



**ECTOR COUNTY APPRAISAL DISTRICT
REAPPRAISAL PLAN
TAX YEARS 2021/2022**

**ADOPTED BY THE ECTOR COUNTY APPRAISAL DISTRICT
BOARD OF DIRECTORS**

**ADOPTED on AUGUST 5, 2020
EFFECTIVE as of SEPTEMBER 15, 2020**

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INTRODUCTION

The purpose of this report is to provide the Property Tax Assistance Division of the Texas Comptroller of Public Accounts and the taxing jurisdictions in Ector County with a comprehensive plan for reappraisal of properties within the District. This report has several parts: a general introduction and then, several sections describing the proposed 2021-2022 reappraisal effort by the appraisal department within Ector County Appraisal District.

The Ector County Appraisal District is responsible for listing and valuing all property within the district subject to ad valorem property tax assessment as of January 1st of each year. Generally accepted mass appraisal techniques are used by the District to estimate the market value of approximately 239,137 parcels that include residential and commercial real estate, agricultural lands, industrial properties, business personal property, and oil and gas mineral interests. Generally Accepted Appraisal Techniques (GAAT) must comply with the *Uniform Standards of Professional Appraisal Practice (USPAP)*. The District's Computer Assisted Mass Appraisal (CAMA) system also necessitates data gathering, statistical analysis, and knowledge of property classifications within our appraisal system.

The Ector County Appraisal District, in accordance with Section 6.03 of the Texas Property Tax Code, is governed by a Board of Directors. The board elects yearly a chairman, a vice-chair, and a secretary. The Board of Directors hires the chief appraiser, approves the budget, and sets overall policy for the District. Ector County Appraisal District (Ector CAD) is a political subdivision of the State of Texas created effective January 1, 1980. The provisions of the Texas Property Tax Code govern the legal, statutory, and administrative requirements of the appraisal district. A nine-member Board of Directors, appointed by the taxing units within the boundaries of Ector County, constitutes the Appraisal District's governing body.

The chief appraiser, who is the chief executive officer of the appraisal District, manages the District. All District employees report to the chief appraiser through their immediate supervisor. The District is further subdivided into four departments. The four departments are Appraisal Operations, responsible for all appraisal activities; Administration, responsible for property records maintenance and taxpayer assistance; Information Technology, which operates the District's computer facilities; and Collections, responsible for tax billings and payments. The District's appraisers are subject to the provisions of the Property Taxation Professional Certification Act and must be duly registered with The Texas Department of Licensing and Regulation (TDLR). This department is responsible for ensuring appraisers are professional, knowledgeable, competent, and ethical. This is accomplished through a statewide program of registration, education, experience, testing, and certification for all property tax professionals for the purpose of promoting an equitable tax system.

Upon registration, appraisers registered with the Texas Department of Licensing & Regulation (TDLR) have up to five years to take 229 classroom hours, in nine appraisal courses, and pass two additional exams in order to achieve certification as a Registered Professional Appraiser (RPA). During each subsequent two-year period after certification, appraisers must complete an additional 30 hours of continuing education. Failure to meet these minimum standards will result in the removal of the employee from an appraiser position.

Additionally, all appraisal personnel receive training in the data gathering and valuation processes. Standardized manuals are provided to ensure uniform and accurate data collection. Senior personnel provide on-the-job data collection training in the office and the reappraisal field area. Directors meet regularly with staff to introduce new procedures and regularly monitor appraisal activity to ensure that all personnel are following standardized appraisal methods and techniques.

The appraisal district staff consists of 34 employees with the following classifications:

- 1 – Official / Administrator (Executive level administration)
- 6 – Professional (Supervisory and Management)
- 12 – Technicians (Appraisers, controller, program analysts and network support)
- 15 – Administrative support (professional, customer service, clerical and collections)

While the appraisal district staff conducts all appraisal activities, the District receives assistance from the staff of those appraisal districts whose boundaries overlap ours. The District establishes procedures whereby ownership and property data information are routinely exchanged. A coordinator and staff are assigned to oversee the ongoing exchange of data. Analysts and appraisers from adjacent appraisal districts discuss data collection and valuation issues to minimize the possibility of differences in property characteristics, legal descriptions, and other administrative data. Ector CAD has a contractual arrangement with the Midland Central Appraisal District concerning valuation and value protests of Mission properties located in Midland County that are inside the city limits of Odessa.

Ector County Appraisal District (ECAD) is responsible for local property tax appraisal and exemption administration for six jurisdictions or taxing units within the county. Each taxing unit, such as the county, a city, school district, municipal utility district, etc., sets its own tax rate to generate revenue to pay for such services as police and fire protection, public schools, roads and other public services. Property appraisals are values established by the appraisal district and used by the taxing units to distribute the annual tax levy. Appraisals are based on each property's current worth or market value. ECAD also administers and determines eligibility for various types of property abatements, limitations, and tax exemptions that are authorized by State and local governments; such as those for homeowners, the elderly, disabled persons, disabled veterans, and charitable or religious organizations, or pollution control and freeport goods.

The intent of reappraisal and revaluation is to meet requirements concerning the level of and the equalization and uniformity of market values. General reappraisal is not an option for an appraisal district; it is a requirement of the Texas Property Tax Code. A reappraisal plan is a road map for performing the District's work. It is also a communication tool that shows the appraisal district board of directors how the appraisal district staff plans to accomplish its appraisal assignments. The Board of Directors chooses to require the chief appraiser to develop and submit this Reappraisal Plan for the board's approval; the board can direct the appraisal activities by amending the reappraisal plan as needed.

MARKET VALUE

The Texas Property Tax Code states that all taxable property is appraised at its market value as of January 1st, unless special appraisal provisions are otherwise provided. Under the tax code, "market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

- exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- both the seller and the buyer know of all 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;
- both the seller and buyer seek to maximize their gains, and neither is in a position to take advantage of the exigencies of the other.

The Texas Property Tax Code defines special appraisal provisions for the valuation of residential homestead property (Sec.23.23), agricultural land productivity appraisal (Sec. 23.41), real property inventory (Sec. 23.12), dealer inventory (Sec. 23.121, 23.124, 23.1241 and 23.127), nominal (Sec. 23.18) or restricted use properties (Sec. 23.83), and allocation of interstate property (Sec. 23.03). The owner of personal property inventory may elect to have the inventory appraised at its market value as of September 1st of the year preceding the tax year to which the appraisal applies by filing a timely application with the chief appraiser.

EXECUTIVE SUMMARY

In accordance with S.B. 1652 of the 79th Texas Legislature, The Texas Property Tax Code was amended for 2005 to require a WRITTEN REAPPRAISAL PLAN (Biennially).The TPTC requires the Appraisal District Board of Directors to ‘develop a plan’ for reappraisal within the district. “Reappraisal” is used in an overall broad sense to mean the activities undertaken by the district each year; property inspection, model updates, and application of models to properties for value level determination. The Board of Directors has adopted this Reappraisal Plan to fulfill the TPTC requirement as stated in the following:

Tax Code Requirement

Section 6.05, Texas Property Tax Code, is amended by adding Subsection (i) to read as follows:

(i) To ensure adherence with generally accepted appraisal practices, the board of directors of an appraisal district shall develop biennially a written plan for the periodic reappraisal of all property within the boundaries of the district according to requirements of TPTC Section 25.18 and shall hold a public hearing to consider the proposed plan. Not later than the 10th day before the date of the hearing, the secretary of the board shall deliver to the presiding officer of the governing body of each taxing unit participating in the district a written notice of the date, time, and place of the hearing. Not later than September 15, of each even-number year, the board shall complete its hearings, make any amendments, and by resolution finally approve the plan. Copies of the approved plan shall be distributed to the presiding officer of the governing body of each taxing unit participating in the district and to the Comptroller within 60 days of the approval date.

IMPLEMENTATION

Subsections (a) and (b), Section 25.18, Texas Property Tax Code, are amended to read as follows:

- (a) Each appraisal office shall implement the plan for periodic reappraisal of property approved by the board of directors under Section 6.05 (i).
- (b) The plan shall provide for the following reappraisal activities for all real and personal property in the district at least once every three years:
 - (1) Identifying properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photographs, land-based photographs, surveys, maps, and 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 the relationship among the property characteristics affecting 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.

This 7-step plan follows the General Requirement from *STANDARD 5– 2020-2021 Edition of The Uniform Standards of Professional Appraisal Practice*. Effective January 1, 2020 through December 31, 2021.

REVALUATION POLICY

The Ector County Appraisal District by policy as adopted by the chief appraiser from the Ector County Appraisal District Board of Director implements an annual reappraisal cycle. The policy is to conduct a general reappraisal of all real and business personal properties annually, meaning that a property's appraised value is established and reviewed for both level of appraisal and for equality and uniformity each year. The District uses a combination of field inspection and aerial photography to conduct a field review of real property throughout the county as part of an annual reappraisal cycle. Business personal property is verified on an annual basis through various means including inspection, renditions, or other means. Mineral properties are appraised on an annual basis. The mass appraisal assignment will comply with the current requirements of the *Uniform Standards of Professional Appraisal Practice (USPAP)*. The chief appraiser will provide a notice of appraised value for each property in compliance with Section 25.19, Texas Property Tax Code.

Appraisal/ Tax Year 2021

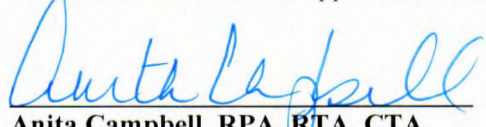
Tax Year 2021 is a reappraisal year.

Appraisal/ Tax Year 2022

Tax Year 2022 is a reappraisal year.

All new construction will be added to district records; all adjustments in property characteristics that affect value will be applied for all property types and classes within the district for the current and following tax years.

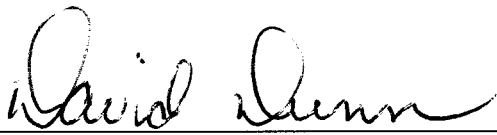
Submitted for review and approval to **The Ector County Appraisal District Board of Directors** by:


Anita Campbell, RPA, RTA, CTA
Chief Appraiser / Executive Director

Date: August 05, 2020

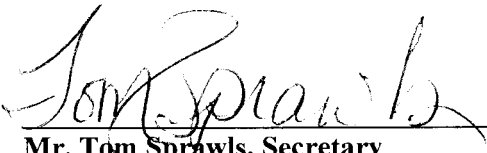
RESOLUTION

By resolution of the Board of Directors of the Ector County Appraisal District, this Reappraisal Plan for tax years 2021 and 2022 is approved as revised and amended and as further adopted by the Board to be approved and effective not later than September 15, 2020.



Mr. David Dunn, Vice Chairman
Ector County Appraisal District Board of Directors

Date: August 05, 2020



Mr. Tom Sprawls, Secretary
Ector County Appraisal District Board of Directors

Date: August 05, 2020

REAPPRAISAL YEAR PROCESSES

Annual Activities

1. **Performance Analysis** – the certified values from the previous tax year will be analyzed with ratio studies to determine the appraisal accuracy and appraisal uniformity overall and by market area within property reporting categories. Ratio studies are performed in compliance with the current ‘Standard on Ratio Studies’ of the International Association of Assessing Officers (IAAO).
2. **Analysis of Available Resources** – staffing and budget requirements for tax year 2021 are as detailed in the 2021 budget, as adopted by the board of directors and attached to the written biennial plan by reference. Generally recognized appraisal practices, which are continued from year to year, are identified, and methods and techniques utilized to keep these practices current are specified. Information Technology (IT) support is detailed, with year specific functions identified and systems upgrades scheduled. Existing maps and data requirements are specified, and updates scheduled.
3. **Planning and Organization** – a calendar of key events with critical completion dates is prepared for each major work area. This calendar identifies all key events for appraisal, clerical, customer service, and information systems. A calendar is prepared for tax years 2021 and 2022. Production standards for field activities are calculated and incorporated in the planning and scheduling process.
4. **Mass Appraisal System** – Required Computer Assisted Mass Appraisal (CAMA) system revisions are specified and scheduled with Information Technology. All electronic forms and procedures are reviewed and revised as required.
5. **Data Collection Requirements** – field and office procedures are reviewed and revised as required for accurate data collection and identification of property characteristics. Activities scheduled for each tax year include new construction, demolition, remodeling, re-inspection of problematic market areas, re-inspection of some or all properties within the universe of properties county wide, on an annual cycle, and field/office verification of sales data and property characteristics. Re-inspection will be physical inspection as well as identification by other means of relevant property characteristics that may impact the values of properties.
6. **Pilot study by tax year** – new and revised mass appraisal models are tested each tax year. Ratio studies, by market area, are conducted on proposed values each tax year. Proposed values on each category are tested for accuracy and reliability in randomly selected market areas by use of test and control groups. Ratio studies will be performed in accordance with IAAO ‘Standards on Ratio Studies’ and in compliance with *USPAP*.
7. **Valuation Methods by property type** – using market analysis of comparable sales, locally tested current cost data, and income analysis, valuation models are specified and calibrated in compliance with supplemental standards from the International Association of Assessing Officers as well as the Uniform Standards of Professional Appraisal Practice. The calculated values are tested for accuracy and uniformity using ratio studies.
8. **The Mass Appraisal Report** – each tax appraisal year, and in compliance with USPAP, a required written Mass Appraisal Report is prepared and certified by the chief appraiser after the conclusion of the appraisal phase of the ad valorem tax calendar; on or about May 1st. The Mass

Appraisal Report is completed in compliance with *STANDARDS RULES 6-1 & 6-2* of the *Uniform Standards of Professional Appraisal Practice*. The signed certification by the chief appraiser is compliant with *STANDARDS RULE 6-3 of USPAP*. This written reappraisal plan is attached to that report by reference. The report date of the Mass Appraisal Report is the certification date; on or about July 25th. The effective date of the Mass Appraisal Report is after the appraisal phase is complete, on or about May 1st.

9. **Value defense** – evidence to be used by the appraisal district to meet its statutory required burden of proof for market value and equity in both informal settings and formal appraisal review board hearings is specified and is made available in the District’s ARB hearing appointment letter and under ‘Protest Procedures’ on the District’s website.

This 9-step Reappraisal Process is taken directly from “Property Appraisal and Assessment Administration” The International Association of Assessing Officers, 1990.

PERFORMANCE ANALYSIS

In tax appraisal years 2021 and 2022 the previous tax year's equalized values will be analyzed by use of ratio studies to determine appraisal accuracy and appraisal uniformity overall and further by market area, within state property reporting categories. Ratio studies are conducted in compliance with the current 'Standard on Ratio Studies' from the International Association of Assessing Officers (IAAO). Mean, median, and weighted mean ratios are calculated for properties in each reporting category to measure the level of appraisal (appraisal accuracy). The weighted mean and the median are determined and calculated for each market area to indicate the level of appraisal (appraisal accuracy) by property reporting category. In 2021 and 2022 this analysis will be used to develop the starting point for establishing the level and accuracy of appraisal performance and to indicate the uniformity and equity of existing appraisals.

The appraised value of real and business personal property is calculated using specific information and data about each property. Using various computer-assisted mass appraisal (CAMA) programs, and generally recognized appraisal methods and techniques, registered and trained appraisers compare the subject property information with the data for similar properties, and with recent market data. The District adheres to the standards of the International Association of Assessing Officers (IAAO) regarding its appraisal practices and procedures, and complies with the standards promulgated by the Appraisal Foundation known as the *Uniform Standards of Professional Appraisal Practice (USPAP)* to the extent they are applicable. Chapter 23 of the Texas Property Tax code contains statutes dealing with appraisal methods and procedures. Section 23.01 of this chapter was amended in 1997 to specify that appraisal districts are required to comply with the mass appraisal standards of *USPAP (STANDARDS 5 & 6)*, when the appraised value of a property is established using mass appraisal techniques.

ANALYSIS OF AVAILABLE RESOURCES

Staffing and budget requirements for tax year 2021 are detailed in the 2021 appraisal district budget, as adopted by the board of directors, and attached to this biennial written reappraisal plan by reference. The reappraisal plan is adjusted to reflect the available staffing in tax year 2021 and the anticipated staffing for tax year 2022. Staffing can impact the cycle of real property re-inspection and personal property on-site review that can be accomplished during the 2021-2022 time period.

Ector CAD conducts a staff needs analysis yearly to ensure that the number and type of staffing are adequate to meet the reappraisal plan goals each year based on actual and projected growth within the district. Appraiser workloads are adjusted as needed to produce workload equity between geographic areas and/or property type to ensure complete and accurate appraisal rolls.

Parcel Counts per Appraiser – Real Estate and BPP accounts are determined annually and compared to IAAO standards and Texas state averages, as well as similar surrounding districts' appraiser parcel counts. Although current Ector CAD appraiser parcel counts are at the upper end of comparative ranges, the current appraiser workload for the District is considered adequate and acceptable by District management. The 2021 and 2022 adopted budgets will provide information for employee positions and classifications.

Existing appraisal practices, which are continued from year to year, and the methods utilized to keep these practices current are identified. In the reappraisal years, real property appraisal depreciation tables and (RCN) replacement cost new tables are tested against verified sales data to ensure they represent the current market data that exists locally. The capitalization rate study, by commercial real property type, is updated from current market data and market rents are reviewed and updated from actual local market data collected by appraisal staff. Personal property quality/density schedules are tested and analyzed based on renditions and prior year hearings documentation.

Information Technology (IT) support is detailed with year specific functions identified and system upgrades scheduled. Computer generated forms are reviewed for revisions based on year and reappraisal status. Legislative changes are scheduled for completion and testing. Existing maps and data requirements are specified, and updates scheduled.

Ector CAD performs all appraisal functions in-house. No contractors are involved in the valuation process except for support services, cost of capital studies, or independent fee appraisals. All future contracts, if any, will be required to meet (IAAO) International Association of Assessing Officers 'Standards on Contracting Assessment Services'.

PLANNING AND ORGANIZATION

For each Tax Year, a calendar of key events with critical completion dates is prepared for each major work area. This calendar identifies all key events for appraisal, clerical, customer service, and information systems. A separate calendar is prepared for tax years 2021 and 2022. Production standards for field activities are determined and incorporated in the planning and scheduling process. The scope of work, available time, staffing needs and budget allowances are considered in the development of this reappraisal plan. Amendments to this plan will be submitted to the District's Board of Directors for approval of significant changes to the plan during the current and second years. The calendars and schedules are listed by dates in the **Addenda** to this report.

MASS APPRAISAL SYSTEM

The District utilizes a CAMA software package for all appraisal functions within the district. Conversion from MARS (Mass Appraisal Records System) to GSA (Government Software Assurance) is scheduled to occur in 2021-2022. Specifics, such as field names and application modules may change during the course of this reappraisal plan. Computer Assisted Mass Appraisal (CAMA) System revisions are specified and scheduled with Information Systems. All computer forms and IT procedures are reviewed and revised as required. Legislative required changes will be implemented into the forms, applications and systems as required on a going forward basis. The following details these procedures as it relates to the 2021 and 2022 tax years:

Real Property Valuation

Revisions to cost models, income models and market models are specified, updated, and tested each tax year. Cost schedules are tested with market data (sales) to ensure that the appraisal district is in compliance with Texas Property Tax Code, Section 23.011-The Cost Method of Appraisal. Replacement cost new schedules as well as depreciation tables are tested for accuracy and uniformity using ratio study tools and are also compared with published cost data from recognized industry leaders, such as Marshall & Swift Valuation Services, as well as from local construction costs.

Land tables are updated using current market data, including sales and abstraction tools. Value modifiers are developed for property categories by market area and tested with ratio studies. Depth and size adjustments are reviewed, and factors compared to available market data by area for factors influencing value.

Income, expense, and occupancy data is updated in the income models for various property classes and for market areas. Capitalization rate studies are completed using current sales and historical sales data. The resulting income models are tested using ratio studies.

Personal Property Valuation

Income producing business personal properties in the district are generally valued based on current year renditions submitted to the District office. Prior year and historical asset detail is listed in the District's account records and changes are made to reflect physical and market value changes to the business. Property description information is entered in CAMA by field appraisers when inspecting the business. Worksheet values and rendered values are reconciled later after required filings are completed. Default to quality/density schedules are conducted if a current table for the business type is available.

Quality/Density schedules are periodically updated using data received from personal property renditions filed and hearing evidence and testimony presented during the previous tax year. They are based on building use size and density and for both the inventories and fixed assets of a business. Valuation procedures are reviewed, modified, and tested as needed. All income producing business property is identified by a (SIC) Standard Industry Classification code. Other types of commercial and industrial businesses are valued based on depreciated fixed assets value and inventory valuation in accordance with Section 23.12 of the Texas Property Tax Code. Models are adjusted according to actual original acquisition costs, and value procedures will be reviewed, adjusted and tested as needed.

Mineral Property Appraisal

Producing oil and gas properties are valued each year in accordance with section 23.175 of the Texas Property Tax Code. A Mineral Parameters brochure is prepared annually listing all property specific risks, base discount rates, salvage equipment values, pricing structures, and tax allowances that are used by Ector County Appraisal District in valuing oil and gas mineral properties. Included are the current State Comptroller's 'Manual for Discounting Oil and Gas Income' and the Comptroller's current 'Determination of Discount Rate Range' for oil and gas properties.

Appraisal Notices

TPTC Section 25.19-appraisal notice forms are reviewed for legal sufficiency and correctness and edited for updates and required changes. Notice enclosures include the latest copy of the Comptroller's 'Taxpayers Rights, Remedies, and Responsibilities'. (The chief appraiser is required to notify a taxpayer of his property's appraised value if the property is reappraised for the current year.) Real property homestead appraisal notices will typically be mailed out by April 1st or as soon thereafter as practicable. Non-homestead real property appraisal notices and mineral notices will be mailed out by April 30th or as soon thereafter as practicable. Business personal property appraisal notices will be mailed out before May 31st.

Hearing Process

Protest hearing scheduling for informal reviews and for formal Appraisal Review Board hearings is reviewed and updated annually. Standards of documentation are reviewed and amended as required. The appraisal district hearing documentation is reviewed and updated to reflect the current valuation process.

Production of documentation is tested and compliance with HB 201 is insured (HB 201 deals with a protesting taxpayer's right to a postponement of an ARB hearing if the appraisal district fails to make available to the taxpayer certain materials and information at least 14 days before the ARB protest hearing). Revisions to hearing procedures and times are made by the District to ensure timely certification of the appraisal roll.

DATA COLLECTION REQUIREMENTS

IDENTIFYING & UPDATING RELEVANT PROPERTY CHARACTERISTICS

Field and office procedures are reviewed and revised as required for data collection and for verification of value-related and descriptive property characteristics for each property within the district. Activities scheduled for each tax appraisal year include the gathering, identification, and the listing of new construction, demolition, remodeling, re-inspection of problematic market areas, and verification of sales data, as well as re-inspection of the universe of properties within the district.

New Construction/Additions/Deletions

New construction field and office procedures for the inspection of new improvements are reviewed and revised as required. Field production standards are established and procedures for monitoring the quality and completeness of the data are verified. The source of building permits is confirmed, and system input procedures are developed to ensure that the data is entered into the District's CAMA permits records. Verifying demolition of improvements is determined from permits and from physical inspection in the field.

Remodeling

Market areas with significant improvement remodeling are identified and on-site physical inspection of the changes to the improvements are noted and recorded in the District's database records. Permits within city limits are utilized to discover remodeled properties. Outside city limit properties with rehabilitation, remodeling or updating are typically discovered through field inspection.

Re-inspection of problem areas

Real property market areas, by property type classification, are examined for: low or high protest volumes; low or high sales ratios; or high coefficients of dispersion (COD). Market areas that have a significant variance are considered problematic. Field reviews are scheduled to verify and/or correct property characteristic data. Additional sales data is researched and verified. In the absence of adequate market data, neighborhood boundary lines are analyzed for changes that may be warranted and any possible redraws that may be needed. Market area delineation is verified, and neighborhood clusters are identified.

Market Area Delineation

Market areas are defined as the geographic or location delineation of a market for a specific category of real estate; the area in which alternative, similar properties effectively compete with a subject property in the minds of potential purchasers and users. Market segmentation is not a new concept, but with the progress in software applications, analysis of market conditions has become considerably clearer and more determinable. Market conditions and forces are used to identify, classify, and stratify or to delineate similarly located properties into smaller subsets for comparative analysis and valuation. Delineation involves the physical drawing of neighborhood boundaries on a map, as well as selecting statistical data to separate property attributes.

Neighborhoods (a district with characteristics that distinguish it from the areas around it) made up of homogeneous properties that are further delineated into market segments or subsets of the market for residential property and for commercial class properties are batched by trade areas within the overall market. Analysis and evaluation of neighborhood boundaries or market segments are conducted annually to ensure that the homogeneity of the property characteristics is maintained for the various property classes.

Re-inspection of the Universe of Properties

The International Association of Assessing Officers, ‘Standard on Mass Appraisal of Real Property’ specifies that the universe of properties should be re-inspected on a cycle of 4-6 years. The Texas Property Tax Code, Section 25.18(b) requires the reappraisal (to include re-inspection) of the universe of properties at least once every three years. Physical inspection is considered to be the most fundamental step in achieving reliable property valuations. (*USPAP*) *Uniform Standards of Professional Appraisal Practice* does not require physical property inspections for reappraisal, “Only that the characteristics of a property, relevant to an assignment be identified.” Observed exterior physical inspections are nevertheless necessary to ensure that each property is appraised according to its condition as of January 1. The District will use a combination of field inspections and office reviews for both real and personal properties. Office review will include the examination of digital imagery, photos, property sketches, permits, renditions, outside appraisals and any other relevant data that is available and maintained. Ector County Appraisal District will be on an annual physical inspection cycle for all properties within the district. The annual re-inspection requirements for tax years 2021 and 2022 are stated and listed on the Reappraisal Schedule (**See Addenda**)

Field or Office Verification of Sales Data and Property Characteristics

All three approaches to estimating market value depend in one or more ways on reliable market information. Appraisal records must contain complete and accurate information about sales prices and conditions of properties within the district.

Sales information must be verified and property characteristic data contemporaneous with the date of sale captured. In order that statistical analysis results will be valid, the sales ratio tools require that the property that sold must equal the property appraised. The reliability of any valuation model or sales ratio study depends on the quantities and quality of its data. Three basic sources of sales data are real estate transfer documents, buyers, sellers, and third parties. Ector CAD obtains sales information from deed filings, closing statements, buyer/seller questionnaires, and interviews by telephone or in-person. Sales data provided in informal meetings or protest hearings, or by fee appraisers, real estate brokers, and other confidential sources is also utilized.

Necessary sales screening and verification of sales data is conducted by District staff. The primary goal is to obtain an adequate and reliable sales database of valid sales. Sales screening is performed to identify

differences in individual property characteristics between appraisal records and sales records. Adjustments to appraisal records are necessary to reflect the current property characteristics at the time of the sale. Sales data is maintained and stored by property type and by market area location in the District's Improved Property Sales books and Land Sales books. Residential sales exist in printed form by class and market area and exist electronically with statistical analysis features available on demand.

Multiple sales of the same property are considered and analyzed for any indication of price change attributed to a time change or influence and monthly time adjustments are developed. Property characteristics, financing, and conditions of sale may be compared for each property sold in the property pairing to isolate only the time factor as an influence on price.

Legal Attributes Affecting Value

The District will maintain a database of ownership records for each property to identify the property characteristics and legal descriptions of recorded property conveyances. The District will monitor the changes from government actions that affect values to properties, such as zoning, ordinances, special assessments, jurisdictional changes, school district boundaries or other legal restrictions. Where leases or other possessory interests are known to exist and that influence value, they will be considered in the individual valuation of the property to which they apply.

PILOT STUDY

New and/or revised mass appraisal models are tested on randomly selected market areas. These modeling tests (sales ratio studies) are conducted each tax appraisal year. Actual test results are compared with anticipated results and those models not performing satisfactorily are refined and retested. The procedures used by the District for model specification and model calibration will be in compliance with the *Uniform Standards of Professional Appraisal Practice, STANDARDS RULES 5 & 6*.

A pilot study helps to evaluate what to correct and how to correct it. Data is collected on representative sets of properties. Estimated values are assigned and then analyzed to determine which factors contribute to value. Certain factors or characteristics may not be vital to valuation but are maintained because they may be useful for explaining values to taxpayers.

The pilot study, which includes a ratio study, will indicate if a new system produces accurate and reliable values. A particularly effective technique to use in conducting a pilot study is to separate sales into test and control groups. Models are developed from the test group and then applied to the control group. Models that are inherently unstable will not perform well on the control group.

VALUATION METHODS BY PROPERTY TYPE

Valuation by tax year, using market analysis of comparable sales and locally tested cost data, market area specific income and expense data, and valuation models, are specified and calibrated in compliance with the supplemental standards from the International Association of Assessing Officers (IAAO) and the *Uniform Standards of Professional Appraisal Practice (USPAP)*. The calculated values will be tested for accuracy and uniformity using ratio studies. Performance standards will be those as established by the current '*IAAO Standard on Ratio Studies*', which the Texas Comptroller of Public Accounts has adopted by reference. Property values in all market areas are analyzed and updated each reappraisal year as required for appraisal level and appraisal equity. Tax year 2021 is a reappraisal year. Tax year 2022 is a reappraisal year.

Model (Schedule) Development, Calibration and Testing

Model development and specification involves the addition of new or the updating of the District's existing residential cost models for base rates, tabled rates or values, and/or any adjustment factors that may be required in the process of estimating the variables in the model.

Property valuation models seek to explain the market value of properties from market data and sales. Models (schedules) are constructed to represent the operation of forces of supply and demand. These models have evolved from three broad theories of value: Cost, Market (Sales Comparison) and Income.

Model development requires good theory, data analysis, and research. Any developed model that accurately reflects the market will make the value defense burden of the appraisal district much more credible. The best valuation models will be accurate, rational, and explainable.

Model building (development) requires two distinct steps; model specification (model design based on appraisal theory and market analysis, supply & demand variables and their interrelationships) and model calibration (solving for unknown quantities in a model) such as construction cost, depreciation, sales prices adjustments or capitalization rates.

Qualitative and quantitative data are used in the District's mass appraisal schedules. Qualitative data (such as location, roof type, or heating and cooling systems) are analyzed to evaluate the relationship between two variables. Quantitative data (the presence or the absence of a defining or specific feature) are based on measuring or counting, (for example, the square feet of a structure).

Model calibration is the process of estimating the variables in a mass appraisal model. They are called the schedule coefficients and would include costs, capitalization rates, market adjustments, etc. Model calibration involves the process of periodically adjusting mass appraisal formulas, tables, and schedules to reflect current local market conditions. These adjustments can be made to reflect new construction changes in material or labor costs for improvement schedules.

Ector County Appraisal District uses simple calibration techniques each year to adjust existing developed schedules in use. Simple calibration promotes consistency in results and parcels can be recalibrated in mass. This is particularly effective when combined with ratio studies to monitor the level of appraisal by key property type.

Successful model development, calibration, and testing are contingent on various administrative and practice issues. One is the available budget and resources at hand, and another is the quality of existing data and recent appraisal performance. For Ector County Appraisal District, past and recent performance has been successful as determined by the Property Value Study from the Comptroller's Property Tax Assistance Division. This makes an annual reappraisal cycle a much more practical course of action.

Approaches to Value-Valuation Methods

As mentioned earlier, there are three (3) basic approaches to value - Cost, Market, (Sales Comparison) and Income. Not every approach is pertinent and useful for valuing all property types. For instance, the Cost Approach is not applicable to the valuation of vacant land. In contrast the Sales Comparison Approach is not a useful approach in the valuation of a zoo or public library because of the lack of sales data.

Standards Rule 5-1 of USPAP requires "the mass appraiser to be aware of and correctly employ those recognized methods and techniques (approaches to value) necessary to produce a credible mass appraisal."

Standards Rule 6-2 (g) of USPASP is required under the scope of work rule and used in developing an appraisal. The exclusion of the sales comparison approach (market approach), cost approach, or income approach must be explained.

Section 23.01(b) of the Texas Property Tax Code states:

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

Section 23.0101 of the TPTC states: "In determining the market value of property, the chief appraiser shall consider the cost, income and market data comparison methods of appraisal and use the most appropriate method." Which one of the 3 methods is the most appropriate? Generally it will depend on three factors; (1) Typical practice for appraising a particular property type, (2) Whether or not the necessary data is

reasonably available for use of a particular approach, and (3) If the result by use of the approach would be meaningful.

Ector CAD typically uses one approach to value (method or technique) which depends on the property use or type. For consumptive use properties, such as single-family residences, the District uses a cost/hybrid model (market approach). It is a sales adjusted market/cost hybrid model that is most common and typical for appraisal districts using mass appraisal in valuing residential real estate. For productive use properties, such as manufacturing plants, Ector CAD typically uses the cost approach to value, as being the most reliable indicator of estimated current market value. For investment use properties such as apartments or hotels or oil & gas properties, the income approach to value is typically used as being a more reliable indicator of estimated current market value.

Ector County Appraisal District in compliance with Section 23.01 of the Texas Property Tax Code is consistent in the “use of the same appraisal method for the same or similar kinds of property”. In compliance with *USPAP Standards Rule 6-2 (g)*, the “Jurisdictional Exception Rule” is invoked due to the contrary requirement of this *USPAP* rule and that of the Texas Property Tax Code Section 23.0101 and the requirement that the chief appraiser use the most appropriate of these methods.

Use of a specific or particular approach to value during the appraisal phase of the tax calendar does not prevent the use of alternative or alternative support approaches during the equalization phase of the tax calendar (value defense).

Special use appraisals for agricultural properties, recreational use, and special inventory are in compliance with the Comptroller’s appraisal manuals for appraisal of agricultural land, appraisal of recreation, park & scenic land, and dealer’s special inventory manuals as well as in compliance with The Texas Property Tax Code.

Highest and Best Use

The highest and best use of property is the most reasonable and probable use that supports the highest net to land and present value as of the date of the appraisal (Subject to Jurisdictional Exception, as noted below). The highest and best use of a given property must be physically possible, legally permissible, financially feasible, and productive to its maximum use. For improved properties, the highest and best use of a property is as improved and as if the site were vacant. This view assists in determining whether existing improvements have a conversion use (through transition, nonconforming use, speculative use, or other as if vacant). For vacant land tracts, highest and best use is speculative and is determined from comparable surrounding tracts. Improved properties provide a variety of uses including residential, retail, office, warehouse and special purpose uses. The highest and best use of residential property is generally its current use. This is due in part to the fact that residential development, in many areas, through use of deed restrictions and zoning, precludes other land uses.

Residential valuation undertakes reassessment of highest and best use in transition areas and areas of mixed residential and commercial use. In transition areas with ongoing gentrification, the appraiser reviews the existing residential property use and makes a determination regarding highest and best use. Once the conclusion is made that the highest and best use remains residential, further highest and best use analysis is done to decide the type of residential use on a neighborhood basis. As an example, it may be determined in a transition area that older, non-remodeled homes are not the most productive or profitable use, and the highest and best use of such property is to demolish the old homes and construct new dwellings. In areas of mixed residential and commercial use, the appraiser reviews properties on a periodic basis to determine

if changes in the real estate market require reassignment of the highest and best use of a select category of properties.

EFFECTIVE January 1, 2010

The market value of a residence homestead shall be determined solely on the basis of the property's value as a residence homestead, regardless of whether the residential use of the property by the owner is considered to be the highest and best use of the property.

While there is no specific statute defining highest and best use as it applies in appraisals conducted under the Texas Property Tax Code (though **USPAP STANDARDS RULE 5-3** requires consideration of and adherence to HBU)), Texas courts have acknowledged that highest and best use is a factor that must be considered in determining market value. *King vs Real* 466 S.W.2d1 TEX Civ App., 1971 *Exxon Pipeline Co. vs Zwahr* 2002 WL 1027003 Tex., 2002. In an unpublished opinion, the Houston court of Appeals approved the following definition of highest and best use:

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

THE MASS APPRAISAL REPORT

Each tax year the *USPAP* required written Mass Appraisal Report is prepared and certified by the chief appraiser, for the district, at the conclusion of the appraisal phase of the ad valorem tax calendar (on or about May 1st). The current written Mass Appraisal Report is completed and is in compliance with *STANDARD 6* of the *Uniform Standards of Professional Appraisal Practice*. The signed certification by the chief appraiser is in compliance with *STANDARDS RULE 6-3 of USPAP*. This reappraisal plan is attached to the written Mass Appraisal Report by reference.

**STAFF PROVIDING SIGNIFICANT
MASS APPRAISAL ASSISTANCE
IN REAPPRAISAL PLAN IMPLEMENTATION**

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Anita Campbell, RPA, RTA, CTA	Chief Appraiser/ Executive Director	66968	Overall district oversight and management
Layne P. Young, RPA	Assistant Chief Appraiser	69928	Oversight of litigation, agent coding, Freeport inventory value, estimates of appraisal value, training, and management duties
William J. Harris, RPA	Director of Appraisal	71531	Directs appraisal operation activities, model development & calibration, & appraisal of industrial plants
Kimberly Johnson	Assistant Director of Appraisal, Appraiser III	75218	Supervises the appraisal of Residential and Commercial real property and personal property
Leslie Wright, RPA	Director of Administration	62058	Supervises customer service and collection support, records management, and quality control
Don Tohkubbi	Director of Information Technology, Appraiser III	75198	Supervises data entry, information systems and technology support, and quality control
Lory Olivas, RTA	Director of Collections	75008	Controls tax collection deposits and disbursements, performs tax rate calculations, supervises collections support
Mindy S. Moreno	Appraiser III	75334	Mineral Property Appraisals
Jeff Ashley	Appraiser III	74868	Residential, Commercial, and Personal Property Appraisals
Shelby L. Bryant	Appraiser II	76202	Residential, Commercial, and Personal Property Appraisals
Madison V. Bolton	Appraiser II	76075	Residential, Commercial, and Personal Property Appraisals
Cassandra Carbajal	Appraiser II	75883	Residential, Commercial, and Personal Property Appraisals
Ashley Mendoza	Appraiser II	76417	Residential, Commercial, and Personal Property Appraisals
Jarrold W. Lawson	Appraiser I	76500	Residential, Commercial, and Personal Property Appraisals
Irene V. Hill	Appraiser Tech II	75982	Support to Appraisal Function - Ag Audits, Sales, Permits, ARB assistance
Katarina I. Garcia	Appraiser Tech I	76415	Support to Appraisal Function - Mobile titling reports, Journal Entries, ARB scheduling
Alejandro R. Tejada	Appraiser II	76415	Compliance Officer

VALUE DEFENSE

The Texas Constitution sets out five (5) Rules for Property Tax within the State. The first of these rules requires that taxation must be equal and uniform. The second rule requires that property be taxed at current market value. These two rules are the most critical requirements for county appraisal districts of the entire Texas Property Tax Code.

Ector CAD, as with other districts, has the burden of establishing the value of properties within the district. That burden applies to market value (appraisal level) and to equal and uniform value (appraisal equity). The Texas Property Tax Code permits a property owner to protest any determination made by the appraisal district, the chief appraiser, or the ARB that applies to and adversely affects the property owner. Of the numerous grounds for protest listed in the Texas Property Tax Code, the two most frequently filed protests deal with value over market and with unequal appraisal.

Ector CAD encourages property owners to meet with District appraisal staff to try and resolve disputes in an informal setting before a formal ARB hearing. Sometimes a mutually agreeable solution to an owner's protest at these informal meetings results in a settlement and the property owner waives any further right to a formal protest before the Appraisal Review Board. Chapter 41 of the Property Tax Code deals with the right of a property owner to a formal Appraisal Review Board (ARB) hearing. The appraisal district also has information delivery requirements concerning ARB protests. Evidence used by the District to meet its burden of proof for level of appraisal and equity in formal hearings and during informal meetings is provided to owners/agents in compliance with TPTC Section 41.67(d) upon request after filing requirements are met.

Value Defense is part of the equalization phase of the Tax Calendar. In formal hearings both mass appraisal and single property appraisal methods can be introduced. Mass Appraisal and single property appraisal are both systematic methods for arriving at estimates of value. They differ only in scope. Mass appraisal models have more terms because they attempt to replicate the market for one or more land uses across a wide geographic area. Single-property models, on the other hand, represent the market for one kind of land use in a limited area.

Quality is measured differently in mass appraisal than in single-property appraisal. The quality of single-property appraisal is measured against a small number of comparable properties that have sold. The quality of mass appraisals is measured with statistics developed from a representative sample of sales within the entire area appraised by the property model. Ector CAD will make use of both mass appraisal statistics and district sales comparison of a select few comparable properties as in single-property appraisal during formal appraisal review board hearings. Of the 3 Approaches to Value, Cost, Market and Income, the District may use not only the particular approach that the mass appraisal model is built on for a particular type of property, but may also present other approaches, methods or techniques as support alternatives.

RESIDENTIAL REAL PROPERTY VALUATION PROCESS

INTRODUCTION

Scope of Responsibility

The District's appraisal staff is responsible for gathering, collecting, and analyzing data necessary to establish the (fair) market values for all residential properties within the county and for the development of equal and uniform appraisals for vacant and improved residential parcels. Residential appraisal assignments are separated from commercial/industrial real property mass appraisal assignments by use and selection of Texas Comptroller's Property Tax Assistance Division (PTAD) property type codes. Residential properties include single family dwellings, one-to-four family dwellings, residential improved lots, vacant residential lots, (if determinable by zoning, restrictions or by typical use) mobile homes on real estate, personal property mobile homes and residential inventory properties. There are approximately 59,653 residential parcels in Ector County.

Appraisal Resources

Personnel: Ector CAD has organized the county into seven (7) geographic areas. Each field appraiser is responsible for and conducts the appraisals of all residential properties within their assigned work areas, as well as vacant and improved properties and commercial properties and the associated business personal property accounts.

Data: A common set of database specifications for all single-family parcels in a work area is collected and maintained in the District's CAMA system and downloaded to tablet computers for appraiser use in fieldwork. This property characteristics (specifications) data drives the computer assisted mass appraisal approach to valuation. Residential properties are physically inspected on an annual basis. Changes that have occurred, as well as observed condition are noted by the field appraiser and entered into account records. Tablet personal computers and pen pads are utilized in the field by appraisers for documenting account information and for sketch features. On specific accounts, permits for new activity and sales records can be referenced as needed.

The following property characteristics are recorded for all parcels; land area and value, PTAD code, Improvement class, actual year built, effective year built, size, condition, additional improvements, and warranted functional or economic factors. Each improved residential property has a 'salient facts' improvement features listing tab that can be utilized in the District's CAMA residential software package.

VALUATION APPROACH (Model Specification)

Area Analysis

Relevant data on regional economic forces such as demographic numbers, employment, crude oil and natural gas prices, drilling rig counts, average income numbers, interest rates, rental rates, housing availability, lodging occupancy, construction trends and costs, and planned unit developments are gathered from public and private sources. This information is used in neighborhood analysis and in model calibration for economic factors.

Neighborhood (Market Area) Analysis

All residential property analysis work performed in association with the valuation process is neighborhood specific. Ector County has in excess of 375 named residential additions (subdivisions) and more than 55 major market areas. Within these major market areas exist 120+ delineated sub-markets or market areas. Each residential subdivision, addition, or development is assigned to an individual neighborhood and/or batched into a market area cluster based on observed aspects of homogeneity with the market area. Neighborhood analysis involves the study of how present physical, economic, governmental, and social forces affect property values. Neighborhood or market adjustment factors are developed from appraisal statistics provided from ratio studies and are used to ensure the estimated values are consistent with the market.

The first step in neighborhood analysis is to identify common traits shared by properties. These traits include observable physical factors such as location, sales price value range, lot area size, ages of dwellings, construction design, quality and appeal, and gross livable square footage range. The neighborhood for purposes of analysis is the largest geographic cluster of properties where the physical, economic, governmental, and social forces are similar and uniform. Next, the boundaries of the complimentary use properties should be determined. This process is known as ‘delineation’. Neighborhood characteristics needed for this process would include physical location and physical attributes such as size, age and condition. Also, demographic trends in the current market such as census data, commuting patterns, jurisdictional divisions, and school districts must also be considered. Not only a map boundary reference is needed, but statistical comparisons of attributes should be performed. Patterns of growth that affect an individual market must be analyzed. A neighborhood can generally be classified as being in a stage of growth, stability, decline, or revitalization. Growth is the period of new construction. As new neighborhoods are developed, they compete with existing comparable neighborhoods. An addition of new homes in a growth area can shift the population from older to newer areas. In a market of balance or market equilibrium, older areas can be as desirable as newer areas because an older area has character due to mature landscape, serene streets, or workplace or major street proximity. A period of decline reflects the loss of utility due to demand from all causes, physical as well as economic or environmental forces. Change of use from residential only can occur and a mixed use of properties can result in commercialization of an area. Declining areas can also result in rehabilitation and renewal of existing residential properties increasing demand and desirability to continue the existing use as residential.

Neighborhood identification and market area delineation is at the heart of residential valuation in an appraisal district office. The residential analysis work done in association with the residential valuation process is specific to the neighborhood. Neighborhoods are field inspected and periodically reviewed to determine if further delineation is needed based on observable aspects of homogeneity. Neighborhoods are defined as similar properties in the same location. Market areas are defined as the grouping or batching of similar neighborhoods in similar locations. Ector CAD subscribes to what is commonly known as the ‘bike test’ rule for neighborhood/market area comparisons. An area of similar, complimentary, and competitive residential properties where one would feel safe for one’s 10-year old to ride their bike in, is considered a ‘neighborhood’. A likewise area of similar and competitive properties located away from and physically removed enough from, that one would not feel safe for their 10-year old to ride their bike in, is considered to be the ‘market area’.

Certain residential properties are unique to an area in which they are physically located and not competitive with surrounding properties. In these cases, the specific property is batched with similar competitive

properties from other areas based on market reactions. In compliance with the IAAO '*Standard on Mass Appraisal of Real Property*' and with *Texas Property Tax Code Section 25.18*, Ector CAD's Residential Valuation Models are further defined to geographic stratification when property value attributes vary significantly among areas and the individual areas are large enough to provide adequate sales numbers. Separate models are then developed for each market area. Subareas, market segments and districts within the identified market areas also serve as variables in the models and are used in the District's Land Value Tables and in selection of comparable sales. Section 4.08.05.06 of the District's Agency Information Manual provides for a detailed listing of these designated and described residential market areas. Appendix (A) Market Areas, of this Reappraisal Plan further provides a listing for these delineated residential market areas. All the residential analysis work done in association with the residential valuation process is neighborhood specific. Neighborhoods and delineated market areas are field inspected and periodically reviewed to determine if further delineation is warranted.

Currently there are 120 residential market areas that are identified with conforming land uses and that are each further subject to the same market influences and forces. Boundaries and geographic perimeters are stated for these areas. Improvement or land factors within specific neighborhoods are used to refine values within each area group.

Land Analysis

Residential land value analysis is performed by the appraisal staff during neighborhood sales studies. The values of the land component of the residential unit parcels and vacant lots are assigned a base lot value from district developed land tables. These tables are for urban and rural tracts on either a per-square foot price or an acreage price per unit. Land adjustments are applied where necessary for specific factors such as size, shape, view, topography, or utility, as well as other considerations for specific land parcels outside the neighborhood norm. The appraisal staff uses sales data along with abstraction and allocation techniques to estimate both the land value for unimproved lands and land component value of improved residential parcels. The District's land file on each parcel stores the land information that is needed to consistently value individual parcels within neighborhoods given known land characteristics.

Vacant land, like any other economic good, has a market value based on the present worth of its anticipated future benefits. Vacant land has value because of its potential to produce rental income in the future. For commercial land, future benefits relate to expected rents less development, maintenance, and holding costs.

The concept of location being a primary determinant of land value is generally known and easily understood. Location continues to play the primary role in land value determination but modeling a location's effects has become more complicated. Land values for physically similar sites can vary greatly between a few city blocks. Most urban areas contain many value influence centers and their effect on land values is usually not linear.

Ector CAD appraisal staff analyzes these patterns and builds them into land appraisal models (tables). Vacant land is then further analyzed and valued according to common units of comparison. For urban, platted areas, Ector CAD develops square foot urban land valuation tables. For rural unplatted areas within the district, rural land tables based on per acre value is utilized.

Land sale prices are also expressed on the same unit comparison basis and stratified (sorted) according to location, variation, in zoning and probable use. Sorting criteria ensure that land values will reflect market data for parcels with similar or competitive uses in the same market area.

Land Valuation Methods

The primary methods of land valuation are applications of the sales comparison approach to value. There are two principal applications of sales comparison in land valuation: the comparative unit method and the base lot method.

Ector CAD uses both methods but typically utilizes the base lot method. In the comparative unit method, the average or typical per unit sale price is computed from similar valued parcels and from statistically centered per unit values.

In the base lot method, the value of the standard or “base” parcel in each stratum is determined through sales comparison analysis, with the “base” lot serving as the subject parcel. The “base” lot can be actual or a hypothetical standard parcel. Once the base lot is established, it is used as a “benchmark” to establish values for individual parcels.

Site Adjustments

After establishment of the base lot values, the individual parcel values can be determined after applying any necessary site adjustments. Site adjustments recognize the characteristics of individual parcels, such as shape, size, and topography. They are further categorized by:

(1) Depth adjustments (2) size adjustments (3) irregular shape (4) corner influence (5) location or other adjustments. Depth factors are based on market analysis. Ector CAD utilizes depth tables that generally follow the “4-3-2-1 rule”. The first 25% of depth represent 40% of the parcel value, the second 25%, 30% of the parcel value, the third 25%, 20% of the parcel value and the final 25%, 10% of the value. From a practical standpoint Ector County Appraisal District has historically used only 2 land files based on a 70% first half and 30% back half land parcel rule. Actual depth adjustments, however, must be supported by available market data. Adjustments are also made for “excess” land or oversized lots and undersized lots.

Triangular or irregular shaped lots are also subject to adjustment due to lost utility for construction and general use, even if the irregular lot is the same size as a rectangular lot. Ector CAD generally follows the “65-35” rule for valuing these irregular, triangular, lots. The rule states that the value of a triangular lot with its base on the facing street is approximately 65% of the value of a rectangular lot of the same depth and size. Likewise, the value of an irregular lot, with its apex (point) on the facing street will be 35% of the value of rectangular lot of the same depth and size. The rule applies much more for commercial lots than to residential lots. The exercise of good appraisal judgment is always important in using “Rule of Thumb” methods of adjusting for shape and depth.

Corner influence can be positive or negative depending largely on the location and use to be made of the land. For commercial lots, visibility and accessibility can be a positive for corner lots. Corner influence to valuation of residential lots is much less significant than for commercial lots. Ector CAD recognizes the difficulties in adequately adjusting for corner influence for commercial parcels. Our approach to computing positive corner influence for commercial lots is to assign a 10%-50% factor to rectangular corner lots with equal main and side street front footage. For other lots, a ratio of the main street front footage compared to the side street front footage is calculated and the resulting factor is applied to the lot unit value.

Location and other adjustments based on parcel sales comparison analysis are determined from market data. Rural acreage land value tables are subject to size, shape, and location adjustments on a similar basis to platted lots. Sufficient market data and sales analysis are essential for District staff to reasonably value and adjust rural acreage parcels.

Improved Land Analysis

Estimating land value for improved properties in fully developed areas creates special appraisal problems for the District. Where no recent sales data for land exists, either comparable or competing land sales data must be used to value the improved land parcel or alternate methods must be utilized. Section 25.02 of the Texas Property Tax Code lists form and content requirements for district appraisal records. One such requirement is that the market value of the land as well as the market value of improvements on the land be listed separately in the District's appraisal records. Valuation of the site is also a mandatory step under the cost approach to value.

Abstraction Method

When a sufficient number of recent land sales exists, such as in a fully developed residential neighborhood, alternative methods must be employed. The most common method is the abstraction method, also known as the Land Residual Technique. This technique is not used to establish land values directly, because inconsistencies in land values from parcel to parcel will generally result. Instead, land residuals are analyzed in the same way as vacant land sales in order to establish comparative unit or base lot values. Ector CAD utilizes the Land Residual Technique in determining site values as required by Section 25.02 of the Texas Property Tax Code in fully developed neighborhoods or when recent sales data is unavailable.

Use of this method requires the appraisal district staff to isolate the value of improvements from the cost models employed by the District and then to subtract that improvement component value from sales prices of improved sales to yield a residual land value estimate. These calculated land residual values are then used as a supplement or alternative to vacant land sales in the application of the sales comparison approach to value.

In general, this method is more accurate for parcels with relatively new structures, for which replacement costs and depreciation are more easily estimated.

Allocation Method

Another recognized method for estimating land values for improved properties is the Allocation Method (also known as the Land Ratio Technique). The theory behind this method is that for a given property type in a given area, there tends to be a consistent overall relationship between land values and improvement values. When there are insufficient land sales in a given area, appraisal district staff can seek out comparable areas of improved sales and land sales and by determining the ratio of land value to total property value, this ratio can be applied to sales of improved parcels or benchmark parcels in a subject area. As with the abstraction method, the allocation method is not used to establish land values directly. This method is particularly useful in older neighborhoods. This method can be reasonably accurate if used with caution and if improvement value estimates and sales are validated. Ector CAD makes significant use of this method in residential property valuation in older, fully developed neighborhoods.

Sales comparison and the various methods under comparison analysis are predominately used by all districts, including Ector CAD, to value both improved sites and vacant lots. The Cost Approach to Value is inapplicable for land valuation. This is since land is irreplaceable, and that land is not subject to depreciation.

The Income approach to value has limited application in valuation of land. If land is rented or leased separately from improvements, then a so called “ground rent” can be capitalized into a value estimate. This Income Method is most applicable to commercial land based on a net basis (lessee responsible for property taxes and all other expenses) and to farmland. Capitalization rates that are used are based on market analysis. Ector CAD utilizes this Income Method to value land in specific cases where land is leased.

The Cost of Development Method is used for valuing land placed into residential inventory and more fully described in a previous section. Urban / rural footage and acreage land value tables are located in the District’s Appraisal Operations Manual.

Highest and Best Use Analysis

The highest and best use of property is the most reasonable and probable use that supports the highest net to land and present value as of the date of the appraisal (Subject to Jurisdictional Exception, as noted below). The highest and best use of a given property must be physically possible, legally permissible, financially feasible, and productive to its maximum use. For improved properties, the highest and best use of a property is as improved and as if the site were vacant. This view assists in determining whether existing improvements have a conversion use (through transition, nonconforming use, speculative use or other as if vacant). For vacant land tracts, highest and best use is speculative and is determined from comparable surrounding tracts. Improved properties provide a variety of uses including residential, retail, office, warehouse, and special purpose uses. The highest and best use of residential property is generally its current use. This is due in part to the fact that residential development, in many areas, through use of deed restrictions and zoning, precludes other land uses.

Residential valuation undertakes reassessment of highest and best use in transition areas and areas of mixed residential and commercial use. In transition areas with ongoing gentrification, the appraiser reviews the existing residential property use and makes a determination regarding highest and best use. Once the conclusion is made that the highest and best use remains residential, further highest and best use analysis is done to decide the type of residential use on a neighborhood basis. As an example, it may be determined in a transition area that older, non-remodeled homes are not the most productive or profitable use, and the highest and best use of such property is to demolish the old homes and construct new dwellings. In areas of mixed residential and commercial use, the appraiser reviews properties on a periodic basis to determine if changes in the real estate market require reassignment of the highest and best use of a select category of properties.

VALUATION and STATISTICAL ANALYSIS (Model Calibration)

Cost Schedules

All residential cost models (schedules) are classified as Sales Adjusted Cost-Hybrid Models. Pure cost data from published sources such as Marshall and Swift, along with local actual construction costs are maintained in the District’s CAMA program. These cost schedules are further adjusted by sample sales comparison for goodness of fit. Each appraiser is responsible for verifying and collecting accurate and reliable property data. By reasoned use of developed models, an appraiser can finalize a preliminary property value while in the field. Ector CAD uses cost schedules to value residential parcels in the district. These cost schedules (models) are hybrid models called “Market-Adjusted Cost Hybrid” computer assisted mass appraisal models. These hybrid models are the most predominately used by appraisal districts in the state. Few districts use a pure RCN cost model (schedule) to value residential properties.

Ector CAD residential one to four family mass appraisal models consist of 54 MAIN CLASSES with class defining features for each class listed in the District's Appraisal Operations Manual. Property specific features are additives to the main class such as attached/detached garages, covers, storage buildings, etc. Residential structures are classified according to quality of construction, style and design, appeal, and the presence of certain features. Age and condition of structures are adjusted based on real estate depreciation tables. These depreciation tables adjust for not only physical deterioration, but also for market reactions to obsolescence. The real estate depreciation tables are commonly called CDU percent good tables. CDU (condition, desirability and usefulness) is the overall value change from a benchmark new property, to reflect all losses of utility. Neighborhood adjustment factors are applied as warranted against base cost estimates as determined from sales analysis. The following formula represents the calculation for the cost model:

$$MV = [(RCN - AD) \times (FD) \times (ED) \times NLF] + LV$$

Market Value(MV) is equal to the replacement cost new (RCN) less accrued depreciation (AD) times the functional obsolescence (FD) and times the economic obsolescence (ED) adjustment factors, the remainder of which is multiplied by any neighborhood location adjustment factor (NLF). The land value (LV) is added to the total improvement values for a property market value total.

A review of all residential cost schedules (models) is performed annually. As part of the review and evaluation process, property data characteristics are compared against replacement costs from Marshall & Swift Valuation Services and sales ratios. After verification of these property data characteristics, samples will be used as a representative subset in any updates to the models. Schedule component tables are also developed to uniformly apply value for additional amenities such as attached garages, pools, outbuildings, tennis courts, or other market driven value items. Adjustment factors for needed repairs or deficiencies are noted and applied. Based on these statistical comparisons, a preliminary decision is made as to whether the value level within a class of residential properties or a value level within a specific neighborhood needs to be changed for the current appraisal year, or if the values are at an acceptable existing level of current estimated market value.

Property classification, adjustments, and other factors related to the residential schedules are located in the District's Appraisal Operations Manual.

Income Models

The income approach to value is typically applicable to non-owner occupied rental properties. The gross rent multiplier method is utilized as a support alternative to market sales for rental units. Rental and lease rates are tracked and matched with sales of rental units to develop GRMs for comparative use. This data is kept in the District operations sales data files.

Sales Information

Sales information, along with listing and leasing data is stored in the CAMA sales databases for properties within the district. The current and historical data comply with *USPAP Standards Rule 5-5 (a)*. Vacant land sales as well as improved 'unit sales' of residential properties are gathered from questionnaires/surveys, field discovery, builders, realtors, and during value defense. The District's CAMA system captures the necessary 'salient facts' used in analysis of market sales. Statistical analysis of present market value as compared with recent sales determines the appropriate market adjustments for a neighborhood and property

class. Neighborhood sales reports provide an analysis tool for use in developing price ranges and property component value estimates. Abstraction and allocation techniques are used to isolate and value property components under the market and cost approaches to value. These tools help in determining the effects from changes in the marketplace regarding price in comparison with sample sales prices. Statistical programs developed by the CAD Information Technology and the Appraisal Operations Department staff are used to study market trends and to develop appropriate market adjustments.

Time adjustments are periodically estimated (usually monthly) by comparing actual sales of properties of similar age, construction, and condition. Repeat sales of the same property are analyzed for indications of the influence of time change to value. Property characteristics, financing, and conditions of a sale are compared for properties sold in the pairing of property to isolate only the time factor as an influence on price.

TPTC Section 23.013 addresses the market data comparison method of appraisal. The 2009 Texas Legislature added subsection (b) to this section to specify that sales used in the market data comparison method should occur within 24 months of the appraisal date, unless too few sales occurred to produce representative samples for a given property type. Subsection (c) was added to require districts to appropriately adjust comparable sales for changes in market value of sales based on the sales date and subsection (d) includes a list of property characteristics to be considered in determining comparability between a sale and a subject property. These changes were effective January 1, 2010.

Statistical Analysis

Section 23.01 of the TPTC requires that all property be appraised at its market value as of January 1. Ector CAD uses CAMA programs to provide comparative statistical tests of data in file for residential properties. These programs are called 'ratio studies' and they have been developed to conform to IAAO's Standard on Ratio Studies as well as comply with *USPAP Standards Rule 5-7 (b)*. The District appraisal staff performs statistical analysis annually to evaluate if generated values are equitable and consistent with market level. Ratio studies are conducted on each residential valuation neighborhood in the county to determine appraisal level and uniformity and whether neighborhood and residential improvement classes are in need of change. Appraisal statistics of central tendencies (mean, median, weighted mean) and dispersion are taken from sales ratios for building class and for neighborhood (market area) each year and summarized. These summary stats provide a tool to determine level of appraisal and appraisal uniformity on a neighborhood (market area) basis. The level of appraisal is determined by the weighted mean average for individual properties within the neighborhood, and a comparison of neighborhood weighted means reflect the general level of appraised value between comparable neighborhoods.

The District, by use of the developed sales ratio analysis, reviews each neighborhood annually. First, neighborhood ratios are compared to recent sales of neighborhood properties to the appraised values of sold properties. This set of A/S ratios provides the District with a reliable means of judging the present level of appraised values and uniformity of the sales. Secondly, the District appraisal staff, based on sales ratio statistics and designated parameters for value updating, can make preliminary decisions as to whether the level of appraisal is within an acceptable margin of error. Finally, decisions are made by District staff as to changes to be made to the designated valuation parameters, based on the outcomes of the ratio analyses. Parameters are adjusted as needed to ensure that each overall neighborhood residential value is at an acceptable level.

Reconciliation and Valuation

Neighborhood or market area adjustment factors are developed from appraisal statistics provided from ratio studies and are then used to ensure that estimated residential property values are consistent with all available market data. The District's approach to value for residential properties is a combined cost-market approach (sales adjusted cost hybrid model). This approach to value accounts for neighborhood market influences not specifically contained in a pure cost approach model (such as Marshall and Swift). The following equation describes the hybrid model used by Ector CAD:

$$MV = RCN-AD + LV$$

The market value (**MV**) equals the sales adjusted cost hybrid (**RCN**) replacement cost new, less all (**AD**) accrued depreciation, to include physical deterioration and functional and economic obsolescence. This improvement figure is added to the carried (**LV**) land value. Neighborhood adjustment factors are further applied between market areas to account for location differences. These location adjustment factors are called (**BCLF**), building class location factors and are applied only against selected property improvement classes and for specific market areas. In accordance with the market approach to value, the estimated market value of the property equals the basic unit of property times the per unit price of comparable sales. For residential properties, the common unit of comparison is the price per square foot of living area. This analysis for the hybrid model is based on both the cost and market approaches as an indication of property value. A significant unknown for these two value indicators is the rate of change for the improvement component to the unit value of the parcel. The measure of change for this component can best be reflected and based in the accrued depreciation rate. The cost related factor is most appropriately measured by sales of similar properties. The market approach, when improvements are abstracted from the sale price, indicates the depreciated value of the improvement component, and in effect, measures changes in accrued depreciation. The level of improvement contribution to the property is measured by abstraction of comparable market sales, which is the property sales price less land value. The primary unknown for the cost approach is to accurately measure accrued depreciation affecting the amount of loss attributed to the improvements as time and condition change. This evaluation of cost results in the depreciated value of the improvement component based on age and condition. This evaluation of market and cost data is the basis of reconciliation within approaches and provides a meaningful and reliable residential property value under this hybrid model.

District appraisers analyze neighborhoods by review of ratio studies that compare recent sales of properties, appropriately adjusted for time effects, within a delineated neighborhood; with the value of properties based on estimated depreciated replacement cost of improvements plus land value. The calculated ratio generated from sold properties' value estimates divided by the time adjusted sales prices indicates the area level of appraisal based on sample sales. This ratio is compared with the margin of error of plus or minus 5% from the median target level of 100% to determine appraisal level for each area neighborhood. If the level of appraisal for a neighborhood is outside the range, adjustments to the neighborhood are made.

When reappraising a neighborhood, district staff analyzes available valid sales from the sales database, time adjusted, by extraction of property components. This abstraction of the components (land or improvements) permits the staff appraiser to focus on rate of change for the improvement contribution to the property unit by providing a basis for calculating accrued depreciation attributable to the improvement component. This impact on value is generally the most significant factor affecting property value and the most important unknown to determine through market analysis. Abstraction of the improvement component from the adjusted sale price for a property indicates the effect of overall market suggested influences and factors on the price of improvements that are part of the property that recently sold. Comparing this indicated price/value allocation for the improvement with the estimated replacement cost new of the improvement indicates loss in utility and value due to accrued depreciation, physical deterioration, and functional and

economic obsolescence. This is a market driven measure of accrued depreciation and further results in a true and relevant measure of improvement value, in particular when based on multiple sales that indicate the trending of rate of change over specific property improvement classes within certain neighborhoods.

Based on market analysis, the staff appraiser can estimate the annual rate of depreciation for selected improvement descriptions considering age and condition. Once estimates are made, the appraiser recalculates the improvement value of all property within the sales sample to consider and review the effects on the neighborhood sales ratios. After an acceptable level of appraisal is achieved within the sale sample, all of the properties within the neighborhood are recalculated using indicated depreciation rates taken from market sales. This depreciation factor is the basis for trending improvement values and, when combined with any other site improvements and land values, brings estimated property values through the cost approach closer to actual market prices as evidenced by recent sale prices available within a given neighborhood. Therefore, based on analysis of recent sales located within a given neighborhood area, estimated property values will reflect the market influences and conditions for the select neighborhood, thus producing more representative and supportable values. Finally, with market trend factors applied, a final ratio study is conducted that compares recent sale prices to proposed appraised values for these sold properties. From this set of ratio studies, both the appraisal level and uniformity of values in all neighborhood areas are determined to be reliable as a whole.

SPECIAL APPRAISAL PROVISIONS

Treatment of residence homesteads

Article VIII, Sec 1 (i) of the Texas constitution, allows the legislature to limit the annual percentage increase in the appraised value of a residence homestead to 10% under certain conditions. The limitation is commonly referred to as a Homestead “Capped Value”. Sec. 23.23 of the Texas Property Tax Code implements the cap on increases in value and became effective in 1998. The limited value begins in the second year the property qualifies for a residential homestead exemption. The appraised value of a qualified residence homestead will be the LESSER of:

- the market value; or
- the preceding year’s appraised value;
PLUS 10 percent for each year since the property was re-appraised;
PLUS the value of any improvements (enhancements) added since the last re-appraisal.

Since Ector County Appraisal District is on an annual reappraisal cycle, the limited appraised value must be computed annually. The appraised value of a residence homestead increases ten percent (10%) annually or until the appraised value is equal to the market value. If a limited homestead property sells, the cap automatically expires as of January 1st of the year following the sale of the property and the property is appraised at its market value. For a limited homestead, both the market value and the limited appraised value is maintained in property records.

Residential Inventory

Section 23.12 of the Texas Property Tax Code states that: “The market value of an inventory is the price for which it would sell as a unit to a purchaser who would continue the business. An inventory shall include residential real property which has never been occupied as a residence and is held for sale in the ordinary course of a trade or business, provided that the residential real property remains unoccupied, is not leased

or rented, and produces no income”. The property tax code also requires the chief appraiser to “apply generally accepted appraisal techniques in computing the market value as defined” in Section 23.12.

Generally accepted appraisal techniques (GAAT) that have been approved by the courts support the Unit Method of valuation for residential inventory appraisal. The Unit Method compares parcels based on size of parcels on a square foot basis with values of similar parcels.

Ector CAD uses the technique called the “Development Method” to value residential real estate inventory. The market value will be based on the total developmental costs as of appraisal date (January 1st of each tax year). Developmental costs typically include, purchase prices for land, fees and permits, site preparation, utilities, streets, amenities, marketing costs and construction costs of improved parcels. Once all developmental costs are calculated that figure is divided by the total development square footage of available sites or acreage to determine per square foot or per acre value of the inventory. The property tax code required procedure used by Ector CAD to value residential real estate inventory is located in the District’s appraisal operations manual found within the ‘Agency Information Manual’.

Residential Neighborhood and Market Area Analysis

Ector County Appraisal District residential market areas are delineated and defined by market area codes as stated in Appendix ‘A’ and as further listed in the District’s Agency Information Manual 4.08.05.06. Residential Inventory is assigned the IMA Code according to the geographic area where the parcels are located.

Agricultural Use Properties

The Texas Constitution permits special agricultural appraisal on land used for farm and ranch if its owner meets specific requirements. Casual uses such as home vegetable gardens do not constitute qualified agricultural use. Section 23.51 of the Texas Property Tax Code sets the standards for determining if land qualifies for agricultural appraisal. Section 23 subchapter D deals with the allowed uses and the application process involved with agricultural land appraisal.

Ector CAD publishes a local guideline for determining eligibility of agricultural land and exceptions which warrant special attention. Land size requirements and degree of intensity of use of the land are considerations in the qualifications process.

Agricultural land classes are mandated by the Texas Property Tax Code. The chief appraiser of the district may establish additional categories. In Ector County, five valuation classes of agricultural land use are maintained: Open Range (Nature Pasture), Dry Cropland, Irrigated Cropland, Improved Pasture and Orchards. Barren Land or Waste Land is not considered to be significantly present within Ector County.

All agricultural lands in the county are carried at their current market value. However, agricultural productivity appraisal allows for qualified agricultural use land to be carried at its productivity value for property tax assessment purposes. Agricultural appraisal lowers the taxable value of the land. The productive capacity of agricultural property is based on a “Net to Land” calculation that is the average annual net income that a class of land would be likely to generate over a five-year base period. The law requires the District appraisers to use the “cash” or “share” lease method to determine the “net to land”. In a cash lease, rent is a fixed amount. In a share lease, rent is a share of gross receipts for a year, less a share of certain expenses.

Each year the Texas Comptroller of Public Accounts publishes an agriculture cap rate to be used by appraisal districts in their net to land capitalization of value. For 2020, Ector CAD used a 10% capitalization rate for appraisal of all classes of qualified agricultural productivity use lands.

Agricultural Lands and Market Area Analysis

Ector County Appraisal District agricultural lands market areas are delineated and defined by general market area codes as stated in Appendix ‘A’ and as further listed in the District’s Agency Information Manual 4.08.05.05. Agricultural lands are assigned the LMA Code according to the geographic area where the acreage/tracts are located. The District currently has 52 identified Land Market Areas. These areas are further coded with one of eight different Soil Types that exist within the County. An overlay feature in the District’s GIS system permits identification by soil type for all agricultural lands in the county.

Wildlife Management Use

Section 23.521 of the Texas Property Tax Code allows qualified land used for wildlife management purposes to be subject to productive use valuation as qualified open space land (nature pasture). Qualified active use for wildlife management purposes includes propagation of a sustained breeding, migrating, or wintering population of indigenous wild animals for human use, including food, medicine, or recreation.

Wildlife management land must previously have qualified as open-space land for other purposes and at the time of application for appraisal for wildlife management use, the property must have been appraised as qualified open-space land.

Ector CAD publishes a wildlife management guideline for use by the public to help with understanding the Texas Property Tax Code requirements and the application process involved. At the current time, there are no parcels in Ector County appraised under wildlife management.

Beekeeping

The use of land to raise or keep bees for pollination or for the production of human food or other tangible products having a commercial value is a qualified use of land for agricultural productivity appraisal. The Texas Property Tax Code states a minimum acreage of 5 acres and a maximum of 20 acres to qualify beekeeping as a agricultural use. (TPTC Sec. 23.51 (2)). The land needs to have been previously under beekeeping use or other qualified agricultural use for 5 of the past 7 years. Beehives must be active and located on the property at least 7 months of a year, January 1 thru December 31.

Local requirements concerning Degree of Intensity, Basic Requirements, Produced Products, and definitions are listed in the District’s Beekeeping Guidelines under Section 5.11.25 of the District’s Agency Information Manual.

Appraisal of Restricted Land (Recreational, Park & Scenic Use)

Section 23.83 of the Texas Property Tax Code provides for special appraisal of certain types of “use” restricted land. For restricted use land to qualify for special appraisal, it must be primarily devoted to recreation, park, or scenic use for the preceding year and deed restricted for a minimum of 10 years. It must be at least 5 acres in size and cannot accrue a profit. In determining the value of qualified land so restricted, the chief appraiser may not consider any factor other than the one relating to the value of the land as restricted.

The Property Tax Assistance Division published “Guidelines for the Appraisal of Recreational, Park, and Scenic Land” in April 2016. Two primary methods of valuation for restricted land are applicable for use on land appraised under section 23.83.

The first method is to use the sales comparison method. The sale of similarly restricted use parcels can be used to help establish value for the subject parcel. Only restricted use lands can be compared.

The second method is commonly referred to as “The Reversionary Interest Technique.” The current market value of the land would be the current use value as restricted or the value of the reversion to a non-restricted use. The current value of a reversion is estimated by projecting the future value which the property may be sold for after the restriction is removed and discounting that value back to its present worth based on the use of an appropriate discount rate. This procedure attempts to measure the present value of a future sum.

In Ector County for appraisal year 2020, there are no non-exempt parcels receiving restricted Land Appraisal.

INDIVIDUAL VALUE REVIEW PROCEDURES

Field Review

District appraisers identify individual properties in need of field inspection through sales ratio analysis, informal meetings, ARB hearings, permits, owner requests, aerial photos, and other sources. Sold properties with wide variance in Appraisal to Sale Ratios are field reviewed to verify accuracy of property characteristics. Additionally, appraiser field reviews of subjective data, such as condition and functional factors both internal and external, are conducted on residential properties. GIS, aerial photos, and sales data is utilized for sold-unsold property comparisons. Field inspections during these reviews ensure that comparability and consistency of values is maintained.

Office Review

When field review is completed, District appraisal staff conducts routine valuation reviews of all residential neighborhoods and all residential improvement classes. Value reports generated from sales samples comparing prior period carried values against proposed and final values for residential properties in the county, both vacant and improved, are conducted. The percentage variance for each property value within a neighborhood allows staff to identify, research, and resolve certain value outliers and other value anomalies before the final value estimates are set and released through notice. Prior period values from informal meetings and formal hearings are individually reviewed to determine whether values are to be

held for the current year, if required under TPTC Section 23.01(c), or if the property should generate a scheduled value from the system for the current year.

Management Review

When proposed current year values are finalized, results of class and neighborhood values, ratios and sales samples are submitted to the Chief Appraiser for final approval. The primary goal of the management review is to ensure that the proposed values for the residential properties in the district are reliable and that they meet the District's appraisal guidelines for the current tax year.

PERFORMANCE TESTS

Sales Ratio Studies

A ratio study compares appraised values to market values. It is the primary tool used by mass appraisers to measure mass appraisal accuracy, both level and uniformity of appraisals. The District analyzes every ratio study to first determine if sample size is sufficient; once sufficient, conclusions are drawn from the data. These conclusions help to assure that the property tax system within the district fairly measures mass appraisal performance. Appraisal-to-sale ratios are calculated for property type and class, by neighborhood area, and further by delineated market area by the selection of a neighborhood (market area) code. (IMA) Improved Market Area Codes and (LMA) Land Market Area Codes are analyzed in Ratio Study Analysis on a continual, but irregular basis. Ector CAD's CAMA software provides a ratio performance module for statistically calculating measures of central tendency; Median, Mean, and Weighted Mean. Uniformity calculations provide measures of range, average absolute deviation, coefficient of dispersion, standard deviation, coefficient of variation, and price-related differential. The District's ratio studies are designed to conform to the State Comptroller's property value study for Category 'A' properties and further conform to the IAAO Standard on Ratio Studies, as well as comply with *USPAP Standards Rule 5-7(b)*.

COMMERCIAL/INDUSTRIAL REAL PROPERTY VALUATION PROCESS

INTRODUCTION

Scope of Responsibility

Commercial and Industrial real property appraisals are performed in-house by the District's appraisal staff. The mass appraisal assignment includes all the described real properties located within the boundaries of Ector County. The fee simple interest of commercial real property is appraised as required by law. The

effect of easements, restrictions, encumbrances, leases, contracts, etc. are considered on a case by case basis. Fractional or partial interests of the real property are appraised in fee simple for the whole, and then divided based on their pro-rata share interest. Commercial real property types include multi-family housing, hotel/motels, office, retail, warehouse/manufacturing, process plants and various other business-related facilities. The appraisal staff also values all commercial and rural land parcels. The staff is responsible for valuing all real property for which the highest and best use is non-residential. There are approximately 5,600 improved commercial and industrial real properties and approximately 3,100 unimproved commercial and industrial real properties in Ector County.

Appraisal Resources

Personnel: Commercial real property in general is worked by the field appraiser in which the property is located. Ector CAD is organized into seven (7) geographic areas. Each field appraiser is responsible for conducting appraisals of most commercial properties within their assigned work area. Multi-family and industrial facilities are appraised by other District appraisal operations staff. Ector CAD does not contract any annual property appraisals. All reappraisal activities and appraisals are completed in-house by District staff.

Data: The data used by District appraisers for commercial properties includes verified sales of vacant land as well as improved properties. Salient facts from each sale (prices, capitalization rates, income multiples, personal property, etc.) are noted and stored. Other data gathered by the appraisers include actual income and expense items, contract rent data, leasing terms and proposed construction or capital improvements. The District also maintains subscriptions to publications for market data and trends.

VALUATION APPROACH (Model Specification)

Area Analysis

Relevant data on regional economic forces such as demographic numbers, employment, crude oil and natural gas prices, drilling rig counts, average family income numbers, interest rates, rental rates, temporary lodging, retail sales, and construction and development trends are collected from private sources and from public releases. This information and other current data are analyzed for schedule development and adjustments to models.

Neighborhood (Market Area) Analysis

A commercial neighborhood, economic market area or submarket is comprised of land and the commercial properties located within the boundaries of a defined geographic location. The District's CAMA system provides for an identifier field called a "LMA" or land market area. The commercial properties within the district can be divided and or assigned to specific land market areas as determined from analysis of complimentary and competing property types including commercial, industrial, governmental, as well as residential. Neighborhood analysis involves the examination of how physical, economic, governmental and social forces, and other influences affect property value. The effects of these forces are also used to identify, classify, and organize comparable properties into market subsets from the universe of properties within the district. Market area delineations are based on man-made, political, and natural geographic boundaries.

Land market areas for both vacant and improved properties are defined for each of the various commercial/industrial property types based upon qualitative and quantitative analysis of similar economic

and other market forces. These property types will include multi-family apartment projects, office, retail, warehouse, and special use facilities. Similarities to consider include but are not limited to, rental rates, building construction quality or 'building rank', age, market activity level and area competition, supply and demand, market or market segment stability, ordinances and restrictions, and availability of infrastructure (streets, utilities, access and visibility). Ector CAD's LMA boundaries for commercial/industrial properties closely follow the observed aspects of homogeneity between neighborhoods. Neighborhood analysis is performed to examine how these forces influence property values.

Economic area identification and delineation by major property category is a key component in the mass appraisal commercial valuation system. All the District's CAMA commercial mass income value and sales data schedules are area specific. Economic areas within the district are periodically reviewed to determine if delineation revisions are required. Geographic boundaries as well as income, occupancy, expense levels, and capitalization rates by age within each economic area for all commercial use types and its corresponding income model are estimated for these properties.

Commercial and income-producing properties in the county are stratified by property type. Separate improvement models are developed for these property types. The District further stratifies certain property types such as multi-family housing, office, retail, warehouse, and others by area. This is in compliance with the IAAO's "Standard on Mass Appraisal of Real Property".

The District's commercial market area codes are listed in Appendix 'A' of this reappraisal plan and also in the District's Agency Information Manual 4.08.05.07. Codes are assigned based on property type and use and geographic location. The general market areas (LMA-Land Market Area) are delineated for each major commercial property type. Ratios analysis is performed by these property types and further by batched market area codes.

Land Analysis

On an annual basis, commercial land analysis is conducted by the District staff in developing base lot values on per square foot of area, by acreage, and when flat pricing. Land market adjustments are established for view, shape, size, topography, utilities, access and visibility, traffic, corner influence, and major thoroughfares among others. Unimproved land sales are stored in the District's sales database and utilized for model development along with abstraction and allocation methods to ensure that the land values best reflect the contributory market value of the land to overall property value. Undisclosed land sales are also targeted for analysis during reappraisal.

Highest and Best Use Analysis

The highest and best use of property is the most reasonable and probable use that supports the highest net to land and present value as of the date of the appraisal. The highest and best use of a given property must be physically possible, legally permissible, financially feasible, and productive to its maximum use. For improved properties, the highest and best use of a property is as improved and as if the site were vacant. This view assists in determining whether existing improvements have a conversion use (through transition, nonconforming use, speculative use or other as if vacant). For vacant land tracts, highest and best use is speculative and is determined from comparable surrounding tracts. Improved properties provide a variety of uses including multi-family, temporary lodging, retail, office, warehouse, and special purpose uses. The highest and best use of commercial property is generally its current use. This analysis ensures that an accurate estimate of market value (value in exchange) is determined. On the other hand, value in use

represents the value of property to a specific user for a specific purpose. This is quite different than market value, which reflects market price under the following assumptions: (1) no forced or undue influences on the buyer or seller of a property, (2) knowledgeable parties to the sale, (3) reasonable time for a transaction to close, and (4) payment in cash or cash equivalency.

Value in use represents the value of a property to a specific user for a specific use. An example of value in use would be agricultural productivity value. The Texas Property Tax Code has certain stated provisions for the appraisal of restricted use properties or specific property types that also require a value based on a specific use.

Commercial valuation undertakes reassessment of highest and best use in transition areas and in areas of mixed residential and commercial use. In transition areas with ongoing gentrification, the appraiser reviews the existing area property uses and makes a determination regarding highest and best use. Once the conclusion is made that the highest and best use remains commercial, further highest and best use analysis is done to decide the type of property uses on a neighborhood basis. In areas of mixed residential and commercial use, the appraiser reviews properties on a periodic basis to determine if changes in the real estate market require reassignment of the highest and best use of a select category of properties.

Economic Unit

An economic unit consists of a property or grouping of properties recognized by investors in the market as a single unit of property. An economic unit requires common ownership and physical contiguity with natural or identifiable geographic boundaries. Multiple accounts and parcels may be in one economic unit. In addition, the highest and best use is the likelihood that the properties (parcels) would sell as one property. The District's CAMA software groups account numbers for unit properties by 'linking' the multiple parcels for undivided interests and for multiple accounts sold as one unit in the sales database. District staff makes value determinations at account or parcel levels as well as the economic unit or property level for commercial properties.

Data Collection and Validation

Collection Procedures: The District's Commercial Appraisal Manual is the primary source for staff to use in the data collection and classification of commercial/industrial properties. This manual is updated over time on a recurring basis and provides a uniform system by which to classify by category the various types of properties within the district. Approaches to value are structured for the various property types. All commercial/industrial properties within the boundaries of Ector County are coded according to this manual and the approaches to value are structured and calibrated based on this coding system. Field appraisers use these manuals during training and during field inspections for property classification when discovering new properties. The manual is accessible by field appraisers on their individual tablet computers or by print copy. Most of the data gathered and further described in the manual is listed in drop down boxes or input field selection lists. Standardized codes are used to describe commercial property at the parcel level by building class. The District's 110-plus commercial property type classes are similar in description to approximately 250 categories of commercial buildings that are listed by Marshall and Swift Valuation Services. Ector CAD subscribes to IAAO guidelines concerning classification of structures according to their original construction design primarily and secondly to a structure's current use. The manual also contains calibrated rates for various main and secondary structures along with various site improvements. Depreciation tables based on effective age and overall observed condition are also included in the commercial manual.

Sales data after verification is stored in the District's sales database for historical record requirements and for production of sales and ratio reports. These sales reports categorize the sales by property type and use and by location and market area. The sales data is used by the District staff during informal meetings and during formal administrative hearings.

Sources of Data: In terms of commercial sales data, Ector CAD receives all deed filings from the Ector County Clerk's Office. Other sources of sale data include informal meetings, administrative protest hearings, litigation discovery, LoopNet, Co-Star, Trepp, and other published sources. Sale data is reviewed and verified to determine reliability of content. Sales details are compiled to create a "snapshot" of the sold parcel and/or economic unit as of sale date. Field inspections are typically conducted for significant variances of property descriptions from District records.

Sales questionnaires are periodically sent out to buyers and sellers for certain commercial transactions. Data from responses by the parties is entered into the sales database. Communications by staff with phone calls to buyers and sellers are conducted to confirm sales data details. Real estate brokers and property managers are also surveyed for sales data information. In other instances, sales data details are gathered from real estate fee appraisers. Finally, closing statements are sometimes provided during the hearings process. Property owners, when filing a protest, have access to certain sales data used in valuing their properties and to all non-private entity or non-confidential source sales data under public provisions of the Open Records Act.

Commercial building permits are entered into the District's CAMA property accounts permit module. Permits issued to comply with building code standards within jurisdictional city limits are utilized by field staff appraisers to assess properties for major replacements and repairs of plumbing, electrical, HVAC, roofing, foundations, canopies, additions, paving, structures, and appurtenances. On a regular basis, copies of these permits are forwarded to Ector CAD from City Inspections and matched to database property accounts. District appraisal staff field inspect permit activity and make property changes accordingly. Value additions to the roll for new original construction is tabulated and reported to each assessing jurisdiction for use in calculating their effective tax rate each year.

Income and expense data consist of property rent rolls and income statements and are generally provided by property owners during informal meetings or during administrative protest hearings. Actual data is stored in the District's CAMA income and expense modules for the associated accounts. Relevant income data includes contract and market rent rates, physical and economic market vacancy rates, tenant reimbursements, operating expenses, capitalization rates, discount rates, and leasing activity.

Income and Expense Surveys are mailed out periodically to the owners/managers of certain income-producing classes of real property; in particular, offices, retail stores, strip center shops, and shop/warehouses. Income and expense information that is submitted to the District from these surveys is categorized by property type and analyzed for comparison purposes to apply to the same or similar property types for consideration of use of the Income Approach to value.

Valuation Formulas

The commercial appraisal system, developed and maintained in the District's CAMA database, consists of mass appraisal applications of the sales comparison (market) approach, the cost approach, and the income approach to value. The application of these approaches is based on economic theories, market analyses, and generally accepted and recognized appraisal techniques. Each approach to value represents a specific model (schedule) or formula that defines property characteristics and their relationships in order to arrive at a reasonable estimate of market value for a given property. Reconciliation of two or more approaches to value

provides a final value estimate and the same or similar properties are treated the same to comply with TPTC Section 23.0101.

Cost Approach Models

The cost approach to value is based on depreciated improvement costs plus land value. It is utilized for commercial and industrial improved real property by means of the comparative unit method. The District uses national market data from Marshall and Swift Valuation Service, along with current actual construction costs to develop improvement schedules for commercial property types. Cost models include the (RCN) new replacement cost of items for improvements. These include comparative base rates, per unit adjustments, and lump sum adjustments for variations in property descriptions, design and construction, and quality of construction. This approach to value also uses the sales comparison approach to value to evaluate soft and indirect construction costs. This approach to value also employs the sales comparison approach in valuing the underlying land component. Evaluating market sales of newly developed improved property is an important part of understanding total replacement costs of improvements. Time and location modifiers are used to adjust regional or zone cost data to a local market area and to reflect market changes for time. The District's commercial cost schedules are reviewed and updated annually.

Improvements

Commercial cost models for improvements involve categorizing or batching improvements by construction type and further by use. Ector Cad has developed a commercial building improvement class of over 110 types. For each of these building classes, key characteristics are used to describe a typical or benchmark property. These characteristics include construction style and design, construction quality, plumbing, interior appointments and finish, flooring, roof style and materials, heating/cooling, exterior wall covering, story height, number of stories, and other relevant factors. The Commercial Valuation Manual contains descriptions and lists of these relevant property class characteristics. Additional site improvements for building classes such as asphalt pavement, concrete paving, lighting, covers, garages, and accessory buildings or other improvements are specified and valued under the District's CAMA cost approach value models. Ector CAD's commercial cost value models are based on a hybrid cost-sales comparison approach. This technique is called a 'Hybrid Cost-Specified Market Approach' or also referred to as 'Market-Adjusted Cost Hybrid' and is one of six (6) recognized methodologies used for CAMA models in ad valorem tax appraisal. This technique is explained in detail in the June 2005 issue of "Fair and Equitable", a trade publication of the 'International Association of Assessing Officers' (IAAO).

Other key data needed for the cost approach includes gross and net building areas, actual and effective construction year, work-in-progress, or percent completed, and overall property condition. The District's model uses a base rate for the improvements multiplied times the gross building area to yield an improvement value. The improvement values cover one or more classes of improvements. ECAD CAMA identifies building classes as 'taxable objects' and/or 'additional improvements'. The total improvement value for an account is represented by the totals of the depreciated values of all taxable objects and additional improvements plus the addition for additional site improvements.

Depreciation

Accrued depreciation is the sum of all forms of loss affecting the contributory value of the improvements. It is generally considered to be the total loss of utility of the improvements for all causes. It is the realized loss against current replacement cost new (RCN) taken from the three forms: physical deterioration,

functional or internal obsolescence, and economic or external or location obsolescence. Accrued depreciation is estimated and is developed from typical loss for the various property types for a specific age. Physical depreciation is expressed as a percentage deduction from estimated RCN. The depreciation rates are selected from the District's CAMA system for Real Estate Depreciation Tables, which is developed from and dependent on the class, condition, effective age and expected economic life of each improvement. Separate determinations are made for functional and/or economic depreciation rates based on property specific conditions. Effective age estimates are updated and based on the utility of the improvements relative to where the improvement lies on a scale of its total economic life and its competitive place in the current marketplace. Effective age estimates are based on personal inspection and analysis by the commercial appraisal staff. The result of this estimate of accrued depreciation and the further deduction from the estimated replacement cost new of improvements provides an estimated contributory value of the improvements. Adding in the estimated land value, as if vacant, to the contributory value of the improvements, provides for a property value estimate under the cost approach. Given relevant cost estimates for replacement and current market-derived measurements of accrued depreciation, the indicated value by use of the cost approach to value provides for a reliable value indicator.

The following formula is representative of the calculations in Ector CAD's CAMA cost model:

$$MV = [(RCN - AD) \times (FD) \times (ED) \times NLF] + LV$$

Market Value (**MV**) is equal to the replacement cost new (**RCN**) less accrued depreciation (**AD**) times the functional obsolescence (**FD**) and times the economic obsolescence (**ED**) adjustment factors, the remainder of which is multiplied times any neighborhood (market area) location adjustment factors (**NLF**). The land value (**LV**) is added to the total improvement value for a property market value total.

Land Value

During reappraisal of land accounts, District staff review sales to develop or adjust base land rates on a per acre or per square foot basis. A land base rate represents the unit value for a "benchmark" land parcel with property characteristics described by a particular tract size, range, current and /or potential use, shape and/or topography, zoning (if applicable), location, and other characteristics. Properties within a competing area that differ from the "benchmark" are valued using a base rate (from the Land Tables) and adjusted for those differences in characteristics from the typical "benchmark" property. The land value for each real estate land parcel is calculated by multiplying the land size by the adjusted land rate. The depreciated improvement value is added to the land value to produce a total cost approach value at the account level. For an economic unit, the cost approach to value represents the sum of all the values for all associated accounts within the economic unit.

Sales Comparison Approach Models (Market Approach)

All three of the recognized approaches to value are based on market data. The Direct Sales Comparison Approach, also commonly referred to as the Market Approach, is generally used as a primary tool for valuation of land, but also for comparing sales of similarly improved properties to parcels on the District's appraisal roll. Sales of similarly improved properties are used in the development of depreciation schedules in the Cost Approach, for rates and multipliers that are used in the Income Approach and as direct comparison in the Sales Comparison Approach to value. Relevant data from actual verified and valid sales of properties, both vacant land and improved properties, are gathered and collected throughout the year and used in all aspects of property valuation. Improved sales will further be used in ratio studies, which afford the District staff a reliable means to measure appraisal level and uniformity of appraised values.

The formula for the sales comparison approach (market approach) is **(MV) Market Value = Sales Prices of Comparable Properties Adjusted** (adjusted for the presence or absence of certain features). In this model, market value is a ‘Unit Value’ for both land and improvements. The sales comparison approach to value requires data availability and a reasonable amount of data collected. Not all commercial/industrial properties within the District can reliably be valued with this approach because of a limited amount of verified sales data.

Income Approach Models

The income approach to value is applied to certain real properties that are typically considered ‘investment use’ properties and further viewed by market participants as “income producing”, and for which the income methods and techniques provide a reliable indication of market value. Step one in the income approach to value for commercial/industrial properties is the determination of expected market rental rates. This market rent rate is derived from actual or contract rent data from existing properties in the marketplace, by property owners and property managers, and from District surveys. The per-unit rent rate multiplied by the number of units for a property results in an estimated (PGR) Potential Gross Rent for the property.

A vacancy and collection loss (V&C) allowance is the next item to determine for the commercial income property. This estimated vacancy and collection amount, or percentage, is established from actual current data from participants in the marketplace. The allowance accounts for fluctuations in occupancy, both above and below stabilized levels. This feature can also provide for a reasonable lease-up time period for multi-tenant properties, where applicable. The market derived stabilized vacancy and collection loss allowance is then subtracted from the potential gross rent estimate to yield an annual (EGR) effective gross rent amount for a property. Secondary or service income, if applicable, is calculated as a percentage of stabilized rent. These additional income amounts are derived from parking fees, re-imbursements, vending, occupant services, food and beverages, and other miscellaneous income generated from the operations of a real property. The secondary income estimate is derived from actual market data and available market information. The secondary income estimate for a property is then added to the effective gross rent amount to arrive at (EGI) an effective gross income for the property.

Allowed expenses and expense ratio estimates are to be based on a study of local market, with prudent management a given. An allowance for non-recoverable expenses such as leasing costs and tenant improvements may be included in allowed expenses. A non-recoverable expense represents costs that the owner pays to lease out rental space. Different expense ratios will be developed for different types of commercial property based on use and market experience. For example, retail commercial properties are most commonly leased on a triple-net basis, where the tenant is responsible for their pro-rata share of taxes, insurance, and common area maintenance. In comparison, a general office building is most often leased out on a base year expense stop. This lease type stipulates that the owner is responsible for all expenses incurred during the first year of the lease. However, any amount in excess of the total unit expenditure in the first year is the responsibility of the tenant. Any increase in expense over the base rate throughout the remainder of the lease term would be the responsibility of the tenant. As a result, expense ratios are implemented and estimated based on observed market experience in operating various commercial property types.

Another form of allowed expense is the replacement of short-lived items, such as roof or floor coverings, HVAC, major mechanical equipment, or appliances requiring large lump sum expenditures. When these capital expenditures are analyzed for consistency and adjusted, they may be applied on an annualized basis as stabilized expenses. When performed in accordance with local market practices, by commercial property type, these irregular occurring expenses, when annualized, are known as replacement reserves.

Subtracting the allowable expenses (including non-recoverable expenses and replacement reserves), called operating expenses (OE) from the effective gross income (EGI) yields an estimate of (NOI) net operating income from the property.

Return rates and income multipliers will be used to convert operating income into an estimated market value. These include income multipliers, overall capitalization rates, and discount rates. Each of these multipliers or return rates are considered and used in specific applications. Rates and multipliers may vary between commercial property types, as well as by location, quality, condition, design, age, and other factors. Therefore, application of the various rates and multipliers must be based on a thorough analysis of the current market for individual income property types and use. These procedures are supported and documented based on analysis of market sales for commercial property types.

Capitalization analysis will be used in the income approach models to form an indication of market value. This methodology involves the direct capitalization of net operating income as a value indicator for a specific property. Capitalization rates, both overall rates (called going-in cap rates) for the direct capitalization method and terminal cap rates (yield rates) for (DCF) discounted cash flow analysis are derived from the market for various commercial property types. Sales of improved properties from which actual income and expense data is obtained provide a good indication of property return expectations that a market participant requires from an investment as of a specific time. In addition, overall capitalization rates can be derived and estimated from the build-up method (band-of-investment technique). This method relates to satisfying estimated market return requirements of both the debt and equity positions in a real estate investment. This information is obtained from available commercial property sales, real estate and trade publications, and from other financial sources.

Rent loss concessions are made on specific properties with known non-typical vacancy rate ranges. A rent loss concession accounts for the impact of lost rental income during a property's transition period from leasing out to stabilized occupancy. The rent loss amount is calculated by multiplying the rental rate by the percent difference of the property's stabilized occupancy and its current actual occupancy. Build-out allowances (for first generation space or retrofit second generation space) and leasing costs are added to the rent loss estimate. A leasing cost (expense) necessary to bring the property to a stabilized level is also included in this adjustment. The total adjusted loss from these real property operations is discounted using an acceptable and reasonable risk rate. The discounted value, inclusive of rent loss due to extraordinary vacancy, build-out allowances and leasing commissions, becomes the rent loss concession and is deducted from the indicated value of the property at stabilized occupancy. A variation of this technique allows that a rent loss deduction may be estimated for every year that the property's occupancy is less than the stabilized occupancy. In contrast, if a property is above the stabilized occupancy level as of the date of appraisal, the market will pay a premium. In this instance, the present value of the excess income over the stabilized level will be added to the value of the property.

Most industrial property types in the district are valued as single property and valued by use of the cost approach to value rather than by the income approach to value. These property types are not often bought and sold in the open market. Sales generally are company-wide, cross country sales with intangible assets often being a substantial component to the selling price. Certain special use properties will also be valued as the industrial facilities are. If the District does not have mass appraisal models developed for some of these unique special use real properties, then single property appraisal development will be conducted by District staff and in accordance with *USPAP Standard Rule 1*.

The basic formula for the income approach to value is **MV= NOI / Rate**; whereby market value is equal to the net operating income of the property divided by the direct overall capitalization rate. This process is generally known as "direct capitalization", which uses a snapshot of one year's stabilized net income divided by a rate to provide a value estimate. The value estimate is inversely a yearly multiple of the NOI

of the property. The District's CAMA income approach module provides the database fields to capture the required data and make the needed calculations from the data. Pro-forma income fields allow District appraisal staff to input estimated data from properties and adjust for actual differences, when warranted. A thorough analysis of both actual income and expense and default model income and expense data is used to developing market value estimates. The pro-forma allows the appraiser to blend market rate data with actual data from specific properties.

The Income Approach formula with definitions of components, are as follows:

Potential Gross Rent (PGR)
Less: Vacancy & Collection losses (V&C)
Equals Effective Gross Rent (EGR)
Plus Secondary Income, if any
Equals Effective Gross Income (EGI)
Less: Allowed Operating Expenses (OE)
Equals Net Operating Income (NOI)

Net Operating Income / Overall Cap Rate = Value

Potential Gross Rent (PGR) - Total economic or market rent at 100% occupancy

Vacancy and Collection (V&C) - Loss in rental income because of physical vacancy, bad debts or economic rental concessions

Effective Gross Rent (EGR) – Rental income after allowance for vacancy and collection losses

Secondary Income – Income, other than rent, received from other sources or concessions. It can be expressed as a dollar amount or as a percentage of PGR or EGR.

Effective Gross Income (EGI) – Actual income from rent and other sources

Operating Expenses (OE) – Expenses that are necessary to sustain the real property cash flows. Typical, reasonable, and necessary expenses that a typical, prudent property owner/manager would encounter

Net Operating Income (NOI) – Income after expenses; this is income before debt service, depletion, depreciation, and amortization (DD&A), income tax or interest expense.

Overall Capitalization Rate (OAR) – Rate used to convert net income into value. An overall cap rate represents both the return of and the return on investment; reflects the relationship between a single year's NOI expectancy and the total property price or value. If property tax is added into the cap rate, the resulting 'loaded cap rate' will require the line item deduction from operating expense of property tax.

Actual income data is specific to a property, but the actual numbers are typically representative of the current marketplace and conform to the characteristics of similar income-producing real properties. Typical market models are further developed by batching the income-producing comparables together, conditioned on specific criteria of comparison. These groups provide a set of income parameters that are analyzed and calibrated to create pre-defined income models. The income models include the parameters of potential gross rent, vacancy allowance, other income, and operating expenses. These are applied on both a unit and a square foot comparative basis.

VALUATION PROCESS (Model Calibration)

Model Calibration

Model calibration involves the process of periodically adjusting the mass appraisal formulas, tables, and schedules to reflect current local market conditions. Once the models have undergone the specification process, adjustments can be made to reflect new construction procedures and materials and/or costs, which can vary from year to year. The basic structure of a mass appraisal model can be valid over an extended period of time, with trending factors utilized to update the data to the current market conditions. However, at some point, if the adjustment process becomes too involved, the model calibration technique can mandate new model specifications or a revised model structure.

Final Valuation

Based on the market data analysis and review as previously detailed above, the sales comparison and the cost and income models are adjusted (calibrated) and finalized. The calibration results are keyed to the models (schedules) in the CAMA system for use on all commercial real properties within the district. The market data factors utilized within the cost and income methods are analyzed and confirmed from valid market sales of commercial and industrial real properties within the county. District staff reviews the cost, income, and sales comparison approaches to value for each property type, along with all available sales information. The final value estimate for commercial properties is estimated based on reconciling the indications of value considering the weight of the market information available for evaluation and analysis and determining the most reliable method to use for a particular property class. This is in compliance with both *USPAP Standards Rule 5-7* and TPTC Section 23.0101.

Statistical and Capitalization Analysis

Statistical analysis of final values is a necessary step in quality control. This methodology represents a comparison of final value determination against the standard and further provides for a close measurement of appraisal performance. Statistical comparisons of different standards are used including sales of similar properties, the prior year's market value, audit results, change logs, and sales ratio analysis.

Appraisal statistics on central tendency and dispersion generated from appraisal to sales ratios are calculated for each property type with all available sales in the District's sales database. These summary statistics include the mean, the weighted mean, and the median. They are an analytical tool to help the appraisal staff in determining the level of appraisal for property categories. Reviews of commercial property types are made annually through this ratio analysis process.

Potential gross rent estimates, occupancy levels, secondary income, allowed operating expense items (including non-recoverable and replacement reserves), net operating income, capitalization rates, and multipliers are continuously reviewed. Income model estimates and conclusions are compared to actual data obtained on individual commercial and industrial income properties during the protest hearings process, as well as with information from published sources and area property managers and property owners.

INDIVIDUAL VALUE REVIEW PROCEDURES

Field Review

The date of the last property inspection, the extent of the inspection, and the appraisers involved are all listed in the District's CAMA system. If a property owner disputes the District's records concerning specific property data in a formal hearing or during an informal meeting, CAMA database records may be changed based on the relevance of the evidence presented and if a change is warranted. Generally, a field inspection is initiated to verify the information presented for the current year appraisal or in some cases for the following years' records. In addition, if a building permit is issued for a particular property indicating a change in the relevant characteristics of the property, that property is flagged for field review and physical exterior inspection.

District appraisers field inspect all commercial properties within their assigned geographic areas each year and as required from follow-up work file flags, from areas experiencing new construction or renovations, and from out of range statistics from appraisal to sales ratio reports. Subjective data items, such as building class/subclass classifications, condition, and functional and external obsolescence are likewise reviewed in the field and the effects of impact on value are considered. Field review can also be initiated from significant marketplace changes in occupancy levels, rental rates changes, or specific area changes to commercial/industrial or residential properties. Appraisers inspect both sold and unsold properties for comparability and consistency of market values.

Office Review

Office reviews are typically limited by the amount and quality of data presented. The office reviews are completed on properties subject to field inspections and are performed in compliance with the guidelines required by the District's existing property classification system. These reviews summarize the pertinent data of each property, as well as comparing the previous value of the property to proposed values in place from the various approaches to value. These evaluations and reviews reflect the proposed value changes, income model attributes, economic factors, and special factors affecting the property valuation such as new construction status, sales history (3-Year for single property appraisal –*USPAP Standard Rule 1*); all sales database histories to include a 3-Year minimum. The office review is performed after preliminary ratio statistics have been conducted. If the ratio stats are generally acceptable on an overall basis, the office review process will focus on individual properties that are out of range. Previous values resulting from protest hearings are individually reviewed to determine if the value remains appropriate for the current year based on market conditions. Compliance with TPTC Section 23.01(C) concerning carry forward values for the following year from ARB decisions are of course followed, and values are altered only for substantial changes for those properties to which this requirement applies.

When District appraisal staff is satisfied with both the level and uniformity of commercial property values for district properties, the values are totaled, and appraisal notices sent out in compliance with TPTC Section 25.19. Each property is subject to the value parameters appropriate for its use type.

PERFORMANCE TESTS

Sales Ratio Studies

The primary tool used to measure mass appraisal performance is the ratio study. A ratio study compares appraised market values to actual market sale prices. Sales ratios are an integral part of estimating equitable and accurate market values, ultimately resulting in fair property assessments for the taxing jurisdictions within the district. Sales ratio studies act as a decision-making tool for general reappraisal planning, property type selections, problem area or property type identification, and for model calibration. These ratio studies are not used exclusively to judge the accuracy of an individual property's appraised value. The district can make individual adjustments based on unequal appraisal protest evidence that is submitted to the district on a case-by-case basis during the hearing process.

Overall sales ratios are generated by use type on an interim and on an annual basis to allow appraisal staff to review general market trends and to further relate to the Property Value Study performed every other year by the Comptroller's office. The appraisal staff utilize desktop and tablet PCs with available Microsoft Excel programs and programs to evaluate sub-sets of data by economic area or for a specific and unique data item. This data can be customized by improvement building class, age, area, PTAD category, or on another basis. In certain cases, field checks may be conducted to ensure that the ratios produced are acceptable in accuracy and that the appraised values are based on accurate property data characteristics. These ratio studies aid the appraisal staff by providing an indication of market activity by economic area or changing market conditions, whether appreciating, depreciating, or at a stable level.

Comparative Appraisal Analysis

The commercial appraisal staff performs average unit value comparisons as well as traditional ratio studies. These studies are performed on commercial classes of properties by improvement class type. These include multi-family, office, retail, warehouse, special use, and industrial facilities. The objective of these evaluations is to determine appraisal performance of sold and unsold properties. The district appraisal staff calculates the average unit prices of sold properties and the average unit appraised values of the same properties to develop a comparison of average value changes of sold and unsold properties. These studies are conducted on various strata, generally class and subclass of the improvements and on properties located within various economic areas. In this way, overall appraisal performance is evaluated geographically, by specific property class type to determine whether sold properties have been selectively appraised (otherwise known as sales chasing). When sold properties and unsold properties are appraised equally, the average unit values are most similar and within a reasonable value range. These sales and equity studies are performed prior to final appraisal and prior to preparation of notices of proposed appraised value.

COMMERCIAL REAL PROPERTY CATEGORIES

Industrial Real Property

Ector CAD is responsible for developing fair, uniform market values for improved industrial properties and industrial vacant land. The district appraisers are also responsible for the valuation of all tangible general industrial personal property in Ector County. There are approximately 29 primary parcels of industrial real property in Ector County. The district appraises approximately 52 parcels of industrial tangible personal property. All industrial real and industrial personal properties within the district are conducted in-house by appraisal district staff.

Model Specification

Modeling considerations applicable to commercial properties generally do not apply to industrial process facilities. Likewise, there are rarely enough market sales of Industrial Facilities for developing sales models.

Many industrial properties use the same type of buildings and, depending on the type of business, may use the same type of manufacturing or service equipment. However, the manner in which the entire business operation is put together makes a particular facility unique. Information from similar businesses is used to evaluate the real and personal property values at a particular business, but the individual characteristics of the business being reviewed determine the value estimation.

Many of the buildings encountered at industrial facilities are generic in construction, such as pre-engineered metal buildings. The cost per square foot to construct these type structures can be used to estimate values at facilities that have similarly constructed buildings. However, the buildings will have differences that must be considered when estimating the final value of the property being reviewed.

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

Procedure for Collecting and Validating Data

The district appraisal staff inspects their assigned properties to obtain information about buildings, site improvements, process and shop equipment, and various items of personal property. In addition, District appraisal personnel use information provided by property owners concerning the cost to purchase, install, and construct items of real and personal property. The individual characteristics of the property being appraised are the primary factors that drive the appraised value.

An extended range of variations may exist within the same class of industrial property, and there are a multitude of property types within the industrial category. For this reason, effective data collection procedures would be difficult to organize in a single comprehensive manual. The district has adopted as a guide the Marshall & Swift Commercial Building System and the companion data acquisition forms to standardize data collection for buildings assigned to District appraisal staff. The data generated by these forms enables the appraiser to use the software to value industrial buildings.

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

The original real and personal property data used by ECAD was supplied by the ISD Tax Offices and the Ector County Tax Office. Since that time, the District appraisal personnel have updated that information based on field review. As new facilities are built, the District appraisal personnel collect all the real and personal property data characteristics that are necessary to value the property initially, and thereafter, update the information when the property is again visited. Building permit information is received from the City

of Odessa when a facility is being built inside the incorporated city limits. Other sources of data include publications such as the Texas Register, trade publications, and news reports.

Model Calibration

Industrial plants are typically valued on a cost approach to value. Since they are considered to be ‘productive use’ facilities, the cost approach to value is considered to be a most reliable indicator of market value for such facilities. The models (schedules) used by the District are an integration of the Marshall & Swift Commercial Building Valuation System for real property improvements. The real property valuation schedules are updated periodically through data supplied by Marshall and Swift. The valuation schedules for buildings are incorporated into the industrial plant database and then updated periodically.

Ector CAD develops schedules based on indexed Marshall and Swift depreciation factors for use in the valuation of all business and industrial personal property. These schedules are updated annually by district appraisal staff.

Area Analysis

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

Neighborhood Analysis

Neighborhood analysis is not performed due to the non-homogeneous nature of the property type. Industrial properties do not have the type of generic “sameness” that is appropriate for neighborhood models. Market Areas for most Industrial Type properties include not only local areas, but are often regional, state or national in scope. Many Industrial Properties are valued by way of ‘single property’ appraisal, rather than in mass with use of mass appraisal models. Market area identification is typically broader in nature than just the local district boundaries. Industrial type properties that are appraised by the District with it’s CAMA Mass Appraisal Models are coded with an (LMA) code for market area identification and for statistical ratio analysis purposes.

Market Analysis

Market analysis is the basis for finalizing value estimates for industrial properties. Even though many industrial properties are unique in nature, the market for this type property is analyzed to see how the values of similar properties are affected by market forces. Industrial properties, such as machine shops, have many similar facilities that can be compared to the subject property in terms of type and size of equipment, type of property fabricated or serviced at the subject facility, and other factors. Those similarities help the appraiser estimate the value of the subject property. However, some facilities, such as specialty process plants, are so unique in nature that the appraiser must use the closest available plant in terms of output quantity, type of product manufactured, and other factors to estimate the value of the subject property.

Highest and Best Use Analysis

The current use of the property is generally the highest and best use of the property. Industrial facilities are most commonly located in areas that support industrial use. In areas where mixed use does occur, the District appraisal staff will estimate the effect of this factor on highest and best use.

Multi-Family Real Property

Multi-family residential properties (Apartment Complexes), unlike most single-family dwellings of 1 to 4 units, are considered to be 'investment use' properties. As such, they are typically valued based on the Income Approach to Value. Of the various types of income properties, apartments (multi-family housing) are generally among the least difficult to model.

Ector CAD uses income data to value approximately 120 of the approximately 140 apartment complexes in the district each year. These income models require accurate income and expense data. Although data is not absolutely necessary for each individual property, the appraiser must obtain sufficient data to estimate typical income and expense figures for various multi-family projects.

The appraiser enters available data, establishes typical income and expense ratios, and calculates a net operating income (NOI) of a property. By use of district capitalization parameters the NOI can be converted into a value estimate. The required capitalization rate used by Ector CAD is derived from market surveys of the District's subscriptions from national reporting agencies, and/or from direct rates calculated from actual sales by the district (calculated by dividing sale prices by net income from a property). Capitalization Rate Studies are kept in the District's appraisal operations department.

Overall capitalization rates are grossed up by the additional overall tax rates for the assessing jurisdictions where a property is located, to allow for the addition of ad valorem property taxes, resulting in what is referred to as a loaded cap rate. Ector CAD has consistently used a 9.5% - 12.5% loaded overall capitalization rate in valuing multi-family apartment projects historically and in recent appraisal years.

Section 11.1825 of the Texas Property Tax Code provides for an exception to the use of a typical market capitalization rate. Private sector Low Income Housing Tax Credit properties (LIHTC) requires the chief appraiser to consider long term land use restrictions (LURA) in place, and the lack of liquidity that occurs in the resale of LIHTC projects. A higher rate of 10.5% - 13% is used for these particular rent-restricted properties and the capitalization rate to be used for the current year is posted not later than January 31st each year to serve as public notice as required by Section 11.1825 (r) of the TPTC.

Small apartment projects that have less than substantial or stabilized income levels are generally valued by use of cost schedules (models) that are developed from actual replacement cost figures from Marshall & Swift Valuation Services. These figures are adjusted for age, condition, size, and other factors. Actual market sales of multi-family housing projects are maintained in the District's sales databases. These sales are used in ratio studies and as support alternatives for value defense.

Neighborhood Analysis

Multi-Family apartment residential properties are listed and coded for defined market areas as stated in the District's Agency Information Manual Section 4.08.05.07 and in Appendix 'A' of this Reappraisal Plan. The LMA Field is coded for each project and further batched into districts to reflect the market influences impacting the properties. In accordance with the IAAO 'Standard on Mass Appraisal of Real Property', Ector CAD has delineated the county into competitive market areas for this class of property according to conforming land uses and to the same market influences impacting properties within a specified geographic area.

Hotels/Motels

The District utilizes the income approach to value for this real property category. Actual operating data from the past year is readily available from the Comptroller of Public Accounts and from a publication that the district subscribes to, the 'Texas Hotel Performance Fact Book'. Lodging revenues are provided, and actual expenses are obtained yearly from property managers. Secondary incomes are determined and District schedules for Hotel/Motel parameters are utilized by appraisal staff in determining preliminary value estimates for the 70-plus Hotels/Motels within the district. The District's CAMA income module provides a pro-forma income value estimate for these real properties that is used for appraisal notice and during value defense.

Neighborhood/Market Area Analysis

Income producing commercial properties, such as hotels and motels, are coded in the LMA Field with an identification number based on the commercial market area district where the property is located. Lodging facility properties are generally considered to be Broad Region properties where similar properties compete for buyers and customers. All of these types of properties are influenced more from supply/demand local economics than from specified market area location. Income Models utilized by the appraisal district for valuation of lodging industry properties capture not only location value, but property specific value as well.

Utility Real Property

Ector CAD appraises in-house all real and personal property classified by the PTAD as J-Category. Land accounts are valued on a sales comparison basis by the District appraisal staff as with other commercial land accounts. Improved real property accounts are valued generally by use of the District models for the cost approach to value. Typically, there are no sales for review for utility real properties. Income valuation is considered if sufficient data is available for staff to analyze. Statewide 'Unit Appraisal' by the Comptroller of Public Accounts and by the contract appraisal firms is analyzed for comparison to cost model generated value estimates. Allocation amounts from these 'unit appraisals' are further analyzed for equity and level.

Mineral Property

Ector CAD performs oil & gas mineral appraisals in-house. Division of interest ownership and leasehold records are maintained in the District's CAMAPro Mineral software. A separate section follows, detailing the methods and models used by the district for these mineral real properties.

OIL & GAS MINERAL PROPERTY VALUATION PROCESS

MINERALS (OIL and GAS RESERVES) IN PLACE VALUATION

INTRODUCTION

The Texas Property Tax Code, Section 11.01 states that all real and personal property within a district is taxable. Mineral interests are defined as real property in TPTC Section 1.04. Mineral interests are undivided interests within a leasehold estate. The market value of a mineral interest in a producing property is the net revenue interest's percentage of the total property value. Called 'reserve appraisal', it is the present value of the future reserve production of a property as of a statutory January 1st date. In Texas, the valuation of mineral interests for ad valorem tax purposes is based on the future income from the reserves that exist in place on January 1, each year. The methodology as stated by the State Comptroller is to calculate the economically recoverable reserves for a producing oil and gas property by use of the 'Discounted Cash Flow' (DCF) method. The results of DCF appraisal analysis represents the calculated economic recoverable reserves and the future income streams for each individual producing property in the district on January 1st each year. These valuations are based on the four (4) basic parameters or steps that are necessary to value producing oil and gas properties. 1) Start Rate and Production Decline, 2) Price, 3) LOE-Operating Expense and 4) Discount Rate. These parameters are fully discussed in detail in the Comptroller's "Manual for Discounting Oil and Gas". Ector CAD also publishes yearly an 'Oil and Gas Parameters' book for the benefit of producers, explaining the procedures followed and rules that apply to appraisal of producing oil and gas properties.

The 4 Steps in Discounted Cash Flow (DCF) for producing minerals are:

- | | |
|---|-----------------------------------|
| 1) Production times price | = GROSS INCOME |
| 2) Gross Income less LOE | = NET INCOME |
| 3) Net Income times a discount factor | = PRESENT WORTH NET INCOME |
| 4) Present incomes plus equipment value | = PROPERTY VALUE |

Scope of Appraisal Responsibility

Ector CAD performs all oil & gas mineral appraisals in-house. Production data is gathered from outside vendors by subscription for all producing properties within the county. Product prices are collected from a service provider through a subscription. A weighted average cost of capital study is performed annually for the district by an outside appraisal expert on a yearly letter agreement basis. Texas Railroad Commission records are regularly reviewed by staff for operator information and for current production status of regulated wellbores within the county.

Ector CAD is responsible for developing credible market value estimates for approximately 1,743 producing properties involving over 10,700 owners with 147,000-plus owner item parcels. Minerals-in-place (oil and gas reserves) are real property. The appraisal of minerals (oil and gas reserves) is based on estimating the present value of the economically recoverable reserves of oil and gas in place. Mineral rights are property rights and may be separable property interests from the land surface property rights. Minerals being produced are a tangible asset and are appraised as such for ad valorem taxation. The valuation of

minerals-in-place is based on estimating the discounted net present value of the oil and gas production to be produced over the economic life of the well(s).

Basically, this method of valuation under the Income Approach to Value uses the discounted cash flow analysis methodology. Another technique used by the District is called the ‘Payback or Pay-Out Method’; whereby a value estimate is determined based on the time it would take to return a purchase price paid for a property. This method is used by the District as a support alternative to the DCF method. From the use of the Sales Comparison Approach, oil and gas properties are also marketed based on proven reserves, and the unit of comparison in the market is considered in barrels of oil or in cubic feet of natural gas. This market approach to value is based on sales of property, when barrels of proven reserves or the equivalent of (BOE), can be reasonably determined from sales analysis and fairly calculated.

Mineral interests are commonly divided into property interests known as working interest and royalty interests created from an oil and gas lease. The valuation of the producing property begins with the valuation of the mineral lease and is divided into the property interest according to the division of interests for each lease by owner interest type (RI, ORRI, PP and WI) and by decimal ownership amount. It is the goal and intent of Ector CAD to identify every producing mineral property interest within the district and estimate the market value of each property interest listed on the roll. Ector CAD lists all working interests jointly in the name of the operator as per TPTC Section 25.12, unless a request is filed by the operator requesting separate taxation of the working interests on the listed property.

This biennial Reappraisal Plan and the after the fact required annual Written Appraisal Report comply with general and specific requirements of USPAP Standards 5 & 6 and with the Scope of Work Rule.

Appraisal Resources-Data Collection/Validation

• **Personnel** – The district appraisal staff, for mineral appraisals, consists of two (2) full-time mineral appraisers and support from the Assistant Chief Appraiser and Chief Appraiser.

• **Data** – A common set of data characteristics for each mineral property account in Ector CAD is collected from Texas Railroad Commission Records and data entered in the District’s MineralPro minerals database. The property characteristic data drives the computer-assisted mass appraisal mineral property appraisal system. Railroad Commission records are searched to discover new leases as of January 1 of the year and legal descriptions are gathered to determine the location of the Ector CAD jurisdictional boundaries. Records are also reviewed for changes in production for existing wells and for abandoned wells with salvage value for equipment, tanks, and tubular goods. Production history for each mineral lease is gathered from Drilling Info production records and from the Texas Railroad Commission. Division Orders on each lease are requested annually from lease operators and checked against the appraisal roll for accuracy of owner name, address, and ownership percentage interest. To assist with operating information, an annual Confidential Lease Operating Expense Survey may be mailed to the operator of each active lease, requesting lease-specific operating information on oil and gas pricing, operating expenses, and possible market sales of leases.

To assist with the economic parameters influencing these properties, general economic data is gathered for the valuation process. The generally accepted method of appraisal for minerals-in place is the discounted cash flow method, which looks at the net present value of future net cash flows in operating the lease. Current interest rates, market rates of return, and levels of discounting the investment are the factors to consider when evaluating the returns necessary to attract investment capital for this type property. Discount rates utilized by the then are provided through a weighted average cost of capital (WACC) study performed by an appraisal consultant, for a base rate determination and for property specific risk additives from the

Comptroller's "Manual for Discounting Oil and Gas" for an overall discount rate structure to use in the appraisal of oil and gas properties.

- **Information Systems** – The District's MineralPro minerals software package is a program developed by a 3rd party software vendor based on Ector CAD's specifications. This minerals software program is browser-based and utilized on desktop personal computers. Networking in-house allows for District personnel to enter data, change tables, and access leasehold and ownership database files as changes occur.

VALUATION ANALYSIS (Model Specification)

Approaches to Value

Cost Approach

The use of actual cost in an appraisal is based on the economic theory of the principle of substitution. The cost approach to value utilizes replacement cost new less depreciation for loss of utility. The cost approach to value implies that the current worth of a property is relative to what it would cost to produce a substitute property. For oil and gas mineral reserves, the costs to acquire the reserve could be relative to or it could be of no reasonable relation. Typically costs to acquire oil and gas deposits, at least from initial exploration and development, are not a reliable indicator of current worth. A dry hole or uneconomic reserves could result in a high cost outlay with no market worth. On the contrary a significant find or discovery could be worth considerably more on the market than what the costs to develop it are.

Market Approach

Called the Direct Sales Comparison Approach, this approach to value attempts to estimate value based on market data sales of similar properties. This approach to value provides value estimates supported by actual sales of comparable properties appropriately adjusted. For most surface real estate and tangible personal property, this approach is a most reliable value indicator. However, its usefulness in oil and gas reserve value is rather limited. First and foremost, oil and gas property sales are not generally disclosed and available for comparison. Secondly, all the conditions involved in a sale of producing oil and gas properties must be known and further analyzed to make fair comparisons. So many features and differences typically occur in mineral trades that direct comparisons are most difficult to make.

One technique that does have some reasonable support in use is the Barrels of Oil Equivalency (BOE-In Ground Method). It makes use of estimation of reserves in ground, both oil and gas, with a conversion of gas over to oil reserve equivalency. Current wellhead values are assigned against reserve estimates of actual known transactions and then a percentage rate or a dollar amount per BOE is calculated. A range of per barrel prices usually results in a somewhat meaningful value estimate. The availability of current data is of course necessary for this technique to be meaningful.

Income Approach

This value approach is considered to be the most reliable indicator of value for oil and gas mineral properties. Readily available market data can be gathered and input into the District's MineralPro income value module. The model is a Discounted Cash Flow Method model that is used for all producing properties in the district each year. Future net income streams for a property are estimated and then discounted to a

current present value. The discounting process provides for the time value of money as well as for the various forms of risks associated with the oil and gas business. The discount rate structure used by the district is more fully explained in the District's 'Oil and Gas Parameters' booklet that is provided to producers annually.

A secondary technique to estimating value under the income approach is called the Payback or Payout method. Also called the Return of Purchase Price Method, this technique is used by the district and in the marketplace to value producing oil and gas royalties, and to a lesser extent to estimate value for the working interests in a producing property. The time payout for a purchase amount provides a range of some 3 to 6 years as typical simple payback without discounting and 4 to 7 years as typical with discounting applied. The district uses this technique only as a support alternative to the DCF appraisal that is performed on all properties and owner interest types each year. Ector CAD's methods and techniques comply with Texas Property Tax Code Section 23.175 with regards to pricing. Discount rates comply with procedures listed in the Comptroller's 'Manual for Discounting Oil and Gas Income'.

STATISTICAL ANALYSIS (Model Calibration)

Appropriate revisions and /or adjustments to schedules, tables, or the District's MineralPro software are conducted by staff on an annual basis. Tests are conducted prior to preliminary appraisals being performed. This calibration generally involves performing various functions to test the adequacy and reliability of program results. Discounted cash flow tests of differing properties are verified for appraisal accuracy and calculation features. Comparative measures in testing could include Dollars per Barrel of Reserves; Dollars of Value per Producing Well or Dollars per Barrel of Daily Production; Dollars of Expense per Barrel Produced; and Years Payout of Royalty and or Working Interest. Direct comparison tests of price differences for specific properties, as well as for the entire property database from year to year, is also conducted by district staff.

Pricing, Operating Expenses and Reserve Analysis

Crude oil and natural gas prices are important information in the valuation of mineral property because these prices help determine income to the lease and are a significant factor in determining the economic life of the production from the lease. Price analysis and estimates for crude oil and natural gas produced are based on the statutory pricing guidelines as stated in the Texas Property Tax Code Section 23.175.

Lease operating expenses (LOE) are estimated based on rendered information and actual operating costs and expenses from surveys of lease operators in Ector County. Decline curve analysis estimates the rate of production decline and is formulated using past production operating expenses and recent operating parameters, such as water production, lease repairs, and secondary recovery efforts. Current operating income and expenses for the lease are considered and estimated in a discounted cash flow model to allow the appraiser to evaluate and estimate the net present value of producing oil and gas from the lease. Discounting rates are determined for each lease based upon the particular risks inherent with production of oil and gas from that property. These risks may vary considerably from one lease to another depending on several factors influencing the production from that individual lease. The discounted cash flow model method will allow the appraiser to evaluate the current market value of the lease based on the estimated recoverable reserves. The methodology is approved and recommended by the Property Tax Assistance Division of the Comptroller's Office and is the recognized method of appraisal by industry standards. Ector CAD has utilized the discounted cash flow model to estimate the market value of each producing lease located in Ector County.

Value Review Procedures

The method of value review for this type of property is based on the review of the factors estimated within the discounted cash flow analysis methodology such as the discount rate, product prices, and operating expenses. Evaluation and verification of these economic factors as to their validity within current economic times and based on current capital requirement for investment in this type property is re-confirmed and reviewed for reasonableness. Sales of mineral properties are considered, but adequate sale data is usually not available due to difficulty in confirming sales. The market for this type of property is neither an active nor an efficient market; there are very few participants, and pricing information is mostly confidential. There is no central source for tracking these transactions and property owners are reluctant to reveal market information concerning prices paid or terms of the transaction. Because of a lack of market sales on mineral property, appraised values are regularly compared to similar properties within the same production field, field of exploration strata of formation, or production history and expense level.

Performance Tests

Ratio studies are a source of comparison to evaluate level and uniformity of appraisal. When market sales are available, the ratio study is based on a comparison of the appraised value to the sale price. For mineral property, which lacks available market sales, a ratio study is a comparison of another appraisal opinion with the opinion of the district to determine level and uniformity of appraisal. The Property Tax Assistance Division of the Comptroller's Office conducts an annual mineral value study of selected mineral properties to measure the District's appraisal performance. The PTAD utilizes the same valuation methodology to appraise individual mineral properties. This opinion of value is utilized as market evidence with the same significance as if the property sold for that value. The estimated value of the property by Ector CAD is compared to the appraisal by the PTAD to calculate the ratio and the indicated level of appraisal. This study indicates the median and mean levels of appraisal for mineral property and is considered reliable as a review and evaluation tool.

Market Area Analysis

Oil and gas reserve appraisal is based on the valuation of reserves in place as of the statutory appraisal date of January 1st each year. These reserves are valued by use of a discounted cash flow program that considers production estimates in future periods at a specified price. This commodity price is subject to the provisions under Texas Property Tax Code Section 23.175. Crude Oil as a commodity is priced on a per barrel basis subject to transport costs. Crude oil futures along with local crude oil price bulletin postings determine market prices for specific producing properties. The District in compliance with TPTC Section 23.175 uses statutory pricing for these types of mineral properties. The 'market area' as determined from competitive influence is at the 'Field Level'. The field level comparisons address producing zones and formations along with specific gravity allowance for differing crude oil types. These differences create what is known as a 'Broad Region' area for producing oil and gas mineral properties. There exists no meaningful delineation beyond these parameters.

BUSINESS PERSONAL PROPERTY VALUATION PROCESS

Scope of Responsibility

The district appraisers are responsible for developing fair and uniform market values for business personal property located within the district. There are five different personal property types appraised by the personal property appraisers: 1) Standard business personal property accounts; 2) Leased Assets; 3) Special Inventory; 4) Multiple location assets; and 5) Special Inventory. There are approximately 4,900 business personal property accounts located in Ector County. The district reappraises all income producing business personal property annually.

Appraisal Resources

Personnel: The district properties are divided up into seven (7) geographic areas. The field appraiser assigned to the real properties within a geographic area is also responsible for appraisal of the business personal property accounts within that area. Leasing accounts are split between real estate appraisers. Industrial real estate and the associated business personal property are performed by District staff.

Data: A common set of data characteristics for each personal property account is collected and updated using both tablet personal computers in the field and desktops in the office. Data is entered into the CAMA module for changes resulting from field inspection, publications, property renditions, tax permits, property-owner interviews, and from filings with regulatory authorities.

VALUATION APPROACH (Model Specification)

SIC Code Analysis

Business personal property is classified and utilizes a four-digit numeric code, called Standard Industrial Classification (SIC) codes that were developed by the federal government to describe property. These classifications are used by Ector CAD to classify personal property by business type.

SIC code identification and delineation is the cornerstone of the personal property valuation system at the district. All of the personal property analysis work done in association with the personal property valuation process is SIC code specific. SIC codes are delineated based on observable aspects of homogeneity and business use. Business type codes are reviewed periodically to determine if further Business Type Code (SIC Code) delineation is warranted.

Highest and Best Use Analysis

The highest and best use of personal property is also the probable use that supports the greatest income and highest present value as of appraisal date. Identification of industry trends and level of trade of personal property inventories must be analyzed. The four distinct levels of trade that are generally recognized are: 1) Primary Producer; 2) Manufacturer; 3) Wholesaler; and 4) Retailer. These levels are considered to be the identifiable and measurable marketplaces for these assets. The district staff will analyze business personal property within the correct market context in compliance with *USPAP Standards Rule 5-3 (b)*.

Market Area Analysis

Business Personal Property is referenced to the real account(s) where located. Delineated market areas for the personal property assets such as inventories, fixed assets, and mobile machinery and vehicles is considered to be broad based and district wide. Trade Level differences of Inventories are determined and valued according to specified levels under highest and best use analysis. Recognition of severe use and the impact on resulting cost depreciated value for business assets apply to numerous oil industry service companies. These general conditions are further allowed for on a case by case basis for income-producing personal property business accounts. Other geographic identification and delineation of personal property accounts is not considered meaningful or reliable.

Procedure for Collecting and Validating Data

A common set of data characteristics for each personal property account in Ector County is collected in the field and data entered to the computer. The property characteristics data drive the computer assisted personal property appraisal system (CAPPA) BPP module. There are 7 appraisers and 2 appraiser technicians assigned to the discovery and collection of business personal property data.

Personal property data collection procedures are published and distributed to all appraisers involved in the appraisal and valuation of personal property. The appraisal procedures are reviewed and revised to meet the changing requirements of field data collection. The most recent revision to the personal property data collection procedures was on January 17, 2017. With the software conversion to GSA scheduled in 2021-2022, updates to procedures will likely be significant.

SOURCES OF DATA

Business Personal Property

The District's property characteristic data was collected through a massive field data collection effort coordinated by the District over the recent past and from property owner renditions. From year to year, revaluation activities permit District appraisers to collect new data via an annual field inspection. This project results in the discovery of new businesses, changes in ownership, relocation of businesses, and closures of businesses not revealed through other sources. Tax assessors, city and local newspapers, and the public often provide the district information regarding new personal property and other useful facts related to property valuation.

Vehicles

An outside vendor provides Ector CAD with a listing of vehicles within the jurisdiction. The vendor develops this listing from the Texas Department of Transportation (TXDOT) Title and Registration Division records. Other sources of data include property owner renditions and field inspections.

Lease and Multi-Location Assets

The primary source of lease and multi-location assets is from owner renditions of property. Other sources of data include field inspections.

Commercial and Business Aircraft

The district subscribes to a service from 'Oklahoma Data Services' for ownership and aircraft information for aircraft registered in Ector County. Business aircraft are scheduled and valued yearly and placed on the appraisal roll if they are business use and not personal use aircraft. The "Aircraft Bluebook" publication is used as a guide in classifying and valuing business aircraft. Owner renditions and historical district records are used by the District appraisal staff in this valuation process.

Special Inventory

Income producing business personal property is subject to ad valorem appraisal and assessment in Texas. (BPP) Business Personal Property includes fixed assets (use items) of the firm as well as goods for sale (inventories) by the firm. Section 23.12 Inventory of the Property Tax Code states generally "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." The exceptions to this rule are special inventories, motor vehicles, boats & motors, heavy equipment, and manufactured housing. Texas law requires that these four types of dealer inventories are valued each year based on the total sales of motor vehicles in the prior year. Monthly sales are reported and ad valorem taxes deposited with the district office throughout the year. Appraisal values based on a monthly average of sales from the prior year are set for January 1 of the current year and paid by escrow from monthly deposits.

Alternate discovery and valuation methods may sometimes be used if failure in reporting requirements by a property owner exists.

The Jurisdictional Exception Rule in *USPAP* applies to special inventory valuation due to the conflict with *Standards Rule 7-1* of the *Uniform Standards of Professional Appraisal Practice*.

Ector County Appraisal District by agreement with the Ector County Tax Office performs the escrow, collection, and reporting duties that the Texas Property Tax Code assigns the County Tax Office.

Pipeline Accounts

Ector County has more than 1,900 miles of pipelines running through the county. These range in size from 4" up to 36" in diameter. Many are steel lines, and others are ductile iron, polyethylene, or fiberglass. A variety of products are moved through these pipelines, including fresh water, oil products, gasoline and diesel fuels, and high-pressure gas. Typically, pipelines are considered tangible industrial business personal property. All three Approaches to Value can be used in value estimation of pipelines. Lack of an adequate number of sales prevents much reliance on the Sales Comparison Approach (Market approach) to value for pipelines.

The Income Approach to Value can be useful if revenue and expense data is available and a unit approach is conducted to value an entire operation across multiple counties and sometimes states. The most reliable and most typically used approach is the Cost Approach to Value.

Pipeline schedules are developed based on original construction costs for both buried and surface lines by type (steel, plastic, cement-lined iron) and by size (diameter). Ditched and buried lines increase RCNs

(replacement cost new) over surface laid pipelines. Costs increase with size, but not necessarily by a linear rate. Ditching and backfill costs, for instance, remain the same for 4" lines as for 6" or 8" lines.

Pipelines also tend to hold values fairly well over the first few years, then fall off rapidly in value and then level off if properly maintained. Through-put use of the carrying capacity of a pipeline and the quality of the products that it can carry affect the value of a pipeline.

Ector CAD utilizes the ACM (Age-Cost-Mile) Method to value pipeline inventory in place within the county each year. The method employs six variables; age, cost, trend (annual rate of increase in construction costs), miles of pipe, pipe capacity (diameter), and ownership percentage.

These variables are expressed as factors to be applied to individual pipe segments. Ector CAD uses an ACM Pipeline Schedule developed by Phillips Petroleum Company in the early 1990's. This schedule is in a grid format by size and age with depreciation applied based on a 25-year (typical) life expectancy. Adjustments are made for non-steel pipelines, for through-put (under-utilization), for out of service (idle pipelines), and for abandoned (salvage values) pipelines.

For 2021, Ector CAD will review and consider adoption of the state ACM Method of Pipeline Valuation. This new PTAD approved ACM schedule is of 3 types: interstate gas, intrastate gas or liquid, and interstate liquid. Cost factors are on an "inch" basis.

Costs are trended and depreciation is a percent good and adjusted by age bracket. Throughput factor adjustments and shut-in or idle pipe adjustments are allowed. Floored values are fixed at 25% of RCN.

VALUATION AND STATISTICAL ANALYSIS (Model Calibration)

Cost Schedules

The primary approach to valuation of business and industrial personal property will be the cost approach. Cost schedules are developed based on the SIC code by the Property Tax Assistance Division of the State Comptroller's Office and by District personal property valuation appraisers. The cost schedules are developed by analyzing cost data from property owner renditions, hearings, state schedules, and published cost guides. The cost schedules are reviewed as necessary to conform to changing market conditions. The schedules are typically in a price per square foot format, but some exception SIC codes are in an alternate price per unit format, such as per room for hotels.

Valuation models will be refined using actual original cost data to determine replacement cost new (RCN) per unit for a specific asset category. The SIC codes will be prioritized and data compiled for review. Individual accounts will be selected, and field tested. These models will be tested against prior year data. These model values will be used in estimating current year values if BPP renditions are not filed with the district.

DEPRECIATION SCHEDULE AND TRENDING FACTORS

Depreciation

The percent good depreciation factors used by the District are based on the schedules for furniture, fixtures, machinery, and equipment as published by Marshall & Swift Valuation Service. This mass appraisal percent good depreciation schedule is used to ensure that estimated values are uniform and consistent with the

market. RCN and percent good depreciation factors will be utilized to develop value estimates using the following formula:

$$\text{Market Value} = \text{RCN} \times \text{Percent Good Factor}$$

Sales Comparison Approach

Business personal property is typically sold as part of the business as a whole and not by itself, making this approach to value neither reliable nor a good indicator of market value for business personal property. This approach is typically suitable for valuation of vehicles and certain equipment assets. Value estimates for vehicles are provided by subscription service from InfoNation, Inc. and by use of NADA Blue Book Valuation guides. There are not enough industrial personal property plant sales to have a meaningful population of sales for comparison. There are on occasion, subsets of personal property items sold, but these do not provide the sales data needed to make reliable comparisons under the direct sales comparison approach.

Income Approach

The income approach to value for business personal property has a most limited use in the appraisal of machinery, equipment, furniture, fixtures, and leasehold improvements because of the difficulty in estimating future net benefits accruing to the specific assets. An exception can be certain leased assets, when isolation of the benefit can be attributed to a certain asset.

Business Personal Property

Ector CAD's primary approach to the valuation of business personal property is the cost approach. The replacement cost new (RCN) is either developed from property owner reported historical cost or from CAD developed valuation models. The trending factors used by ECAD to develop RCN are based on published valuation guides. The percent good depreciation factors used by Ector CAD are also based on published valuation guides. The index factors and percent good depreciation factors are used to develop present value factors (PVF), by year of acquisition, as follows:

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

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

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

This mass appraisal PVF schedule is used to ensure that estimated values are uniform and consistent within the market and reflect current economic pressures of supply and demand.

Computer Assisted Personal Property Appraisal (CAPPA)

The appraisal program has a CAPPA valuation process that has two main objectives: 1) Analyze and adjust estimated asset cost with existing SIC models. 2) Develop new models for business classifications not

previously integrated into CAPP. The delineated sample is reviewed for accuracy of SIC code, square footage, field data, and original cost information. Models are created and refined using actual original cost data to derive a typical replacement cost new (RCN) per square foot for a specific category of assets. The RCN per square foot is depreciated by the estimated age using the depreciation table adopted for the tax year.

The data sampling process is conducted in the following order: 1) Prioritizing Standard Industrial Classification (SIC) codes for model analysis; 2) Compiling the data and developing the reports; and 3) Field checking the selected samples. The models are built and adjusted using internally developed software. The models are then tested against the previous year's data. The typical RCN per square foot unit, or other applicable unit is determined by a statistical analysis of the available data.

CAPP model values are used in the general business personal property valuation program to estimate the value of new accounts for which no property owner's rendition is filed. Model values are also used to establish tolerance parameters for testing the valuation of property for which prior years' data exist or for which current year rendered information is available. The calculated current year value or the prior years' value is compared to the indicated model value by the valuation program. If the value being tested is within an established acceptable percentage tolerance range of the model value, the account passes that range check and moves to the next valuation step. If the account fails the tolerance range check, it is flagged for individual review. Allowable tolerance ranges may be adjusted from year to year depending on the analysis of the results of the prior year.

Vehicles - Adjustments

Value estimates for vehicles, provided by an outside vendor, are based on Blue Book published book values, with adjustment tables available for excess low/high mileage. Vehicles that are not valued by the vendor are valued by an appraiser using PVF schedules or published guides.

Leased and Multi-Location Assets

Leased and multi-location assets are valued using the PVF schedules mentioned above. If the asset to be valued in this category is a vehicle, then Blue Book published book values are used. Assets that are not valued by the vendor are valued by an appraiser using PVF schedules or published guides.

INDIVIDUAL VALUE REVIEW PROCEDURES

Office Review

Business Personal Property

A district valuation program exists in a computer environment that identifies accounts in need of review based on a variety of conditions. Property owner renditions, accounts with field or other data changes, accounts with prior hearings, new accounts, and SIC cost table changes are all considered. The accounts are processed by the valuation program and pass or fail preset tolerance parameters by comparing appraised values to prior year and model values. The appraisers review accounts that fail the tolerance parameters.

PERFORMANCE TESTS

Statistical Analysis

Summary statistics including, but not limited to, the median weighted mean and standard deviation, provide the appraisers an analytical tool by which to determine both the level and uniformity of appraised value by SIC code. Review of the standard deviation can discern appraisal uniformity with SIC codes.

Ratio Studies

Each year the Property Tax Assistance Division of the State Comptroller's office conducts a property value study (PVS). The PVS is a ratio study used to gauge appraisal district performance. Results from the PVS play a part in school funding. Rather than a sales ratio study, the personal property PVS is a ratio study using state cost and depreciation schedules to develop comparative personal property values. These values are then compared to Ector CAD's personal property values and ratios are indicated.

Internal Testing

The District can test new or revised cost and depreciation schedules by running a valuation program in a test mode prior to the reappraisal valuation cycle begins. This provides the opportunity to district staff to make adjustments or additional refinements to the schedules if warranted.

INDUSTRIAL PERSONAL PROPERTY

Income producing business personal property for commercial business and for industrial process plants, pipelines, and utility companies are subject to the same scope of work, data and collection procedures, valuation approaches, and ratio analysis as is the Business Tangible Personal Property detailed and described in the previous section. Differences occur with pipelines, and to an extent with certain utility properties.

UTILITY PERSONAL PROPERTY VALUATION

INTRODUCTION

Appraisal Responsibility

Utility properties are the tangible assets of various businesses including electric production, transmission and distribution companies, railroads, petroleum product gathering and delivery pipelines, telephone and communication providers, and others. The valuation of these properties is considered to be complex due to the involvement of both tangible and intangible property elements that comprise these businesses and due to the size of some of the utilities that are regional and national companies. The appraisal of these companies becomes complex when considering the valuation of the property as a unit in place and evaluating the property by the approaches to value at the company level. Once the value of the unit is estimated, the estimated market value is allocated based on the tangible property assets that are located within Ector CAD.

Data – A common set of data characteristics for each utility property account in Ector CAD is collected from the various government regulatory agency records, field inspections, and property owner renditions. This data is entered into the District's computer. Individual company financial information is gathered through industry-specific governmental filings such as Federal Energy Regulatory Commission Reports, Securities and Exchange Commission 10-k filings, and Public Utility Commission publications. Other company information is gathered from annual reports, internal appraisals, and other in-house and industry publications. Property owner rendition reports are requested in order to document and list property owned and located in our particular jurisdictions (ie: track mileage, number of meters, pipeline size and mileage, substation, and transmission capacity, etc.). The property characteristic data drives the computer-assisted appraisal of the property.

The appraisal of utility property utilizes three-approach analysis to form an opinion of value for the property. Financial and capital market information is pertinent to understanding factors affecting valuation of complex property. These financial factors result in overall return rates and capital structure for these companies and affects capitalization rates. The weighted average cost of capital is the most commonly used method of estimating capitalization rates for utility properties. Capitalization rates are estimated using capital return expectations from various publications; Ibbotson's SBBI Valuation Edition, Wall Street Journal, Mergent Bond Record, Moody's Corporate Bond Yield Averages, and Value Line Investment Survey "Ratings and Reports". Industry specific information is also gathered from websites, publications, periodicals, and reference manuals. Ector CAD utilizes the weighted average cost of capital to estimate the capitalization rate for utility appraisal under the income approach.

VALUATION AND STATISTICAL ANALYSIS (Model Calibration)

Approaches to Valuation, Reconciliation

Valuation of tangible assets for utility companies relies primarily on indications of value based on the cost and income approaches to value under the unit value approach. This methodology involves developing and estimating market value considering the entirety of the company's tangible assets and resolving an allocated value for that portion of specific tangible assets located in particular tax jurisdictions. The valuation opinion is based on three approach analysis utilized for the indicated unit appraisal of all company tangible assets, then an estimated allocation of unit value for only the assets located in the district and particular jurisdictions. This methodology is approved and recommended by the Property Tax Assistance Division of the Comptroller's Office and is an accepted standard within the industry and appraisal community.

Value Review Procedures

Review of the valuation of utility property is based on verifying economic and financial factors utilized in the methodology as relevant to current capital markets, and that these factors reflect current return expectations. Market sales of utility properties do occur and are a good source for comparison and review when the price of the tangible assets can be abstracted or allocated from the selling price. Typically, the sale of utility companies involves significant intangible property assets such as customer base, goodwill, favorable contracts, name recognition, etc. and the contributory value and allocation of these assets is subjective and unknown. In Texas, intangible property assets are exempt from taxation and must not be included on the appraisal roll as taxable property. Therefore, because of the lack of specific market information on sales of utility properties, appraised value is regularly compared to the valuation of similar property within the same set of property characteristics, business type, and size. Of course, the estimated value is based on recognized methodology for considering the valuation of these tangible assets, but true market confirmation of these factors may not be possible due to minimal market knowledge and experience.

Ratio studies are also a method of review for relevance of appraisal valuation to market value. Again, in the absence of full disclosure of prices paid and without the abstraction of prices paid for the tangible asset components from recent utility property acquisitions or sales, market-based analysis and review is not possible. Ratio studies for utility property must rely on a comparison of one appraisal opinion as the basis for the reasonable property valuation with the District's appraised value to determine the ratio for level and uniformity of appraisal. The PTAD conducts the annual ratio study of selected utility properties to gauge the appraisal district's performance. The PTAD utilizes the same valuation methodology to estimate appraisal valuations of utility properties and the results, when compared to the appraisal valuation estimated by Ector CAD for these properties, yield ratios. This ratio study of certain utility properties indicates the level and uniformity of appraisal for this category of property.

Market Area Analysis

Industrial real property is typically considered to be Broad Region properties from the perspective of market area identification. 'Single Property' appraisal is the norm for Industrial facilities, as opposed to mass appraisal by models for most of the universe of properties within the District. Market area identification will consist, not only of county wide influences, but also area, regional, state and/or national comparison data. All industrial type real parcels are coded with an (LMA) identification code. Some smaller Industrial Type real property accounts are competitive with and conform to the commercial real estate properties

within the district. Specific improvement classes are batched by type and location to properly address these location variables and are listed in the District's Agency Information Manual Section 4.08.05.07 and in Appendix 'A' of this Reappraisal Plan.

MOBILE HOMES (Manufactured Housing)

Scope of Work

District appraisal staff is responsible for the discovery and valuation of the personal property mobile homes located within their geographic area. These mobiles are designated as personal property and registered as so with the Texas Department of Housing and Community Affairs (TDHCA). Newly discovered mobiles will be classed by the District as personal property. Mobiles classified as 'real property' by the TDHCA will be listed as an improvement to the real property account. Mobile homes appraised by District staff include mobiles as personal property on detached land parcels, mobiles located in Mobile Home Parks, mobiles as improvements to real property, and mobiles utilized as personal property assets in business personal property accounts, as well as in special inventory accounts with mobile home dealers.

Data Collection

Data characteristics for mobiles are gathered in the field and data entered in the CAMA mobile home module. Mobile home data such as the HUD label number and physical descriptions will be collected. Park information and location will be collected and recorded in the District's database. The district staff will review park lists and letters, along with renditions filed. Permits of relocation will be reviewed for data and entered in the CAMA mobile home module.

Data Sources

In addition to data gathering, discovery in the field, and from other office review procedures, various publications are utilized in this discovery process. The TDHCA website is regularly visited for owner/location information. The NADA 'Manufactured Housing Appraisal Guide' is utilized for classification and valuation support to the District's models.

Mobile Home Valuation

The District's manufactured housing (mobile home) models and schedules have been largely developed from cost data obtained from the NADA 'Manufactured Housing Appraisal Guide' and from cost data from Marshall and Swift Valuation Services. These models (schedules) are comprised of quality class and size/description general features. Per square foot values are tabled for each classification and subclass based on estimated replacement costs from the referenced sources.

Model Specification- Mobile homes schedules are derived from replacement cost data. Classification is by quality/design and by style (single or double width), and length. Square foot values are categorized by make, model, and size. These square foot units of value are adjusted and modified based on regional and local adjustment factors. Adjustments are made to these schedules to reflect changes in the market on an annual basis.

Model Calibration- Mobile home valuation schedules are adjusted yearly to reflect market changes. Mobile home sales and Special Inventory dealer transactions are reviewed and analyzed to provide support for any changes to current scheduled values. Employment data and economic activity greatly influences the demand for manufactured housing for residential occupancy.

Statistical Analysis

When sales are available from reliable sources such as owners or manufactured home dealers, cost-to-sale ratios will be performed by district staff and comparisons made with appraisal-to-sale ratios to determine if adjustments are warranted. Summary statistics include the mean, weighted mean, and median as well as deviation figures to help in analyzing for appraisal level and appraisal uniformity.

Neighborhood/Market Area Analysis

Manufactured houses on real estate are coded with the corresponding (IMA) codes and the Residential Market Area codes. These specific property types are subject to the same influences as are the site built residential housing structures within the same geographic area. Mobile homes listed as personal property are not coded as to the delineated market area, due to their potential for movement within market area boundaries and/or out of the District's county boundaries. Ratio analysis is performed on these personal property mobile home accounts on a county-wide basis due to the general and area-wide mobility of these manufactured houses. Stratification other than by property class type for these personal property mobile home accounts is not determinable with the limited amount of data that is available.

ADDENDUM

2021 Reappraisal Schedule

August 2020

Residential / Commercial

Field Inspection on new construction, remodeled, and demolished properties
Field inspection/office review of sales data
Update cost models
Sales Ratios analysis for all residential/commercial properties
Meet with local building contractors and local fee appraisers

Business Personal Property

Field Inspection on selected Business Personal Property accounts that demonstrate possible changes
Field Inspection/office review of selected SIC/Business Type codes
Collect data from assumed name filings, sales tax permits, and verify new accounts
Update district schedules

September 2020

Residential / Commercial

Field Inspection on new construction, remodeled, and demolished properties
Field inspection/office review of sales data
Review and adjust neighborhoods
Begin Reappraisal of identified neighborhoods

Business Personal Property

September 1 – Statutory appraisal date for certain inventory properties (Sec. 23.12)
Collect data from assumed name filings, sales tax permits, and verify new accounts
Begin Reappraisal of identified geographical areas

Minerals

Perform mineral corrections
Make ownership changes per deed record filings
Rework Division Orders

October 2020

Residential / Commercial

Field Inspection of new construction, remodeled, and demolished properties
Field inspection/office review of sales data
Continue Reappraisal of identified neighborhoods

Business Personal Property

Collect data from assumed name filings, sales tax permits, and verify new account

Continue Reappraisal of identified geographical areas
Taxing Units mail 2020 tax bills – Appraisal support for property owner inquires

Minerals

Make ownership changes per deed record filings
Rework Division Orders

November 2020

Residential / Commercial

Field inspection on new construction, remodeled, and demolished properties
Field inspection/office review of sales date
Continue Reappraisal of identified neighborhoods

Business Personal Property

Collect data from assumed name filings, sales tax permits, and verify new accounts
Continue Reappraisal of identified geographical areas

Minerals

Make ownership changes per deed record filings
Rework Division Orders

December 2020

Residential / Commercial

Reappraisal activities
Field inspection on new construction, remodeled, and demolished properties
Field Inspection/office review of sales data
Begin verification of occupancy of multi-tenant properties
Monitor the market, analyze sales (Deed processing with letter sent out for sale validation).

Business Personal Property

Reappraisal activities
Verification of occupancy of multi-tenant buildings
Mail Renditions to all Business and Industrial owners, including new accounts

Minerals

Make ownership changes per deed record filings
Rework Division Orders
Run 3rd Quarter Production reports
Set-up new leases/operators

January 2021

January 1 – Statutory appraisal date for most categories of taxable property
Business Personal Property Renditions mailed
Dealer Declarations mailed
Reappraisal and re-inspection of Mobile Home Parks and manufactured home in parks

Gather Apartment Rents
Real Property Inventory applications mailed
Letters to tax exempt entities (hospitals, cities, county) requesting information on leased equipment
Letters to multi-tenant property owners requesting rent rolls and tenant listing
Letters to communication tower owners requesting tenant listing
Letters to mobile home park owners/managers requesting tenant listing
Industrial Plant/Pipeline Rendition mail out
Aircraft Rendition mail out

Residential / Commercial

Reappraisal activities
Field inspection/office review of sales data
Complete occupancy check
Collect and compile information on income and expenses for appropriate property types
Exemption applications mailed to property owners receiving exemptions in the prior tax year, where annual application is required

Business Personal Property

Complete occupancy checks
Reappraisal activities
Process Renditions
Send out Renditions on newly discovered businesses
Order new valuation material for Business Personal Property Valuation
Begin to Value Business Personal Property

Minerals

Make ownership changes based on deed records filings
Rework Division Orders
Mineral Splits
Mail Letters to Operators of New Leases
Contract weighted average cost of capital study

February 2021

Residential / Commercial

Sales date reviews
Prepare ratio studies, analyze results, and apply applicable adjustments
Review appraisal values after adjustments
Review Income models for appropriate categories
Gather remaining sales for 2021 ratio study
Gather other income information on commercial properties, including
 Motel / Hotel reports from the Comptroller's office
 Review and reappraise apartment complex units
 Continue re-inspections/reappraisal process
 Check remaining accounts and New Construction Percent Complete
 Agricultural Market and Productivity Valuations
 Gather information from local producers, Ag Advisor Board Meetings,
 State (capitalization rate), and other agricultural sources
Reconcile information to calculate productivity value / Analyze land sales for market study
Work up residential schedules to reflect market

(may need to be in April if data is still needed for 2021 year)
Work up New Construction Factors for current schedules

Business Personal Property

Vehicle Inventory values
Review of vehicle information and FAA records from vendors
Process Renditions

Minerals

Make ownership changes for 2021 per deed record filings
Set-up new division orders
Gather 2020 Production data

March 2021

Residential / Commercial

Review late sales
Review appraisal values after adjustments
Prepare final ratio studies
Agricultural Advisory Board Meeting
Review existing Wind Farm Sites
Final Model (Schedule) changes
Agriculture Special Appraisal applications mailed to new property owners, where deed transfer occurred in prior year and property previously had agriculture special appraisal

Business Personal Property

Process Renditions

Minerals

Minerals parameters meeting
Start mineral appraisals
Set-up new leases/operators
Preliminary appraisal mailed out to lease operators and agents

April 2021

Residential / Commercial

Finalize reappraisal process
Quality Control of real property data

Business Personal Property

Process Renditions
April 15th deadline for filing business personal property renditions with appraisal district
April 30 deadline to file annual exemption applications, including but not limited to
Abatement, Freeport, and Goods in Transit
Real property data to vendor for printing of appraisal notices
Target April 12, 2021 – real property notices mailed
Target April 12, 2021 – mineral notices mailed

Preliminary values to taxing jurisdictions

Minerals

Informal Settlements

May 2021

Residential / Commercial

Informal value discussions with property owners

Prepare for ARB hearings

Prepare and draft Mass Appraisal Plan on or around May 15th

Informal Hearings (value defense)

Prepare for value defense for formal hearings

Business Personal Property

Personal property rendition review complete for renditions filed by April 15th deadline

Quality control of personal property data

Personal property data to vendor for printing of appraisal notices

May 15th Extension deadline for business personal property renditions

Personal property rendition review complete for renditions filed by May 15th extension

Quality control of personal property data

Target May 25, 2021 - personal property notices mailed for property rendered by May 1st extension deadline

May 31, 2021 additional 15-day deadline for personal property rendition, if granted for good cause

Informal value discussions with property owners

Prepare for ARB hearings

Chief Appraiser submits appraisal records to ARB

Target May 31, 2021 - last day to protest real property

Minerals

Continue set-up of new division orders

June 2021

Residential / Commercial

Informal value discussions with property owners

Prepare and present evidence at ARB hearings

Business Personal Property

Informal value discussions with property owners

Prepare and present evidence at ARB hearings

Impose penalty for failure to file, or late filing of BPP renditions

Target June 25, 2021 - last day to protest personal property notice from May 25th

Target June 10, 2021 - begin hearings for protests, with hearings scheduled throughout the month and into July

Minerals

ARB hearings set for July 1st

July 2021

ARB hearings

Target July 10, 2021 - last day for ARB hearings, ARB approves records

July 25, 2021 - Deadline to certify appraisal roll to taxing units

2022 Reappraisal Schedule

The same timetable and duties apply to each appraisal year, unless the Texas Legislature passes new laws or changes existing laws concerning The Texas Property Tax Code. The District Appraisal Staff will perform an on-site inspection of all specified parcels for tax year 2022. The chief appraiser and CAD staff will continue to complete the same duties and reappraisal steps as previously outlined for 2021. The Field Appraisers maintain a log/planning schedule of specific areas to work and the timeline for the completion of the work schedules in their tablet computers. Completion dates and routing is retrievable from the Field Appraisers' workstations upon upload into the District's CAMA System. Each Field Appraiser will determine and list their Reappraisal Schedule timelines by areas in conformance with the District's stated current year and following year Reappraisal Schedule and as further stated in this amended Reappraisal Plan.

2021 CALENDAR OF KEY EVENTS

January

1st

- Date that 2021 taxable values and qualification for certain exemptions determined (except for inventories appraised September 1) (Secs. 11.42, 23.01, 23.12).*
- Date a tax lien attaches to property to secure payments of taxes, penalties, and interest that will be imposed for the year (Sec. 32.01).
- Date rendition period begins; continues through April 15th for those property owners not requesting a filing extension (Sec. 22.23).
- Date that half the members of the county appraisal district (CAD) board of directors begin two-year terms if the district has staggered terms (Sec. 6.034).
- Date that half of appraisal review board (ARB) members begin 2-year terms (Sec. 6.41).

2nd

- District mail out of BPP Renditions, MHP Lists, Special Inventory Packets, Aircraft Renditions. **(ECAD)**

10th

- If 2020 tax bill not mailed on or before this date, delinquency date postponed (Sec. 31.04).
- Order weighted average cost of capital study for mineral appraisal discounting **(ECAD)**.

31st

- Deadline for Texas Comptroller's preliminary 2020 Property Value Study (PVS) findings to Education Commissioner and each school district (Government Code Sec. 403.302).
- Last day for chief appraiser to deliver applications for special appraisal and exemptions requiring annual applications (Secs. 11.44, 23.43).
- Last day for appraisal district to give public notice of 2021 capitalization rate used to appraise property with low and moderate-income housing exemption (Sec. 11.1825).

February 1st

- Last day for disabled or 65-or-older homeowners to pay one quarter of homestead property tax installments. Homeowners whose homes were damaged in a disaster within a designated disaster area may choose this payment option (Secs. 31.031, 31.032).
- Date that 2020 taxes become delinquent if bill was mailed on or before January 10, 2021. Rollback tax for change of use of 1-d-1 land becomes delinquent if taxing unit delivered bill to owner on or before January 10, 2021 (Secs. 23.46, 23.55, 23.76, 23.9807, 31.02).
- Last day for motor vehicle, boat and outboard motors, heavy equipment, and manufactured housing dealers to file annual dealer's inventory declaration (Secs. 23.121, 23.124, 23.1241, 23.127).

1st – 15th

- Appraiser to work Mobile Home Parks. **(ECAD)**

15th

- Last day for county collector to disburse motor vehicle, boat and outboard motor, heavy equipment, and manufactured housing inventory taxes from escrow accounts to taxing units (Secs. 23.122, 23.1242, 23.125, 23.128).

28th

- Last day to request cooperative housing appraisal (Sec. 23.19).
- District to run preliminary ratio study by class and by market area. **(ECAD)**

March

10th

- Exemptions audit **(ECAD)**
- Minerals parameters meeting **(ECAD)**
- Deadline to file written appeal of PVS findings with Texas Comptroller (Government Code Sec. 403.303).
- Start oil and gas mineral appraisals **(ECAD)**

22nd

- Last field day – Real Estate Appraisers **(ECAD)**

31st

- Last day for taxing units' second quarterly payment for 2021 CAD budget (Sec. 6.06).
- Last day for disabled or 65-or-older homeowners or homeowners in a disaster area to pay second installments on home taxes (Secs. 31.031, 31.032).
- Last day for cities to report information of reinvestment zones and tax increment financing plans to Texas Comptroller (Sec. 311.019).
- Last day for qualified community housing development corporation to file listing of property acquired or sold during past year with the chief appraiser (Sec. 11.182).

April

15th

- Mail out preliminary mineral appraisals. **(ECAD)**
- Last day for property owners to file renditions and property information reports unless they request a filing extension in writing (Sec. 22.23).

15th – 30th

- Mineral Informal meetings **(ECAD)**

30th

- Real Estate and Mineral notices in the mail. **(ECAD)**
- Certified Estimates to taxing entities. **(ECAD)**

May

1st

- Last day for property owners to file these applications or reports with the CAD.**
 - Some exemption applications (Sec. 11.43);
 - Notice to chief appraiser that property is no longer entitled to an exemption not requiring annual application (Sec. 11.43);
 - Applications for special appraisal or notices to chief appraiser that property no longer qualifies for 1-d and 1-d 1 agricultural land, timberland, restricted-use timberland, recreational-park-scenic land and public access airport

- property (Secs. 23.43, 23.54, 23.75, 23.84, 23.94, 23.9804);
- Railroad rolling stock reports (Sec. 24.32);
- Requests for separate listing of separately owned land and improvements (Sec. 25.08);
- Requests for proportionate taxing of a planned unit development property (Sec. 25.09);
- Requests for separate listing of separately-owned standing timber and land (Sec. 25.10);
- Requests for separate listing of undivided interest (Sec. 25.11);
- Requests for joint taxation of separately owned mineral interest (Sec. 25.12).
- **Real Estate Informals Start (ECAD)**
- 1st – 15th
 - Time that taxing units may file resolutions with chief appraiser to change CAD finance method. Three-fourths of taxing units must file for change to occur (Sec. 6.061).
 - Time that chief appraiser must publish notice about taxpayer protest procedures in a local newspaper with general circulation (Secs. 41.41, 41.70).
- 1st – 31st
 - Time that taxing units must notify delinquent taxpayers that taxes delinquent on July 1 will incur additional penalty for attorney collection costs (Sec. 33.07).
- 1st
 - Last day (or as soon as practicable) for chief appraiser to mail notices of appraised value (Secs. 6.025 and 25.19).
 - Last day (or as soon as practicable) for chief appraiser to prepare appraisal records and submit to ARB (Secs. 25.01, 25.22).
- 15th
 - Last day for property owners to file renditions and property information reports if they requested an extension in writing. For good cause, chief appraiser may extend this deadline another 15 days (Sec. 22.23).
- 20th
 - Last day for chief appraiser to count taxing units' resolutions to change CAD's finance method (Sec. 6.061).
- 20th
 - **BPP data entry deadline (ECAD)**
- 25th
 - **Mail out BPP notices (ECAD)**
- 31st
 - Last day for property owners to file protest with ARB (or by 30th day after notice of appraised value is delivered, whichever is later) (Sec. 41.44).
 - Last day for taxing units to file challenges with ARB (or within 15 days after ARB receives appraisal records, whichever is later) (Sec. 41.04).
 - Last day for disabled or 65-or older homeowners or property owners with homes in a disaster area to pay third installment on homes taxes (Secs. 31.031, 31.032)
 - Last day for religious organizations to amend charters and file new applications (or within 60 days of exemption denial, whichever is later) (Sec. 11.421).
- June**
- 1st
 - **Mail out mortgage letters (ECAD)**
 - Last day for chief appraiser to certify estimate of school districts' taxable value for school district to use for publishing notice of budget and proposed tax rate and adopting its budget for a fiscal year that begins July 1 (Sec. 26.01).
 - **ARB Hearings Start (ECAD)**
- 14th
 - Last day for chief appraiser to submit recommended 2022 budget to CAD board and taxing units (unless taxing units have changed CAD's fiscal year) (Sec 6.06).
- 16th
 - Beginning date that CAD board may pass resolution to change CAD finance method, subject to taxing units' unanimous approval (Sec 6.061).
- 30th
 - Last day for taxing units' third quarterly payment for 2021 CAD budget (Sec. 6.06).
 - Last day to form a taxing unit to levy 2021 property taxes (Sec. 26.12).
 - Last day for taxing units to adopt local option percentage homestead exemptions (Sec. 11.13).
 - Last day for private schools to amend charters and file new applications (or within 60 days of exemption denial, whichever is later) (Sec. 11.422).
 - Last day for CADs to report formation of reinvestment zones and tax abatement agreements to the Texas Comptroller (Sec. 312.005).
- July**
- 1st
 - Date that delinquent taxes incur total 12 percent penalty (Sec. 33.01).
 - Taxes delinquent on or after February 1 but not later than May 1 incur additional penalty to pay attorney collection costs (Sec. 33.07). (See Secs. 33.08 and 33.11 for additional penalties).
 - Last day for ARBs to complete review of railroad rolling stock values for submission to Texas Comptroller (or soon after) (Sec. 24.35).
- 20th
 - Date ARB must approve appraisal records, but may not do so if more than 5 percent of total appraised value remains under protest (Sec. 41.12).
- 25th
 - Last day for chief appraiser to certify appraisal roll to each taxing unit (Sec. 26.01).
- 27th
 - **PTAD Ratio and sales file submission. (ECAD)**
- 31st
 - Last day for property owners to apply for September 1 inventory appraisal for 2022 (Sec. 23.12).

- Last day for disabled or 65-or-older homeowners or homeowners in a disaster area to pay fourth installment on home taxes (Secs. 31.031, 31.032).
- Last day for Texas Comptroller to certify apportionment of railroad rolling stock value to counties, with supplemental records after that date (Sec. 24.38).

August

1st

- Date taxing unit's assessor submits appraisal roll and an estimated collection rate for current year to governing body (or as soon as practicable) (Sec. 26.04).

7th

- Start Industrial District Contracts (ECAD).
- Date taxing units (other than school districts and small taxing units) must publicize effective tax and rollback rates, unencumbered fund balances, debt obligation schedule, and other applicable items (or soon after) (Sec. 26.04).

12th

- Start 2022 Field Work

14th

- Last day for CAD board to pass and deliver resolution to change CAD finance method, subject to taxing unit's unanimous consent (Sec. 6.061).

31st

- Last day for property owner to give correct address to CAD in writing for tax bill; penalties and interest waived if bill not sent to correct address 21 days before delinquency date (Sec. 33.011).
- Last day taxing units may file resolutions with the CAD board to oppose proposed change in the CAD finance method (Sec. 6.061).

September

1st

- 2022 taxable values of inventories may be determined as of this date, at property owner's written option (Sec. 23.12).

14th

- Last day for CAD board to adopt 2022 CAD budget, unless district has changed its fiscal year (Sec. 6.06).

29th

- Last day for taxing units to adopt 2021 tax rate, or no later than 60th day after chief appraiser certifies appraisal roll to unit. Failure to adopt by these required dates results in unit adopting lower of its effective tax rate for this year or last year's tax rate; unit's governing body must ratify new rate within five days (Sec. 26.05).

30th

- Mail out tax statements (**ECAD**)

October

1st

- Last day for taxing units' fourth quarterly payment 2021 CAD budget (Sec. 6.06).
- Date tax assessor mails 2021 tax bills (or as soon as practicable) (Sec. 31.01).

November

30th

- First half of split payment of 2021 taxes is due on or before this date (Sec. 31.03).

December

1st – 31st

- Time when chief appraiser may conduct a mail survey to verify homestead exemption eligibility (Sec. 11.47).

31st

- Last day for taxing units' first quarterly payment for 2022 CAD budget (Sec. 6.06).

2022 CALENDAR OF KEY EVENTS

January

January

1st

- Date that 2022 taxable values and qualification for certain exemptions determined (except for inventories appraised September 1) (Secs. 11.42, 23.01, 23.12).*
- Date a tax lien attaches to property to secure payments of taxes, penalties, and interest that will be imposed for the year (Sec. 32.01).
- Date rendition period begins; continues through April 15th for those property owners not requesting a filing extension (Sec. 22.23).
- Date that half the members of the county appraisal district (CAD) board of directors begin two-year terms if the district has staggered terms (Sec. 6.034).
- Date that half of appraisal review board (ARB) members begin 2-year terms (Sec. 6.41).

2nd

- District mail out of BPP Renditions, MHP Lists, Special Inventory Packets, Aircraft Renditions. **(ECAD)**

10th

- If 2021 tax bill not mailed on or before this date, delinquency date postponed (Sec. 31.04).
- Order weighted average cost of capital study for mineral appraisal discounting **(ECAD)**.

31st

- Deadline for Texas Comptroller's preliminary 2021 Property Value Study (PVS) findings to Education Commissioner and each school district (Government Code Sec. 403.302).
- Last day for chief appraiser to deliver applications for special appraisal and exemptions requiring annual applications (Secs. 11.44, 23.43).
- Last day for appraisal district to give public notice of 2022 capitalization rate used to appraise property with low and moderate-income housing exemption (Sec. 11.1825).

February 1st

- Last day for disabled or 65-or-older homeowners to pay one quarter of homestead property tax installments. Homeowners whose homes were damaged in a disaster within a designated disaster area may choose this payment option (Secs. 31.031, 31.032).
- Date that 2021 taxes become delinquent if bill was mailed on or before January 10, 2022. Rollback tax for change of use of 1-d-1 land becomes delinquent if taxing unit delivered bill to owner on or before January 10, 2022 (Secs. 23.46, 23.55, 23.76, 23.9807, 31.02).
- Last day for motor vehicle, boat and outboard motors, heavy equipment, and manufactured housing dealers to file annual dealer's inventory declaration (Secs. 23.121, 23.124, 23.1241, 23.127).

1st – 15th

- Appraiser to work Mobile Home Parks. **(ECAD)**

15th

- Last day for county collector to disburse motor vehicle, boat and outboard motor, heavy equipment, and manufactured housing inventory taxes from escrow accounts to taxing units (Secs. 23.122, 23.1242, 23.125, 23.128).

28th

- Last day to request cooperative housing appraisal (Sec. 23.19).
- District to run preliminary ratio study by class and by market area. **(ECAD)**

March

10th

- Exemptions audit **(ECAD)**
- Minerals parameters meeting **(ECAD)**
- Deadline to file written appeal of PVS findings with Texas Comptroller (Government Code Sec. 403.303).
- Start oil and gas mineral appraisals **(ECAD)**

22nd

- Last field day – Real Estate Appraisers **(ECAD)**

31st

- Last day for taxing units' second quarterly payment for 2022 CAD budget (Sec. 6.06).
- Last day for disabled or 65-or-older homeowners or homeowners in a disaster area to pay second installments on home taxes (Secs. 31.031, 31.032).
- Last day for cities to report information of reinvestment zones and tax increment financing plans to Texas Comptroller (Sec. 311.019).
- Last day for qualified community housing development corporation to file listing of property acquired or sold during past year with the chief appraiser (Sec. 11.182).

April

15th

- Mail out preliminary mineral appraisals. **(ECAD)**
- Last day for property owners to file renditions and property information reports unless they request a filing extension in writing (Sec. 22.23).

15th – 30th

- Mineral Informal meetings **(ECAD)**

30th

- Real Estate and Mineral notices in the mail. **(ECAD)**
- Certified Estimates to taxing entities. **(ECAD)**

May

1st

- Last day for property owners to file these applications or reports with the CAD.**
 - Some exemption applications (Sec. 11.43);
 - Notice to chief appraiser that property is no longer entitled to an exemption not requiring annual application (Sec. 11.43);

- Applications for special appraisal or notices to chief appraiser that property no longer qualifies for 1-d and 1-d 1 agricultural land, timberland, restricted-use timberland, recreational-park-scenic land and public access airport property (Secs. 23.43, 23.54, 23.75, 23.84, 23.94, 23.9804);
- Railroad rolling stock reports (Sec. 24.32);
- Requests for separate listing of separately owned land and improvements (Sec. 25.08);
- Requests for proportionate taxing of a planned unit development property (Sec. 25.09);
- Requests for separate listing of separately-owned standing timber and land (Sec. 25.10);
- Requests for separate listing of undivided interest (Sec. 25.11);
- Requests for joint taxation of separately owned mineral interest (Sec. 25.12).
- **Real Estate Informals Start (ECAD)**
- 1st – 15th
 - Time that taxing units may file resolutions with chief appraiser to change CAD finance method. Three-fourths of taxing units must file for change to occur (Sec. 6.061).
 - Time that chief appraiser must publish notice about taxpayer protest procedures in a local newspaper with general circulation (Secs. 41.41, 41.70).
- 1st – 31st
 - Time that taxing units must notify delinquent taxpayers that taxes delinquent on July 1 will incur additional penalty for attorney collection costs (Sec. 33.07).
- 1st
 - Last day (or as soon as practicable) for chief appraiser to mail notices of appraised value (Secs. 6.025 and 25.19).
 - Last day (or as soon as practicable) for chief appraiser to prepare appraisal records and submit to ARB (Secs. 25.01, 25.22).
- 15th
 - Last day for property owners to file renditions and property information reports if they requested an extension in writing. For good cause, chief appraiser may extend this deadline another 15 days (Sec. 22.23).
- 20th
 - Last day for chief appraiser to count taxing units' resolutions to change CAD's finance method (Sec. 6.061).
- 20th
 - BPP data entry deadline (**ECAD**)
- 25th
 - Mail out BPP notices (**ECAD**)
- 31st
 - Last day for property owners to file protest with ARB (or by 30th day after notice of appraised value is delivered, whichever is later) (Sec. 41.44).
 - Last day for taxing units to file challenges with ARB (or within 15 days after ARB receives appraisal records, whichever is later) (Sec. 41.04).
 - Last day for disabled or 65-or older homeowners or property owners with homes in a disaster area to pay third installment on homes taxes (Secs. 31.031, 31.032)
 - Last day for religious organizations to amend charters and file new applications (or within 60 days of exemption denial, whichever is later) (Sec. 11.421).
- June**
- 1st
 - Mail out mortgage letters (**ECAD**)
 - Last day for chief appraiser to certify estimate of school districts' taxable value for school district to use for publishing notice of budget and proposed tax rate and adopting its budget for a fiscal year that begins July 1 (Sec. 26.01).
 - ARB Hearings Start (**ECAD**)
- 14th
 - Last day for chief appraiser to submit recommended 2023 budget to CAD board and taxing units (unless taxing units have changed CAD's fiscal year) (Sec 6.06).
- 16th
 - Beginning date that CAD board may pass resolution to change CAD finance method, subject to taxing units' unanimous approval (Sec 6.061).
- 30th
 - Last day for taxing units' third quarterly payment for 2022 CAD budget (Sec. 6.06).
 - Last day to form a taxing unit to levy 2022 property taxes (Sec. 26.12).
 - Last day for taxing units to adopt local option percentage homestead exemptions (Sec. 11.13).
 - Last day for private schools to amend charters and file new applications (or within 60 days of exemption denial, whichever is later) (Sec. 11.422).
 - Last day for CADs to report formation of reinvestment zones and tax abatement agreements to the Texas Comptroller (Sec. 312.005).
- July**
- 1st
 - Date that delinquent taxes incur total 12 percent penalty (Sec. 33.01).
 - Taxes delinquent on or after February 1 but not later than May 1 incur additional penalty to pay attorney collection costs (Sec. 33.07). (See Secs. 33.08 and 33.11 for additional penalties).
 - Last day for ARBs to complete review of railroad rolling stock values for submission to Texas Comptroller (or soon after) (Sec. 24.35).
- 20th
 - Date ARB must approve appraisal records, but may not do so if more than 5 percent of total appraised value remains under protest (Sec. 41.12).
- 25th
 - Last day for chief appraiser to certify appraisal roll to each taxing unit (Sec. 26.01).
- 27th
 - PTAD Ratio and sales file submission. (**ECAD**)

31st

- Last day for property owners to apply for September 1 inventory appraisal for 2023 (Sec. 23.12).
- Last day for disabled or 65-or-older homeowners or homeowners in a disaster area to pay fourth installment on home taxes (Secs. 31.031, 31.032).
- Last day for Texas Comptroller to certify apportionment of railroad rolling stock value to counties, with supplemental records after that date (Sec. 24.38).

August

1st

- Date taxing unit's assessor submits appraisal roll and an estimated collection rate for current year to governing body (or as soon as practicable) (Sec. 26.04).

7th

- Start Industrial District Contracts (ECAD).
- Date taxing units (other than school districts and small taxing units) must publicize effective tax and rollback rates, unencumbered fund balances, debt obligation schedule, and other applicable items (or soon after) (Sec. 26.04).

12th

- Start 2023 Field Work

14th

- Last day for CAD board to pass and deliver resolution to change CAD finance method, subject to taxing unit's unanimous consent (Sec. 6.061).

15th

- Last day for CAD board to approve written reappraisal plan for 2023/2024 (Sec. 6.061).

31st

- Last day for property owner to give correct address to CAD in writing for tax bill; penalties and interest waived if bill not sent to correct address 21 days before delinquency date (Sec. 33.011).
- Last day taxing units may file resolutions with the CAD board to oppose proposed change in the CAD finance method (Sec. 6.061).

September

1st

- 2023 taxable values of inventories may be determined as of this date, at property owner's written option (Sec. 23.12).

14th

- Last day for CAD board to adopt 2023 CAD budget, unless district has changed its fiscal year (Sec. 6.06).

29th

- Last day for taxing units to adopt 2022 tax rate, or no later than 60th day after chief appraiser certifies appraisal roll to unit. Failure to adopt by these required dates results in unit adopting lower of its effective tax rate for this year or last year's tax rate; unit's governing body must ratify new rate within five days (Sec. 26.05).

30th

- Mail out tax statements (**ECAD**)

October

1st

- Last day for taxing units' fourth quarterly payment 2022 CAD budget (Sec. 6.06).
- Date tax assessor mails 2022 tax bills (or as soon as practicable) (Sec. 31.01).

November

30th

- First half of split payment of 2022 taxes is due on or before this date (Sec. 31.03).

December

1st – 31st

- Time when chief appraiser may conduct a mail survey to verify homestead exemption eligibility (Sec. 11.47).

31st

- Last day for taxing units' first quarterly payment for 2022 CAD budget (Sec. 6.06).

APPENDIX (A)
MARKET AREAS

STRUCTURE of ECTOR CAD GEOGRAPHIC MARKET AREA CODES

8-DIGIT CODES USED FOR ALL IMA'S (Improved Market Areas)

X XXX XXXX
(1) (234) (5678)

- Character 1 (QUAD) Ector County Split into 4-Quadrants with a North South Line of Hwy 385 and an East West Line being Interstate 20- 1 (NW), 2 (NE), 3 (SE), 4 (SW)
- Character Set 2 (Characters #'s 2,3&4 (GMA-General Market Area) EA1 Thru EG1
- Character Set 3 (Characters #'s 5,6,7&8 (Delineated Market Area) Residential (RXXX) or Commercial (CXXX)

QUAD – Ector County Split into 4-Quarters

- 1. Northwest Ector**
- 2. Northeast Ector**
- 3. Southeast Ector**
- 4. Southwest Ector**

GMA- General Market Areas (52 Total – EA1 thru EG1)

As referenced in Ector CAD's Agency Information Manual –Section 4.08.05.05 These major market areas correspond to the market area boundaries established and utilized by the Odessa Board of Realtors' Multiple Listing Service (MLS). These areas are used by real estate brokers for marketing and comparative analysis purposes. They closely follow the 28 Federal Census Tracts designated for Ector County, Texas by the U.S. Department of Commerce. They in turn are used for a variety of statistical analysis purposes. The tracts, when established and first delineated, were designed to be homogeneous with respect to population characteristics, economic status, and living conditions. Typical census tracts have between 2,500 and 8,000 persons.

DMA- Delineated Market Areas- Residential and Commercial (RXXX-Residential and CXXX-Commercial Market Areas)

As referenced in Ector CAD's Agency Information Manual- Section 4.08.05.06 These delineated geographic market areas are identified and designated according to the same market influences as based on the actions of typical buyers in the area. Conforming and compatible land uses along with competitive properties on the open market are a primary determinant of establishing the perimeters and the geographic boundaries of the identified market areas.

CODE_DESCRIPTION

RESIDENTIAL MARKET AREAS

R101	- R101 [42-2S-3]
R102	- R102 [42-1S-33 40 41 44 45]
R103	- R103 [University Park III-IV-V-VI]
R104	- R104 [Colonial Estates]
R105	- R105 [42-1S-34 39]
R106	- R106 [El Rancho]
R107	- R107 [East Park Addition-Phase-I-II-III]
R108	- R108 [Lawndale Addition]
R109	- R109 [Northpark Addition]
R110	- R110 [42-1-S-35 & 36]
R111	- R111 [42-1S-47 & 48]
R112	- R112 [Tuscan Villa]
R113	- R113 [Gardendale Area]
R201	- R201 [Fleetwood-Lyndale]
R202	- R202 [Scottsdale-Scottsdale West]
R203	- R203 [Esmond-Plantation Oaks]
R204	- R204 [Fountains]
R205	- R205 [Ponderosa]
R206	- R206 [Ponderosa East]
R207	- R207 [Ests of Shiloh-La Paz-Tres Vistas]
R208	- R208 [Vista Del Norte-Castle Ridge]
R209	- R209 [Leeco-Texas Star]

- R210 - R210 [Renaissance-Tumbleweed-Stonegate-Lee]**
- R211 - R211 [Emerald Forest-Emerald Forest Gardens]**
- R212 - R212 [Country Club N & East-Devonian Ests-Hoak]**
- R213 - R213 [Links-Steeplechase]**
- R214 - R214 [Stoneyridge]**
- R215 - R215 [Club Crest-Gilbert-KTM]**
- R216 - R216 [Vista Crest-Christopher Ests]**
- R217 - R217 [Country Club Ests-Richland Manor]**
- R218 - R218 [Lakeside Ests & 4th-Fair Oaks & FO Gardens]**
- R219 - R219 [San Miguel Sq-Chimney Hollow]**
- R220 - R220 [Winwood-Kenwood E&W-Windsor Cntrl & East]**
- R221 - R221 [Springdale East Part]**
- R222 - R222 [University Gardens]**
- R223 - R223 [Preston Oaks]**

- R301 - R301 [43-2S-14]**
- R302 - R302 [43-2S-15]**
- R303 - R303 [Town & Country Acs-Town & Country Dev]**
- R304 - R304 [43-2S-10]**
- R305 - R305 [43-2S-23]**
- R306 - R306 [43-2S-26]**
- R307 - R307 [43-2S-27/28-North Half-Ocotillo-Dobson]**
- R308 - R308 [43-2S-27/28-South Half & 43-2S-33]**
- R309 - R309 [43-2S-22]**
- R310 - R310 [Marshall Fields]**
- R311 - R311 [Westover Acres]**

R312 - R312 [Westridge Sub]
R313 - R313 [43-2S-16]
R314 - R314 [43-2S-9]
R315 - R315 [43-2S-4]
R316 - R316 [43-2S-5]
R317 - R317 [43-2S-6]
R318 - R318 [43-2S-7/18]
R319 - R319 [43-2S-17]
R320 - R320 [43-2S-8]
R321 - R321 [43-2S-20/21]
R322 - R322 [Quail Run 1st & 2nd]
R323 - R323 [43-2S-19]
R324 - R324 [43-2S-30/31-44-2S-25/36]
R325 - R325 [43-2S-29]
R326 - R326 [Appletree]
R327 - R327 [44-2S-37]
R328 - R328 [Belmont Acres/Youngville]
R329 - R329 [Broncho/Mustang]
R330 - R330 [Penwell]
R331 - R331 [Goldsmith]
R332 - R332 [Notrees]
R333 - R333 [Westland Sub]

R401 - R401 [42-2S-16]
R402 - R402 [42-2S-17 North Half]
R403 - R403 [42-2S-17 South Half]

R404 - R404 [42-2S-20 North Half]
R405 - R405 [Cielo Vista]
R406 - R406 [42-2S-20 South Half]
R407 - R407 [42-2S-29 North Half]
R408 - R408 [42-2S-29 South Half]
R409 - R409 [42-2S-28]
R410 - R410 [42-2S-27]

R501 - R501 [Wedgewood-Pagewood]
R502 - R502 [Idlewild-Sweetbriar]
R503 - R503 [Crescent Pk East-North]
R504 - R504 [Crescent Pk East-South-Clyde-Rose Terrace]
R505 - R505 [Crescent Pk West-Grandview-Parker JP]
R506 - R506 [Ashford-BH&S-Bev Hts-Cntrl-College-ET AL]
R507 - R507 [Ridgecrest-Ridgecrest West-Barrow Park]
R508 - R508 [Westview-Buchanan-Buchanan N-OvercashETAL]
R509 - R509 [Highland Park-Grant Av Hts-College Addition]
R510 - R510 [Bellaire Hts East & West]
R511 - R511 [Windsor Hts West-Bellaire Hts Far West]

R601 - R601 [42-2S-26-North Half]
R602 - R602 [42-2S-26-South Half]
R603 - R603 [42-2S-35-Exc604]
R604 - R604 [Antiqua Terrace-Hendley]
R605 - R605 [Martin & Boan]
R606 - R606 [42-2S-34-EAST HALF]

R607 - R607 [42-2S-34-WEST HALF]
R608 - R608 [42-2S-33-ExcR609]
R609 - R609 [Dorothy Lea-Skyview]
R610 - R610 [42-2S-41]
R611 - R611 [42-2S-44]
R612 - R612 [42-3S-3-Southfork]
R613 - R613 [42-3S-10-Lonesome Dove]
R614 - R614 [42-3S-9-Gunsmoke Sub]
R615 - R615 [42-3S-16-North-Rocking Bar7]
R616 - R616 [42-3S-16-South-SunriseSouth]
R617 - R617 [42-3S-21-385 Ranch Ests]
R618 - R618 [42-3S-33-JAC Acres-Three Sisters]
R619 - R619 [42-3S-45-Nolan Acres]
R620 - R620 [42-3S-17-385 Ranch Ests West]
R621 - R621 [42-4S-5-Gage Acres]
R622 - R622 [42-4S-6-7-8-Haley Add]
R623 - R623 [Pleasant Farms-Lake-Park-Coday-ET AL]

R701 - R701 [43-2S-36]
R702 - R702 [42-2S-30]
R703 - R703 [Henderson-Southeast Part]
R704 - R704 [43-2S-24]
R705 - R705 [43-2S-13]
R706 - R706 [42-2S-18]
R707 - R707 [42-2S-4 8 9]
R708 - R708 [42-2S-10 15]

RESIDENTIAL MARKET AREAS

IMA – SECTORS – Code # [Name] Subdivisions-Additions- Description/Boundaries

CODE

R101- [42-2S-3] Andrews Add.(00600), Birdsong(02900), Goldston Replat(11800), Harris(13500), Malicoat(17900), Nolan Replat(20600), Stoddard Replat(30100), Sunset Hts.(30600) located N: Yukon, E: N. Dixie, S: E. 57th St., W: Andrews Hwy

R102- [42-1S-40, 41, 44 45] Airway Acres(00200), Broughton Pk(04200), Hillside(14200); Del Norte Acres(08000); Greenfield(Acres)(Brown)(Coombs)(Goss)(Harris)(Hill)(John-son)(Jones)(Newman)(Stal-cup)(12500,12520,12550,11900,12600,12650,12700,12800,12900,13000); Hughes(14700), Johnston(15600), Northgate(21100), Oregon(21900), Pool City(25100), Pool City Annex(25200), Swink(31200), located, N: 87th St., E: Andrews Hwy, S: Yukon, W: West Loop 338

R103- [University Park III, IV, V, VI] (32680, 32690) Located N: N. County Road West, E: Andrews Hwy, S: 87th St., W: County Road West

R104- [Colonial Estates] (06500) Located, N: N. County Road West, E: Andrews Hwy, S: Oxford St., W: N. County Road West

R105- [42-1S-34, 39] ZZ-Unplatted, located N: Section Line, E: Section Line, S: Hillmont, W: Andrews Hwy

R106- [El Rancho] (09400) Located N: Yucca, E: Edgeport, S: 89th St., W: Yellowstone

R107- [East Park Addition, Phase I, II, III] (08870, 08880, 08890) Located N: 89th St., E: Purdue, S: Duke, W: Holiday

R108- [Lawndale] (17300) Located N: 91st St., E: Rainbow, S: 86th St., W: Andrews Hwy.

R109- [Northpark] (21225) Located N: County Road West, E: Cabrito, S: 91st St., W: Andrews Hwy.

R110- [42-1S-35 & 36] Ratliff Ranch Co 35 (26557), Unassigned, ZZ-Unplatted, located N: Com-mandra, E: Section line, S: 87th St., W: NE Loop 338

R111- [42-1S-47 & 48] Ratliff Add (26550), Ratliff Ranch (26555), Tierra Del Sol(31905), ZZ-Unplatted, located : N: Tobosa, E: NE Loop 338, S: Yucca, W: Dawn

R112- [Tuscan Villa] (32556) Located NE Loop 338, SE Part of Section

R113- [Gardendale Area] 42-1S-1 & 12, 41-1S-6, 7, 5, 8, 4, 9, 10, 2, 1, 12, 13, 22, 27, Includes 6 Sections of Gardendale Proper and surrounding Gardendale Area properties, located along N. Hwy 385 at Hwy 158 and then 6 miles east to the Midland County Line. South of Hwy 158 for 2 miles and then 4 miles south of Hwy 158 along the Midland County Line. Includes the subdivisions of Gardendale(11100), Star Addition(29900), Lemac(17360), Circle 7(05730), Chinaberry Ets.(05698), Smith Addition(29050), Home Log(14630), Sunland Acres(30270), Heritage

Ests(13930), Sunland Park(30280), Mustang Ests(20202), Saddleback Ridge(28150), Midway Co. Ests(19180), University Acres(32640)

R201- [Fleetwood/Lyndale] Fleetwood Addition (10100), Lyndale(17500) located, N: E. 52nd St, E: N. Grandview Av, S: E 42nd St, W: Dawn Av.

R202- [Scottsdale-Scottsdale West] Scottsdale Addn.(28440), Scottsdale West(28460) located, N: E. 56th St, E: N .Grandview Av, S: E 42nd St, W: Dawn Av.

R203- [Esmond/Plant Oaks] Esmond (09450), Plantation Oaks (24530) located, N: New Orleans Dr, E: Waimea Dr, S: E. 52nd St, W: N. Grandview Av.

R204- [Fountains] Fountains (10460) located, N: New Orleans Dr, E: Lahaina Dr, S: Kauai Dr, W: New Orleans Dr.

R205- [Ponderosa] Ponderosa Estates (24800) located, N: E. 64th St, E: Ponderosa Dr., S: E. 56th St., W: California Av.

R206- [Ponderosa East] Ponderosa East Addn (24810) located, N: Brandon Ct., E: N. Faudree Rd., S: E. 56th St., W: Ponderosa Dr.

R207- [Est. of Shiloh-LaPaz-TresVistas] Estates of Shiloh (09465), Vista La Paz (33160), Tres Vistas(32480) located, N: Castle Oaks Dr, E: Castlegate, S: East Ridge Rd, W: Parks Lagado Rd.

R208- [Vista DelNorte-Castle Ridge] Vista Del Norte (33140), Castle Ridge (05530) located, N: Parks Lagado Rd., E: De Morada Rd., S: Rafael St., W: Tres Hermanes Blvd.

R209- [Leeco-Texas Star] Leeco (17343) and Texas Star (31785) located, N: East Ridge Rd., E: Parks Lagado Rd., S: Stonegate Dr., W: Billy Hext Rd.

R210- [Renaissance-Tumbleweed-Stonegate-Lee] Renaissance Ests (26790), Tumbleweed Crossing(32555), Stonegate(30140), Lee(17340) located, N: East Ridge Rd., E: Rembrandt, S: Stonehenge Rd., W: Amber

R211- [Emerald Forest-Emerald Forest Garden] Emerald Forest(09445) and Emerald Forest Gardens(09447) located, N: East Ridge Rd., E: Billy Hext Rd., S: Long Champ Ct., W: Wallbrook Tr.

R212- [Co Club North & East-Devonian-Hoak] Country Club North (06800), Country Club East(06650), Devonian Estates(08260), Hoak(14280), located, N: East Ridge Rd., E: Newell Rd., S: Hwy 80 E., W: E. Loop 338

R213- [Links-Steeplechase] Links (17385) and Steeplechase (29970) additions located, N: Shiloh Rd., E: Bily Hext Rd., S: Opal Dr., W: Rocky Ln.

R214- [Stoneyridge] Stoneyridge Addn. (30160) located, N: Stoneyridge Rd., E: Newell Rd., S: Opal Dr., W: Pine Ridge

R215- [Club Crest –Gilbert-KTM] Club Crest (05900), Gilbert (11190) and KTM Addition (16050) located, N: Dana St., E: Newell Rd., S: Hwy 80 E., W: Rocky Ln.

R216- [Vista Crest-Christopher Est.] Vista Crest (33130) and Christopher Estates (05710) located, N: Dana St., E: Newell Rd., S: Hwy 80 E., W: Country Club Dr.

R217- [Country Club Est.-Richland Manor] Country Club Estates (06700) and Richland Manor(27000) located, N: Mecca St., E: Rocky Ln., S: Richwood Rd., W: Loop 338 E.

R218- [Lakeside Est. & 4th-Fair Oaks & FO Gardens] Lakeside Estates(16850) and Lakeside Estates 4th Filing(16870) and Fair Oaks(09500) and Fair Oaks Gardens(09600) located, N: E. 42nd St., E: John Ben Shepperd Parkway, S: E. 17th St., W: Tanglewood Ln.

R219- [San Miguel Sq-Chimney Hollow] San Miguel Square (28350) and Chimney Hollow(05690) located, N: Maple Ln., E: John Ben Shepperd Parkway, S: Kirkwood Dr., W: Fairbrook Dr.

R220- [Winwood-Kenwood East/West-Wind Cent/East] Winwood(36800), Kenwood East/West (16350)and Windsor Heights East(36600) located, N: 42nd St., E: Tanglewood Ln., S: Brentwood Dr., W: Dawn Av.

R221- [Springdale/East] Springdale East Part (29700), located, N: Maple Av., E: Pagewood Av., S: E. University Blvd., W: Tanglewood Ln.

R222- [University Gardens] University Gardens Addition (32660) located, N: Oakwood Dr., E: Brittany Ln., S: E. Hwy 80, W: Pagewood Av.

R223- [Preston Oaks] Preston Oaks Addition (25670) located, N: French Av., E: French Av., S: Brittany Ln., W: Brittany Ln.

R301- [43-2S-14] McDonald Sub17720), Star Tracts (29910), Westmoor Acres (35200), located N: W.42nd St., E: FM 1936, S: W. University Blvd., W: Redondo Av.

R302- [43-2S-15] Planet (24500), Sundown Hills (30250), Western Skies(34700), located N: W. 42nd St., E: Redondo Av., S: W. University Blvd., W: Tripp Av.

R303- [Town&Country Acres/Town&Country Dev.] (32150,32200) Located N: W. 42nd St., E: Uranus, S: W. University Blvd., W: Tripp Av.

R304- [43-2S-10] (42630) Located N: W. 57th St., E: Redondo Av., S: W. 42nd St., W: Tripp Av.

R305- [43-2S-23] Casity(05500), Cottage(06600), Fairview(09700), Fields(10000), Home Addn.(14600), Meeks(19000), Nolls Replat 11 & 4-5(20700,20800), Plainview(24400), Redman(26600), Tower(32100), Valley(32700), Westerleigh(34099), Western Addn.(34100), located N: W. University Blvd., E: Fm 1936, S: W. 16th St., W: Redondo Av.

R306- [43-2S-26] Elizabethan Acres (09300), Moody (19600), Muriel Acres(20000), Webber(33750), located N: W. 16th, E: FM 1936, S: W. 3rd St., W: Redondo Av.

R307- [43-2S-27/28-North Half-Ocotillo-Dobson] Ocotillo Park Av.

R308- [43-2S-27/28-South Half & 43-2S-33] Harolds Place (13400), Quail Hollow (26050), Desert Flower (08230), located N: W. 10th St., E: Redondo Av., S: Hubnik Rd., W: Moss Rd.

R309- [43-2S-22] Blackmon(03000), Cholla Park(05700), Green(12400), Millican(19400), New Haven(20300), Orr Hts.(22400), Peacock(23800), Ranch Acres(26200), Rutledge(27900), Sunnydale(30300), Vanguard(32900), White Sub.(36200), located N: W, University Blvd., E: Redondo Av., S: W. 16th St., W: Tripp Av.

R310- [Marshall Fields Estates] Marshall Fields Estates (18250), located N: W. 42nd St., E: Huntington, S: W. University Blvd., W: Milky Way St.

R311- [Westover Acres] (35300) Located in Multiple Sections

R312- [Westridge Sub] (35500) Located in Multiple Sections

R313- [43-2S-16] Debbi-Lynn (07800), El Dorado West (09350), Goldies Acres (11600), located, N: W. 42nd St., E: Tripp Av., S: W. University Blvd., W: Moss Rd.

R314- [43-2S-9] Curley J (07450), Estados Del Sol (09460), J-Bar Estates (15350), Westfork Ests.(34770), located N: W. 57th St., E: Sierra, S: W. 42nd St., W: Moss Rd.

R315- [43-2S-4] Chaparral 2ND (05660), Greenway Acres (13050), Holdridge(14290), RH&R(26150), Santa Fe 1ST(28380), located N: Yukon, E: Tripp Av., S: W. 57th St., W: Moss Rd.

R316- [43-2S-5] Chaparral Estates (05680), El Ru Acres (09440), Santa Fe 2ND(28390), Western Hills(34200), located N: Yukon, E: Moss Rd., S: W. 57th St., W: Knox Dr.

R317- [43-2S-6] Quail Valley (26135), Plumanealey(24700), Ranch Valley(26300), Ranchette(26400), Westlake(34960), located, N: Yukon, E: Knox Av., S: W. 57th St., W: Mark Twain

R318- [43-2S-7/18] Gist Lots(11400), RH&R(26150), Ranch Acres(26200), Rutledge(27900), Sundown Hills(30250), Valleyview(32800), located, N: W. 57th St., E: Knox Av, S: W. 42nd St., W: Mark Twain

R319- [43-2S-17] Knox Village Estates (16710), Sundown Hills (30250), located N: W. 42nd St., E: Moss Rd., S: W. University Blvd., W: Knox Dr.

R320- [43-2S-8] Broughtons Green Acres (04300), Chaparral 1ST (05650), Chaparral 3RD (05670), Misty Acres (19440), located, N: W. 57th St., E: Moss Rd., S: W. 42nd St., W: Knox Av.

R321- [43-2S-20/21] Green (12400), Ranch Acres (26200) located, N: W. University Blvd., E: Tripp Av., S: W. 16th St., W: Knox Av.

R322- [Quail Run 1st & 2nd] Quail Run Estates 1ST and 2ND (26120, 26130), located, N: W. University, E: Moss Rd., S: W. 16th St., W: Knox Av.

R323- [43-2S-19] Parra Sub (23680), Ranch Acres (26200), located N: W. University Blvd., E: Knox Av., S: W. 16th ST., W: Mark Twain

R324- [43-2S-30/31 & 44-2S-25/36] Knox Village Ranch Phase 1, and 2&3(16750,16760), Knox-Village Ranchettes Ph.1,2,3,4,5,6,7,8&9(16770,16780,16790,16810,16820,16721,16822,16823,16824) located N: W. 16th St., E: Knox Av., S: Stagecoach, W: Fletcher Trail /Mark Twain

R325- [43-2S-29] City Ranch (05760), Desert Willow (08240), Vista Grande (33150), located, N: W. 16th St., E: Moss Rd., S: W. 3rd St., W: Knox Av.

R326- [Appletree] Appletree Subdivision (00670), located N: Edna St., E: Almond, S: W. I-20, W: Knox Av.

R327- [44-2S-37] Western Hollow 1ST&2ND (34250), Western Hollow 3RD&4TH (34260), Four Winds(10470), located N: Stagecoach, E: Knox Av., S: Gray Eagle, W: Fletcher Trail

R328- [Belmont Acres/Youngville] Belmont Acres Addition (02500), Youngville Sub (37300) located, N: Yukon Rd., E: Mark Twain, S: W. 42nd St., W: Overland

R329- [Broncho/Mustang] (04100, 20200) Located N. W. 42nd St., E: Commanche St., S: W. University Blvd., W: FM 866

R330- [Penwell] Penwell Townsite (23900), Penwell-Rhodes (24000), located far West Interstate 20 at FM 1601

R331- [Goldsmith] Goldsmith Addition (11700), Located NW Ector County at FM 866 and Hwy 158

R332- [Notrees] Notrees-Benge (21500), Notrees-Notrees (21400), Located Far NW Ector County on Hwy 158

R333- [Westland Sub] Westland Sub (35100), Located Far W. Ector County N: 42nd Street, E. Moss Avenue, S: W. University Blvd., W: Knox Avenue

R401- [42-2S-16] Judkins Sub (15900), Judkins Annex (16000), Douthitt(08700), No.1 Ellis Pk.(20520), Beall Sub(01900), Murdock Bills(19900), Breeze Hills(03600), Freeman(10550), Kimbell(16600), Lamb(16950), Malone(18000), Orchard 07-16-22-16, 23-16, 28 & 31-8, 39-16(21830,21850,21860,21880,21890,21895,21892,21898), Sweetwater(31000), Terrace Hills(31700), Threeway(31900), Clyde Pool A 2 Ac(25400), located N: W. 42nd St., E: N. Andrews Hwy., S: W. University Blvd., W: N. West County Rd.

R402- [42-2S-17 North Half] North Side Kermit Hwy, Harrisdale Addition-North (13600), American Village (00300), located N: W. 42nd St., E: N. West County Rd., S: Kermit Hwy., W: Mankins St.

R403- [42-2S-17 South Half] South Side of Kermit Hwy., Harrisdale Addition- South (13600), Bookins Home Sites (03330), located, N: Kermit Hwy., E: N. West County Rd., S: W. University Blvd., W: Bookins

R404- [42-2S-20 North Half] North of W. 22nd St., Beckwood Terrace Addition(02200), Western Manor(34400)- North Part, located N: W. University Blvd., E: N. West County Rd., S: W. 22nd St., W: Conover Dr.

R405- [Cielo Vista] Cielo Vista Addition (05720), located in West Third of Section, N: W. University Blvd., E: Conover Dr., S: W. 22nd St., W: Loop 338 West

R406- [42-2s-20 South Half] South of W. 22nd St., Western Manor Addition-South Part(34400), Hollywood View(14500), Hollywood Manor(14400), Hayden Addition(13660), Westside Subdivision(35600), located, N: W. 22nd St., E: N. West County Rd., S: W. 16th St., W: Loop 338 West

R407- [42-2S-29 North Half] North of W. 10th St., Park Place Annex(23200), Briarwood(03900), Rochester Heights-North Part(27400), Parkview(23600), Broadway(04000), Todd(31950), located N: W. 16th St., E: N. West County Rd., S: W. 10th St., W: Avenue 'A'

R408- [42-2S-29 South Half] South of 10th Street, Rochester Heights-South Part(27400), Lasserter Addition(17200), Johnson Sub(15500), Odessa Housing Authority(21668), located N: W. 10th St., E: N. West County Rd., S: W. 3rd St., W: Avenue 'A'

R409- [42-2S-28] Tanglewood(31400), Tanglewood West(31500), Bruce(04500), Crestview(07100), Park Place Annex(23200), Winton(36700), Kirklin(16700), Herbert Wight(13900), McKinney Terrace(17800), Sunset Place(30700), Scharbauer Place(28400), located N: W. 15th St., E: N. Sam Houston, S: 1st St., W: N. County Rd West

R410- [42-2S-27] Argaud Heights(00800), Cannondale(05200), College Addition(06200), Dona Rabb(08500), Eastover(08950), Florence Robinson(10200), Jones(15700), Mary Flanagan(18500), Original Town(22000), Original Town 73-79(22300), S Williams(28100), Thain Heights(31800), located N: E. 16th St. , E: Dixie Blvd., S: Olive St., W: Sam Houston Av.

R501- [Wedge/Pagewood] Wedgewood Addition (33800) and Pagewood Estates(22800) located, N: Chimney Hollow, E: Oakwood Dr., S: Tanglewood Ln., W: Custer Av.

R502- [Idlewild/Sweetbriar] Idlewild Estates (15000) and Sweetbriar Addition(31000) located, N: E. 25th St., E: Wedgewood Av., S: Inwood Dr., W: Cumberland Rd.

R503- [Crescent East-North] Crescent Park Addition East Part and North of Oakwood (07000), located, N: E. University Blvd., E: John Ben Shepperd Blvd., S: Oakwood Dr., W: N. Grandview Av.

R504- [Crescent East-South/Clyde/Rose] Crescent Park Addition East Part and South of Oakwood Dr (07000), Clyde(05950), Rose Terrace Addition(27700) located, N: Oakwood Dr., E: John Ben Shepperd Parkway, S: E. 8th St., W: N. Grandview Av.

R505- [Crescent West/Grandview/Parker JP] Crescent Park Addition West Part(07000), West of Grandview, Grandview Sub.(12100) and Parker Jim Parker(23350) located, N: E. University Blvd., E: N. Grandview Av., S: E. 8th St., W: Maple Av.

R506- [Ashford/BH&S/BevHts./Centr/Coll/Norm/PkHts.,PI/Sage] Ashford Replat(01080), BH&S Addition(01400), Beverly Heights(02600), Central Park(05550), College Addition(06200), College Campus(06400), Normandy Heights(21000), Parker Heights(23300), Parker Place(23100), Sage Hills Addition(28200), Located N: E. University Blvd., E: Maple Av., S: E. 8th St., W: N. Andrews Hwy.

R507- [Ridgecrest,RidgeWest/BarrowPk] Ridgecrest Addition(27100), Ridgecrest West Addition(27200), Barrow Park(01700), located N: Casa Grande, E: N. Golder Av., S: W. 16th St., W: N. West County Rd.

R508- [Westview/Buchanan,No/Over/Rog/Beaty] Westview(35700) , Buchanan Addition(04700), Buchanan North(04800), Overcash(22500), Rogers(27600), Beaty Addition(02000), Beaty Annex(02100), located, N: W. University Blvd., E: N. Golder Av., S: Casa Grande, W: N. West County Rd.

R509- [HighPk/GrantAvHts/CollegeAddn] Highland Park (14000), Grant Avenue Heights(12200), College Addition(06200) located, N: W. University Blvd., E: N. Andrews Hwy., S: W. 13th St., W: N. Golder Av.

R510- [Bellaire Hts East & West] Bellaire Heights Addition-East & West Parts (02400) located, N: East 35th St., E: Eastover Dr., S: E. University Blvd., W: Maple Av.

R511- [Windsor HtsWest/Bellaire HtsWest] Windsor Heights Addition (36600) West of Dawn Av and Bellaire Heights Addition (02400) West Part located, N: E. 42nd St., E: Dawn Av., S: E. University Blvd., W: Locust Street and Maple Av.

R601- [42-2S-26-North Half] Pool Heights (25300), Royalty Heights (27750), North Side of 2nd St. located, N: E. 8th St., E: Expressway-Industrial, S: E. 2nd St., W: Dixie Blvd.

R602- [42-2S-26-South Half] Patterson Sub(23700), Price Parcels(25700), Sunrise(30400), Whatley Parcels(35900), Carver Hts(05400), South of 2nd St. located, N: E. 8th St., E: Industrial, S: Murphy St., W: Dixie Blvd.

R603- [42-2S-35-Exc.604] Davis Heights(07700), Del Rio Addition(08100), Del Rio Annex(08200), Fernandez(09900), Midway(19200), Smith Heights(29100), Sparks Terrace(29600), located, N: Murphy St., E: Industrial, S: I-20, W: Dixie Blvd.

R604- [Antiqua Terrace-Hendley] Antiqua Terrace (00650), Hendley Addition (13750), located N: Blackshear, E: Fitch St., S: Jeter St., W: Del Rio

R605- [Martin & Boan] Martin and Boan Addition (18400), located, N: San Benito Dr., E: SE Loop 338, S: Hammett Dr., W: Hwy 3503.

R606- [42-2S-34-East Half] Anderson Hts(00400), Argaud Hts.(00800), Burnett Hts.(04900), Gillespie(11200), Matthews(18700), Morningside Annex(19700), Pool Annex(25000), Rodessa(27500), Southside Hts.(29400), located N: Murphy St., E: Dixie Blvd., S: Pool Rd., W: Grant St.

R607- [42-2S-34-West Half] Anderson Sub.(00500), Argaud Terrace1,2,3(00900,01000,01010), Clements & Schell(05800), Graham Sub.(12000), Hendricks(13800), Hollywood Gardens(14300), Mayfair(18900), Pruett 2ND(26000)⁽, Smith Pearson(29200), Southside Park(29450), Taulman(31600), located N: Murphy St., E: Grant St., S: Pool Rd., W: Crane Av.

R608- [42-2S-33-Exc. 609] Adams(00100), Bankhead(01450), Boothe(03400), Greenway Park(13100), Ernest Martinez(18420), Newman(20400), Scharbauer Place(28400), Waddell 1ST(33300), Waddell Annex(33500), Waddell West(33600), Wilson(36500), located, N: 2nd St., E: Crane Av., S: Windcrest, W: West County Rd.

R609- [Dorothy Lea-Skyview] Dorothy Lea Addition (08600), Skyview Addition (29000), located, Interior of 42-2S-33.

R610- [42-2S-41] West Interstate Industrial Sites 3-41(34080), Located, N: Remington Rd., E: County Rd West, S: Bell Street, W: Loop 338 West

R611- [42-2S-44] Southwest Industrial Sites (29550), Located N: Bell St., E: County Rd. West, S: Berry St., W: Fulton Dr.

R612- [42-3S-3-Southfork] SouthFork Sub (29360), Located N: Texas Trail, E: Dixie Extension, S: Loop 338 SE, W: Southfork.

R613- [42-3S-10-Lonesome Dove] Lonesome Dove Addition (17388), Located, N: Loop 338 SE, E: Dixie Extension, S: Wild West, W: Holloman St.

R614- [42-3S-9-Gunsmoke Sub] Gunsmoke Subdivision (13330) located, N: Loop 338 SE, E: Holloman St., S: Wildwest, W: Hwy 385 S.

R615- [42-3S-16-North-Rocking Bar 7] Rocking Bar Addition (27410) located, N: WildWest, E: Wilderness St, S: Harrisburg, W: Hwy 385 S

R616- [42-3S-16-South-Sunrise South] Sunrise South Addition (30420), Located N: Harrisburg, E: Wilderness, S: Gettysburg, W: Hwy. 385 S

R617- [42-3S-21-385 Ranch Ests.] 385 Ranch Estates Addition (31850), Located N: Glenn St., E: Wilderness Extension, S: Borman St., W: Hwy 385 S

R618- [42-3S-33-JAC Acres-3 Sisters] JAC Acres Addition (15380), Three Sisters Addition (31885) located N: Ivory St., E: Barcelona, S: Antiqua St., W: Hwy 385 S

R619- [42-3S-45-Nolan Acres] Nolan Acres Addition (20550), Located N: Mulberry Ln, E: Texaco Plant Rd., S: FM 1787, W: Hwy 385

R620- [42-3S-17-385 Ranch Estates West] 385 Ranch Estates West Addition (31880), located N: Adobe St., E: Hwy 385, S: Heritage St., W: Wisteria St.

R621- [42-4S-5- Gage Acres] Gage Acres Addition (10930), located N: Apple St., E: Hwy 385 S., S: Conestoga Ln., W: Westwind Av.

R622-[42-4S-6-7-8-HaleyAdditions] HaleySubdivisions, 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8TH(13360,13361,13362,13363,13364),located ,N: Apple St., E: Hwy 385 S., S: Ector/Crane County Line, W: West of Conestoga Ln.

R623- [Pleasant Farms, Lake, Park, Coday, Clearwater Mesa] Pleasant Farms addition(24600), Pleasant Park(24670), Pleasant Lake(24650), Coday Addition(05955), Clearwater Mesa(05790), located N: Ivory St., E: Happy Ln., S: Apple St., W: Jasper, Diamond Av.

R701- [43-2S-36] Miles Subdivision (19300), West Freeway Addition (33900), located N: Maxwell St., E: Avenue 'L', S: West Interstate 20, W: FM 1936

R702- [42-2S-30] Henderson Subdivision (13700) except Southeast part, All section cards and unassigned, located N: W. 16th St., E: Avenue 'A', S: 3Rd. St., W: Avenue 'L'

R703- [Henderson-Southeast Part] Henderson Subdivision Southeast Part only(13700)-located East of West Loop 338 and south of West 8th Street, located N: 8th St., E: Avenue 'L', S: West 3Rd St., W: West Loop 338

R704- [43-2S-24] Moody Sub (19600), Muriel Acres (20000), Nineteen Thirty Six Sub(20500), Webber Addition(33750), located N: West University Blvd., E: Mercedes Extension, S: West 16th Street, W: FM 1936

R705- [43-2S-13] Davis Sub(07770), Pomeroy(24750), Westgate Acres(34800), Westgate Sub(34900), Western Industrial Sites(34300), located N: West 42nd St., E: Mercedes St., S: West University Blvd., W: FM 1936

R706- [42-2S-18] Skylark Industrial Park(28880), Skylark Terrace 2nd,3rd, 4th, 5th,6TH(28900,28910,28920,28930), located, N: West 42nd St., E: West Loop 338, S: West University Blvd., W: Mercedes

R707- [42-2S-4, 8, 9] Earnest Acres(08800), Florence(10300), Gist Acres(11300), Golder Acres(11500), Lakeview(16900), Pacific Heights(22700), Tye Replat(32560), Vicloumar(33000); Bradford(03500), Gist Lots(11400), Lambert(17000), Ranchland(26500), Western Plains(34600), Brown Replat(04400), Keeler Replat(16100), Kerr-McGee(16400), Newell(20250), No. Grant Gardens (21200), Playhouse Acres (24550), Petty (24300), Rice (26900), Teepee Heights(31640), located N: Yukon, E: Andrews Hwy., S:W. 42nd St., W: West Loop 338

R708- [42-2S-10, 15] Dietz(08290), ROW(27720), Sherwood 01-72(28600), Sherwood 73-94(28610), Sherwood Acres(28700), TL Addn.(31250), Valencia(32695); Brentwood(03700), Crestwood(07200), Edgemere(09200), Hillside(14200), Hines(14250), McConnell 1ST(17600), Priddy Place(25800), located, N: E. 56th St., E: Clover, S: E. University Blvd., W: No. Andrews Hwy.

CODE_DESCRIPTION

COMMERCIAL IMPROVEMENT MARKET AREAS (IMA)

IMA ZONES FOR

APARTMENTS-MULTI-FAMILY

(CAZ1) Apartment Zone 1- NE Loop 338

EF1, EF2, EF3, EF4, EF5, EF6, EF7, EF8, EF9

(CAZ2) Apartment Zone 2- N Grandview

EC6, EC7, ED2, ED3, ED5, ED6, EE2, EE3, EE5

(CAZ3) Apartment Zone 3- N Andrews Hwy

EA1, EA3, EA5, EA7, EB2, EB4, EB6, EB7, EC1, EC3, EC5, ED1, ED4, EE1, EE4

(CAZ4) Apartment Zone 4- W Odessa

EA2, EA4, EA6, EB1, EB3, EB5, EW1, EW2, EW3, EW4, EW5, EW6, EW7

OFFICES-OFFICE BUILDINGS

(COZ1) Office Zone1- Central Business District

EB4, EB6, EE1, EE4, EE5, EB7

(COZ2) Office Zone 2- N Andrews Hwy

EC1, EC2, EC3, EC4, EC5, EC6, ED1, ED2, ED4, ED5, EE2

(COZ3) Office Zone 3- E Central Odessa

EC7, ED3, ED6, EE3, EF1, EF4, EF7, ES2

(COZ4) Office Zone 4- NE Odessa

EF2, EF3, EF5, EF6, EF8, EF9

(COZ5) Office Zone 5- N County Rd West

EA1, EA2, EA3, EA4, EA5, EA 6, EA7, EB1, EB2, EB3, EB5

(COZ6) Office Zone 6- W Odessa

EW1, EW2, EW3, EW4, EW5, EW6, EW7

WAREHOUSE/SHOPS-(Off/Whse)

(CWZ1) Warehouse/Shop Zone 1- N Andrews Hwy/N Co. Rd West

EA1, EA2, EA3, EA4, EA5, EA6, EA7, EB1, EB2, EB3, EB4, EB5, EB6, EC1, EC2, EC3, EC4, EC5, ED1, ED4, EE1, EN1

(CWZ2) Warehouse/Shop Zone 2- Central Interstate 20

EB7, EE4, EE5, ES2

(CWZ3) Warehouse/Shop Zone 3- Central East Odessa

EC6, EC7, ED2, ED3, ED5, ED6, EE2, EE3, EF1, EF4, EF7

(CWZ4) Warehouse/Shop Zone 4- Northeast Odessa

EF2, EF3, EF5, EF6, EF8, EF9, EG1

(CWZ5) Warehouse/Shop Zone 5- West Odessa

EW1, EW2, EW3, EW4, EW5, EW6, EW7, ES1a

RETAIL (Shopping Centers, Stores, Restaurants)

(CRZ1) Retail Zone 1-NE Odessa-Hwy 191

EF2, EF3, EF5, EF6, EF8, EF9

(CRZ2) Retail Zone 2- Gardendale

EG1

(CRZ3) Retail Zone 3- North Central Odessa

EA1, EA2, EA3, EA4, EA5, EC1, EC2, EC3, EC4, EC5, EC6, EC7

(CRZ4) Retail Zone 4- Central-JBS/Grandview

ED3, ED6, EE3, EF1, EF4, EF7

(CRZ5) Retail Zone 5- Southside/I-20

EB7, EE4, EE5, ES1, ES2

(CRZ6) Retail Zone 6- Central-Downtown/Andrews Hwy

ED1, ED2, ED4, ED5, EE1, EE2

(CRZ7) Retail Zone 7- N County Rd West

EA6, EA7, EB1, EB2, EB3, EB4, EB5, EB6

(CRZ8) Retail Zone 8- West Odessa

EW1, EW2, EW3, EW4, EW5, EW6, EW7

(CRZ9) Retail Zone 9- Goldsmith/Penwell/County

EN1

APPENDIX (B)
GLOSSARY-REAL ESTATE

GLOSSARY (B)

ACRE: A land measure equal to 43,560 feet.

AD VALOREM TAX: A real estate tax levied in proportion to the value of the property. “Ad valorem” is a Latin phrase meaning, “according to the value”.

APPRAISAL: An opinion of value based upon market conditions.

APPRAISAL RECORDS: Each year’s listing of all taxable property in the appraisal district. The records show the property identification number, owner’s names, appraised value, value of any exemptions, and other information.

APPRAISAL ROLL: A listing of all the taxable property and values within the appraisal district boundaries for a given year. The appraisal records become the appraisal roll when the Appraisal Review Board approves the records.

APPROACHES TO VALUE: Valuation methods used to determine a defined value of a real or personal property. The three common approaches for real property are the cost approach, income approach and market (comparable sales) approach.

ARB: Appraisal Review Board. A non-elected board established by the Texas Property Tax Code for the purpose of hearing and deciding various property disputes between the appraisal district and the property owner, the owner’s agent, or the contractually obligated tenant.

ASSESSMENT: The steps a taxing unit takes to impose a legal property tax, including the official act of calculating the taxing unit’s tax base.

ASSESSOR/COLLECTOR: The person responsible for both the tax assessment and collection, accurate record keeping, refunds, tax certificates, and other assessment and collection activities.

CAD: County (or Central) Appraisal District. Each county has established an appraisal district office, responsible for maintaining taxable real and personal property records and placing a value on all property for taxation purposes.

CAMA: Computer-Assisted Mass Appraisal is the process by which property is appraised utilizing computers, computer models, and analytical programs.

CAPPA: Computer-Assisted Personal Property Appraisal.

CHIEF APPRAISER: The chief executive officer of the County Appraisal District. He or she is an individual appointed by an appraisal district board of directors. The appraisal district board is elected by certain taxing entities.

Coefficient of Dispersion (COD): is a measure of the uniformity of appraisals within a category. The COD expresses numerically the average distance between an individual appraisal ratio in a set and the median for that set of appraisal ratios.

COMPARABLES: A shortened term for similar property sales, rentals, or operating expenses used for comparison in the valuation process; also called “comps”.

COST APPROACH: Estimates property value by determining replacement cost new of improvements, less depreciation, plus the land value.

DEED: A written instrument, that when properly executed and delivered, conveys title.

EAGLEVIEW / PICTOMETRY: A leading provider of geo-referenced, aerial, oblique image libraries and related software. Eagleview’s images and technology are also used by GIS, planning, and assessing professionals as well as other commercial industries. Eagleview’s tools include geo-referenced images which allows for accurate remote measurement of property.

GIS: Geographic Information System. Computerized mapping software and hardware.

GRANTEE: A person to whom property is transferred by deed or to whom property rights are granted by a trust instrument or other document.

GRANTOR: A person who transfers property by deed or grants property rights through a trust instrument or other document.

IAAO: International Association of Assessing Officers.

INCOME APPROACH: An appraisal method in which the property is valued according to its ability to produce income.

IMPROVEMENTS: All buildings, structures, pools, fences, etc., fixed to the land. For example, a house built on a vacant lot is considered an improvement.

LEGAL DESCRIPTION: A statement in words or codes identifying land for all purposes of law.

MARKET APPROACH: Estimates property value by comparison to similar properties that have sold in the open market.

MARKET VALUE: “Market Value” means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if: (a) exposed for a sale in the open market with a reasonable time for the seller to find a purchaser, (b) Both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use, and (c) Both the seller and the purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other, Reference 1.04(7), Texas Property Tax Code.

MASS APPRAISAL: The process of valuing a universe of properties as of a given date utilizing standard methodology and employing common data, which allows the statistical testing.

MEDIAN: A statistical measure of central tendency. The “middle number” in a group of numbers, ranked from highest to lowest (or vice versa).

METES AND BOUNDS: Terms used to describe the boundary lines of land, setting forth all the boundary lines together with their terminal points and angles. Metes means “measurements”; Bounds means “boundaries”.

MLS: The Multiple Listing Service. A specialized distribution service whose members are comprised of real estate brokers who share listings with other brokers. The organization is usually provided by the local real estate board.

OBSOLESCENCE: A form of depreciation; an impairment of desirability and usefulness caused by new inventions, changes in design, improved processes for production, or other external factors that make a property less desirable and valuable for a continued use; may be either functional or economic.

PARCEL: Any item of real property, regardless of size, that has a single owner or is held in undivided ownership and for which there is a separate appraisal record.

PERSONAL PROPERTY: Identifiable portable and tangible objects that are considered by the general public to be “personal”, e.g. furnishings, artwork, antiques, gems and jewelry, collectibles, machinery and equipment, all property that is not classified as real estate. Personal property includes movable items that are not permanently affixed to, and part of, the real estate.

RATIO STUDY: A comparison of appraised values to the market values of the same properties in order to determine the accuracy of appraisals.

REAL PROPERTY: Land and improvements to the land.

SIC CODE: Standard Industrial Classification code. These are four-digit numeric I.D. codes.

TAX BASE: Total assessed value in a given tax district.

TAX LEVY: The total sum of tax dollars, imposed by a taxing unit, on the taxable property within the jurisdictional boundaries of the taxing unit.

TAX ROLL: An official list showing the amount of taxes charged against each taxpayer and/or each property within the jurisdiction of a tax district. Note: In property taxation, the tax roll is sometimes combined with the assessment roll into a single document.

TAXABLE VALUE: A property’s appraised value minus all applicable exemptions and other deductions or limitations.

TDLR: Texas Department of Licensing and Regulation.

TPTC: Texas Property Tax Code.

USPAP: *The Uniform Standards of Professional Appraisal Practice*. The current standards of the appraisal profession developed for appraisers and the users of appraisal services by the Appraisal Standards Board of The Appraisal Foundation.

APPENDIX (C)

GLOSSARY (C)

ABANDON: To cease efforts to produce oil or gas from a well, plug the well, and salvage all material and equipment.

ABSTRACT: A chronological history of the ownership of a tract of land. It may consist of all recorded legal documents affecting the title of ownership of a tract of land, from one owner to another, dating back to when the land was originally homesteaded or granted by the government, or it may be abbreviated to some degree. (Generally, 'recorded' means recorded at the courthouse of the county in which the land is located).

ACRE-FOOT: A unit of volume equivalent to the volume necessary to encompass one acre to a depth of one foot.

ALLOCATION: Setting the amount to be produced by each oil well in a field so each well and the field as a whole will produce at the most efficient rate.

ALLOWABLE: The amount of oil and gas produced from a well or lease per unit of time. RRC assigns a total monthly allowable to each lease and requires that amounts produced over the allowable be reported. Oil allowable applies to oil wells (leases) and gas allowable to gas wells.

API GRAVITY: The specific gravity (or density) of oil expressed in terms of a scale developed by the American Petroleum Institute (API). Generally, the higher the API gravity, the higher the price of the oil.

AQUIFER: A water bearing rock strata. In a water drive field, the aquifer is the water zone of a reservoir, underlying the oil zone. When wells are drilled in the reservoir, the water pushes the oil toward the well's boreholes. If the wells are produced at an excessive rate the water may bypass the oil and break into the well bore, leaving much of the oil behind.

ASSIGNEE: A recipient of an interest in property or contract; in oil and gas usage, the recipient of an oil or gas lease; a transferee.

ASSIGNMENT: A legal document with which one party transfers all or part of an interest in a property to another party under conditions specified in the document.

ASSOCIATED GAS: Natural gas that naturally occurs in a reservoir along with ('associated' with) oil, as in a gas cap, or dissolved within the oil.

BARREL (bbl): The fixed amount of 42 gallons used as a unit of measure for crude oil and condensates.

BASIN: A natural water-filled depression on the earth's surface, in which sediments accumulate over millions of years. The Gulf of Mexico is an example. Several hundred sedimentary basins have been identified around the world.

BONUS: Usually, the bonus is the money paid by the lessee to the landowner for the execution of an oil and gas lease by the landowner. Another form is called an oil or royalty bonus. This may be in the form of an overriding royalty reserved to the landowner in addition to the usual one-eighth royalty.

BOTTOM-HOLE PRESSURE: The natural pressure at the bottom of a well.

BTU: British thermal unit; the amount of heat required to raise one pound of water one degree fahrenheit.

CARVED OUT INTEREST: A fractional interest transferred (conveyed) to another party by the original owner of the whole interest. See retained interest.

CASINGHEAD GAS: Gas produced with the crude oil from the oil well. (Same as Associated Gas)

CASINGHEAD GASOLINE: Liquid hydrocarbons extracted from casinghead gas.

COMMERCIAL WELL: A well of sufficient net production that it could be expected to pay out in a reasonable time and yield a profit for the operator. A shallow, 50 barrel-a-day well in a readily accessible location on shore would be a commercial well whereas such a well in the North Sea or in the Arctic Islands would not be considered commercial.

CONDENSATE: Hydrocarbons which are in a gaseous state within the reservoir, the heavier of the hydrocarbons becoming liquid in passage up the hole at the surface. The hydrocarbon liquids which condense out of gas.

CRUDE OIL: Hydrocarbons which are in a liquid state in the reservoir and remain liquid (at atmospheric pressure) after being brought to the surface and passing through surface separating facilities. Unrefined liquid petroleum. Usually classified into three basic types (paraffin base, asphalt base, and mixed base) and by gravity (high or low).

DECLINE CURVE: A graphic representation which shows how the production rate changes over periods of time when the production rate is decreasing. This term is often used to refer to any production curve because established fields usually have declining production. The curve may be projected into the future by using the mathematical technique best suited to data on past production.

DEDUCTIONS: The sum of state taxes, ad valorem taxes, and operating costs paid each year, or estimated to be paid each year, by the operator. This sum is deducted from each year's gross income to arrive at net annual incomes for each future year that the lease is expected to produce oil and gas.

DEPLETION: (1) The production of a wasting or non-replaceable asset which, in turn is reduced in total value as production continues. (2) A deduction allowed in computing the taxable income from oil and gas wells, usually called "depletion allowance". Related to income tax, not to property tax.

DEPRECIATION: A tax accounting method in which the value of an asset (starting with its acquisition cost) is reduced each year or on a regular basis. Scheduled annual (non-cash) amounts are charged against the asset, representing the gradual loss of value, as it wears out, deteriorates, or becomes obsolete, (Theoretically such charged amounts accumulate over time, providing funds that could be used to replace the worn out assets).

DIRECT COST: The definable cost of direct labor and materials incurred in the completion of a particular unit of work. The sum of the direct operating expenses which must be incurred if the wells are to produce. (Commonly called Lifting Costs)

DIRECTIONAL DRILLING: The technique of drilling at an angle from the vertical, by deflecting the drill bit. Directional wells are drilled for a number of reasons; to develop an offshore lease from one drilling platform; to reach a pay zone beneath land where drilling cannot be done, e.g., beneath a railroad, cemetery, a lake; and to reach the production zone of a burning well to flood the formation.

DISCOUNTING: A rate, expressed as a percentage, which is equal to an acceptable return on investment. Used in oil and gas property appraisal instead of "capitalization rate" to indicate the reasonable return of an

investment in view of cost of money and risk factors. This rate can and does vary for different properties.

DISCOVERY WELL: An exploratory well that encounters a new and previously untapped petroleum deposit, a successful wildcat well. A discovery well may also open a new horizon in an established field.

DISPOSAL WELL: A well used for the disposal of salt water. The water is pumped into a subsurface formation sealed off from other formations by impervious strata of rock; a service well.

DIVIDED INTEREST: See undivided interest.

DIVISION ORDER: A list completed by the operator or the purchaser of the oil and gas which shows the name, address, and fraction interest and type of interest for each party owning an interest in an oil and gas property. It is signed by each owner. It shows the purchaser how the income should be divided and shows the appraiser the percentage of estimated values to be assigned to owners.

DRY HOLE: Any well, which, when drilled does not produce oil and gas in sufficient quantities to justify commercial production.

ECONOMIC INTEREST: An interest in oil and gas in the ground. It entitles the owner to a deduction from gross income derived from production of that oil or gas (depletion allowance). As specified in Federal income tax regulations, “an economic interest is possessed in every case in which the taxpayer has acquired by investment any interest in minerals in place and secures by any form of relationship, income derived from the extraction of the mineral, to which he must look for a return of his capital.”

ECONOMIC LIMIT: A point in time after which it will not be profitable to produce from an oil and gas lease.

ENHANCED RECOVERY: Sophisticated recovery methods for crude oil which go beyond ‘the more conventional’ secondary recovery techniques of pressure maintenance and water flooding. Enhanced recovery methods now being used include micellar surfactant, steam drive, polymer, miscible hydrocarbon, steam soak, and CO². EOR methods are restricted to secondary or even tertiary projects. Some fields require the application of one of the above enhanced recovery methods even for initial recovery of crude oil.

EPA: Environmental Protection Agency.

FARM-IN AGREEMENT: The lessee (working interest) assigns part of his interest to a third party who contributes capital necessary for lease development. The third party becomes a “Farmee”.

FARM-OUT AGREEMENT: An agreement whereby a lessee grants an interest to a third party who agrees to develop all or part of a mineral property under conditions specified in the agreement. The lessee becomes a “Farmor”.

FEE OWNERSHIP: The ownership of full right, title, and interest to the surface of a tract of land and to all minerals beneath it, as well as the air space above it. **FEE SIMPLE OWNERSHIP (FEE SIMPLE ABSOLUTE)** is fee ownership without any limitation or restriction as to future transfer of the ownership.

FEET OF PAY: The thickness of the pay zone penetrated in a well. In the case of an oil column floating on water, it is the thickness of the layer of oil (‘the oil column’) above the oil-water contact.

FERC: Federal Energy Regulatory Commission.

FIELD: A geographical area in which there are oil and gas wells which produce from one or more oil pools or reservoirs.

FORMATION: A sedimentary bed or series of beds sufficiently alike or distinctive to form an identifiable geological unit.

FOSSIL ENERGY: Energy derived from crude oil, natural gas, coal; also shale oil and oil recovered from tar sands. Fossil energy by implication is the energy derived from sedimentary beds containing the fossilized remains of marine plants and animals; and thus oil and gas and coal were derived from organisms living in eons past.

FRACTURING: The application of hydraulic pressure to the reservoir formation to create fractures through which oil and gas can move to the well bores of producing wells. Sometimes called “formation fracturing”. The formation is “fractured” by injecting fluids under extremely high pressure into the formation.

FUTURE GROSS INCOME: Estimated gross income for a particular future year: $\text{gross income year } n = \text{estimated production year } n \times \text{estimated net price year } n$.

FUTURE NET INCOME: Estimated net income for a particular future year: $\text{net income year } n = \text{estimated gross year } n - \text{estimated deductions year } n$.

GAS RESERVOIR: A reservoir in which gas has accumulated independently of oil.

GAS-OIL RATIO: The number of cubic feet of gas produced with one barrel of oil.

GATHERER: The firm which transports oil, gas or condensates from an oil or gas lease. Gathering is usually by pipeline, but may be by other means such as trucks, tank cars, or barges.

GEOLOGY: The science that deals with the history of the earth and its life as recorded in the rocks.

GROSS INCOME: The total income from the operation of a property ($\text{production} \times \text{price}$).

GROSS THICKNESS: Thickness of the entire oil-bearing structure, usually stated in feet.

HELD BY PRODUCTION (HBP): Refers to an oil and gas property under lease, in which the lease continues to be in force, because of production from the property. See secondary term.

HYDROCARBONS: Compounds of hydrogen and carbon in widely varying mixtures. Crude oil’s basic unit is a molecule of one carbon atom linked with four hydrogen atoms. (Millions of variations of hydrocarbons are possible. About 3,000 chemicals and many end products are produced from oil and gas by petrochemical industries).

INCOME STREAM: Annual income for all future years in the time period over which reserves will be produced; projected into the future based on total reserves, production curves and current or projected prices. If total reserves are unknown, the stream may be calculated on the basis of production rates and prices.

INDEPENDENT PRODUCER: (1) A person or corporation that produces oil for the market, having no pipeline system or refinery. (2) An oil-country entrepreneur who secures financial backing and drills his own wells, an independent operator. Independent operators and small producing companies are credited with finding most of the new oil fields. Once discoveries are made, it is the large companies that do most

of the development work. Independents often lease and drill on small parcels of land, land either overlooked by the majors, or thought not worth production, until a discovery is made.

INTEGRATED OIL COMPANY: A company engaged in all phases of the major oil business; production, transportation, refining and marketing; a company that handles its own oil from wellhead to gasoline pump.

LANDMAN: An oil company employee or agent who negotiates the purchase of leases, cures defects in the title to property leased, and assists the oil company in complying with government regulations and reporting procedures. (Some U.S. universities offer a BA degree in Petroleum Land Management; there are over 12,000 members of the American Association of Petroleum Landmen).

LEASE BONUS: A cash payment (1) from a potential lessee to a prospective lessor made as an inducement to negotiate an oil and gas lease or (2) from the actual lessee to the lessor as a special consideration for having negotiated the lease.

LEASE: (1) A legal document under which a lessor delegates to a lessee, exclusive rights to recover or capture minerals from a property over a specified period of time, with the lessor retaining a royalty interest. (2) The physical area and operations involved in the production of petroleum resulting from a lease agreement is also referred to as “the lease.”

LIQUID: Flows freely like water, neither solid nor gaseous.

MCF: One thousand cubic feet, the standard measure of natural gas.

MIGRATION: The movement (flow) of oil and gas through layers of rock deep in the earth.

MINERAL ACRE: A full mineral interest in one acre of land.

MINERAL INTEREST (‘MINERAL’, MINERAL RIGHTS’): The ownership of all rights to gas, oil, or other minerals as they naturally occur in place, at or below the surface of a tract of land. Ownership of the minerals carries with it the right to make such reasonable use of the surface as may be necessary to explore for and produce the minerals. Only the mineral owner (or fee owner) may execute an oil or gas lease conveying his interest in a tract of land. See severance.

MMCF: One million cubic feet of gas, or 1,000 MCF.

NATURAL GAS: A mixture of hydrocarbons and some non-hydrocarbons existing as gas or in solution with crude oil in a reservoir.

NET PAY: (NET FEET OF PAY) - The aggregate thickness (number of feet) in the pay zone likely to contribute to production from a well. The footage count excludes portions of the reservoir having porosity lower than a specified cut-off value (5%, for example) and having water saturation greater than a specified cut-off value (45%, for example). Cutoff values are established based on historical production data in the same or a similar reservoir, in the same or a similar geologic setting.

NET PROFITS INTEREST: A share of gross production from a property that is carved out of a working interest and is figured as a function of net profits from operation of the property. The net profits interest bears specified expenses of development and operations but is neither obligated to advance expenses nor liable for losses (as is the working interest).

NET REVENUE INTEREST (NRI): The percentage of revenues due an interest holder in a property, net

of royalties or other burdens on the property. Assume LANDOWNER leases his mineral rights to OILMAN, LANDOWNER retains a royalty of $1/8$ (= 12.5%); his net revenue interest is 12.5%. OILMAN'S net revenue interest would be 87.5% (= 100% - 12.5%).

NON-ASSOCIATED GAS: Natural gas in reservoirs which do not contain significant quantities of crude oil. Production centers on gas and condensates.

OFFSET WELL: (1) A well drilled on the next location to the original well. The distance from the first well to the offset well depends upon spacing regulations and whether the original well produces oil or gas. (2) A well drilled on one tract of land to prevent the drainage of oil or gas to an adjoining tract where a well is being drilled or is already producing.

OIL IN PLACE: Crude oil estimated to exist in a field or a reservoir; oil in the formation not yet produced. Oil in place is the province of the reservoir engineer who works with many factors - kind of formation, how thick, its porosity and permeability, wells drilled, well spacing, reservoir pressure, and other information - to arrive at the best scientific estimate of how much crude oil or gas remains in a given field or reservoir. It may take years to prove whether an estimate was correct.

OIL POOL: An accumulation of oil within the pores of sedimentary rock, which yield petroleum when drilled. Generally synonymous with "reservoir," but a pool may have more than one reservoir.

OPEC: Organization of Petroleum Exporting Countries.

OPERATOR: The Company that "operates the lease." Usually the lessee, in a lease arrangement, is who extracts hydrocarbons from the reserve and bears operating costs. The lessee may contract with another company or person to actually operate the lease, but even in such cases is still usually referred to as the operator.

OVERRIDING ROYALTY ('OVERRIDE', 'ORR'): A revenue interest in oil and gas, created out of a working interest. Like the lessor's royalty, it entitles the owner to a share of the proceeds from gross production, free of any operating or production costs (but net of state production and severance taxes). It terminates when the lease expires. See royalty.

OWNER MAINTENANCE: The process of "keeping track" of those parties with an interest in a lease so that all owners may be assessed for the estimated value of the fraction of the interest which they hold in an oil and gas property.

OWNERSHIP IN FEE (FEE SIMPLE): An owner which owns both the surface and the minerals under the surface of the property.

OWNERSHIP IN PLACE: Theory of mineral ownership accepted in Texas law. A person owns all the mineral under his land subject to the rule of capture and State regulation.

PAYOUT: In the case of an oil and gas investment, the point at which costs of exploration and development (or amount of the investment) are recouped out of net revenues. In many oil and gas limited partnerships (and standard deals within the oil industry) there may be a re-allocation of revenues or cash flow among the participants in the investment, after payout has been reached.

PERMEABILITY: The characteristic of rock which permits the movement of fluids through its pore spaces. This is key to the flow and rate of flow of fluids through rock, with high permeability contributing to higher production. (Unit of measure: darcy).

PETROLEUM: Hydrocarbon fluids, either liquid (crude oil) or gaseous (natural gas).

POOLED UNIT: RRC term, designating an arrangement whereby parties with mineral interests pool them into a single unit which is recognized by the RRC as one base tract for regulatory purposes.

POROSITY: Ratio (percentage of pore space to total volume of rock). Key to the amount of space available to hold fluids, is high porosity contributing to higher ultimate production. (Unit of measure: percent of pore space in rock).

POSTED PRICE: The price an oil purchaser would pay for crude oil of a certain API gravity and from a particular field or area. Once, was literally “posted in the field.”

PRESENT NET VALUE: The present value of the dollars (income, or stream of income) to be received at some specified time in the future, discounted at a specified interest rate.

PRESENT WORTH FACTOR: A factor expressed as a decimal figure which is based on the discount rate and the “number” of a future year and which is used to calculate the present worth of that future year’s estimated income. (Present worth net income = future net income x present worth factor.)

PRIMARY RECOVERY: Production in which oil flows from the reservoir into the well under naturally occurring reservoir pressure. It may arrive at the surface flowing under reservoir pressures, or it may be artificially lifted by pumping equipment.

PRODUCER: The party who brings hydrocarbons to the surface and sells them on the market or under contract, usually the lessee; more commonly referred to as the operator.

PRODUCTION CURVE: A graphic representation which shows how the production rate changes over periods of time. The curve may be projected into the future by using the mathematical technique best suited to data based on past production.

PRODUCTION PAYMENT: Assignment of part of the working interest to a lender who receives money from a specified portion of production until the principal and interest on the loan are paid in full. The party receiving the production payment, in effect, holds a royalty (a cost-free share of production) interest in the property and pays a fractional part of the ad valorem tax on the property.

PRODUCTION RATE: The amount of oil or gas produced over a given period of time, e.g.: bbl per year or MCF per month.

PRODUCTION: (1) Bringing well fluids to the surface and preparing them for pipeline or other disposition.
(2) The amount of oil or gas produced over a given period of time.

PRORATION: A system enforced by a government agency or under an agreement between operators that limits the amount of petroleum that can be produced from a well or a field over a given period of time.

PROSPECT: The hypothesis is that a naturally occurring, commercially exploitable accumulation of oil or gas exists at a clearly defined underground location. It is described by one or more geologic maps. A single well should be sufficient to test the hypothesis that oil or gas is present in commercial quantities. The surface area of a prospect could range from a ten-acre tract large enough for only one well, to a tract covering many square miles and requiring dozens or more wells to exploit its reserves.

Prospects are typically named for some nearby geographic or geologic feature, but the name may simply

reflect the whim of the moment. A well is commonly named for the lease on which it is drilled. Example (“The J. Jones No. 1 was drilled on the Bear Creek prospect, last year.”)

PROVED PROPERTY: An undeveloped property or partially developed property, for which specific geological and geophysical information, indicates the potential for commercial oil and gas production.

PUMPING UNIT: An artificial lift pump structure connected to a source of power. An oil well pump jack; a pipeline pump and engine.

PURCHASER: The party who buys oil or gas directly from a producer, either in a market transaction or under a contract.

RECOVERY FACTOR: Fraction of oil in place that can be recovered from a reservoir using a specified method of recovery.

RESERVES: The amount of oil or gas in a reservoir currently available for production, usually described as barrels of oil, or MCF (thousands of cubic feet) of gas (attributable to a well, to a property, or to an entire field). The term should always be qualified by an adjective since there are many ways of estimating the reserves.

‘Reserves in place’ is a term describing the amount of oil or gas physically contained in the reservoir. The amount of reserves that can actually be gotten out of the ground (can be recovered) may be only 25% to 30% of the reserves in place.

“Recoverable reserves” is an estimate of the amount of oil or gas that can be produced from the reservoir in the future. (No one can know what the actual recoverable reserves are until after they have been produced.)

Proved Reserves: the amount of reserves that are considered to be recoverable under existing technology and economic conditions (based on available geologic and engineering data).

Proved behind pipe reserves: reserves in zones behind the casing in an existing well (which might be produced if the well were re-completed in those zones).

Proved undeveloped reserves: reserves which could be produced, but drilling new wells, deepening existing wells, or secondary recovery or enhanced recovery methods would be required.

Estimates of recoverable reserves classified as “probable future reserves” and ‘possible future reserves’ may include a wide variety of geologic and engineering assumptions. Estimates of ‘undiscovered recoverable reserves’ refer to reserves outside of known accumulations and are, at best, a guess developed from geologic and statistical theory.

RESERVOIR ENERGY: The mechanism in the reservoir which causes fluids to move through the rock. Specific mechanisms are called “drives,” such as water drive, solution gas drive, gas cap drive.

RESERVOIR PRESSURE: The pressure within a reservoir under existing conditions.

RESERVOIR: A petroleum reservoir is an accumulation of oil and gas in a layer of compressed rock that has been sealed over by geological forces.

RETAINED INTEREST: A fractional interest reserved by the owner of a whole interest when the balance of the whole interest is transferred (conveyed) to another party. See carved out interest.

REVERSIONARY INTEREST: An interest in a well or property that becomes effective at a specified time in the future or on the occurrence of a specified future event.

REVERTER, or POSSIBILITY of REVERTER: The general legal principle which recognized the return of mineral ownership in fee simple to the landowner upon termination of an oil and gas lease. (Commonly called Reversion)

ROYALTY INTEREST: An interest in real estate. Specifically, the interest which the lessor retains when a lessee has gained the right to produce mineral from the lessor's property under a lease agreement. In oil and gas leases, the royalty interest is usually expressed as a fraction of production, which is usually $1/8^{\text{th}}$, but may be another fraction interest. The lessor may sell, transfer, will or give all or part of the original royalty interest to other parties. The resulting interests are also expressed as fractions of total production: ($1/16^{\text{th}}$, $1/32^{\text{nd}}$, $1/64^{\text{th}}$, etc.)

SALVAGE VALUE: The price at which the owner can dispose of a material asset after its useful life, for the owner's purposes, has expired.

SECONDARY RECOVERY: The oil and gas which can be brought to the surface by supplying energy from the surface to the reservoir, by flooding, re-pressuring or other techniques. Secondary recovery tends to increase operating expenses and to increase the amount of reserves.

SECONDARY RESERVES: Unproduced oil or gas in a formation which is recoverable by using secondary methods after primary recovery methods have been exhausted.

SECTION: A square tract of land having an area of one square mile (= 640 acres). There are 36 sections in a standard township.

SEDIMENTARY ROCK: Rock that is naturally formed from fragments of other rocks. These fragments result from mechanical abrasion of pre-existing rock, and are transported by water, ice, and air. Important sedimentary rocks in petroleum are sandstones and limestones, which are often reservoir rocks. Shale may be a source rock.

SEVERANCE TAX: A tax paid to the state government by producers of oil or gas in the state. It is specified either as a percent of the oil or gas taken ('severed') from the earth, or as a dollar amount per barrel of oil or per thousand feet of gas (MCF) produced (also called 'production tax').

SEVERANCE: The owner of all rights to a tract of land (the fee simple owner) can sever the rights to his land (vertically or horizontally). In horizontal severance, for example, if he chooses to sell all or part of the mineral rights, two distinct estates are created: The surface rights to the tract of land and the mineral rights to the same tract. The severed mineral rights may be restricted as to mineral type, or limited by depth, (in which case the landowner retains the rights to minerals other than those severed, and to depth intervals other than those severed).

SHUT-IN ROYALTY: A special type of royalty negotiated in the leasing of a property. It normally pertains to gas production. If a commercially producible gas well is shut-in due to the lack of a gas market, the lease will remain in effect so long as the working-interest owner (lessor) pays the specified shut-in royalty to the mineral-rights owner (lessor).

SOUR CRUDE, SOUR GAS: Oil or natural gas containing sulfur compounds, notably hydrogen sulfide (H_2S) a very poisonous gas. When dissolved in water, H_2S forms a weak solution of sulfuric acid. Over time, this can corrode and destroy metal pipes and equipment. Sweet crude and sweet gas do not contain these sulfur compounds, are less damaging to equipment, and generally bring a better price than sour crude and sour gas.

SOURCE ROCK: Sedimentary rock, usually shale (or limestone) containing organic carbon (plant and animal remains) in concentrations as high as 5-10% by weight. After being subjected to high temperatures and pressures deep in the earth during, millions of years, the organic material is transformed into liquid or gaseous hydrocarbons (which make up petroleum). Usually these hydrocarbons are (naturally) expelled from the source rock, flowing into nearby porous rocks. Because of their natural buoyancy with respect to water, they tend to migrate upward, to emerge at the surface as an oil or gas seep unless they become trapped along the way. Oil and gas fields are accumulations of such trapped hydrocarbons. Some oil shales are believed to represent source rocks in which oil was formed, but from which it was never expelled.

SPACING PATTERN: Geographic subdivision established by government authority, usually the state, defining the number of acres to be allotted to each well drilled in a reservoir. This is a conservation measure, for it is generally agreed that increased recovery from a reservoir is not a function of the number of wells drilled. One oil well on 40 acres is a general rule, in some states. But there are many exceptions. Gas wells, can be one or two to a section (640 acres), depending upon well depth, producing formation, and other factors.

SPACING UNIT: The size (amount of surface area) of a parcel of land, on which only one producing well is permitted to be drilled to a specific reservoir. It is intended that the single well should nearly drain all of the recoverable oil or gas from the area of the reservoir that lies within the spacing unit around the well. State agencies regulate the size of the spacing unit for different reservoirs, to facilitate efficient exploitation of oil and gas from them. The ability of oil to flow increases with temperature (which increases with depth). Gas flows more readily than oil. The size of the spacing unit for a particular reservoir is set according to its depth and production characteristics, and whether the production is oil or gas. "Increased density" means the spacing unit is reduced (one well per 320 acres, for example, instead of one well per 640 acres).

STRIPPER: An oil well in the final stages of production; a well producing less than 10 barrels a day. Most stripper wells are pumped only a few hours a day. In 1978 there were nearly 400,000 stripper wells in the United States producing 20 percent of the country's oil.

SURFACE OWNER: An owner who owns the surface rights but does not have mineral rights or an interest in minerals under the surface. This owner is not a party to a mineral lease agreement but has legal recourse for undue surface damage from a lease operation.

SURFACE RIGHTS: Surface ownership of a tract of land from which the mineral rights have been severed. Surface rights include the same full use and enjoyment rights that belong to fee simple ownership, except that surface possession is subject to the mineral owner's right of access to the land for the purpose of extracting his minerals.

TERM ROYALTY: When a landowner sells all or part of his royalty interest for a specified period of time he retains a term royalty, meaning that if no petroleum is produced during that period of time then the royalty interest reverts to the landowner at the end of that period.

TERTIARY RECOVERY: Any enhanced method by which additional hydrocarbons are removed from the reservoir after secondary recovery methods have been used, usually involving fluids and techniques different from those used in secondary recovery.

TIGHT HOLE: A drilling well about which all information - depth, formations encountered, drilling rates, logs are kept secret by the operator.

TIME VALUE OF MONEY: The concept that a dollar in hand today is worth more than a dollar that will be received in some future time.

ULTIMATE RECOVERY: The total estimated recovery of oil and gas from a well, lease, reservoir, pool or field; that may be based on primary, secondary or tertiary recovery.

UNDEVELOPED PROPERTY: A property for which an oil and gas lease has been negotiated, tests may or may not have been conducted, and there has never been oil and gas production.

UNDIVIDED INTEREST: Assume AA owns a 100% working interest in a section (640 acres) and is willing to sell a 25% ($\frac{1}{4}$) interest to BB.

DIVIDED interest: AA sells a 100% interest in the northwest quarter ($\frac{1}{4}$) of the section a (160-acre tract) to BB but keeps for himself, 100% of the interest in the remaining three quarters of the section (480 acres). BB owns a 25% divided working interest in the section (100% of the 160 Acre Tract), and AA owns a 75% divided interest in the section (100% of the 480 Acres). (A section is 640 acres).

UNDIVIDED interest: AA sells 25% interest in (every acre in) the section to BB. In this case BB has a 25% undivided interest, and AA has a 75% undivided interest in (every acre in) the section (all 640 Acres).

UNIT: In legal arrangements, several leases that are operated by one company.

UNITIZATION: A term denoting the joint operation of separately owned producing leases in a pool or reservoir. Unitization makes it economically feasible to undertake cycling, pressure maintenance or secondary recovery programs with the knowledge that a pool or reservoir is a unit or an entity, with its own pressure system and a continuous oil bearing strata. Unitization is the logical arrangement to maintain as long as possible the productive life of the pool. In such an arrangement, each lease bears its pro-rata share of the expense of any project undertaken, as well as a share of the production.

UNPROVED PROPERTY: An undeveloped property for which general geological and geophysical information indicates the possibility of oil and gas production. Drilling risk is high because there is no specific test information or drilling experience.

WASTING ASSETS:

- Assets that will lose their value: through exhaustion as they are produced (natural resources such as oil, gas, minerals, and timber), or
- through the passage of time (leased mineral rights, patents).

WATER DRIVE: The force of water under immense pressure below the oil formation that, when the pressure is released by drilling, drives the oil to the surface through the wellbore. The drilling of a well in water - drive reservoir is comparable to opening a valve on a closed vessel whose contents are under pressure. As soon as the valve is opened and the well is drilled into the reservoir, the pressure forces some of the contents of the vessel into and through the valve opening. Water drives are effective means of moving oil out of the formation to the well bore. Recoveries from water-drive fields are high when care is taken to maintain reservoir pressures or energy as long as possible by good production practices.

WELL BORE (WELLBORE): The hole made by the drilling bit.

WELL COMPLETION: Activities which prepare the well to produce oil and gas.

WILDCAT WELL: A well drilled on unproved property.

WILDCATTER: A person or company that drills a wildcat well; a person held in high esteem by the industry; an otherwise worthy entrepreneur to whom taking financial risks to find oil is the name of the game.

WORKING INTEREST: An interest created by the execution of an oil and gas lease. The owner of a 100% working interest has the exclusive right to explore for oil and gas on a tract of land, along with the obligation to pay 100% of the costs of drilling, completion, and producing any oil or gas found. The working-interest owner is entitled to all revenues from production attributable to a lease, after deducting royalty interests (and any other burdens on the lease). He may reduce his share of revenues by carving out revenue interests and transferring them to others: an override to an employee, for example.

WORK-OVER: Remedial work on a producing well designed to increase oil production or reduce water production from the same reservoir such as deepening the well. (“Recompletion,” drill deeper.”)

ZONE: An interval of a subsurface formation containing one or more reservoirs. That portion of a formation of sufficient porosity and permeability to form an oil or gas reservoir.