

DENTON CENTRAL APPRAISAL DISTRICT
2019 Mass Appraisal Report
June 28, 2019

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 Rule 6-8 of the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of The Appraisal Foundation. This report has several parts: a general introduction and the several sections describing information specific to particular appraisal divisions.

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

The 2019 mass appraisal results 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.

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, residential sales data obtained from vendors was considered reliable.

No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to any property is assumed to be good and marketable, unless otherwise stated.

All property is appraised as if free and clear of any or all liens or encumbrances, unless otherwise stated. All taxes are assumed to be current.

All property is appraised as though under responsible, adequately capitalized ownership and competent property management.

All engineering is assumed to be correct. Any 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 the Report

With the exception of certain inventories for which the property owner has elected a valuation date of September 1, 2018; all appraisals are as of January 1, 2019.

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. Under the tax code, "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, 23.124, 23.1241 and 23.127), and nominal (Sec 23.18) or restricted use properties (Sec 23.83).

Properties Appraised

The mass appraisal technique appraises all taxable real and personal property known to the district as of January 1, 2019. 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 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).

Scope of Work Used to Develop the Appraisal

This mass appraisal appraised 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 400,000 accounts. The district distributes the work of the appraisal among several appraisal personnel. The following sections describe, by area of responsibility, the scope of work performed and those items addressed in USPAP standard 6-8 (a) through (q).

The Chief Appraiser, who is the chief executive officer of the appraisal district, manages the district. All district employees report to the chief appraiser through their immediate department manager. The district is divided into separate appraisal departments, customer service departments, sales and research, information services and administration. The appraisal departments are made up of Residential, Commercial, and Personal Property. Customer Service encompasses homestead and related exemption applications, and taxpayer information and assistance. The sales and research department handles law suits, gathering sales information, verification, and assist ARB. Administration is responsible for budget and financial matters, and Information Services operates the district's computer facilities and is responsible for deed transfers and GIS mapping. 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.

While the appraisal district staff conducted most of the appraisal activities, the district also uses an outside firm for the appraisal of oil and gas and utilities. The contract for the outside firm is conducted by bids for a 2 year term. The district established procedures whereby ownership and property data information are routinely exchanged.

Determination of Highest and Best Use for Real Property

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, 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.*
- (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) *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 following tax year, the chief appraiser may not increase the appraised value of the property unless the increase by the chief appraiser is reasonably supported by substantial 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 substantial evidence an increase in the appraised value of the property in the following tax year 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.

Previous 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 and 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 will be conducted for 2019.

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 2018 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 2020 year.

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 appraisers develop, calibrate, and apply the various mass appraisal models for their respective property types. The contract appraisal firm, Wardlaw, appraises mineral and utilities.

Introduction

Scope of Work

The field operations activities for the residential appraiser are collecting and maintaining property characteristic data for all residential property types, which are located within the boundaries of Denton County. These activities involve the field inspection of real, as well as data entry of all data collection into the appraisal district CAMA system.

Periodic physical review of property is required at least every 3rd year, as set forth in the Texas Property Tax Code.

Procedure for Collecting and Validating Data

Data collection requires organization, planning and supervision of the appraisal staff. Data collection procedures have been established for each appraisal department. The appraisers are assigned areas throughout the jurisdiction of the DCAD to conduct field inspections. Appraisers conduct field inspections and record information needed for an appraisal.

The quality of the data used is extremely important in establishing defensible estimates of market value for taxable properties. While production standards are established and upheld for various responsibilities, quality of data is emphasized to each appraiser. New appraisers are trained in the specifics of data collection set forth in DCAD's manual of appraisal procedures. Experienced appraisers routinely review data collection procedures, new software available, and general construction. A quality assurance process exists to review the work being performed by all the appraisers. The quality assurance is used to ensure that appraisers follow procedures, identify training issues and provide uniform training throughout the field appraisal staff.

Data collection of real property involves maintaining data characteristics of the property on CAMA (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. 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.

Sources of Data

The sources of our data collection and verification are through building permits, field inspections, data mailers, hearings, newspapers and publications, and property owner via the Internet.

Building permit data attained 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 neighborhoods 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. In residential sales validation involves some on-site inspections by appraisers to verify the accuracy of our data.

INTRODUCTION

Scope of Work

The Residential Department of the Denton Central Appraisal District (DCAD) are responsible for developing fair and uniform market values for residentially-classed improved properties and vacant property for ad valorem purposes. Field data collection requires organization, planning, and supervision of the field staff.

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 neighborhood 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 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.

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 and 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

Neighborhood 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 neighborhoods. Current analysis is defined within a given subdivision and then expanded to neighborhoods. 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 neighborhood analysis is the identification of a group of properties that share certain common traits. A "neighborhood" 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 neighborhood has been identified, the next step is to define its boundaries. This process is known as "delineation". Some factors used in neighborhood 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 neighborhood boundary lines on a map, but it can also involve

statistical separation or stratification based on attribute analysis. Part of neighborhood analysis is the consideration of discernible patterns of growth that influence a neighborhood's individual market. Few neighborhoods are fixed in character. Each neighborhood 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 neighborhoods in a community are developed they compete with existing neighborhoods. 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 neighborhoods 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 neighborhoods may also experience renewal, reorganization, rebuilding, or restoration, which promotes increased demand and economic desirability.

Neighborhood 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 neighborhood specific. Neighborhoods are reviewed annually and delineated based on observable aspects of homogeneity.

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

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 every other year or as needed and were updated for the 2019 appraisal year.

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.

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 buyer and seller, 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, neighborhood, and subdivision sales reports are generated as an analysis tool for the analyst in the development of value estimates.

Land Analysis

Residential land analysis is conducted by developing a base lot primary rate for each neighborhood 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.

Statistical Analysis

Statistical analysis is done on regular bases to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on each neighborhood to judge the primary aspects of mass appraisal; a 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 neighborhood.

Through the use of sales ratio reports and neighborhood profiling the appraiser reviews each neighborhood annually. The sales ratio report shows a comparison (ratio) between current appraised values and recent sales prices in neighborhoods. 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, neighborhood, 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/neighborhood. Using the neighborhood 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 neighborhood 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 neighborhood market influences not specified in the cost approach. The following equation denotes the hybrid model used:

$$\begin{aligned} MV &= LV + ((CN - D) MA) \\ \text{Market Value} &= \text{Land Value} + ((\text{Cost New} - \text{Depreciation}) \text{Market Adjustment}) \\ \$144,218 &= \$32,500 + ((\$154,350 - 23\%) .94) \end{aligned}$$

Where the market value equals the land value plus the replacement cost new less depreciation time 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 neighborhoods to account for location variances between market areas or across a jurisdiction.

If the subdivision/neighborhood is to be updated, the appraiser uses a ratio study that compares recent sales prices of properties within a delineated subdivision/neighborhood 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/neighborhood 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/neighborhood. This market adjustment factor is needed to trend the values closer to the actual market evidenced by recent sales prices within a given subdivision/neighborhood. The market adjustment factor calculated for each updated subdivision/neighborhood is applied uniformly to all properties within a neighborhood 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/neighborhoods, and finally, for the school district as a whole.

When considering adjustments for time the appraiser will look for paired sales, preferable 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.

VALUE REVIEW PROCEDURES

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/neighborhood is field reviewed by the appraiser in their annual work plan. Although appraisers are somewhat limited in the time available to field review an entire subdivision/ neighborhood 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 his 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.

Once the appraiser is satisfied with the level and uniformity of value for each subdivision/neighborhood within his 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.

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 neighborhoods is a useful tool to ensure classification, quality, condition are all similar within similar neighborhoods 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 adjustment that appear as outliers or trends.

Commercial Valuation

INTRODUCTION

Scope of Work

The Commercial Department 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 within district boundaries for ad valorem purposes.

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 insures that an accurate estimate of market value is derived.

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 District and the Texas Association of Assessing Officers.

Neighborhood and Market Analysis

The neighborhood is comprised of the land area and commercially classed properties located within the boundary of a taxing jurisdiction. The current commercial neighborhoods (market areas) are:

<u>CODE</u>	<u>DESCRIPTION</u>
C02	Cities of Carrollton and Dallas
C03	City of The Colony
S05	Denton ISD and Argyle ISD
S08	Lake Dallas ISD
S09	Cities of Lewisville, Highland Village, and Flower Mound
S10	Little Elm ISD, Frisco ISD, Prosper ISD, and Celina ISD
S11	Northwest ISD, and Ponder ISD
S14	Sanger ISD, Pilot Point ISD, Aubrey ISD, and Krum ISD

These areas consist of a wide variety of property types including multi-family, commercial and industrial. Neighborhood 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 neighborhoods.

Neighborhoods 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 neighborhood area and used to formulate overall appraised values for that neighborhood.

MODEL CALIBRATION

Cost Schedules

All commercial parcels in the district are valued from cost schedules using a comparative unit method. 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, neighborhood, and subdivision sales reports are generated as an analysis tool for the analyst in the development of value estimates.

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.

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 neighborhood 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 regular bases to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on each neighborhood and ISD to judge the two primary aspects of mass appraisal accuracy: level, and uniformity of value. Appraisal statistics of central tendency and dispersion generated from sales ratios are available for each property type being studied. 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 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. The district's primary approach to the valuation of commercial properties uses a hybrid cost-sales-income comparison approach. This type of approach accounts for neighborhood market influences not specified in the cost approach. The following equation denotes the hybrid model used:

$$\begin{aligned} MV &= LV + ((CN - D) \times MA) \\ \text{Market Value} &= \text{Land Value} + ((\text{Cost New} - \text{Depreciation}) \times \text{Market Adjustment}) \\ \$1,135,440 &= \$200,000 + ((\$850,400 - 12\%) \times 1.25\%) \end{aligned}$$

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 neighborhoods to account for location variances between market areas or across a jurisdiction.

VALUE REVIEW PROCEDURES

Field Review

Property field inspections may be initiated for a variety of reasons. A property owner might dispute the district's appraisal attributes or data concerning his 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 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 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.

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 uses of sale 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, assist in market analyses.

INTRODUCTION

Current Procedures or Manuals for Conducting Mass Appraisals

Scope of Work

The Business Personal Property Department of the Denton Central Appraisal District (DCAD) is responsible for developing fair and uniform values for all industrial, business, and mineral properties.

General Policies and Procedures

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. 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.

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.

Data and Research

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.

Current Procedures for Data Collection and Analysis

Methods of Discovery

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 1st. 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.

Publicized 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 his jurisdiction.

Telephone and City Directories

Telephone and city directories 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 vehicle registration records are the best source for vehicle information. These lists provide most of the information necessary to assess such 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.

Situs and Inspection 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 States General Appraisal Manual, the Property Tax Code, and personal property course texts.

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 him, 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.

Mass Appraisal Model Mathematical Specifications

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.

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 effect value and indicate the impact*
- Appraised Value*
- Initials of Appraiser and Name of any Assisting Appraiser*
- Date of Appraisal*

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.

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

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

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:

$$\begin{array}{r}
 \text{Inventory } 5,860 \text{ sq. ft. @ } \$17.50 = \$102,550 \\
 \text{Fixed } 5,860 \text{ sq. ft. @ } \$ 7.00 \text{ X } 44\% = \underline{18,049} \\
 \hline
 \$120,599
 \end{array}$$

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, 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, 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
		<u>\$98,280</u>

Cost Improvement Schedules and Procedures Used to Develop Them

The Historical or Original Cost

1. Cost Determination

The cost as shown on the accounting records reflects 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.

Depreciation Schedules and Procedures Used to Develop Them

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, 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 his 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:

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 X 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:

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.

LIMITING CONDITIONS

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

1. The appraisals were prepared exclusively for ad valorem tax purposes. The assessment date is as of January 1, 2020..
2. The property characteristic data upon which the appraisals are based is assumed to be correct. Exterior inspections of the property were performed by the appraisal department staff.
3. Validation of sales transactions was made using sales letters, telephone calls to buyer, seller or realtor, and field review. Denton Board of Realtors is also considered to be a reliable source.
4. Our analyses, opinions, and conclusions were developed in conformity with the Uniform Standards of Professional Appraisal Practices (USPAP) of the Appraisal Foundation, Code of Professional Ethics, as well as the requirements of the state of Texas.
5. The goal of the Appraisal District is to analyze and estimate market value of each property located in Denton County and in no way were the results or conclusions predetermined or biased.

Certification Statement:

“I, Rudy Durham, Chief Appraiser for the 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 which, to the best of my knowledge and belief, was determined as required by law.”



Rudy Durham, Chief Appraiser