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Mass Appraisal Report

for

Tax Year 2019

Mass Appraisal of Properties

Tyler County, Texas

Effective Date of Report: January 1, 2019

Date Report Prepared: May 15, 2019

Prepared Pursuant to USPAP Standards Rule 6-8
2018-2019 Uniform Standards of Professional Appraisal Practice

I. GENERAL INFORMATION

A. Client

The **Tyler County Appraisal District (Tyler CAD** or **TCAD)** is a political subdivision of the State of Texas. The provisions of the Texas Property Tax Code govern the legal, statutory, and administrative requirements of the appraisal district. An eight-member Board of Directors, appointed by taxing units within the appraisal district, constitutes the district's governing body. The chief appraiser, appointed by the board of directors, is the chief administrator of the appraisal district.

B. Scope

Scope of work is the type and extent of research and analyses that an appraiser performs. Scope of work includes but is not limited to: the extent to which the property is identified; the extent to which tangible property is inspected; the type the type and extent of analyses applied to arrive at opinions or conclusions.

The TCAD is responsible for property tax appraisals and exemption administration of approximately 46,000 items of property for nineteen taxing jurisdictions covering an area of about 937 square miles. Two recently new water districts have been formed. The appraisal district's general responsibilities are to discover, list and appraise the subject properties in the following major property types: single family residential, rural residential, multi-family residential, rural miscellaneous improvements, lots, acreage, commercial, business personal property and complex properties consisting of industrial, utility, and oil and gas reserves. (The complex properties are appraised for the TCAD by contract with Capitol Appraisal Group LLC and are addressed in separate sections of this mass appraisal summary report.)

The scope of work may be defined generally as follows:

1. Identifying properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photography, land-based photographs, surveys, maps and property sketches;

2. Identifying and updating relevant characteristics of each property in the appraisal records;

3. Defining market areas in the district;

4. Identifying property characteristics that affect property value in each market area, including:
   a. The location and market area of the property;
   b. Physical attributes of property, such as size, age, and condition;
   c. Legal and economic attributes; and
   d. Easements, covenants, leases, reservations, contracts, declarations, special assessments, ordinances, or legal restrictions;

5. Developing an appraisal model that reflects relationships among property characteristics affecting the value in each market area and determines the contribution of individual property characteristics;

6. Applying the conclusions reflected in the model to the characteristics of the properties being appraised; and

7. Reviewing the appraisal results to determine value.

The scope of work is described in detail in the Tyler CAD Reappraisal Plan for the 2019 and 2020 Tax Years which is attached to this report by reference as well as in other sections of this report. The scope of work is consistent with 1) the actions that appraisers in the TCAD's peer group (other appraisers who have expertise and competency in a similar type of assignment) would perform in making the same type of appraisals and 2) the expectations of parties who are regularly intended users for similar assignments.

The building schedules were updated for 2019. All areas were updated for 2019. But all areas of TCAD were appraised for maintenance purposes. For 2019, the market areas that were to be appraised were to be the remaining properties in the City of Woodville and Woodville ISD and possibly moving into Chester ISD and Colmesneil ISD. All of TCAD was appraised for maintenance purposes.

C. Legal Requirements

This mass appraisal is made in accordance with the provisions of the Texas Property Tax Code. Specifically, under Section 25.18 of the Code, each appraisal district is required to implement a plan to update appraised values for real estate at least once every three years.

D. Administrative Requirements

This mass appraisal followed the TCAD reappraisal plan for tax years 2019 and 2020 as adopted by the Tyler County Appraisal District Board of Directors. The Plan included finishing up with Woodville ISD and moving into Colmesneil and Chester, time permitting due to maintenance appraisal. This is a good point to report that the migration from MARS to PACS appraisal system has been concluded and are now in a full client/customer mode. Harris Govern has been great to work with and the staff is becoming more and more comfortable every day.

The Tyler County Appraisal District, in accordance with the reappraisal plan adopted by the Board of Directors, reappraises all property in the district every three years. The reappraisal year is a complete or partial appraisal of all denoted properties in the district. The non-reappraisal year is used to add new construction, new subdivisions, new business personal property, and new oil and gas leases, adjust for changes in property characteristics that affect value, and adjust the previous year's values on individual properties, property categories or market areas where the level of appraisal and/or uniformity of appraisal is unacceptable.

However, the following property types are reappraise annually: oil and gas reserves, business personal property, industrial real property, industrial personal property, utilities, special inventory residential property, and properties qualified for agricultural use or timber use productivity valuation. Oil and gas reserves, industrial properties, and utilities are valued through a professional services contract with the district's valuation engineer, Capitol Appraisal Group LLC. All other properties are valued on an in-house basis by the appraisal district staff.

Tax Year 2019 was a complete reappraisal year. Tax Year 2020 is not a reappraisal year.

The district follows the *Technical Standards* of the **International Association of Assessing Officers** (IAAO) regarding its appraisal practices and procedures. Additionally, the appraisal district subscribes to the standards promulgated by the Appraisal Foundation known as the *Uniform Standards of Professional Appraisal Practice*.

E. Appraisal Resources

The TCAD appraisal staff consists of eleven persons. The chief appraiser is primarily responsible for the overall planning, organizing, staffing, coordinating, and controlling of district operations. Appraisals are performed by the chief appraiser, an appraisal supervisor, and three appraisers, all of whom who are certified as Registered Professional Appraisers with the Texas Department of Licensing and Regulation. Other personnel include an office manager, two customer service deputies; a GIS manager and a GIS/land/deed person. All five of the required personnel above are designated as Registered Professional Appraisers. In order to be aware of, understand and correctly employ recognized methods and techniques necessary to produce a credible mass appraisal, the appraisal staff stays abreast of current trends through review of published materials, attendances at conferences, seminars, in-house/in-service training, and continuing education sessions.

TCAD has completely moved over to the new CAMA system and appraisal software called PACS. Harris Govern has continued to provide excellent support.

Due to earlier interruption, 2017-18 Reappraisal Plan was amended in September 2017 to adjust the Plan accordingly. TCAD is now working off of the 2019-2020 Reappraisal Plan. There'll be schedule and territory changes, but that is an expected issue.

F. Data Collection and Verification

The district is responsible for developing and maintaining approximately 46,000 property records. This data includes property characteristic data such as land size, square footage of improvements, and quality of construction as well as ownership and exemption information.

Field appraisers conduct property inspections on new and existing real property and business personal property in an annual field effort. The appraisers are trained to collect and record a common set of data characteristics in accordance with established guidelines and procedures. The data gathered during the field inspection is recorded on a field card; and is now entered into the PACS system for 2019. Quality control is conducted at support and data entry levels. Data that is not fully or accurately reported is referred to the appraiser who conducted the field inspection for clarification.

Other sources for data include, but are not limited to the following: independent fee appraisers, realtors, the deed records of the Tyler County Clerk's Office, the building permit records of the cities of Woodville, Colmesneil and Ivanhoe, the community of Wildwood, the septic permit records of Tyler County, 911 addressing information, utility connections information, other public records, renditions, information furnished by property owners, vendor supplied vehicle registration lists, the appraisal records, maps, plats of the TCAD. Data is also gathered from the Southeast Texas Groundwater Conservation District.

Sales data is collected, adjusted, analyzed, and maintained according to IAAO procedures. Sales files contain property characteristics that are contemporaneous with the date of sale. Geographic data is contained in as complete a set of cadastral maps as possible reflecting current detail and accuracy. Data collection and verification procedures are reviewed periodically. The map system is maintained in a "geographic information system" on a state-of-the-art Dell server using the professional GIS software ArcGIS (Advanced) published by ESRI of Redlands California.

G. Information

TCAD maintains the district's data processing system and software applications on an in-house basis. The district's applications are maintained on Dell servers and operate under a hierarchical non-relational database with a local network of general-purpose PCs. The district's software vendor, Harris Govern (PACS), develops and maintains the software for TCAD. BIS Consulting is a third-party vendor with responsibility of hardware support, networking, and backup of District records.

H. Purpose and Intended Use of Appraisal

The purpose of this mass appraisal report is to estimate the market value of taxable real property and personal property in the TCAD. The intended use of the appraisal is to provide an accurate and equitable valuation on which property tax levies will be based. This report is prepared for the use of the taxing units and property owners of the appraisal district.

I. Assumptions and Limiting Conditions

While TCAD has taken reasonable steps to secure adequate funding, fiscal constraints do impact the mass appraisal process by limiting the resources available to perform the appraisal; therefore, it was not possible to perform physical inspections of all properties or to conduct final individual reviews of all properties. When physical inspections of improved properties were conducted, they were done on an exterior basis only. It is assumed that interior conditions are consistent with exterior conditions as observed. Where an exterior inspection is not possible, physical characteristics information may be obtained from reliable third-party sources in forms such as photographs and multiple listing data. Final reviews were done on a limited sample basis.

The appraisal district attempts to collect as much sales data as possible; however, there is an inadequate number of sales available. The limited number of sales impairs the appraisal district's ability to conduct reliable sales ratio studies and apply the results of those studies in generally accepted mass appraisal methodologies. TCAD is not allowed to subscribe to Multiple Listing Service (MLS) sales data. However, the Texas Comptroller somehow has access that TCAD and other appraisal districts. The Texas Comptroller performs studies and reviews on appraisal districts using the very MLS TCAD is denied.

How can you teach a child the periodic elements if all you give him is the alphabet. Then how can you test a school/appraisal district if the very sales you don't know about become the "test deck"?

The growing legal and administrative requirements relating to the operations of the appraisal district also impact the appraisal districts fundamental duties of discovering, listing and valuing property. Furthermore, this mass appraisal has been made under the following general assumptions and limiting conditions:

- The appraisals were prepared exclusively for ad valorem tax purposes.

- Legal descriptions and other property characteristic data upon which the appraisals are based are correct. Legal description are often abbreviated or given a name or number to use for identification.

- Title to the properties is good and merchantable.

- No liability is assumed for matters of a legal nature.

- All data and information provided to the appraiser is correct and accurate.

- The inside or interior quality is comparable to the exterior quality due to the lack of consistent access to the inside of a universe of structures.

- Unless otherwise stated, existence of hazardous materials or other adverse environmental conditions are not considered.

- Assumptions made in the report are based on the best knowledge and judgment of the appraiser and are believed to be typical of the market.

- Sales transactions are primarily validated through sales surveys from buyers and sellers. In the absence of confirmation, sales data is obtained from other sources considered reliable.

- All properties are appraised as if free and clear of any or all liens or encumbrances. All properties are appraised as though under responsible and competent management.

- Any plots, plans, and drawings are correct and are included in this mass appraisal only to assist in visualizing the property and should not be construed as surveys or engineering reports unless otherwise specified.

- No responsibility is assumed for hidden or unapparent conditions in the property that may affect its value.

- The appraisers developing these appraisals are not required to give testimony or attendance in court by reason of the appraisals, unless directed by, employed by, and provided legal counsel by the appraisal district.

J. Legal Description of Subject Property

The legal descriptions identifying the individual properties subject to this appraisal report are incorporated at length in the 2019 appraisal records of the Tyler County Appraisal District. Descriptions are shortened and abbreviated and assigned parcel identification numbers. These records are available for inspection during regular business hours at the appraisal district office at 806 West Bluff in Woodville, Texas.

K. Property Rights to be Appraised

The properties are appraised in fee simple interest, as if under absolute ownership unencumbered by any other interest or estate as required by Sec. 25.06 Texas Property Tax Code and case law history. Fractional interests are appraised in fee simple for the whole property and are divided proportionately based on the pro-rata interests. Legal documents, surveys, title reports may be a source to determine fractional interests.

L. Definition of Value

Market value is defined in Sec. 1.04 (7) Texas Property Tax Code as follows:

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

1. exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
2. both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and

3. both the seller and purchaser seek to maximize their gains, and neither is in a position to take advantage of the exigencies of the other.

Regarding personal property, Sec. 1.04 (5) defines personal property as "... personal property that can be seen, weighed, measured, felt or otherwise perceived by the senses but does not include a document or other perceptible object that constitutes evidence of a valuable interest, claim, or right and has negligible or no intrinsic value." Generally, business personal property consists of tangible personal property owned by a business or individual to produce income.

- Sec 23.01 (c) requires that the market value of a residence homestead be determined solely on the basis of the current use of the property regardless of its highest and best use.

- Sec. 23.01 (b) and (c) prohibits an increase in appraised value of a property where the preceding year's value was established by an appraisal review board, an arbitrator or a court under certain circumstances.

- Sec. 23.12 defines the market value of an inventory as the price for which it would sell as a unit to a purchaser who would continue the business and includes residential real property and personal property inventories.

- Secs. 23.121, 23.124, 23.1241, and 23.127 require a special inventory valuation for certain inventories of motor vehicles, vessels and outboard motors, heavy equipment and retail manufactured housing.

- Sec. 23.18 requires minimal valuation of property owned by a non-profit homeowners' organization for the benefit of its members.

- Sec. 23.21 requires appraisals to consider certain governmental restrictions on low income housing rents.

- Sec. 23.24 prohibits separately appraising personal property that is already included in the appraisal of real property for which the income approach to value was used.

- Special appraisal provisions are required as follows: 1) Agricultural land Sec. 23.41; 2) Open space land Sec.23.52; 3) Timberland Sec. 23.73; 4) Restricted timberland Sec.23.9803

- Sec. 23.83 requires special appraisal of restricted land.

These sections require jurisdictional exceptions to Standards Rules 6-2 of the *Uniform Standards of Professional Appraisal Practice* 2016-2017.

M. Limitation of Appraisal Increases on Qualified Residence Homesteads

Under Sec. 23.23 of the Texas Property Tax Code, certain residence homesteads are eligible to receive a limitation on the amount the appraised value of the property may increase from one year to the next. The limitation takes effect on January 1 of the tax year following the first year the property owner qualifies for any homestead exemption and expires on January 1 of the first tax year that neither the owner nor the owner's spouse qualifies for a homestead exemption.

The appraised value of a qualified residence homestead may not exceed the lesser of:

1. The market value of the property for the most recent year that the property was determined by the appraisal office; or

2. The sum of (a) 10% of the appraised value of the property for the preceding tax year (b) the appraised value of the property for the preceding tax year; and (c) the market value of all new improvements to the property.

The homestead cap is administered according to the TCAD guidelines for determining and calculating increases in value to residential homesteads subject to the homestead cap.

This section requires a jurisdictional exception to Standards Rules 6-2 of the *Uniform Standards of Professional Appraisal Practice 2018-2019.*

N. Effective Date of Appraisal

The effective date of this mass appraisal is January 1, 2019, and, as such, all appraisals are retrospective in nature. Regarding business personal property, some inventories may qualify for appraisals as of September 1 in accordance with Section 23.12, Texas Property Tax Code. **The date of this appraisal report is May 15, 2019**.

O. Preliminary Analysis

Pilot studies are utilized to test proposed values, procedures, and models that will be in place during a reappraisal. A number of test properties are selected to determine whether schedules, factors or adjustments are working properly before the new values are applied to all properties at large.

P. Area and Market Analysis

Data concerning construction costs and trends, sales prices, availability of properties, and overall real estate market conditions are collected from various private and public sources.

The subject properties are located in a region known as the Pineywoods of Deep Southeast Texas. Increasing growth in local and regional economies in the greater Golden Triangle (Beaumont) area to the south and the Angelina County (Lufkin) area to the north have contributed to a somewhat flat demand for real estate within the appraisal district.

The onset of Hurricane Harvey upon TCAD impacted the real estate economy with increased activity but no real growth or change in the average and median ratio for year-over-year data.

Major sources of employment include state and local government and manufacturing facilities. This includes a 2000-bed

The city is largely developed with residential properties ranging from older, modest frame homes to newer custom-built homes. The downtown central business district is stable and a limited amount of new commercial development is·occurring on the southern edge of town.

Generally, the overall character and nature of Tyler County can best be described as rural. The primary and predominant land use tends toward timber production, with lesser areas of cattle grazing, hay production, and recreation. The areas of the county are characterized by a relatively denser population, rural subdivisions, and smaller tracts of land. Rural acreage tracts range from largely native tracts of timberlands and some pasture to highly improved properties. Likewise, residences range from modest houses to luxury type homes.

Demand for residential properties in both Woodville and the rural areas of the county are generally flat with relatively low interest rates and ample financing available for qualified buyers. Rural accessible and improved acreage tracts of land remains relatively flat. Occupancy rates in multi-family units are stable. Commercial property for sale and rents and occupancy rates appear to be amply available but stable. It appears that many commercial properties will continue to be owner used rather than held for speculative development.

There is no zoning within Tyler County. There is no indication that additional land use regulations will be implemented in 2018.

Sales data used is for sales of property within the TCAD and for the period January 1, 2017 thru June 30, 2018. However, Sec. 23.013 allows consideration of sales that have occurred within 24 months of the appraisal date, and will expand the window further as necessary.

Q. Market Area Analysis

Market are analysis involves the examination of how physical, economic, governmental, and social forces and other influences affect property values. The effects of these forces are used to identify, classify, and organize properties into smaller groups of properties known as neighborhoods.

The first step in market area analysis is to identify a group of properties that share certain common traits. A market area for analysis purposes is a grouping of properties where the physical, economic, governmental and social forces acting on the properties are generally uniform. Once a market area has been identified, the next step is to delineate its boundaries. Some of the factors considered include, but are not limited to, location, land use, building type, sales price range, quality of construction and conditions of improvements, and square footage of living area. Analyses have been made to note the degree of similarity in these factors and identify points where these characteristics change and note physical and other characteristics that coincide with these points so that market areas may be delineated. Finally, market area factors are applied to the delineated properties to appropriately adjust for forces influencing value within the market area.

Part of market area analysis is the consideration of discernible patterns of growth that will influence an area's individual market. Few areas are fixed in character. Areas may be characterized as being in a stage of growth, stability or decline. During the growth stage, there is construction and development. In the period of stability, older areas maintain their desirability due to the stability of the residential character. During the period of decline there is a diminished desirability and the general property use may begin changing to other uses.

Market area delineations and factors are periodically reviewed to determine if they continue to be warranted.

TCAD is a rural county with a property mix throughout the District with no distinct market areas except in certain subdivisions. Otherwise the market areas generally follow school district boundaries.

R. 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.

An analysis of highest and best use of the subject properties indicates that generally the highest and best use of the property is considered to be the current use. In particular, the highest and best use of residential property is normally its current use. This is due somewhat to the fact that residential usage, through deed restrictions and zoning, precludes other land uses. Additionally, there is virtually no transition to commercial use, and demand for residential properties is sufficiently strong that properties in residential use remain in that use.

Sec 23.01(c) requires that the market value of a residence homestead be determined solely on the basis of the current use of the property regardless of its highest and best use. As previously mentioned, this provision requires a jurisdictional exception to Standards Rules 6-2 of the *Uniform Standards of Professional Appraisal Practice* 2016-2017.

Generally, the highest and best uses of rural acreage are for: 1) timberland use; 2) agricultural use; 3) recreational use; 4) interim use as farm and ranch land with a future highest and best use of being divided into smaller tracts for sale; and 5) rural homesites.

The highest and best use of business personal property is normally its current use.

For improved properties, highest and best use is evaluated as improved and as if the site were still vacant. Highest and best use of the site as though vacant is that use, among all reasonable, alternative uses, that yields the highest present land value after payments are made for labor, capital, and coordination. The highest and best use of the site as though vacant is based on the assumption that the land is vacant or can be made vacant by demolishing improvements. The highest and best use as improved is the use that should be made of a property as it exists. An existing property should be renovated or retained as-is so long as it continues to contribute to the total market value of the property, or until the return from a new improvement would more than offset the cost of demolishing the existing building and constructing a new one. Periodically the appraisal district checks for changes in highest and best use of properties in transitional areas.

S. Time Adjustments

A study of resold properties is conducted annually to determine if adjustments for time are necessary or appropriate. There were an insufficient number of resold properties available to base a time adjustment on this year; therefore, no adjustments for time were deemed necessary or appropriate.

T. Financing Adjustments

Financing of sales is analyzed and the effects of non typical financing on sales prices are identified and their contribution to higher values or negative influence on values is appropriately adjusted.

II. LAND

A. Model Specifications for Vacant Land

Land models are specified by the sales comparison method as follows:

1. Rural acreage tracts are classified into different groups based on 1) Location; 2) Physical characteristics; 3) Acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis. Values are modified by road factors and may be further modified for shape, topography, or other factors.

2. Subdivision acreage tracts are classified by neighborhood and acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis and may be further modified for shape, topography, or other factors.

3. Lots are classified by neighborhood and front footage or square footage. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a front foot basis; acreage, or square foot basis. Land values may be further modified on the basis of shape, size, topography, and other factors.

B. Market Areas for Vacant Land

A market area analysis, as described above, is conducted to identify groups of properties where the factors affecting value are generally similar. Then, the delineated properties are appropriately adjusted for forces influencing value within the market area.

C. Summary of Models for Vacant Land

The following formula describes the models used for vacant land:

$$ASPCP\ IU = PU$$

Then: $MV = PU \times SU$

Where:

ASPCP = Adjusted sales prices of comparable properties
U = Unit of comparison, (square foot, acre, front foot, etc.)
PU = Price per unit of comparison
ASPU = Adjusted sales price per unit of comparison
SU = Subject property's number of units of comparison

D. Calibration of Model for Vacant Land

Calibration of the model for vacant land involves adjusting sales prices of comparable prices to reflect the individual characteristics of the subject property.

III. SINGLE FAMILY/RURAL RESIDENTIAL

A. Specification of Models for Single Family/Rural Residential

The models for single family residential and rural residential properties specify the cost approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for an improved property than the price of acquiring a vacant site and constructing a substitute building of equal utility, assuming no costly delays in construction.

Land models are specified by the sales comparison method as follows:

1. Rural acreage tracts are classified into different groups based on 1) Location; 2) Physical characteristics; and 3) Acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis. Values are modified by road factors and may be further modified for shape, topography, or other factors.

2. Subdivision acreage tracts are classified by neighborhood and acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis and may be further modified for shape, topography, or other factors.

3. Lots are classified by neighborhood and front footage or square footage. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a front foot basis or square foot basis. Land values may be further modified on the basis of shape, size, topography, and other factors.

For residential properties, improvements are stratified into similar groups since there is a different market for each group. Specifically, properties are classified by the following characteristics: 1) Exterior wall cover---brick veneer or frame; 2) Quality of construction based on typical building specifications for each class; and 3) Square footage of living area.

Replacement cost new (RCN) for living area is expressed in terms of cost per square foot. Building component cost for items in excess of the base cost for a class, such as fireplaces or bathrooms, are expressed in a lump sum basis. The RCN for building additives such as CHCA, garages and porches are expressed in terms of square foot cost based on a percentage of the base cost for the living area. Other structures such as outbuildings are expressed on a per square foot basis or on a lump sum contributory basis. RCN as specified by Marshall & Swift Valuation Service for· different levels of quality of construction, exterior characteristics and different sizes is determined. A local modifier is determined by analyzing a group of sold properties consisting of new construction or relatively new construction and then applied to the Marshall & Swift Valuation Service indicated costs. The schedule costs may be overridden to account for atypical features or characteristics not adequately addressed by the benchmark cost system.

B. Depreciation for Single Family/Rural Residential

Depreciation is the loss in value from the replacement cost of an improvement due to physical deterioration, functional obsolescence and economic obsolescence.

TCAD's residential depreciation tables are based on an age-life method of depreciation that uses effective age and economic life. Effective age is the age indicated by the condition and utility of a structure. Effective age will not always be the same as actual age. Structures with better than average maintenance, remodeling or modernization will have an effective age less than the actual age. On the other hand, structures with poor maintenance that have not been remodeled or modernized will have an effective age greater than the actual age. Economic life is the period of time over which a structure contributes to property value. This concept can be stated as: effective age divided by economic life equals percent physical depreciation.

Schedules have been developed for improvements with typical economic lives of various lengths. The schedules reflect what is considered typical for a structure at a certain effective age. The schedules are based on generally accepted sources and are modified for local conditions by extracting depreciation directly from the market. However, scheduled depreciation may be overridden with a percent good to account for the condition of otherwise similar structures that depreciate at lesser or more rapid rates than what is considered to be typical

C. Market Area Adjustments for Single Family/Rural Residential

The district's primary approach to value for residential properties uses a hybrid cost- sales comparison approach that accounts for market area influences not otherwise specified in the cost approach as it is applied at large. Market area influence adjustments are needed to trend values produced by the cost approach closer to actual sales prices of property within a given market area. The sales used to determine the market area adjustment will reflect the market influences and conditions only for the specified area.

Market area adjustments are made on the basis of sales to appraisal ratios studies that compare recent sales prices of properties within a delineated area with the properties' value as determined by the cost approach. The ratios derived from dividing the appraisal district's cost approach values by the sales prices will indicate the level of appraisal currently produced by the at large cost approach. The appropriate area adjustment, whether upward or downward, is then applied to trend the appraised values closer to actual market value as evidenced by the recent sales prices within the area. Once the area adjustment is applied, a second ratio study is conducted to compare the proposed appraised values with the recent sales prices. From this study, a final market area adjustment is selected and applied uniformly to all properties within the area including sold and unsold properties.

D. Summary of Models for Single Family/Rural Residential

The following formula describes the single family residential/rural residential model:

$$MV = LV + MAA[(RCN - D)]$$

Where:

MV	= Market Value
LV	= Land Value
MAA	= Market Area Adjustment
RCN	= Replacement Cost New
D	= Depreciation

E. Model Calibration for Single Family/Rural Residential

Model calibration of the single family residential/rural residential model involves the selection of the appropriate RCN, economic life and market area for each type or class of property.

IV. MULTI-FAMILY RESIDENTIAL

A. Specification of Models for Multi-Family Residential-Income

The models for multi-family residential p r o p e r t i e s specify the income approach.

When the income approach is used, Sec. 23.012 requires the appraiser **to:**

1. Analyze comparable rental data or the potential earnings capacity of the property, or both, to estimate the gross income potential of the property;

2. Analyze comparable operating expense data to estimate the operating expenses of the property;

3. Analyze comparable data available to estimate rates of capitalization or rate of discount;

4. Base projections of future rent or income potential and expenses on reasonable clear and appropriate evidence;

5. To consider, in developing income statements and cash flow projections, historical information and trends; current supply and demand factors affecting these trends; current supply and demand factors affecting these trends; and anticipated events such as competition from other similar properties under construction.

Rents, expenses and vacancy rates are obtained from a market analysis.

Allowable expenses occur in three categories: fixed expenses, variable expenses and replacement allowances. An example of a fixed expense is hazard insurance. Examples of variable expenses are utilities and janitorial services. Replacement allowance provide for   the   replacement   of building components that wear out more rapidly than the building itself and must be replaced periodically during the buildings useful life such as heating and cooling systems.

An overall capitalization rate reflecting a satisfactory rate or return for the investor, recapture of capital and property taxes is used.

B. Summary of Model for Multi-Family Residential-Income

The following formula describes the model for multi-family properties:

$$PGI - V/C = EGR$$
$$EGR + SI = EGI$$
$$EGI - OPEX = NOI$$
$$NOI / CR = MV$$

Where:

PGI = potential gross income
V/C = vacancy/collection loss
EGR = effective gross rent
SI = secondary income

EGI = effective gross income
OPEX = operating expenses
NOI = net operating income
CR = capitalization rate
MV = market value

C. Model Calibration for Multi-Family Residential-Income

Model calibration for the multi-family residential involves the selection of the appropriate capitalization rate and the adjustment of the projected net income to reflect the characteristics of the subject property.

D. Specification of Model for Multi-Family-Cost

The models for multi-family properties specify the income approach with a secondary use of the cost approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for a property than the price of acquiring a vacant site and constructing a substitute building of equal utility, assuming no costly delays in construction.

Land values are specified by a sales comparison approach. An analysis of vacant land sales is conducted and schedules using front foot, square foot, and acreage or per lot values are developed. Schedule driven values may be modified for shape, size, topography, etc.

For multi-family residential properties, improvements are stratified into similar groups since there is a different market for each group. Specifically, properties are classified by the following characteristics: 1) Exterior wall cove --- brick veneer or frame; 2) Quality of construction based on typical building specifications for each class; and 3) Square footage of living area.

Replacement cost new (RCN) for living area is expressed in terms of cost per square foot. Building component cost for items in excess of the base cost for a class, such as fireplaces or bathrooms, are expressed in a lump sum basis. The RCN for building additives such as CHCA, garages and porches are expressed in terms of square foot cost based on a percentage of the base cost for the living area. Other structures such as outbuildings are expressed on a per square foot basis or on a lump sum contributory basis. RCN as specified by Marshall & Swift Valuation Service for different levels of quality of construction, exterior characteristics and different sizes is determined. A local modifier is determined by analyzing a group of sold properties consisting of new construction or relatively new construction and then applied to the Marshall & Swift Valuation Service indicated costs. The schedule costs may be overridden to account for atypical features or characteristics not adequately addressed by the benchmark cost system.

E. Depreciation for Multi-Family

Depreciation is the loss in value from the replacement cost of an improvement due to physical deterioration, functional obsolescence and economic obsolescence.

Depreciation for commercial properties is based on an age-life method of depreciation that uses effective age and economic life. Effective age is the age indicated by the condition and utility of a structure. Effective age will not always be the same as actual age.

Structures with better than average maintenance, remodeling or modernization will have an effective age less than that of the actual age. On the other hand, structures with poor maintenance that have not been remodeled or modernized will have an effective age greater than the actual age. Economic life is the period of time over which a structure contributes to property value. This concept can be stated as: effective age divided by economic life equals percent physical depreciation.

F. Market Area Adjustments for Multi-Family

Since multi-family properties (apartments) compete in a county-wide market there are no market areas established for multi-family properties.

G. Summary of Cost Model for Multi-Family

The following formula describes the cost model for multi-family:

MV = LV + [(RCN - D)]

Where:

MV = Market Value
LV = Land Value
R C N = Replacement Cost New
D = Depreciation

H. Model Calibration for Multi-Family-Cost

Model calibration of the multi-family cost model involves the selection of the appropriate RCN and economic life for each type or class of property.

V. COMMERCIAL

A. Specification of Models for Commercial

The models for commercial properties specify the cost approach with a secondary use of the income approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for an improved property than the price of acquiring a vacant site and constructing a substitute building of equal utility, assuming no costly delays in construction.

Land values are specified by the sales comparison approach. An analysis of vacant land sales is conducted and a series of schedules using front foot, square foot, and acreage or per lot unit values are developed. Schedule driven values may be modified for shape, size topography or other factors.

For commercial properties, improvements are classified by the following since there is a different market for each group: 1) Use types for which they were designed such as office and retail; 2) Construction types which refer particularly to the materials used in the exterior walls and frame; 3) Quality of construction. RCN is expressed in terms of cost per square foot. The RCN for building additives such as garages and porches is expressed in terms of square foot cost based on a percentage of the base cost for the main area or a per square foot unit special price. Other structures such as outbuildings are expressed on a cost per square foot basis or on a lump sum contributory basis. RCN as specified by Marshall & Swift Valuation Service for different levels of quality of construction, exterior characteristics and different sizes is determined. A local modifier is determined by analyzing a group of sold properties consisting of new construction or relatively new construction and then applied to the Marshall & Swift Valuation Service indicated costs. The schedule costs may be overridden to account for atypical·features or characteristics not adequately addressed by the benchmark cost system.

B. Depreciation for Commercial

Depreciation is the loss in value from the replacement cost of an improvement due to physical deterioration, functional obsolescence and economic obsolescence.

Depreciation for commercial properties is based on an age-life method of depreciation that uses effective age and economic life. Effective age is the age indicated by the condition and utility of a structure. Effective age will not always be the same as actual age. Structures with better than average maintenance, remodeling or modernization will have an effective age less than that the actual age. On the other hand, structures with poor maintenance that have not been remodeled or modernized will have an effective age greater than the actual age. Economic life is the period of time over which a structure contributes to property value. This concept can be stated as: effective age divided by economic life equals percent physical depreciation.

C. Market Area Adjustments for Commercial

Since commercial properties compete in a county-wide market there are no market areas established for commercial properties.

D. Summary of Cost Model for Commercial

The following formula describes the cost model for commercial:

$$MV = LV + [(RCN - D)]$$

Where:

MV	= Market Value
LV	= Land Value
RCN	= Replacement Cost New
D	= Depreciation

E. Model Calibration for Commercial-Cost

Model calibration of the commercial cost model involves the selection of the appropriate RCN and economic life for each type or class of property.

The income approach is used on commercial properties where the value of the property is based upon its ability to generate income over a period of time. Typically the income approach is applied to commercial properties such as offices and retail.

When the income approach is used, Sec. 23.012 requires the appraiser **to:**

1. Analyze comparable rental data or the potential earnings capacity of the property, or both, to estimate the gross income potential of the property;

2. Analyze comparable operating expense data to estimate the operating expenses of the property;

3. Analyze comparable data available to estimate rates of capitalization or rate of discount;

4. Base projections of future rent or income potential and expenses on reasonable clear and appropriate evidence;

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5. To consider, in developing income statements and cash flow projections, historical information and trends; current supply and demand factors affecting these trends; current supply and demand factors affecting these trends; and anticipated events such as competition from other similar properties under construction.

Rents, expenses and vacancy rates are obtained from a market analysis.

Allowable expenses occur in three categories: fixed expenses, variable expenses and replacement allowances. An example of a fixed expense is hazard insurance. Examples of variable expenses are utilities and janitorial services. Replacement allowance provide for   the   replacement   of building components that wear out more rapidly than the building itself and must be replaced periodically during the buildings useful life such as heating and cooling systems.

An overall capitalization rate reflecting a satisfactory rate or return for the investor, recapture of capital and property taxes is used.

F. Summary of Income Model for Commercial:

The following formula describes the income model used for commercial:

PGI – V/C   = EGR
EGR + SI   = EGI
EGI – OPEX   = NOI
NOI / CR   = MV

Where:
PGI   = potential gross income
V / C   = vacancy/collection loss
EGR   = effective gross rent
SI   = secondary income
E G I   = effective gross income
O P EX   = operating expenses
NOI   = net operating income
C R   = capitalization rate
MV   = market value

G. Model Calibration for Commercial-Income

Model calibration for the commercial income model involves the selection of the appropriate capitalization rate and the adjustment of the projected net income to reflect the characteristics of the subject property.

VI. RURAL - MISCELLANEOUS

A. Specification of Models for Miscellaneous Rural

The models for miscellaneous rural properties specify the cost approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for an improved property than the price of acquiring a vacant site and constructing a substitute building of equal utility, assuming no costly delays in construction.

Rural acreage tracts are classified into different groups based on 1) Location; 2) Physical characteristics; and 3) Acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis. Values are modified by road factors and may be further modified for shape, topography, or other factors

For miscellaneous rural improvements, use type, quality of construction and size are considered. Replacement cost new (RCN) is expressed in terms of cost per square foot area. Relatively insignificant structures may be valued on a lump sum contributory basis. RCN for different levels of quality of construction, exterior characteristics and different sizes is determined from generally accepted sources.

B. Depreciation for Miscellaneous Rural

Depreciation is the loss in value from the replacement cost of an improvement due to physical deterioration, functional obsolescence and economic obsolescence.

Depreciation of miscellaneous rural improvements is based on an age-life method of depreciation that uses effective age and economic life. Effective age is the age indicated by the condition and utility of a structure. Effective age will not always be the same as actual age. Structures with better than average maintenance, remodeling or modernization will have an effective age less than that the actual age. On the other hand, structures with poor maintenance that have not been remodeled or modernized will have an effective age greater than the actual age. Economic life is the period of time over which a structure contributes to property value. This concept can be stated as: effective age divided by economic life equals percent physical depreciation.

C. Market Area Adjustments for Miscellaneous Rural

There have been no market areas identified concerning valuations of miscellaneous rural improvements.

D. Summary of Model for Rural Miscellaneous

The following formula describes the model used for miscellaneous rural:

MV = LV + (RCN-D)]

Where:

MV	= Market Value
LV	= Land Value
RCN	= Replacement Cost New
D	= Depreciation

E. Calibration of Model for Rural Miscellaneous

Model calibration of the rural miscellaneous model involves the selection of the appropriate RCN and economic life for each type or class of property.

VII. MANUFACTURED HOUSING/MOBILE HOMES

A. Specifications of Model for Manufactured Housing/Mobile Homes

The models for mobile homes specify the cost approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for an improved property than the price of acquiring a vacant site and constructing a substitute building of equal utility, assuming no costly delays in construction.

Land models are specified by the sales comparison method as follows:

1. Rural acreage tracts are classified into different groups based on 1) Location; 2) Physical characteristics; 3) Acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis. Values are modified by road factors and may be further modified for shape, topography, or other factors.

2. Subdivision acreage tracts are classified by neighborhood and acreage size. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a per acre basis and may be further modified for shape, topography, or other factors.

3. Lots are classified by neighborhood and front footage or square footage. An analysis of vacant real property sales is conducted and then a series of land schedules are developed. Values for these properties are expressed on a front foot basis or square foot basis. Land values may be further modified on the basis of shape, size, topography, and other factors.

Mobile homes are stratified into similar groups based on construction quality and size.

Replacement cost new (RCN) for living area is expressed in terms of cost per square foot. Building component cost for items in excess of the base cost for a class, such as fireplaces or bathrooms, are expressed in a lump sum basis. The RCN for building additives such as CHCA, garages and porches are expressed in terms of square foot cost. Other structures such as outbuildings are expressed on a cost per square foot basis or on a lump sum contributory basis. RCN as specified by Marshall & Swift Valuation Service for different levels of quality of construction, exterior characteristics and different sizes is determined. A local modifier is determined and then applied to the Marshall & Swift Valuation Service indicated costs. The schedule costs may be overridden to account for atypical features or characteristics not adequately addressed by the benchmark cost.

B. Depreciation for Manufactured Housing/Mobile Homes

Depreciation is the loss in value from the replacement cost of an improvement due to physical deterioration, functional obsolescence and economic obsolescence.

TCAD's mobile home depreciation tables are based on an age-life method of depreciation that uses effective age and economic life. Effective age is the age indicated by the condition and utility of a structure. Effective age will not always be the same as actual age. Structures with better than average maintenance, remodeling or modernization will have an effective age less than that the actual age.

On the other hand, structures with poor maintenance that have not been remodeled or modernized will have an effective age greater than the actual age. Economic life is the period of time over which a structure contributes to property value. This concept can be stated as: effective age divided by economic life equals percent physical depreciation.

Schedules have been developed for improvements with typical economic lives of various lengths. The schedules reflect what is considered typical for a structure at a certain effective age. The schedules are based on generally accepted sources and are modified for local conditions by extracting depreciation directly from the market. However, scheduled depreciation may be overridden with a percent good to account for the condition of otherwise similar structures that depreciate at lesser or more rapid rates than what is considered to be typical.

C. Market Area Adjustments for Manufactured Housing/Mobile Homes

The district's primary approach to value for residential properties uses a hybrid cost/sales comparison approach that accounts for market area influences not otherwise specified in the cost approach as it is applied at large. Market area influence adjustments are needed to trend values produced by the cost approach closer to actual sales prices of property within a given market area. The sales used to determine the market area adjustment will reflect the market influences and conditions only for the specified area.

Market area adjustments are made on the basis of sales to appraisal ratios studies that compare recent sales prices of properties within a delineated area with the properties' value as determined by the cost approach. The ratios derived from dividing the appraisal district's cost approach values by the sales prices will indicate the level of appraisal currently produced by the at large cost approach. The appropriate area adjustment, whether upward or downward, is then applied to trend the appraised values closer to actual market value as evidenced by the recent sales prices within the area. Once the area adjustment is applied, a second ratio study is conducted to compare the proposed appraised values with the recent sales prices. From this study, a final market area adjustment is selected and applied uniformly to all properties within the area including sold and unsold properties.

D. Summary of Models for Manufactured Housing/Mobile Homes

The following formula denotes the formula generally used for mobile home properties:

$$MV = LV + MAA [(RCN - D)]$$

Where:

MV	= Market Value
LV	= Land Value
MAA	= Market Area Adjustment
RCN	= Replacement Cost New
D	= Depreciation

E. Calibration of Model for Manufactured Housing/Mobile Homes

Model calibration of the mobile home model involves the selection of the appropriate RCN and economic life for each type or class of property.

VIII. SPECIAL VALUATION PROPERTIES

A. Model Specifications for Special Valuations Properties

Special valuation properties (ag-use and timber-use properties) are valued according to their productivity value in accordance with provision of Sec 23 Property tax Code.

Ag use properties are classified into categories such as native pasture and improved pasture. For each category a net-to-land is determined. Net to land means the average annual net income derived from the use of the land that would have been earned from the   land during the five year period preceding the year before the appraisal by an owner using ordinary prudence in the management of the land. The net to land is calculated by considering cash lease income less expenses for property taxes, fencing, and management. The net to land is then divided by a statutory capitalization rate to arrive at a value.

Timber use properties are classified according to forest type (pine, hardwood, mixed and by soil types (Class I, II, III, IV). A net to land is determined for each category. Net to land means the average net income that would have been earned by the land or the five preceding five years by a person using ordinary prudence in the management of the land. The net to land for each year is determined by multiplying the land's potential average annual growth rate, expressed in tons, by the stumpage value, expressed in price per ton, of large pine sawtimber, small pine sawtimber, pine pulpwood, hardwood sawtimber, hardwood pulpwood, and any other significant timber product and by then subtracting from the product reasonable management costs and other reasonable expenses directly attributable to the production of timber. The net to land is divided by a statutory   capitalization rate to arrive at a value.

B. Market Areas for Special Use Properties

Special use properties participate in a regional market and no market areas are established for them.

C. Summary of Models for Special Use Properties

The following formula describes the model for special use properties:

> **AV = NTL/CR**

> Where:
> | | |
> |---|---|
> | AV | = Assessed Value |
> | NTL | = Net to land |
> | CR | = Capitalization rate |

D. Calibration of Model for Special Use Properties

Calibration of the model for special use properties involves selection of the appropriate land class for the type of property being appraised.

IX.   BUSINESS PERSONAL PROPERTY - COMMERCIAL

A. Model Specifications for Business Personal Property

The cost approach is specified for business personal property. The district's primary approach to the valuation of business personal property is the cost approach. The cost approach is based on the principle of substitution: an informed buyer will pay no more for the property than the price of acquiring a substitute property of equal utility.

Business personal property is generally classified according to use types to identify businesses having common attributes such as convenience stores, auto parts stores, etc. Then the property is grouped into two principal categories: 1) furniture, fixtures and equipment (FFE); and 2) inventory. Other categories may include leased equipment, supplies, consigned goods, and vehicles.

Business personal property is valued at its current level of trade. The valuation of business personal property recognizes three distinct levels of trade: manufacturing, wholesale and resale. Incremental costs are added to a product as it advances from one level of trade to the next, increasing its value along the way.

The historical (RCN) for FF&E is generally developed from information that the property owner furnishes to the district by filing renditions or other reports Costs may be expressed on a comparative unit basis (per square foot). Costs may also be expressed in terms of individual assets or groups of assets where a comparative unit basis is not applicable. If the cost information is not provided by the owner or is unacceptable, the cost is estimated using costs reported for assets of similar businesses that are deemed to have provided accurate and complete information, the Comptroller's latest available business personal property cost schedules, published cost schedules or other generally accepted sources of cost data.

Inventory values are based on information the property owner reports in a rendition or other data reported for similar businesses. Additionally, other generally accepted sources of published data may be used. Inventories may include raw materials, goods in progress and finished goods (or goods held for resale). The market of inventory is the price for which it would sell as a unit to a purchaser who would continue the business. Inventory values may be expressed on a comparative unit basis (per square foot) or expressed in terms of a total value where a comparative unit basis is not applicable.

Vehicle values are based on values provided by a vendor and property owner rendition information.

Values for dealer inventory properties are determined on the basis of inventory and declaration reports they file in accordance with the previously listed sections of the Property Tax Code addressing dealer inventory valuation.

B. Depreciation for Business Personal Property

The district uses index factors, based on generally accepted published sources, to trend historical costs. Percent good depreciation factors are also based on generally accepted sources. The index factors and percent good factors are used to develop a present value factor (PVF) by year of acquisition as follows: **PVF = Index Factor X Percent Good Factor**. Then, **Historical Cost X PVF = Market Value**. The district's PVF table establishes a schedule of economic lives for assets that can be applied against a specific asset or a category of FFE such as convenience store or fast food. The appropriate economic life is selected and the PVF for the year of acquisition is applied.

A depreciation override may be applied if the condition or effective age of a property cannot be adequately accounted for in the benchmark depreciation system. Also, adjustments for functional and economic obsolescence may be made if warranted.

C. Market Areas for Business Personal Property

Business personal property participates in a county-wide market and no market areas are established for this type of property.

D. Summary of Models for Business Personal Property

The following formula describes the business personal property model:

$$MV = RCN - D$$

Where:

MV   = Market Value
RCN   = Replacement Cost New
D   = Depreciation including physical, functional and economic

E. Calibration of Model for Business Personal Property

Model calibration of the business personal property model involves the selection of the appropriate RCN and economic life for each type or class of property.

X. RECONCILIATION

Consideration and Reconciliation of Approaches to Value

All three approaches to value, cost sales comparison and income, are considered for all property types. The most appropriate approach is selected and used. In reconciling multiple models that may be appropriate for a property, the model results that best address the individual characteristics of the subject property while maintaining equal and uniform appraisal among similar properties is selected.

XI. INDIVIDUAL PROPERTY FIELD REVIEW

A. New Construction/Demolition/Remodeling

Field and review procedures for new construction, demolition and remodeling are identified and revised as required. Field production standards are monitored. Only reliable sources of information concerning new construction, demolition and remodeling are used. This critical annual activity is incorporated and entered on the key events calendar for each tax year. All areas, inside and outside of the designated reinspection zones, are annually inspected on a generalized basis to address new improvements, demolition, remodeling, and other updates to property characteristics.

B. Reinspection of Problematic Market Areas/Property Types/Properties

Property types, market areas, and individual properties that fall outside of the normal range of generally accepted statistical measures are determined to be problematic. Field reviews are scheduled to verify and/or correct property characteristic data. Sales confirmation data is re- verified and additional sales data is researched.

C. Reinspection of the Universe of Properties

Sec. 25.18 of the Texas Property Tax Code requires a reinspection of the universe of properties at least once every three years. The plan calls for re-inspection, as defined in Sec. 28.15(b)(1), every two years. The inspection requirements for tax years 2017 and 2018 are identified and scheduled on the key events calendar and map which is attached to this report, but delayed due to problems with the MARS to PACS CAMA conversion and implementation.

Additionally, all areas, inside and outside of the designated reinspection zones are annually inspected on a generalized basis to address new improvements, demolition, remodeling, and other updates to property characteristics. Finally, a reinspection of any property may be conducted at any time, if deemed necessary to verify property characteristic data.

XII. OFFICE REVIEW

Office reviews of certain neighborhoods, samples of properties, and individual properties are also conducted to the extent possible under the circumstances listed above. Sample selections of properties are made and reviewed for unusual differences in dollar amount or percentage change from the previous year's value so that these anomalies may be researched and resolved so that individual value conclusions will meet standards of reasonableness, consistency and accuracy.

XIII. PERFORMANCE TESTING

Appraisal to sales ratio studies for real property are conducted to determine if a reappraisal is required, to determine how accurately specified and calibrated mass appraisal models are, and to measure appraisal performance. The key elements in the sales ratio studies are the median level of appraisal, the mean, the weighted mean, the coefficient of dispersion, and the price related differential. Sales ratio studies are conducted in accordance with the IAAO *Standard on Ratio Studies*, and the TCAD guidelines and procedures for conducting ratio studies. In regard to business personal property, samples of properties are checked against individual properties that have highly reliable values, generally those resulting from renditions, to determine how accurately the models are performing. Published in the year following odd numbered years, the preliminary results of the 2017 appraisal to sales ratio study may be summarized as follows: median = 0.93; and coefficient of dispersion = 19.29.

XIV. INDEPENDENT PERFORMANCE TESTING

Pursuant to Chapter 5 of the Texas Property Tax Code and Sec. 403.302 of the Texas Government Code, the State Comptroller's Property Tax Assistance Division (PTAD) conducts a property value study (PVS) of each school district and appraisal district in Texas every other year. The PVS: 1) Measures appraisal performance; and 2) Establishes an estimate of total value for school districts that is used in the distribution of state funding for public education. The PVS compares the appraisal district's values to PTD values that are established by sales price or independent appraisals. The PTD is required to use recognized statistical sampling techniques; review each appraisal district's appraisal methods, standards and procedures; test the validity of school district taxable values; and test the level and uniformity of appraisal in each appraisal district. The methodology used in the PVS includes stratified samples to improve sample representativeness. The PVS reports a number of measures including the median level of appraisal, coefficient of dispersion and price-related differential for properties overall and by property category. The TCAD staff reviews and analyzes t h e PVS results.

XV. CAPITOL APPRAISAL GROUP LLC

A. Introduction

Capitol Appraisal Group, LLC is a mass appraisal firm specializing in the appraisal of complex properties for appraisal districts in Texas. In this role Capitol Appraisal recommends to its client appraisal districts appraised values for selected properties. The recommended values are intended to be used by each appraisal district as part of the tax base of the taxing jurisdictions served by the appraisal district. For the 2018 tax year, Capitol Appraisal Group, LLC was employed by more than 65 Texas appraisal districts.

B. Scope of Responsibility

The specific responsibilities of Capitol Appraisal to the appraisal district are described in the contract between them. Capitol Appraisal's general responsibilities are to discover certain types of property, as required; to inspect the subject properties, where possible; and to appraise the properties or classes of property that are listed in the contract. An owner name and address record is also maintained for each property that is appraised. This set of services is typically provided to all of Capitol Appraisal's appraisal clients. These services are also typically supplied to other Texas appraisal districts by competing mass appraisal firms. Appraisal techniques and model types employed by Capitol appraisal are similar to and/or derived from techniques and model types found in a variety of appraisal texts and appraisal courses.

C. Types of Property

In general, Capitol Appraisal Group, LLC is retained by appraisal districts to appraise one or more of the following types of property:

> Oil and Gas Reserves
> Industrial Property, Real and Personal
> Utility, Railroad, and Pipeline Properties
> Special Purpose Improvements
> General Real Estate
> Business Personal Property

Attached to this report are individual revaluation reports for each type of property that Capitol Appraisal Group, LLC appraises for the appraisal district to which this report has been submitted.

D. Personnel Resources

Capitol Appraisal maintains a staff that is skilled in appraisal, engineering, finance, information services, and property tax administration. All staff members participating in appraisal assignments are involved in a program of continuously improving his or her mass appraisal skills. Appraisal staff members are either advancing towards designation as a Registered Professional Appraiser by the Texas. Department of Licensing and Regulation or, if they already hold such a designation, attend various classes and conferences designed to supplement their knowledge and abilities.

A list of staff members is included on the certification page of this report. Also attached is a list of staff members who appraise property for the appraisal district to which this report has been submitted. These staff members should be considered to have provided significant mass appraisal assistance. In general, the appraiser assigned to appraise a particular property is responsible for inspecting the property, analyzing it for characteristics that have a significant impact on value, gathering appropriate data, model development and model calibration, and arriving at an opinion of value. Centering these functions in the same appraiser tends to ensure that data that would have a material or significant effect on the resulting opinions or conclusions are correctly identified. The individual appraiser is involved in calibrating model structures to determine the contribution of the individual characteristics affecting value, applying the conclusions reflected in the model to the characteristics of the properties being appraised, and reviewing his or her results. The list of properties assigned to each individual appraiser is maintained in the appraisal files at Capitol Appraisal Group, LLC.

XVI. OIL AND GAS RESERVES

SUMMARY REEVALUATION PROGRAM REPORT OIL AND GAS RESERVES
CAPITOL APPRAISAL GROUP

A. 2018 - Overview

Capitol Appraisal Group, LLC (CAGI) contracts with Appraisal Districts and other governmental entities to appraise all oil & gas subsurface, producing, mineral interests within the purview of the entity. The contractual purpose is to estimate market value as defined in Section 1.04 of the Texas Property Tax Code as of January 1 of each year and report these values to the entity. The results of our work are used as part of the tax base upon which property taxes are levied. Each mineral interest is listed on the appraisal roll separately from other interests in the minerals-in-place in conformance with the Texas Property Tax Code Sec. 25.12. Subsurface mineral rights are not susceptible to physical inspection. This condition creates the need to invoke the Departure Provision as required by the 2016-2017 edition of the *Uniform Standards of Professional Appraisal Practice* Standards Rule 6-7 (f). However, the inability to physically examine the sub-surface mineral rights does not appreciably affect the appraisal process or the quality of the results.

B. Assumptions and Limiting Factors

All appraisals are subject to the following:

1. Title to the property is assumed to be good and marketable and the ownership interest and legal description is assumed to be correct.
2. No responsibility for legal matters assumed. Properties appraised as if free and clear of encumbrances; and operated under responsible and competent ownership/ management.
3. Not every property is inspected every year.
4. All information in the appraisal documents has been obtained by Capitol Appraisal Group's employees or through other reliable sources.
5. The appraisals were prepared exclusively for ad valorem tax purposes

C. Data Collection

Data on the properties appraised are collected from regulatory agencies, such as the Texas Railroad Commission and the Texas Comptroller of Public Accounts, from submissions by the property operator or owner(s), or from other sources. Submitted data from operators, taxpayers and/or their agents on the appraised properties are considered "rendition statements" and, as such, are confidential data, subject to Sec. 22.27 of the Texas Property Tax Code. Additional data are obtained through published sources, regulatory reports, public investment reports, licensed data services, service for fee organizations and through comparable properties, if any. The state of Texas is a non-disclosure state and thus many forms of information, pertinent to the value of the properties, are not available to the appraiser.

D. Valuation and Analysis

The Income Method of Appraisal, as described in Section 23.012 of the Texas Property Tax Code, is the principal appraisal method used. The Market Data Comparison Method of Appraisal (section 23.013) and the Cost Method of Appraisal (section 23.011) are considered. Industry averages of reserve replacement cost and acquisition cost are used for comparative purposes. The non-disclosure nature of the laws of Texas makes market data comparison unreliable. However, if within the scope of Capitol's work assignment market sales disclosures on interests are available, then those data is considered. The nearly exclusive reliance on the income approach, using the discounted cash flow (DCF) technique adjusted for specific property risk and market conditions, is typical of the oil and gas industry. Fee for service organizations are used for survey data with respect to price expectations and discount rates, and licensed data services are used for Industry indicators detailing costs, income, acquisitions costs in dollars per barrel of oil equivalent ($/BOE), finding and development costs ($/BOE) and reserve replacement costs ($/BOE) for over 100 E&P companies.

Due to the demands of Section 23.175 of the Texas Property Tax Code and the Texas Constitution, Capitol Appraisal Group, LLC takes great care to not appraise properties in excess of their fair market value. We analyze a segment of the Petroleum Producing E&P market, determining the impact on their stock and debt value of the pricing requirements of Sec. 23.175 and also the pricing that could be reasonably anticipated from the market. Capitol Appraisal Group LLC's opinion of oil and gas prices is guided by the market's anticipation of those prices through the futures market, oil and gas stock prices and oil and gas industry indexes. A base discount rate is developed using the Securities and Exchange Commission (SEC) 1 0 K Standard Measure of Value, Before Federal Income Tax (BFIT), for a grouping of 20 Exploration and Production (E&P) companies, and then matching their 10k Standard Measure of Value (BFIT), reserves and costs, through a discounted cash flow (DCF) technique. This reserve and cost match is used with Capitol's developed pricing scenario and Section 23.175 pricing directives to determine a discount rate necessary to equal the stock and debt value of the companies, as of January 1 for a given tax year.

The Weighted Average Cost of Capital (WACC) technique is also performed for a subset of these companies grouped according to the Petroleum Producing Industry Exploration and Production companies used in the *The Valueline Investment Survey.* These separate pricing scenarios and the resulting discount rates derived from using the aforementioned stock and debt techniques are applied to the universe of oil and gas properties we appraise. In seeking to avoid appraising any oil and gas property above its fair cash market value, Capitol Appraisal employs a market adjustment factor (MAF) to its base discount rate in order to apply property specific risk(s). These factors, which create a wide range of discount rates for the properties that Capitol appraises, are necessary to equitably evaluate disparate leases with respect to remaining reserves, price and costs. By performing two DCF income approach appraisals on each property, Capitol Appraisal provides clients with our opinion of market value, while always endeavoring to guard against appraising a mineral lease at greater than its fair cash market value. [A jurisdictional exception to the Discounted Cash Flow technique, as this process is described in the Statement on Appraisal Standards #2, 2003 edition of the Uniform Standards of Professional Appraisal Practice, must be taken.

Section 23.175(a) of the Texas Property Tax Code both specifies the directives concerning oil and gas pricing that appraisal districts in Texas must follow and also that each appraisal district must adhere to procedure and methodology contained in manuals developed by the Property Tax Assistance Division (PTAD) of the Texas Comptroller of Public Accounts. Because adherence to this Property Tax Code directive, without discretion, can result in values greater than fair cash market value, we must express caution.]

The resulting oil and gas lease value is then allocated to each owner on the lease based upon his fractional mineral ownership interest. Royalty and working interests have different impacts on their respective values, since only working interests bear the costs of lease operation. Therefore royalty mineral interest owner's values are allocated from 100% of the appraised royalty value of the lease, according to their fractional royalty interest, while the working interest owner's value(s) are allocated from 100% of the determined working interest value of the lease, according to their fractional working interest.

E. Review and Testing

Each year we review the estimated market value for each mineral property appraised according to its year-to-year value change and also to industry expected payouts and income indicators. We also examine income projected to be received with the previous year's income and test that income against the lease's appraised value. Market value for income producing properties is a multiple of its monthly or annual income. Our experience through the years indicates that values typically vary within in a range of 2-5 times income, provided all appropriate income factors have been appropriately identified. Periodic reassignment of properties among appraisers and review of appraisals by a more experienced appraiser also contribute to the review process.

Application of appraisal-to-sales ratios is another method for measuring performance. However, single property sales or sales of interest(s) within a property remain difficult to obtain due Texas' disclosure laws. Furthermore, many market transactions are normally for multiple properties in multiple areas and include both real and personal property, tangible and intangible. We access licensed databases providing statistical data for company and property sales to compare our efforts. We also measure our performance through comparison of valid single-property market transactions, if any, that are submitted for staff review. Lastly, Capitol Appraisal's mineral appraisal values are subject to review each year in the Property Value Study conducted by the Property Tax Assistance Division of the Texas Comptroller of Public Accounts. The Property Tax Assistance Division's review as well as comparisons to industry transactions and to single-property market value sales (when available), indicate the validity of the models, techniques and assumptions used.

XVII. INDUSTRIAL - REAL

SUMMARY REVALUATION PROGRAM REPORT INDUSTRIAL PROPERTY APPRAISED BY CAPITOL APPRAISAL GROUP, LLC

A. 2018 - Overview

This type of property consists of processing facilities and related personal property. Capitol Appraisal Group, LLC is contracted to reappraise this type of property according to the scope of work in the normal course of business of the client consistent with the *Uniform Standards of Professional Appraisal Practice* guidelines. The completed appraisals are all retrospective in nature. The purpose of the appraisals is to estimate market value as of January 1 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

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

The effective date of the appraisals is January 1 of the year for which this report is submitted unless the property owner or agent has applied for and been granted September 1 inventory valuation as allowed by Section 23.12(t) of the Texas Property Tax Code. The date of this report is May 15 of the tax year for which it is submitted.

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

The appraisal results will be used as the tax base upon which a property tax will be levied. The properties are appraised in fee simple in conformance with the Texas Property Tax Code Sec. 25.06. This is a jurisdictional exception to the Standards Rule 6-5(c). Comment of the *Uniform Standards of Professional Appraisal Practice*. A listing of the industrial properties appraised by Capitol Appraisal Group LLC for the appraisal district is available at the appraisal district office. Industrial properties are normally re-inspected annually.

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

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

B. Assumptions and Limiting Conditions

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

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

C. Data Collection and Validation

Data on the subject properties is collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other modes which require confidentiality. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties, if any. Due to the unique nature of many industrial properties there is no standard data collection form or manual.

D. Valuation Approach and Analysis

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

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

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

The mathematical form of each model is described below.

1. Cost Approach

Where:

RCN	RCN	= Replacement or Reproduction Cost New
-PD	PD	= Physical Depreciation
-FO	FO	= Functional Obsolescence
-EO	EO	= Economic Obsolescence
		= Cost Indicator of Value

2. Income Approach

NOI/R = Income Indicator of Value

Where:

PGR	PGR	= Potential Gross Rent
-VCL	VCL	= Vacancy and Collection Loss
-FE	FE	= Fixed Expenses
-VE	VE	= Variable Expenses
=NOI	NOI	= Net Operating Income
/R	R	= Discount Rate or Cost of Capital
		= Income Indicator of Value

A variation of the income model is:

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

Where:

DF = Discount Factor
PW = Present Worth
n = Last year of holding period

3. Market Data Approach

ASPCPIU=PU
PU x SU = Market Data Indicator of Value

Where:

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

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

Land valuation for industrial properties is the responsibility of appraisal district staff as is the highest and best use analysis of the site. Sites are analyzed for highest and best use as though they were vacant. Highest and best use analysis of the improvements is based on the likelihood of the continued use of the improvements in their current and/or intended use. An appraiser's identification of a property's highest and best use is always a statement of opinion, never a statement of fact.

E. Review and Testing

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

Appraisal-to-sales ratios are the preferred method for measuring performance, however sales are very infrequent. Furthermore, market transactions normally occur for multiple sites and include real and personal property, tangible and intangible, making analysis difficult and subjective. Performance is also measured through comparison with valid single-property appraisals submitted for staff review. Lastly, Capitol Appraisal Group's industrial appraisal methods and procedures are subject to review by the Property Tax Assistance Division of the Texas Comptroller's office. The Comptroller's review as well as comparisons with single-property appraisals indicate the validity of the models and the calibration techniques employed.

XVIII. UTILITY, RAILROAD, and PIPELINE

SUMMARY REVALUATION PROGRAM REPORT UTILITY, RAILROAD, AND PIPELINE PROPERTIES APPRAISED BY CAPITOL APPRAISAL GROUP, LLC

A. 2018 - Overview

This type of property consists of operating property, excluding land, owned by utility, railroad and pipeline companies, and related personal property and improvements. Capitol Appraisal Group, LLC is contracted to reappraise this type of property according to the scope of work in the normal course of business of the client consistent with the *Uniform Standards of Professional Appraisal Practice* guidelines. The completed appraisals are all retrospective in nature.

The purpose of the appraisals is to estimate market value as of January 1 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

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

The effective date of the appraisals is January 1 of the year for which this report is submitted unless the property owner or agent has applied for and been granted September 1 inventory valuation as allowed by Section 23.12(f) of the Texas Property Tax Code. The date of this report is May 15 of the tax year for which it is submitted.

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

The appraisal results will be used as the tax base upon which a property tax will be levied. The properties are appraised in fee simple in conformance with the Texas Property Tax Code Sec. 25.06. This is a jurisdictional exception to Standards Rule 6-5 (c) comment of the *Uniform Standards of Professional Appraisal Practice* 2016-2017. A listing of the utility, railroad, and pipeline properties appraised by Capitol Appraisal Group, LLC for the appraisal district is available at the appraisal district office. Such utility, railroad, and pipeline properties that are susceptible to inspection (e.g. compressor stations, pump stations, buildings, and power plants) are normally re-inspected at least every three years.

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

B. Assumptions and Limiting Conditions

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

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

C. Data Collection and Validation

Data on the subject properties is collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other modes which require confidentiality. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties. Due to the varied nature of utility, railroad, and pipeline properties there is no standard data collection form or manual.

D. Valuation Approach and Analysis

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

After deductions from RCN have been made for all three forms of depreciation the remainder is the RCNLD or cost approach model indicator of value.

In addition to the RCNLD indicator, a unit value model may also be used for those pipelines for which appropriate income statements and balance sheets are also available. Generally, this model is used for those pipelines that by regulation are considered to be common carriers. The unit value model must be calculated for the entire pipeline system.

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

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

Compressor stations pump stations, improvements, and related facilities are appraised using a replacement cost new less depreciation model.

Model calibration in the RCNLD model involves the selection of the appropriate service life for each type or class of property. Further calibration can occur through the use of utilization or through-put data provided by the owner or agent. Model calibration in the unit value cost approach involves the selection of the appropriate items to include in the rate base calculation and selection of the best measure of obsolescence, if any. Income approach calibration involves the selection of the cost of capital or discount rate appropriate to the type of property being appraised as well as adjusting the projected income stream to reflect the individual characteristics of the subject property. Model calibration in the stock and debt approach involves allocating sales prices of debt and equity to reflect the contribution to value of the operating property of the subject company.

The mathematical form of each model is described below.

1. RCNLD Approach

Where:

RCN	RCN	= Replacement or Reproduction Cost New
-PD	PD	= Physical Depreciation
-FO	FO	= Functional Obsolescence
-EO	EO	= Economic Obsolescence
		= RCNLD RCNLD Indicator of Value

2. Unit Cost Approach

Where:

OC	OC	= Original Cost
-AD	AD	= Allowed Depreciation
-EO	EO	= Economic Obsolescence
		= Unit Cost Approach Indicator of Value

3. Unit Income Approach

Where:

PGR	PGR	= Potential Gross Rent
-VCL	VCL	= Vacancy and Collection Loss
-FE	FE	= Fixed Expenses
-VE	VE	= Variable Expenses
=NOI	NOI	= Net Operating Income
/R	R	= Discount Rate or Cost of Capital
NOI/R		= Income Indicator of Value

A variation of the income model is:

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

Where:

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

4. Stock and Debt Approach

MVE + MVD = Market Value of Assets

Where:

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

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

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

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

E. Review and Testing

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

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

XIX. SPECIAL PURPOSE IMPROVEMENTS

SUMMARY REVALUATION PROGRAM REPORT SPECIAL PURPOSE IMPROVEMENTS
APPRAISED BY CAPITOL APPRAISAL GROUP, LLC

A. 2018 - Overview

This type of property consists of real property improvements that by the nature of their design and/or construction are suitable for a single use only. Capitol Appraisal Group, LLC is contracted to reappraise this type of property according to the scope of work in the normal course of business of the client consistent with the Uniform Standards of Professional Appraisal Practice guidelines. The completed appraisals are all retrospective in nature. The purpose of the appraisals is to estimate market value as of January 1, 2018 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

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

The effective date of the appraisals is January 1 of the year for which this report is submitted. The date of this report is May 15 of the tax year for which it is submitted.

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

The appraisal results will be used as the tax base upon which a property tax will be levied. The properties are appraised in fee simple in conformance with the Texas Property Tax Code Sec. 25.06. This is a jurisdictional exception to the Standards Rule 6-5 (c) comment of the *Uniform Standards of Professional Appraisal Practice* 2014-2015. A listing of the properties appraised by Capitol Appraisal Group, LLC for the appraisal district is available at the appraisal district office. Special purpose properties are normally reinspected annually.

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

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

B. Assumptions and Limiting Conditions

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

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

C. Data Collection and Validation

Data on the subject properties is collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other modes which require confidentiality. Subject property data is verified through previously existing records and through published reports. Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties. Due to the unique nature of each special purpose property there is no standard data collection form or manual.

D. Valuation Approach and Analysis

Special purpose properties are appraised using replacement/reproduction cost new less depreciation models. Replacement costs are estimated from published sources, other publicly available information, and comparable properties. Reproduction costs are based on actual investment in the subject or comparable properties. Depreciation is calculated on the age/life method using typical economic lives and depreciation rates based on published sources, market evidence, and the experience of knowledgeable appraisers. Adjustments for functional and economic obsolescence may be made if utilization and income data for the subject property justify such. Income Approach models (direct capitalization and discounted cash flow) are also used when economic and/or subject property income information is available.

Capitalization and discount rates are based on published capital costs for the industry of the subject property. A market data model based on typical selling prices per unit of area, volume, or capacity is also used when appropriate market sales information is available.

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

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

The mathematical form of each model is described below.

1. Cost Approach

Where:

RCN	RCN	= Replacement or Reproduction Cost New
-PD	PD	= Physical Depreciation
-FO	FO	= Functional Obsolescence
-EO	EO	= Economic Obsolescence
		= Cost Indicator of Value

2. Income Approach

NOI/R = Income Indicator of Value

Where:

PGR	PGR	= Potential Gross Rent
-VCL	VCL	= Vacancy and Collection Loss
-FE	FE	= Fixed Expenses
-VE	VE	= Variable Expenses
=NOI	NOI	= Net Operating Income
/R	R	= Discount Rate or Cost of Capital
NOI/R		= Income Indicator of Value

A variation of the income model is:

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

Where:

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

3. Market Data Approach

ASPCP\U=PU
PU x SU = Market Data Indicator of Value

Where:

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

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

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

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

E. Review and Testing

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

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

XX. BUSINESS PERSONAL PROPERTY - INDUSTRIAL

SUMMARY REVALUATION PROGRAM REPORT BUSINESS PERSONAL PROPERTY
APPRAISED BY CAPITOL APPRAISAL GROUP, LLC

A. Overview - 2018

This type of property consists of tangible personal property owned by a business or individual for the purpose of producing an income. The Uniform Standards of Professional Appraisal practice define personal property as "identifiable portable and tangible objects which are considered by the general public as being "personal," e.g. furnishings, artwork, antiques, gems and jewelry, collectibles, machinery and equipment; all property that is not classified as real estate.". The Texas Property Tax Code (Sec. 1.04(5)) defines tangible personal property as **"...**personal property that can be seen, weighed, measured, felt, or otherwise perceived by the senses but does not include a document or other perceptible object that constitutes evidence of a valuable interest, claim, or right and has negligible or no intrinsic value." The Texas Property Tax Code (Sec. 1.04(4)) defines personal property as **"...**property that is not real property."

Capitol Appraisal Group, LLC is contracted to reappraise this type of property according to the scope of work in the normal course of business of the client consistent with the *Uniform Standards of Professional Appraisal Practice* guidelines. The completed appraisals are all retrospective in nature. The purpose of the appraisals is to estimate market value as of January 1 in accordance with the definition of market value established in the Texas Property Tax Code (Sec. 1.04). "Market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

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

A separate definition of the value of inventory is found in the Texas Property Tax Code (Sec. 23.12(a)), "...the market value of an inventory is the price for which it would sell as a unit to a purchaser who would continue the business." Additionally, some inventories may qualify for appraisal as of September 1 in accordance with the provisions of Texas Property Tax Code Section 23.12(f).

The effective date of the appraisals is January 1 of the year for which this report is submitted unless the property owner or agent has applied for and been granted September 1 inventory valuation as allowed by Section 23.12(f) of the Texas Property Tax Code. The date of this report is May 15, 2018 of the tax year for which it is submitted.

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

The appraisal results will be used as the tax base upon which a property tax will be levied. A listing of the personal property appraised by Capitol Appraisal Group, LLC for the appraisal district is available at the appraisal district office. Personal property is normally re-inspected annually.

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

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

B. Assumptions and Limiting Conditions

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

1. Title to the property is assumed to be good and marketable and the legal description correct.
2. No responsibility for legal matters is assumed. All existing liens, mortgages, or other encumbrances have been disregarded and the property is appraised as though free, clear, under responsible ownership and competent management.
3. The appraisers developing these appraisals are not required to give testimony or attendance in court by reason of the appraisals, unless directed by, employed by, and provided legal counsel by the Appraisal District.
4. The appraisers do not necessarily inspect every property every year.
5. All sketches on the appraisal documents are intended to be visual aids and should not be construed as surveys or engineering reports unless otherwise specified.
6. All information in the appraisal documents has been obtained by members of Capitol Appraisal Group's staff or by other reliable sources.
7. The appraisals were prepared exclusively for ad valorem tax purposes.

C. Data Collection and Validation

Data on the subject properties are collected as part of the inspection process and through later submissions by the property owner. Submitted data may be on a rendition form or in other modes which require confidentiality. Subject property data is verified through   previously existing records and through published reports.   Additional data are obtained and verified through published sources, regulatory reports, and through analysis of comparable properties. Due to the multitude of personal property types there is no standard data collection form or manual.

D. Valuation Approach and Analysis

Personal property is appraised using replacement/reproduction cost new less depreciation models. Replacement costs are estimated from published sources, other publicly available information, and comparable properties. Reproduction costs are based on actual investment in the subject or comparable properties. Depreciation is calculated on the age/life method using typical economic lives and depreciation rates based on published sources, market evidence, and the experience of knowledgeable appraisers. Adjustments for functional and economic obsolescence may be made if utilization and income data for the flow) are also used when economic and/or subject property income information is available. Capitalization and discount rates are based on published capital costs for the industry of the subject property.

A value estimate derived from an income approach model in which the operating income of a business was capitalized must be reduced by the value of any real property in order to arrive at the value of the operating personal property. A market data model based on typical selling prices per item or unit of capacity is also used when appropriate market sales information is available. In the case of some personal property types, such as licensed vehicles, market data from published pricing guides is used to construct a market value model. In other cases, models are based on sales information available through published sources or through private sources.

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

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

The mathematical form of each model is described below.

1. Cost Approach

Where:

RCN	RCN	= Replacement or Reproduction Cost New
-PD	PD	= Physical Depreciation
-FO	FO	= Functional Obsolescence
-EO	EO	= Economic Obsolescence
		= Cost Indicator of Value

2. Income Approach

Where:

PGR	PGR	= Potential Gross Rent
-VCL	VCL	= Vacancy and Collection Loss
-FE	FE	= Fixed Expenses
-VE	VE	= Variable Expenses
NOI	NOI	= Net Operating Income
R	R	= Discount Rate or Cost of Capital
I/R		= Income Indicator of Value

A variation of the income model is:

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

Where:

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

3. Market Data Approach

ASPCPIU= PU
PU x SU= Market Data Indicator of Value

Where:

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

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

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

E. Review and Testing

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

Appraisal-to-sales ratios are the preferred method for measuring performance and are used when possible. However, sales for some types of personal property are very infrequent. Furthermore, many market transactions occur for multiple sites and include real and personal property, tangible and intangible, making analysis difficult and subjective. Performance is also measured through comparison with valid single-property appraisals submitted for staff review. Lastly, Capitol Appraisal Group's industrial appraisal methods and procedures for real and personal property are subject to review by the Property Tax Assistance Division of the Texas Comptroller's office. The Comptroller's review as well as appraisal-to-sale ratios and comparisons with single-property appraisals indicate the validity of the models and the calibration techniques employed. Commercial personal property appraised by Capitol Appraisal Group, LLC is not subject to methods and procedures review however it is included in the Property Tax Assistance Division's annual ratio study with satisfactory results.

XXI. CERTIFICATION

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

1. The statements of fact contained in this report are true and correct.

2. 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.

3. I have no present or prospective interest in the properties that are the subject of this report.

4. I have no bias with respect to any property that is the subject of this report or to the parties involved with this assignment.

5. My engagement in this assignment was not contingent upon developing or reporting predetermined results.

6. 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.

7. My analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.

8. I have not made a personal inspection of all the properties that are the subject of this report. However, the properties that have been inspected have been inspected by me or one or more of the following appraisers: Angela Waldrep, RPA; Carla Powell-Pentecost; Cindy Hargis; and Susan Fruge, RPA; along with the following Capitol Appraisal Group appraisers: Gregg Davis, RPA; Noel Wilcoxon, RPA; Dave Popelar, RPA; Lance Wood, RPA; Glen Hitt, RPA; and Llaina Taylor, RPA. Nine of the eleven are TDLR Registered Professional Appraisers.

9. No one provided significant mass appraisal assistance to the person signing this certification except for the appraisers listed above.

_____   Date: May 15, 2019

David Luther, Chief Appraiser
Tyler County Appraisal District

Registered Professional Appraiser #1306-9 (TDLR)
Registered Texas Assessor-Collector #1306-9 (TDLR)
Certified Chief Appraiser (TAAD)
Certified Tax Administrator #1437 (TAAO)