land appraisal is found in the Texas Constitution in Article VIII, Sections 1-d and 1-d-1. The two types of land valuation are commonly called “ag-use” or “1-d” and “open-space” or “1-d-1”. The corresponding provisions of the Texas Property Tax Code are Sections 23.41 through 23.46, Agriculture Land and Sections 23.51 through 23.57, Open-space Land.

The purposes of the provisions are similar. Under both provisions, the land must be in agricultural use and is valued in the same manner. However, there are differences in the qualifications that must be met in order to receive the productivity valuation.

1. Ag-use or 1-d qualifications:

- a. The land must be owned by a natural person (partnerships, corporations, or organizations may not qualify.)
- b. The land must have been in agricultural use for three (3) years prior to claiming this valuation. The owner must apply for the designation each year and file a sworn statement about the use of the land.
- c. The agricultural business must be the land owner's primary occupation and source of income.

2. Open-space or 1-d-1 qualifications:

- a. The land may be owned by an individual, corporation, or partnership.
- b. The land must be currently devoted principally to agricultural use to the degree of intensity that is common for the area.
- c. The land must have been devoted to a qualifying agricultural use for at least five (5) of the past seven (7) years.
- d. Agricultural business need not be the principle business of the owner.
- e. Once an application for 1-d-1 is filed and approved, a landowner is not required to file again as long as the land qualifies unless ownership changes or the chief appraiser requests another application to confirm current qualification.

The possibility for a "rollback tax" exists under either form of special-use land appraisal.

This liability for additional tax is created under 1-d valuation by either sale of the land or a change in use of the land. It extends back to the three years prior to the year in which the sale or change occurs.

Under 1-d-1, a rollback is triggered by a change in use to a non-agricultural purpose that would not qualify for productivity valuation. Taxes are rolled back or recaptured for the five years preceding the year of the change.

The additional tax is measured by the difference between taxes paid under productivity valuation provisions and the taxes which would have been paid if the land had been put on the tax roll at market value.

These provisions are effective only if applications are filed with the appraisal district office in a timely manner. Applications should be filed between January 1 and May 1. Applications received after May 1 and until the appraisal records are approved by the ARB are subject to a penalty for late filing. Applications may not be filed after the records are approved for that tax year by the ARB.

Classifications

It is the opinion of the Denton Central Appraisal District that the attached land descriptions and classification guidelines are valid for mass appraisal purposes and can be applied uniformly throughout the appraisal district.

It should be noted that these guidelines are to be used as general guide for qualifying agricultural land. Exceptions to the general rule will be handled on a case by case basis.

Agricultural Land Qualification Policy Statement

The general policy of the Denton Central Appraisal District is in accordance with the State Property Tax Code's qualification guidelines for agricultural use. The district's policy is that, in order for ag-use valuation to be applied, the land must:

1. Be utilized to the "degree of intensity" generally accepted in Denton County.
2. Be managed in a "typically prudent manner".
3. Be a substantial tract of land.

In accordance to the State Property Tax Code guidelines, the net-to-land is based on a five-year average of the years preceding the year of the appraisal. This five-year average tends to remove fluctuations in value because of varying prices, yields, weather conditions, and costs. Only the factors associated with the land's capacity to produce marketable agricultural and recreational (hunting) products are considered in estimating the productivity values.

Definitions of Key Words and Phrases

Prudent: Capable of making important management decisions, shrewd in the management of practical affairs. Specifically, the law states that the land must be utilized as would an ordinary and prudent manager in CAD's area. Normally, prudent farm or ranch managers are ordinary farmers in terms of acres farmed as well as management ability. Given that all other factors remain constant, the number of acres farmed determines the farmer's capital structure. It is assumed that prudent farm or ranch managers, in a given area, are assumed to have similar equipment of similar value and utility.

Substantial: Ample to satisfy; considerable in quantity. Specifically, the law states that the agricultural land must be an identifiable and substantial tract of land. This means that the tract must be of adequate size to be economically feasible to farm or ranch.

Typically: Exhibiting the essential characteristics of a group. Specifically, the law states that ag land will be utilized as would a typical or ordinary prudent manager. Statistically, a typically prudent manager is the median farmer or rancher.

Agricultural use to the degree of intensity generally accepted in the area:

Farming or ranching to the extent that the typically prudent manager in the CAD's area would farm or ranch on an identifiable and substantial tract of land when the tract is devoted principally to agricultural use. The farming and ranching practices (cropping patterns, planting rates, fertilization methods, harvesting and marketing techniques, etc.) are those of a typically prudent farm or ranch manager.

Area: that land that is located inside the jurisdictional boundaries of the Denton Central Appraisal District.

Principally: the more important use in comparison with other uses to which the land is put.

Appraisal Performance

The PTAD of the State Comptroller's Office regularly reviews all values and procedures. Additionally, Denton Central Agricultural Advisory Board reviews values and appraisal processes.

Certification

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 services, as an appraiser or in another capacity, regarding the property that is the subject of this report within the three-year period immediately preceding 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.

-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.

-The following individuals provided significant mass appraisal assistance to me in preparing this report:

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Noah C. Williams	73672	Appraiser, RPA
Margaret Peggy Anne Wardlaw	76914	
Charles Ray Williams Jr	77254	

Appraisal Contractor Providing Mass Appraisal Support- Eagle Property Tax Appraisal & Consulting Inc.

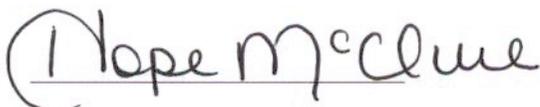
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Denton CAD Staff

Name	TDLR	Title	Name	TDLR	Title
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Don Spencer	72312	Deputy Chief Appraiser	April Worthley	73051	Residential Appraiser
Jackie Seals	74348	Ag/Land Appraiser	Ashley Aguado	73050	Residential Appraiser
Nikki Seitz	76418	Ag/Land Appraiser	Carrie Trevino	75953	Residential Appraiser
Patrick McHugh	72621	Ag/Land Appraiser	Celeste Lewis	72718	Residential Appraiser
George Clerihew	64929	Appeals & ARB Manager	Emily Baggett	75714	Residential Appraiser
Brian Brandenberger	72954	Commercial Appraiser	Gayle Cook	73052	Residential Appraiser
Edward Ivory	76214	Commercial Appraiser	Geoff Perkins	76762	Residential Appraiser
Jarrett Kitch	73162	Commercial Appraiser	Jacqui Dunworth	73889	Residential Appraiser
Leanne Rice-Baker	74430	Commercial Appraiser	Joyce Roberts	70100	Residential Appraiser
Mark Lopez	74673	Commercial Appraiser	Justin Smithson	75057	Residential Appraiser
Chuck Saling	72734	Commercial Manager	Kacie Stogdill	73243	Residential Appraiser
David Posey	60596	Commercial Supervisor	Leslie Hampton	71008	Residential Appraiser
Brittany Rivers	73056	Personal Property Appraiser	Nicki Grimes	75713	Residential Appraiser
Lynn Hatter	67085	Personal Property Appraiser	Russell May	74290	Residential Appraiser
Michelle Landberg	75728	Personal Property Appraiser	Tamarah Hudson	71186	Residential Appraiser
Vero Reynoso	70510	Personal Property Appraiser	Barrett Watson	74376	Residential Supervisor
Dustin Vernor	75125	Personal Property Manager	Ellen Weaver	74532	Residential Supervisor
Jake Clerihew	74057	Personal Property Supervisor	Jenna Simek	73241	Residential Manager

Tax Code 25.22

"I, Hope McClure, Chief Appraiser for Denton 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 determined as required by law."



Hope McClure, Chief Appraiser

Appendix A - Wardlaw Appraisal Group, L.C. Mass Appraisal Report

Mineral, Utility, Industrial, & Personal Property
2021 Mass Appraisal Report

INTRODUCTION

Appraisal Responsibility

Wardlaw Appraisal Group, L.C. (WAG) is a contract mass appraisal firm responsible for developing fair and uniform market values on certain complex properties for client appraisal districts in Texas. The complex properties we appraise include mineral, utility, industrial, and personal properties. The client appraisal districts use these property appraisals as part of the appraisal roll for each of the taxing jurisdictions. WAG is under contract to support ten (10) Texas appraisal districts in 2021. Those appraisal districts are Brooks, Denton, El Paso, Kenedy, Kleberg, La Salle, Runnels, Starr, Webb, and Zapata.

Each contract between WAG and our client appraisal districts specifies our appraisal responsibilities in support of that district. Generally, those responsibilities are to discover, inspect, appraise, and maintain ownership records of the specific properties that are the subject of the contract. The properties covered under our contracts generally fall under the Texas Property Tax Code Categories G (minerals), J (utility), F1 (commercial real), F2 (industrial real), L1 (commercial personal) and L2 (industrial personal). The appraisal districts contract with WAG to provide these services because the districts do not have the personnel or resources to perform the appraisal internally.

Appraisal Resources

- Personnel – WAG maintains a professional employee and consulting staff that is skilled and experienced in property tax appraisal, engineering, information technology, administration, and division order maintenance. The appraisal staff consists of six (6) registered appraisers, five of whom are Registered Professional Appraisers (RPA), and two (2) Texas Registered Professional Engineers. These appraisal personnel are listed in Attachment ‘A’. All appraisers maintain a current registration in good standing with TDLR. Our appraisers improve and supplement their mass appraisal skills by participating in continuing education classes and by attending property tax related conferences.
- Data – The appraisers inspect their assigned properties, if appropriate, to obtain information about buildings, site improvements, process and shop equipment, and various items of personal property. In addition, appraisal personnel use information provided by property owners concerning the cost to purchase, install, and construct items of real and personal property. For mineral interests, data is collected from regulatory agencies such as the Texas Railroad Commission and the Texas Comptroller of Public Accounts, as well as from published data sources and fee-for-service companies.

VALUATION APPROACH (MODEL SPECIFICATIONS)

MINERAL APPRAISAL

Discounted Cash Flow analysis is the Income Method of Appraisal (Section 23.012 of the Texas Property Tax Code) used as the most appropriate technique for determining the market value of mineral properties. It is the primary appraisal method used for mineral properties. The Market Data Comparison Method of Appraisal (Section 23.013) and the Cost Method of Appraisal (Section 23.011) are also used. In addition, petroleum industry tendencies for acquisition and replacement cost (usually in dollars per barrel of oil equivalent) are considered. Because the sales and purchase prices of oil and gas properties are not generally disclosed, the Market Data Comparison method can seldom be used.

WAG uses discounted cash flow analysis to appraise every producing lease in the appraisal districts we support. The appraised value of each lease is distributed to each working interest, royalty, and overriding royalty interest owner based upon their decimal interest in the lease.

The oil and gas lease market values are reviewed and tested to ensure reasonableness and consistency. The reviews and testing include comparative analysis of the value, production, decline and price change from the previous year's appraisal. Additionally, comparative rules of thumb are reviewed to determine if the market value is in the correct range. The most common of these rules of thumb is that the appraised value of a mineral interest is often within 24-60 months revenue.

Additionally, the Property Tax Division of the Texas Comptroller of Public Accounts performs a Property Value Study each year, which effectively provides testing, and a comparative review of the mineral appraisals on a statistical sample of the leases in many of our counties.

UTILITY, INDUSTRIAL AND PERSONAL PROPERTY APPRAISAL

Area Analysis

The scope of market forces affecting industrial products and the capital goods used in the production process tends to extend beyond regional considerations. The effects of information and transportation technology are such that many industrial market forces are measured globally. One exception to this general concept is the market for industrial land. The pricing of land tends to be closely tied to possible alternative uses in the area. For this reason, the CAD appraisers assigned to land valuation analyze market forces for specific areas and adjust land value schedules appropriately.

Area Analysis

Neighborhood analysis of the type of properties valued by the industrial appraiser is not meaningful. Industrial properties do not have the type of generic "sameness" that is appropriate for neighborhood models.

Highest and Best Use Analysis

The highest and best use of real or personal property is the most reasonable and probable use of the property on the date of appraisal that is physically and financially feasible, legal, and that derives maximum production from the property. Usually, the current use of the property is the highest and best use of that property. Industrial facilities are commonly located in areas that support industrial use. In areas where mixed use does occur, the highest and best use of the property is examined by the appraiser to estimate the effect of this factor.

Market Analysis

Market analysis is the basis for finalizing value estimates on properties for which the utility, industrial and personal property appraiser has responsibility. Even though many utility and industrial properties are unique in nature, the market for this type property is analyzed to determine how the values of similar properties, or properties that are as similar as possible, are affected by market forces. Some industrial properties, such as machine shops, have many facilities that can be compared to similar subject properties in terms of type and size of equipment, type of property fabricated or services at the subject facility, and other factors. Those similarities help the appraiser estimate the value of the subject property.

Cost Analysis

The Cost Approach to value is applied to most personal property. This approach is utilized in conjunction with the Market and Income approaches to arrive at a final market value for most utility companies and many industrial companies. For the Cost Approach, depreciation schedules are developed based on the percent good typical for each property type at any specific age. Depreciation schedules have been implemented for what is typical of each major class of property by economic life categories. Schedules have been developed for improvements with varying years of expected life. The actual age, if known, and the effective ages of improvements are noted. Effective age estimates are based on the utility of the improvements relative to where the improvement lies on the scale of its total economic life and its competitive position in the marketplace.

Market adjustment factors such as external and/or functional obsolescence can be applied when warranted. A depreciation calculation override can be used if the condition or effective age of a property varies from the norm by appropriately noting the physical condition and functional utility ratings on the property data characteristics. These adjustments are typically applied to a specific property type or location and can be developed via ratio studies or other market analyses.

Many utility, industrial and personal properties use the same types of buildings and, depending on the type of business, may use the same types of manufacturing or service equipment. Many of the buildings encountered at industrial facilities are generic in construction, such as pre-engineered metal buildings. The cost per square foot to construct these type structures can be used to estimate values at facilities that have similarly constructed buildings. However, the building as constructed will have differences that must be considered when estimating the final value of the property being reviewed. Most of these typical type buildings are appraised by CAD personnel.

However, some industrial properties, such as specialty chemical plants, are so unique in nature that the appraiser must use additional information such as output quantity, type of product manufactured, and other factors to estimate the value of the subject property. However, the way the entire business operation is put together may make a particular facility unique. The district uses information from similar businesses to examine the real property values at a particular business, but the individual characteristics of the business being reviewed determine the value estimation. Some industrial buildings are use specific and therefore have no comparable properties.

A similar analysis is used for personal property. Many items of personal property, such as furniture and fixtures, computers, and even machinery and equipment are generic in construction, but individual characteristics that affect value, such as usage, environment where used, and level of care will have an effect on the final value estimations. When cost data for this type of property is available and considered reliable, it is used for value estimation purposes at other plant facilities. However, on-site inspection and information provided by the property owner will affect the final value.

Income Analysis

Capitalization analysis is used in the income approach models. This methodology involves the capitalization of net operating income as an indication of market value for a specific property. Capitalization rates, both overall cap rates for the direct capitalization method and terminal cap rates for discounted cash flow analyses, can be derived from the market. Sales of improved properties from which actual income and expense data are obtained provide a very good indication of what a specific market participant is requiring from an investment at a specific point in time. In addition, overall capitalization rates can be derived from the built-up method (band-of-investment). This method relates to satisfying the market return requirements of both the debt and equity positions of a type of company.

Many utility companies are appraised on a Unit Appraisal Model, which utilizes both the income and cost approaches to value. Information from publicly available sources such as FERC and RRC reports are utilized to arrive at the input parameters for these types of properties.

DATA COLLECTION/VALIDATION

Data Collection

An extended range of variations may exist within the same class of utility, industrial or personal property, and there are a multitude of property types within the industrial category. For this reason, effective data collection procedures would be very difficult to organize in a single comprehensive manual. WAG uses many different publications available to the industry, such as the Oilfield Appraiser and the Equipment Newsletter, and other companion data acquisition forms to standardize data collection for schedule building that are later assigned to the industrial appraisal staff. The data generated by these forms enables the appraiser to use the software to value industrial properties.

Industrial personal property also consists of many different classes of assets with a wide range of variation within each class. The district has adopted the convention of listing assets and estimating effective age of assets in the field. The field listing is then compared with information furnished by the property owners during the final valuation review.

Sources of Data

The original real and personal property data used by WAG on behalf of the CADs have been maintained on the CAD computer system. The district and contract appraisal personnel have updated that information based on field review, renditions, and personal contact information. For Commercial vehicles, an outside vendor, Just Texas, provides the appraisers with a listing of vehicles registered commercially in the County. The vendor develops this listing from the Texas Department of Transportation Title and Registration Division records. As new facilities are built, the appraisal personnel collect all the real and personal property data necessary to value the property initially and thereafter update the information when the property is again visited. Other sources of data include publications such as the Texas Register regarding waste control permits, various refining and chemical industry magazine articles, and Texas Industrial Expansion articles on new construction.

Data Collection Procedures

The district and contract appraisal personnel annually or periodically visit assigned plants and facilities. The frequency of the visit is determined by the nature of the business conducted at each facility. For example, refineries

and chemical plants are continually changing or adding to processes to extract greater efficiencies or make new products, but machines shops may not add or remove equipment over a period of two or more years.

The appraisers take with them the past data on the building and site improvements and the prior listing of personal property at the facility being visited. Changes to the existing structures and personal property are noted and that information is used for value estimation purposes. In addition, if possible, pictures are taken at the time of inspection to validate information provided on the rendition or to utilize for the appraisal if no rendition is submitted. If cost information for the real or personal property is supplied later, the field data can be compared to that information to judge the accuracy of the information.

The WAG appraisal staff members are not assigned any one geographical area of the county. The category of property, the nature of the business, and whether the district has the staff resources available can each be a determining factor in identifying which properties are appraised by WAG and which properties are appraised by the district's appraisal staff. WAG appraisers are trained by accompanying appraisers who have performed field visit and appraisal functions for several years. In addition each WAG appraiser is registered with the Texas Department of Licensing and Regulation and is either an RPA or is working towards the RPA designation. Each WAG appraiser is responsible for the completeness and correctness of their valuation work, but a new appraiser is encouraged to seek the advice of and review by experienced appraisal staff.

VALUATION ANALYSIS (MODEL CALIBRATION)

Final Valuation Schedules

WAG develops schedules based on indexed Marshall & Swift depreciation factors, as well as the schedules prepared by other appraisal districts, state appraisers and other cost estimates for use in the valuation of all business and industrial personal property. In addition, appraisal personnel, utilize actual cost data developed from both publicly available sources as well as proprietary information received from other companies without identifying information, to update these schedules annually.

INDIVIDUAL VALUE REVIEW PROCEDURES

Field Review

WAG personnel periodically review their assigned real and personal property accounts. These accounts are physically inspected on a one to two-year cycle. Certain properties are reviewed annually because experience shows that changes are occurring continually in the real or personal property at that facility.

The results of prior year hearings, renditions, and indications of new activity are another source that initiates required field visits. Many times, during hearings, issues are presented that cause a value adjustment. Those issues must be field checked to see if these influences will be on-going and warrant permanent value adjustments or are transitory. The information will be recorded so the appraiser will be better able to estimate the property value. Any new construction or business activity is noted and the information necessary to value the property is recorded.

Part of the field review includes noting any land characteristics that would affect the land value. The district values all land for the properties over which it has responsibility, including those properties assigned to WAG. WAG advises the district of any characteristics that would affect the value of the land associated with an assigned facility.

Office Review

All properties are reviewed in the office by the WAG appraiser assigned to each utility, industrial, or personal property. The office review relies on historical information in the utility, industrial, or personal property file as the basis for deciding on the estimated value to be placed on the property for the current tax year.

The date of last inspection, extent of that inspection, and the appraiser responsible are listed in the WAG system. If a property owner disputes the district's records concerning this data in a protest hearing, the property record may be altered based on the credibility of the evidence provided.

When valuing utility, industrial or personal property, the type of furniture, equipment, computers, etc., will be used along with any cost data provided by the property owner to estimate the value. Experience in valuing similar property at other facilities will help the appraiser estimate the value of the subject facility. Individual characteristics of the property, such as usage and maintenance will have a bearing on the value calculated by use of the WAG schedules.

PERFORMANCE TESTS

Sales Ratio Studies

Ratio studies are an important tool to examine how close appraised values are to market values. The ratio study may use available sales data or independent, expert appraisals. Typically, there are not enough sales of utility and industrial properties to show representativeness of that class of property in a ratio study. Ratio studies of utility and industrial properties normally rely on independent appraisals as an indicator of market values.

Comparative Appraisal Analysis

This type of analysis is not normally performed on industrial property due to the unique nature of the property. Time and budget constraints regarding available appraisal staff also plays a role in the type of analysis that occurs. Only in an instance where a jurisdiction would file a jurisdiction challenge with the Appraisal Review Board would the district perform such an analysis.

If a CAD receives a jurisdiction challenge on a utility or industrial property category, the appraisers assigned to those accounts will research the appraisal roll to see what other similar properties exist. The real commercial property values can be compared on an average value per square foot of structure basis, but the location and type of improvement must be carefully accounted for in the valuation differences between two properties with the same square footage. Differences in location and type of improvement often account for a greater difference in market value than simple square footage. In like manner, the personal property values can be compared per category, such as furniture and fixtures, machinery and equipment, etc., but a comparison of the type and use of the property must be examined to ensure property value uniformity.

Attachment A
Wardlaw Appraisal Group Registered Personnel

PROPERTY TAX APPRAISER CERTIFICATION		
TDLR #	NAME	TYPE
74200	CRAIN, MALLORY M.	APPRAISER, RPA
73616	MCFARLANE, KATHLEEN M.	APPRAISER, RPA
74717	SHERWIN, PROCTOR	APPRAISER, RPA
66026	WARDLAW, MARGARET A	APPRAISER, RPA
70182	WILLIAMS, CHARLES R.	APPRAISER, RPA
71700	WILLIAMS, HAZIEL M.	APPRAISER, RPA
73672	WILLIAMS, C NOAH	APPRAISER, 3
PROFESSIONAL ENGINEERING CERTIFICATION		
PE#	NAME	BRANCH
76914	WARDLAW, MARGARET PEGGY ANNE	PETROLEUM
77254	WILLIAMS, CHARLES RAY JR	PETROLEUM
PROFESSIONAL ENGINEERING FIRM CERTIFICATION		
FIRM #	FIRM NAME	
5194	WARDLAW APPRAISAL GROUP LC	