2025 - 2026 Reappraisal Plan

Approved by Tarrant Appraisal District Board of Directors 8/9/2024

TABLE OF CONTENTS

Executive Summary

The Board of Directors of the Tarrant Appraisal District (TAD) has approved and published this reappraisal plan to provide the taxing units, citizens and taxpayers of Tarrant County with a better understanding of the District's responsibilities and anticipated reappraisal activities. This biennial reappraisal plan is required by the Texas Property Tax Code and contains a general introduction to TAD's statutory role in the property tax system and several sections describing the proposed reappraisal effort by the appraisal departments within TAD.

TAD 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 - comprised of five members appointed by the taxing units within the boundaries of Tarrant County, three members elected in a county-wide general election and the Tarrant County Tax Assessor-Collector, who is also elected in a county-wide election - constitutes the District's governing body. The Chief Appraiser, appointed by the Board of Directors, is the chief administrator and chief executive officer of the appraisal district. The chief appraiser is allowed, by law, to delegate authority and appraisal responsibilities to his/her employees.

The purpose of a reappraisal is for the appraisal district to accurately reflect changes to the local real estate market when establishing appraisal values for a given tax year.

The Board of Directors has made it clear of their desire to assist taxpayers as much as possible within their authority. Several motions were passed on July 22, 2024 to direct the chief appraiser to make changes to the reappraisal plan in line with the following motions:

1. Motion to direct the Chief Appraiser to draft a reappraisal plan that considers a property's previous property appraisals, settlements, and reductions in value when subsequently appraising that same property's property value.
2. Motion to direct the Chief Appraiser to prepare a reappraisal plan that requires him, and his designees employed by the appraisal district to only appraise, residentially coded properties, every two years within the parameters allowed by state law.
3. Motion to direct the Chief Appraiser to prepare a reappraisal plan that does not reappraise residential property values for Tax Year 2025 at current property values except for new improvements and construction.
4. Motion to direct the Chief Appraiser to prepare a reappraisal plan that requires him and his designees employed by the appraisal district to obtain and rely on clear and convincing evidence of the market value of a residentially coded property whose market value is increased above a threshold level of 5% or more than the market value as determined in the prior year's appraisal roll.

2025 – 2026 REAPPRAISAL PLAN

DEFINITION OF REAPPRAISAL PLAN

General Overview of Tax Code Requirement

Passage of Senate Bill 1652 in 2005 amended the Property Tax Code to require each Appraisal District to prepare a biennial reappraisal plan which will serve as the scope of work in accordance with the Uniform Standards of Professional Appraisal Practices. The following details the Tax Code requirements:

The Written Plan

Section 6.05(i) of the Texas Property Tax Code states:

> (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 the requirements of 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 for the hearing. Not later than September 15th of each even-numbered year, the board shall complete its hearing, 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.

Plan for Periodic Reappraisal

Subsections (a) and (b), Section 25.18, of the Texas Property Tax Code, 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 the 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.

Overview of Tarrant Appraisal District Responsibilities

TAD Statutory Role and Jurisdiction

Tarrant County currently has an estimated population of 2,210,000 and has experienced an overall growth rate of over 13.5% in the last decade. TAD is responsible for local property tax appraisal and exemption administration for approximately 1,876,000 parcels in over seventy jurisdictions or taxing units within Tarrant County. Each taxing unit, such as the county, a city, school district, municipal utility district, etc., determines its own tax rate to generate revenue to pay for such things as police and fire protection, public schools, road and street maintenance, courts, water and sewer systems, and other public services. Market, appraised and taxable values are determined by the appraisal district and used by the taxing units to calculate each person's share of the annual tax burden. TAD also administers and determines eligibility for various types of property tax exemptions that are authorized by state and local governments, such as those for homeowners, the elderly, disabled persons, disabled veterans, charitable or religious organizations and some businesses.

Appraisal-Related Statutory Responsibilities and Requirements

The statutes of the Texas Property Tax Code establish the legal foundation of property taxes in Texas and provide appraisal districts with a comprehensive set of instructions and requirements for the appraisal of real and personal property within its jurisdiction. Chapter 1, Section 1 includes general provisions and key definitions relative to the appraisal process. Section 1.04(7) defines ***"Market value" to mean the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:***

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

Per Section 21.01, real property values are determined as of January 1st, unless special appraisal provisions are otherwise provided**.** Section 21.02 states that business personal property values are also determined as of January 1st, unless a special provision, provided within the Tax Code, is provided. Chapter 23, Subchapter A. is entitled *"Appraisals Generally"* and further defines the scope of work required for local property tax appraisals. Section 23.01(a) states that ***"Except as otherwise provided by this chapter, all taxable property is appraised at its market value as of January 1."*** Section (b) further mandates, ***"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".*** The chief appraiser and his/her staff are further instructed to consider the cost, income and sales comparison methods of appraisal and to use the most appropriate valuation method to determine the market value for each property.

Section 23.01, subsection (e) was added in 2009 and amended in 2019 to address the valuation of properties lowered in a previous year under the Remedies (Subtitle F) section of the tax code. Section 23.01(e) prohibits a chief appraiser from raising the value of these properties, in the following year unless the increase is supported by clear and convincing evidence. The subsection also places conditions on the valuation of properties that were lowered in the previous year, related to remedies for unequal appraisal. Additional instructions related to the consideration of foreclosure sales were also provided relative to the appraisal of a residential homestead property. Additionally, the board has provided guidance for the district to further consider a property's previous property appraisals, settlements, and reductions in value when subsequently appraising that same property's property value.

The remainder of Chapter 23 of the tax code provides for a host of special appraisal provisions to be used in the valuation of specific types of properties. For example, there are instructions for the appraisal of residential real property inventory (§ 23.12), dealer's inventory (§ 23.121, 23.124, 23.1241 and 23.127), taxable leaseholds (§ 23.13), oil or gas interests (§ 23.175), homeowner' organization property (§ 23.18), low income, tax credit housing (§ 23.215), residential homestead property (§ 23.23), agricultural use land (§ 23.41), open-space land (§ 23.52), and public access airport property (§ 23.91). The scope of the appraisal assignment will vary for those properties that are subject to special appraisal provisions as provided by Chapter 23 or Chapter 25 of the property tax code.

Section 23.23 Limitation on Appraised Value of Residence Homestead will not be affected by non-reappraisal years. Appraised values will continue to increase 10% if the property has a homestead cap until it meets the market value.

Reappraisal Statutory Responsibilities and Requirements

Section 25.18 requires each appraisal office to implement a plan to update appraised values for real and personal property at least once every three years. The purpose of a reappraisal is to establish the market value for the properties and to review values for equality and uniformity. Based on current market conditions, the market value of a property may be increased, decreased or not subject to change.

The need for a periodic review of values is dependent on data and analysis of economic conditions and market activity for a given property type within a defined market area. The Board of Directors for the 2025 tax year has instructed the chief appraiser to hold residential values at the 2024 final values except for properties with new construction or new Improvement value. Additionally, residential properties will only be reappraised in odd years to coincide with the property value study starting in 2027. All other property types will be reappraised annually.

The district will continue to work residential accounts as normal to allow for reporting on the impacts of the plan compared to a full reappraisal. Current market analysis appears to indicate that market trend on a county wide basis will be flat.

The district conducts an onsite field review of real and personal property in a portion of the county annually as part of a reappraisal cycle. During an onsite field review, the appraisal staff will generally measure a new home or building or remeasure existing improvements. They also observe, document and record new or existing property characteristics and record land parcel characteristics. Commercial properties are generally photographed. Residential appraisers observe property characteristics from the property's exterior, whereas the commercial and personal property staff may need to enter a property or business to complete the review. The business personal property (BPP) staff will attempt to speak with someone on site to review info, while trying to disrupt the business as little as possible. Supplemental questions can be answered via a follow-up phone call or other research methods discussed in this document under the BPP section.

TAD appraisers have access to key information to assist in both onsite field and desktop reviews. This information includes: city-issued building permits and building plans; county-issued utility hookup applications, health department septic and fire marshal permits; biennially updated aerial

imagery, GIS analysis tools; county deed records and other county clerk document filings; telephone contact with property owners; internet real estate or business websites; market sales information; conversations with property owners; third-party real or personal property data subscriptions and other miscellaneous sources of data.

Reappraisal Standards

The opinion of market value of real and business personal property is calculated using specific information and data about each property. Utilizing various computer-assisted mass appraisal (CAMA) programs, and generally recognized appraisal methods and techniques, licensed and trained property appraisers compare the subject property information with the data for similar properties, and with available market data. The district adheres to the standards of the International Association of Assessing Officers (IAAO) regarding its appraisal practices and procedures, and subscribes to the standards promulgated by the Appraisal Foundation known as the Uniform Standards of Professional Appraisal Practice (USPAP) to the extent they are applicable.

The 2025-2026 Reappraisal will also be completed in compliance with the guidelines and standards as specified by the Texas Comptroller in the Methods and Assistance Program (MAP). Effective January 1, 2010, Chapter 5.102 of the Texas Property Tax Code was amended to require “at least once every two years, the Comptroller shall review the governance of each appraisal district, taxpayer assistance provided, and the operating and appraisal standards, procedures and methodology used by each appraisal district to determine compliance with generally accepted standards, procedures, and methodology. TAD is subject to a formal MAP review in 2024 with a final report expected to be submitted to the TAD Board of Directors in late 2024 or early 2025. As part of the 2025-2026 Reappraisal Plan, any changes made to current standards, operating procedures or methodologies will be documented by the TAD staff in preparation for the next MAP review in 2026.

In cases where the appraisal district contracts for professional valuation services, the contract requires adherence to similar professional standards. Any third-party appraisal firm, in which TAD contracts with, is also required to develop a mass appraisal report and reappraisal plan pertaining to the properties for which they have responsibility to appraise.

Reappraisal Calendar

January 1 is the statutory appraisal date for establishing market value of properties in Texas, unless otherwise specified by law. Based on a typical, annual tax calendar, reappraisal activities generally begin around August 1 or when the majority of property appeals from the previous year are completed.

A proposed calendar of key events for the 2025-2026 Reappraisal has been prepared and is included in Appendix A at the end of this report.

Overview of Reappraisal Activities

Overview of Reappraisal Activities

For 2025 and 2026, Tarrant Appraisal District will conduct a mass appraisal of all commercial, industrial, mineral and personal properties in the county as part of the reappraisal plan. This section will describe an overview of the reappraisal process. Going forward a biennial reappraisal will be conducted in odd years for residential properties to align with the comptroller's property value study. A more detailed description for residential, commercial and business personal property methodology will be covered in individual sections to follow. Mass appraisal is defined as the process of valuing a group of properties using standard methods, employing common data, and allowing for statistical testing. Appraisers perform mass appraisal with the assistance of a Computer-Assisted Mass Appraisal (CAMA) software system, with additional technical software and hardware support provided by TAD's Information Services department.

Analysis of Appraisal Resources

TAD appraisal responsibilities are divided between three appraisal departments: Residential, Commercial, and Business Personal Property. The Residential Appraisal Department is organized into four geographic regions or quadrants. The department also contains an Agricultural Land Appraisal Section and a Research Section. The Commercial Appraisal Department consists of four divisions; Commercial Appraisal, Complex Property Appraisal, Commercial Research and Reporting, and Litigation/Arbitration. The Business Personal Property (BPP) department handles the appraisal of personal property, utility and mineral interest properties.

All appraisal personnel receive extensive, on-the-job training in data collection and valuation methodology at the beginning and throughout the reappraisal cycle. At the beginning of each reappraisal, each department updates their standardized manuals to ensure uniformity and accuracy in the data collection and appraisal processes. Senior personnel provide on-the-job data collection training both in the office and for onsite field reviews. Managers 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.

Hardware and software upgrades are provided per budgetary approval and forms, reports and other data collection tools are updated to reflect the applicable tax year.

Performance Analysis- Internal and External Studies

Internal Ratio Analysis - To better identify areas that may require a reappraisal effort, the previous years' certified values are analyzed with ratio studies to determine overall appraisal accuracy and uniformity. Ratios studies are stratified by various attributes including school district, neighborhood, and property type. TAD follows the current IAAO Standard on Ratio Studies as a guideline to develop statistics including mean, median and weighted mean to measure levels of appraisal accuracy within the defined stratified groupings. Coefficient of Dispersion (COD) is

calculated to measure overall uniformity of appraisal values. The resulting analysis will be used to determine neighborhood or property types that may require an on-site field inspection, office review or to help with valuation model recalibration. Monthly ratio studies for residential property will be conducted to monitor the impact of the market conditions on values. Ratios that fall outside the Property Value Study margin of error of 5% will be brought to the board of directors in March 2025 prior to appraisal values being concluded and appraisal notices generated.

External Ratio Analysis - Section 5.10 of the Texas Property Tax Code requires the comptroller to conduct a study at least once every two years to determine the degree of uniformity and the median level of appraisals by the appraisal district within each major category of property. The Property Value Study (PVS) uses statistical analysis of sold properties and appraisals of unsold properties as a basis for assessment ratio reporting. The preliminary results of this study are released in January following the year for which the study is conducted. Final results are then certified to the Education Commissioner of the Texas Education Agency in July. This outside (third party) ratio study provides meaningful data to TAD in regards to the accuracy and uniformity. Tarrant Appraisal District was subject to a Property Value Study in 2023, which resulted in passing ratios for all school districts within the margin of error. The results of the 2023 study will be reviewed, in conjunction with the TAD internal ratio analysis, in determining if valuation models for certain property types or neighborhoods require recalibration for factors not already identified by the senior analysts and managers in the Commercial team. The Comptroller has scheduled TAD for another PVS in 2025. The results of that study will be considered in planning the 2026 Reappraisal.

Planning and Organization

Managers and key personnel, from all three appraisal divisions, meet with department Directors to lay out a roadmap for the goals, resources, and timeline necessary to successfully complete a reappraisal cycle for the tax year. Roadblocks are also identified and problem-solving solutions are discussed. A calendar of key events is prepared each year to document important deadlines that correlate with Texas Property Tax Code requirements (Appendix A). Each division within the appraisal department organizes its workflow around these important dates to remain on schedule for the next tax year. Projects or goals may require coordination with other TAD departments or with the CAMA software vendor. A system of documenting those items from development to completion is established. Tickets for items related to the CAMA software are created and tracked through the software vendors reporting system and involve coordination with the various members of TAD's Information Services Department. Changes that occur as a result of legislative updates will be discussed, and plans will be developed to test and implement any new procedures or activities that impact the reappraisal process.

Identifying Properties to be Appraised

Properties are identified by either a physical on-site inspection or through other reliable means of identification. TAD creates and maintains accounts in the District's CAMA system that contain data related to property characteristics, legal description, ownership and exemption information. Accurate ownership and legal description data is updated and maintained by processing recorded deeds and plats that are provided by the Tarrant County Clerk's office. Each account is assigned a unique parcel identification number or PIN.

Maps have been developed that show the boundary and parcel lines for each account. The district has a geographic information system (GIS) that contains these cadastral maps and includes various layers of data, including parcel lines, FEMA flood data, zoning, jurisdictional boundaries and aerial photography. TAD is dependent upon third party organizations like local cities, the federal government and private photography companies to provide updated data for specific layer information for the cadastral maps.

The following chart contains the projected numbers of TAD's parcels for the 2025-2026 reappraisal cycles:

	2021	2022	2023	2024	2025	2026
Real Estate Accounts	687,018	696,600	706,667	709,152	719,000	726,600
BPP Accounts	62,180	63,551	64,416	63,195	64,300	64,700
Mineral Accounts	1,097,488	1,098,487	1,098,888	1,100,298	1,100,100	1,101,800
Total Accounts	1,846,686	1,858,638	1,869,971	1,872,645	1,883,400	1,893,100
Total Added Accounts	8,297	11,952	11,333	2,674	10,755	9,700
Total % Increase	0.45%	0.65%	0.61%	0.14%	0.57%	0.52%
	Sep 21 Roll	Sep 22 Roll	Sep 23 Roll	Jun 24 Est	Estimated	Estimated

Includes absolute exempt properties

As Tarrant county continues to experience unprecedented growth, primarily from out-of-state migration, TAD anticipates the number of real estate and personal property accounts to increase. Demand for housing, apartments, retail and consumer services and warehouse storage space continues to remain strong as well.

Data Collection

Existing property characteristics data is updated and maintained through on-site inspections and other generally accepted methods. These methods may include use of GIS and aerial imagery,

city or property-specific websites, real estate related, web-based site information, and third-party published data. The property data related to new construction and other building permit activity is primarily collected through an on-site inspection, but can also be verified using methods described above. Each city within TAD's jurisdiction provides permit information either electronically or in paper form. Comparable sales data is also routinely validated as part of the building permit field review and reappraisal activities.

In each department, the appraisal staff is responsible for collecting and maintaining property characteristic data for classification, valuation, and information processes. Accurate valuation of real and personal property, by any method, requires a physical description of personal property, land, and building characteristics. An effective data collection effort involves either or both an on-site field inspection or office review of all real and personal property accounts. It is the goal of TAD's appraisal departments to periodically complete a thorough on-site field review of all residential and commercial properties. Business personal property data is field-verified every year. Meeting this goal is dependent on budgetary constraints and staffing resources.

General economic and financial trends, construction cost, market sales and rental income data are acquired through various sources. These may include internally generated questionnaires to buyers and sellers, public and university research centers, private market data vendors, real estate related publications and telephone contact with buyers, sellers, brokers and fee appraisers, as well as information collected from property owners and agents during the informal appeal and Appraisal Review Board processes. The appraisal departments have appraisal staff assigned to research functions and they are primarily responsible for collecting this type of data.

Residential appraisers utilize a standardized field collection document or property record card to verify existing property characteristics or record new property data. The worksheets are batch-produced based on the geographic area that is designated for reappraisal. Existing appraisal data is pre-printed on a property record card that is used by the appraiser to record new or modified data during an on-site inspection. Field collected data is entered onsite or returned and entered into the CAMA system. A limited amount of data entry may be performed in the field by residential appraisers using wireless laptop computers linked directly to the CAMA system.

Commercial appraisers collect on-site field data using laptop computers or field devices. Commercial appraisers are assigned a daily "work plan" during field reappraisal or building permit work cycle. The work plan consists of a group of accounts to be worked in a specified area. GIS maps, aerial photography and all the property characteristics related to the accounts in the work plan are accessible from the appraisal software's CAMA system through the field device. The field device and digital camera are utilized to collect and record the field data during the on-site inspection.

The BPP appraisal staff collects data on pre-printed property field sheets that contain existing information about the business for the appraiser to verify. Any changes to the existing data are entered from the property field sheets into the CAMA system. New businesses that are discovered are reported on a new account worksheet with all necessary data collected either in person from the business owner/employee or through research with outside sources. The property field sheets are printed and distributed to field appraisers that are assigned different geographic areas for data collection and discovery purposes. The appraisers also utilize laptop computers or other field devices with wireless connectivity to access appraisal data while working away from the office.

Other field inspection resources for all departments may include a MAPSCO street directory, sales and income data, fire damage reports, private water and electrical service applications, building permits, certificates of occupancy, building plans, site plans, recorded deeds and plats, photos, published articles and actual cost information. Appraisal department managers and senior staff conduct on-going quality control of the entire data entry process using numerous edit and audit reports. Supervisors and managers verify the accuracy of collected data with periodic on-site field reviews. The data validation process may pinpoint areas where additional appraiser training or resource reallocation is needed.

MARKET AREA DELINEATION

Market areas are defined by the physical, economic, governmental, and social forces that influence property values. The effects of these forces were used to identify, classify, and stratify or delineate similarly situated properties into smaller, more comparable, and manageable subsets for valuation purposes. Delineation can involve the physical drawing of neighborhood boundary lines on a map; it can also involve statistical separation or stratification based on attribute analysis. These homogeneous properties have been delineated into valuation neighborhoods for residential property or economic class for commercial property, but because there are discernible patterns of growth that characterize a neighborhood or market segment, analyst staff will annually evaluate the neighborhood boundaries or market segments to ensure homogeneity of property characteristics. NAICS codes differentiate business types and proper identification and delineation is the cornerstone of the business personal property valuation system. Residential and commercial market areas and NAICS codes are listed in the Addendum sections C, D and E.

Identifying Property Characteristics and Appraisal Methods

- **Residential Appraisal** - Residential new construction is physically examined as part of an annual building permit data collection process if appraisers are not able to physically examine property, other inspection methods may be utilized for data collection purposes. Appraisers determine size, style, quality, condition, year built, effective year of construction and other property characteristics and features that are used in the cost and sales comparison valuation methods. Vacant rural land is valued primarily using comparable sales. Lot values in subdivisions are determined primarily by market sales data, or if unavailable, by the allocated ratio/abstraction methods. Improved residential properties are delineated by neighborhoods as defined later in this document. As a part of the reappraisal effort, residential management and staff perform statistical analysis to evaluate whether values are equitable and consistent with the market. Based on analysis of the comparable sales activity, market adjustment factors are developed and applied uniformly to all appraised values within a neighborhood or specified geographic areas to adjust overall appraisal levels. Though market analysis is being conducted, the board has required the district to obtain and rely upon clear and convincing evidence if the calculated market value exceeds a 5% increase. New improvement value will still be added to the roll.
- **Commercial Appraisal** - Commercial and industrial real estate is verified using an on-site field review, street-level photography and aerial photography of each property at least once every four years to confirm class, condition and other property data. Properties are also reviewed as part of an annual building permit inspection process. The appraisers determine highest and best use, when applicable, and define the appraisal site characteristics for a grouping of associated accounts. Appraisal Sites are delineated by neighborhood market areas. As a part of the reappraisal effort, commercial market values are established using generally accepted appraisal methods and techniques. Land values are generally determined using comparable sales data. For improved properties, appraisers consider the cost, sales comparison and income approaches to value then reconcile the final value, based on the quality and availability of the most accurate and credible data for each valuation approach. A commercial cost approach model computes site values at the aggregated account level. A total appraisal site value is developed using the commercial sales comparison and income approach models. When applicable, this total overall property value may be allocated among the accounts within an appraisal site based on each specific account's classification and property characteristics.
- **Business Personal Property** - The Business Personal Property staff reappraises businesses through various discovery methods. Business personal property appraisers utilize survey letters, phone calls, data research and on-site inspections of businesses to verify ownership, North American Industry Classification Systems (NAICS) classification,

quality and density of inventory, furniture and fixtures, square footage occupied and other key information. NAICS code identification and delineation is key to the business personal property valuation system. The cost approach is the primary appraisal methodology used to value personal property. Cost tables are developed for each NAICS classification using actual historical cost data and market data from generally accepted cost valuation sources. The NAICS models are reviewed and tested annually. Depreciation schedules are reviewed and adjusted as necessary. Due to scheduling restrictions for both taxpayers and BPP staff, each year's fieldwork agenda is adjusted based on areas visited in the prior year. This is done so that each area of the county is visited within at least a three-year cycle. Most business owners are required to file rendition reports annually and list key information about their tangible personal property assets. Appraisers consider information from field observations, NAICS models and owner's rendition values when determining the market value of the business personal property.

Residential Property Valuation Process

INTRODUCTION

Scope of Responsibility

The residential appraisal staff appraisers are responsible for developing equal and uniform market values for improved and vacant residential property. There are approximately 600,000 residential improved parcels and 45,000 vacant residential properties in Tarrant County.

Residential appraisal assignments are delineated from commercial assignments on the basis of state use code, established by the Property Tax Assistance Division of the State Comptroller. Generally, the residential staff values residential single family, multifamily housing (other than apartments), vacant residential lots, improvements on rural acreage, open-space & agricultural appraisal, mobile homes and residential inventory properties.

Appraisal Resources

- **Personnel** - The Residential Appraisal staff consists of appraisers and support staff. A detailed count may be found in the 2025 and 2026 adopted budgets.
- **Data** - A common set of data characteristics for each residential dwelling in Tarrant County is collected by appraisers in the field and entered into the CAMA system. This property-specific data serves as the basis for the appropriate appraisal approach to determine opinions of value. Residential appraisal also utilizes and relies upon verified sales data, construction cost data, and information from other real estate sources. Appraisers may also review real estate related publications and real estate related websites to determine patterns, trends, supply and demand within the local markets.

VALUATION APPROACH (Model Specification)

Land Analysis

Residential land analysis is conducted by the residential managers and analysts prior to neighborhood sales analysis. From these land analyses, land models are developed to determine a primary land rate. Specific land adjustments may be applied, where necessary, to account for characteristics of a neighborhood or a specific parcel. Parcels outside the neighborhood norm for characteristics such as view, shape, size, and topography, among others may also be adjusted. When available data exists, appraisers may use the comparable sales data, allocation by abstraction or allocation by ratio methods to ensure that the land values developed best reflect the contributory market value of the land to the overall property value.

Area Analysis

Data on regional economic forces such as regional location factors, general trends in real property prices and rents, interest rate trends, availability of vacant land, and construction trends and costs are collected from private vendors and public sources and provide the appraisers a current economic outlook on the real estate market. Information is gathered from real estate publications and other outside sources including seminars, conferences, and continuing education courses approved by the Texas Comptroller's Office.

Residential Neighborhood and Market Analysis

TAD's residential market areas are defined by thorough analysis of homogenous geographic areas. The analysis consists of the examining of how physical, economic, governmental and social forces - and other influences - affect property values within these areas. The effects of these forces are also used to identify, classify, and stratify comparable properties into smaller, manageable subsets of the universe of properties known as neighborhoods (see Appendix C for a listing of all neighborhoods defined by the Residential Appraisal Division). Analysis of comparable market sales data forms the basis of estimating market activity and the level of supply and demand affecting market prices for any given market area, neighborhood or district. Market sales reflect the effects of these market forces and are interpreted by managers into an indication of market value ranges for a given neighborhood. Sales also provide an indication of property component changes considering a given time period relative to the date of appraisal. Although all three approaches to value are considered, residential sales can best be interpreted and applied using two generally accepted appraisal techniques known as the cost and market or comparable sales approach. For low density, multiple family properties, the income approach to value may also be utilized, in the absence of recent sales data.

The first step in neighborhood analysis is the identification of a group of properties that share certain common traits. A "neighborhood" for analysis purposes is defined as a geographic grouping of properties where the property's physical, economic, governmental and social forces are generally similar and uniform. Geographic stratification takes into consideration the local supply and demand factors that vary across a jurisdiction. Once a neighborhood with similar characteristics has been identified, the next step is to define its boundaries. This process is known as delineation. Some factors used in neighborhood delineation include location, sales price range, lot size, age of dwelling, quality of construction and condition of dwellings, square footage, and story height. Delineation can involve the physical drawing of neighborhood boundary lines on a map, but it can also involve statistical separation or stratification based on attribute analysis. Part of neighborhood analysis is the consideration of discernible patterns of growth that influence a neighborhood's individual market. Few neighborhoods are fixed in character. Each neighborhood may be characterized as being in a stage of growth, stability or decline. The growth period is a time of development and construction. As new neighborhoods in a community are developed, they compete with existing neighborhoods. An added supply of new homes tends to induce a population shift from older homes to newer homes. In the period of stability, or equilibrium, the forces of supply and demand are about equal. Generally, in the stage of

equilibrium, older neighborhoods can be more desirable due to their stability of residential character and proximity to the workplace and other community facilities. The period of decline may reflect diminishing demand or desirability. Declining neighborhoods may also experience renewal, reorganization, rebuilding, or restoration, which promotes increased demand and economic desirability.

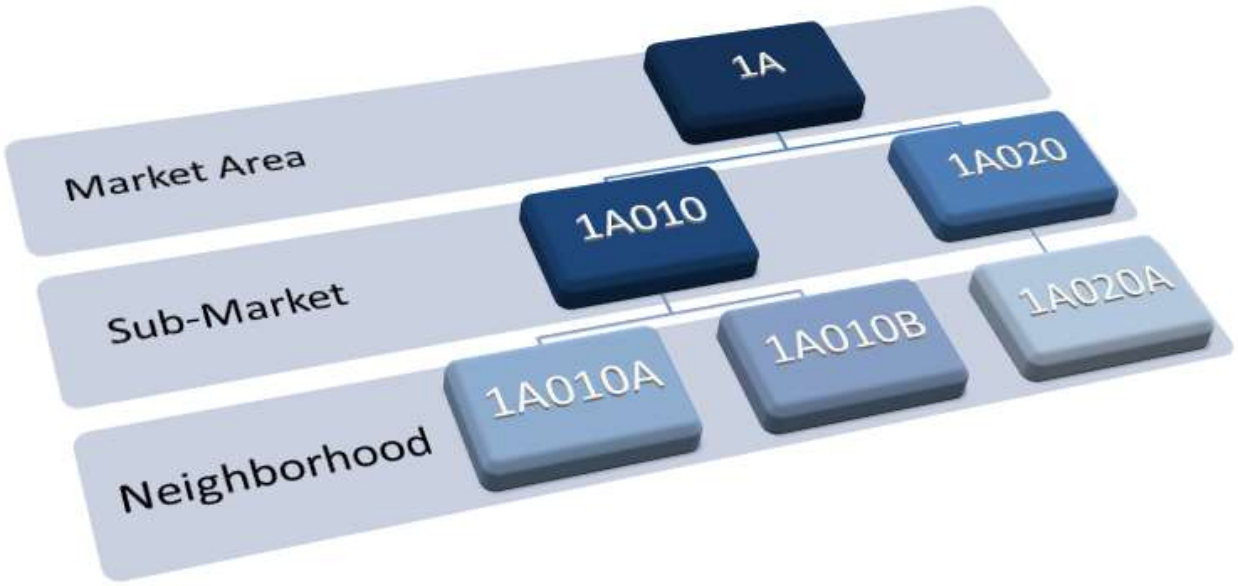
Neighborhood identification and delineation is the cornerstone of the residential valuation system at the district. Most residential analysis work, in association with the residential valuation process, is neighborhood specific. Neighborhoods are visually inspected to verify delineations based on observable aspects of homogeneity. Neighborhood delineation is periodically reviewed to determine if further neighborhood specification is warranted. Whereas neighborhoods involve similar properties in the same location, a neighborhood group is simply defined as similar neighborhoods in similar locations. Each residential neighborhood is assigned and coded to a neighborhood group based on observable aspects of homogeneity between the areas. Neighborhood grouping is highly beneficial in cost-derived areas of limited or no sales and in direct sales comparison analysis. Defining comparable neighborhood groups serves to increase the available market data by linking comparable properties outside a given neighborhood. Sales ratio analysis, discussed below, is performed at the market area, sub-market area, and/or neighborhood areas, and in soft sale areas on a comparable neighborhood group basis.

The Residential Appraisal Section evaluates all residential properties during the biennial sales ratio study. Problem market areas identified by the study are scheduled for field inspections.

Field inspections are also scheduled for properties identified through various other sources including but not limited to: the informal appeals and appraisal review process, building permits, owner request, sales information verification and annual canvas of one third of all residential properties in the district.

Residential Neighborhood Hierarchy

Neighborhoods define an area of complimentary land uses in which all properties are similarly influenced by the four forces affecting property value: environmental (physical), governmental, social, and economic forces. The area of the neighborhood will contain complimentary land uses. The three types of boundaries are natural, political, and manmade.



Market Areas define a group of appraisal sites for which the market factors are similar. These similarities then assist with fair & equitable valuation utilizing the various models in the CAMA system.

Sub-Market Areas are appraisal sites that can be assigned to a market area. Sub Market areas exist within a market area and define a group of appraisal sites within that market area that are more similar to each other than other appraisal sites in a market area. These similarities then assist with fair & equitable valuation utilizing the various models in the CAMA system.

Neighborhood Areas define a group of appraisal sites that are more similar to each other than other appraisal sites within the same market and sub market areas. These similarities then assist with fair & equitable valuation utilizing the various models in the CAMA system.

Market Areas, Sub-Market Areas and Neighborhood Areas are assigned to every residential property and may be viewed graphically on District maps.

Highest and Best Use Analysis

The highest and best use of property is the most reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legally permissible, financially feasible, and productive to its maximum. 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 socio-economic and cultural changes, the residential and commercial appraisal staffs review 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.

In November 2009, the Texas constitution was amended to limit the analysis of highest and best use on a residence homestead. If a residential property is homesteaded, appraisers are to appraise the property in its current use and disregard the properties highest and best use or the value associated with highest and best use. This change became effective on January 1, 2010.

VALUATION AND STATISTICAL ANALYSIS (Model Calibration)

Cost Schedules

The district's residential cost schedules are derived from a third-party source provided through the CAMA software vendor and utilize a Floor Stratified Cost Model, which are reviewed and adjusted periodically to reflect the local market.

Possible adjustments for factors that may inhibit value are also in table form and are applied uniformly to any properties affected. Examples may include cracked slab, termite damage, repairs needed, etc.

The District considers all three approaches to value and recognizes the cost approach as an acceptable approach. Generally, for residential property, the district considers the market

approach a more viable and accurate indicator and utilizes the market approach, in conjunction with the cost approach, to arrive at a final estimate of market value.

Income Models

The income approach to value may be utilized for those real properties that are typically viewed as income producing, when sufficient income data is available and where comparable sales are not present. In the current residential market, the income approach is not generally used.

Sales Information

A sales file for the storage of snapshot sales data for vacant and improved properties at the time of sale is maintained for residential real property. Residential improved and vacant sales are collected from a variety of sources, including: district survey letters sent to buyers and sellers, field discovery, protest hearings, Board of Realtor's MLS and other sales vendors, builders, and realtors and brokers. The following chart identifies the historic and projected numbers of sales that are received and processed annually by the residential research staff.

Year	2020	2021	2022	2023	2024	2025	2026
Total Sales	28,389	26,966	23,630	21,182	18,800 Projected	16,300 Projected	13,800 Projected

A system of type, source, validity and verification codes has been established to define salient facts related to a property's purchase or transfer and to help determine relevant market sale price information. The effect of time as an influence on price can be considered by paired sales analysis and applied in the ratio study to the sales as indicated within each neighborhood area. Neighborhood sales reports are generated as an analytical tool for the managers in the development and estimation of market price ranges and property component value estimates. Abstraction and allocation of property components based on sales of similar property is an important analytical tool to interpret market sales under the cost and market approaches to value. These analytical tools help determine and estimate the effects of change, with regard to price, as indicated by sale prices for similar property within the current market.

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 pairing of property to isolate only the time factor as an influence on price.

Section 23.013 of the Property Tax Code addresses the "Market Data Comparison Method of Appraisal". During the 2009 Legislative session, Section 23.013 subsection (b) was added to specify that sales used in the market data comparable method should occur within 24 months of the appraisal date, unless too few sales occurred to produce a representative sample for a certain type of property. Subsection (c) was added to require appraisal districts to appropriately adjust comparable sales for changes in the market value of the sales based on the sale 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 became effective on January 1, 2010.

Statistical Analysis

The residential department performs statistical analysis annually to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on residential neighborhoods in the district to judge the two primary aspects of mass appraisal, accuracy and uniformity of value. Appraisal statistics of central tendency and dispersion generated from sales ratios are available for each neighborhood and are summarized by year. These summary statistics including, but not limited to, the weighted mean, median, standard deviation, coefficient of variation, and coefficient of dispersion provide a tool by which to determine both the level and uniformity of appraised value on a neighborhood basis. The level of appraised values is determined by the mean, weighted mean, and/or median to develop an adjustment factor for individual properties within a neighborhood. Review of the standard deviation, coefficient of variation, and coefficient of dispersion discerns appraisal uniformity within and between neighborhoods.

During the reappraisal process, Residential management and staff, through the sales ratio analysis process, review neighborhoods. The first phase involves neighborhood ratio studies that compare the recent sales prices of neighborhood properties to the appraised values of these sold properties. This set of ratio studies affords the reviewer an excellent means of judging the present level of appraised value and uniformity of the sales. Based on the sales ratio statistics and designated parameters for a valuation update, a preliminary decision is made as to whether the value level in a neighborhood needs to be updated in an upcoming reappraisal, or whether the level of appraised value is acceptable. The residential department performs statistical analysis during the reappraisal process to evaluate whether estimated values are equitable and consistent with the market.

Reconciliation and Valuation

Neighborhood, or market adjustment, factors are developed from appraisal statistics provided from ratio studies and are used to ensure that estimated values are consistent with the market. The district's approach to the valuation of residential properties is a cost-market approach. This approach accounts for neighborhood market influences not particularly specified in a purely cost model. The following equation denotes the hybrid model used:

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

The market value (MV) equals the market adjustment factor (MA) applied to the replacement cost new (RCN) less depreciation (D), plus the land value (LV). Market adjustments will be applied uniformly within neighborhoods to account for location variances.

Statistical analysis of current appraised values of a neighborhood or market area, as compared with recent sales in the same or similar neighborhood or market area, determines the appropriate market adjustment for a neighborhood. The CAMA system aids with the study and determination of market trends and to develop appropriate market adjustments.

SPECIAL APPRAISAL PROVISIONS

Appraisal of Residential Homesteads

Article VIII, Sec. 1 (i) of the Texas constitution allows the legislature to limit the annual percentage increase in the appraised value of residence homestead to 10% under certain conditions. This limitation is commonly referred to as a homestead capped value. Sec. 23.23 of the Tax Code implements the cap on increases in value. 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:

(1) the market value of the property for the most recent tax year that the market value was determined by the appraisal office; or

(2) the sum of:

(A) 10 percent of the appraised value of the property for the preceding tax year;

(B) the appraised value of the property for the preceding tax year; and

(C) the market value of all new improvements to the property

The market value may be reappraised biennially however, the limited appraised value must be recomputed annually. The appraised value of a homestead may increase 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. The market value of a limited homestead is maintained, as well as the limited appraised value.

Residential Inventory

Section 23.12 of the Texas Property Tax Code provides the definition of market value for inventory. Inventory includes residential real property that has never been occupied as a residence and is held for sale in the ordinary course of trade or business, provided that the residential real property remains unoccupied, is not leased or rented, and produces no income.

Residential inventory is appraised at market value. The market value of residential inventory is the price at which it would sell as a unit to a purchaser who would continue the business. The residential appraisal staff applies the same generally accepted appraisal techniques to determine the market value of residential real property inventory.

Agricultural Appraisal

The Texas Constitution permits certain kinds of agricultural land to be appraised for tax purposes at a productivity value, rather than at market value. This special appraisal value is based solely on the land's capacity to produce agricultural products. Property qualifying for agricultural appraisal will have a substantial reduction in taxes, based on the difference in special agricultural appraisal and the market value of the property. Property taxes are deferred until a change of use of the property occurs or, in a much less frequently requested type of special agricultural appraisal, when the ownership changes. At the time of use or ownership change, taxes are

recaptured for up to five previous years, based on the difference in what was paid based on agricultural appraisal, and what would have been paid based on the market value of the property. Procedures for implementing this appraisal are based on the guidelines published in the Manual for the Appraisal of Agricultural Land, printed April 1990. A copy may be obtained from the State Comptroller of Public Accounts.

Application Process

The State Property Tax Code requires an application before land is considered for agricultural valuation. The deadline for filing a timely application is before May 1. Late agricultural valuation applications may be filed up to the time the appraisal roll is certified, however a penalty is imposed for late filing. After an application is filed, the property is inspected to determine its qualification.

Three criteria must be met when determining qualification.

Use - Land must be currently devoted principally to agricultural use.

Degree of Intensity - The agricultural use must be to the degree of intensity generally accepted in the area.

History of Use - The land must have been devoted principally to agricultural use for five (5) of the preceding seven (7) years. Land located within an incorporated city or town must have been devoted principally to agricultural use continuously for the preceding five (5) years.

When the land's use qualifications have been reviewed, one of three actions will be taken.

Application is Denied – Property owner is notified by certified mail and given 30 days to appeal the decision to the Appraisal Review Board.

Application is Approved - Property owner is notified of the decision and the productivity land appraised value. Once approved, the property remains valued as a special agricultural use until a change of use occurs, or the ownership changes. If the property's use remains unchanged and only ownership has changed, the new owner is notified and is required to timely apply for special agricultural valuation.

Disapprove the Application and Request More Information - The application is disapproved and the applicant is allowed thirty days to provide additional information, otherwise the application is denied. When requested information is provided, it is added to data already collected to arrive at a final decision.

INDIVIDUAL VALUE REVIEW PROCEDURES

Field Review

The appraiser identifies individual properties in need of field review through examples such as: sales ratio analysis, ARB hearings, building permits, property owner's requests, aerial photography and other sources. Sold properties are reviewed on a regular basis to check for accuracy of data characteristics before they are used in reappraisal analysis.

As the district's parcel count has increased through new home construction, and existing home remodeling, the appraisers are required to perform associated field activity. Increased sales

activity can result in a more substantial field effort on the part of the appraisers to review and reconcile sales that fall outside acceptable ranges. Additionally, the appraisers frequently field review data items such as quality of construction, condition, and physical, functional and economic obsolescence, factors contributing significantly to the market value of the property.

The following chart contains historical and projected permit activity for residential property.

	2020	2021	2022	2023	2024	2025	2026
TOTAL	26,994	26,588	25,657	21,150	20,500 Projected	18,600 Projected	16,800 Projected

Office Review

A routine valuation review of all properties as outlined in the discussion of ratio studies and market analysis is conducted. Previous values resulting from protest hearings, informal negotiation, arbitration, or litigation are individually reviewed to determine if the value remains appropriate for the current year.

Once the residential appraisal staff is satisfied with the level and uniformity of value for each neighborhood and/or market area, the estimates of value are prepared for a notice of proposed value.

PERFORMANCE TESTS

Sales Ratio Studies

The primary analytical tool used by the residential appraisal staff to measure and improve performance is the sales ratio analysis. The district ensures that the appraised values produced meet the standards of accuracy in several ways. Overall, sales ratios are generated for each neighborhood to allow the residential appraisal staff to review general market trends within their area of responsibility, and provide an indication of market change over a specified period. The neighborhood descriptive statistic is reviewed for each neighborhood being updated for the current tax year. Finally, other sales ratios statistics are produced. Residential appraisers may use sales up to two years prior to January 1st of the appraisal year to obtain a statistically valid sample.

Management Review Process

Once the proposed value estimates are finalized, the appraisal managers review the sales ratios by neighborhood and present pertinent valuation data, such as weighted sales ratio and pricing trends to the Director of Residential Appraisal and the Chief Appraiser for final review and approval. This review includes comparison of level of value between related neighborhoods within and across jurisdiction lines. The primary objective of this review is to ensure that the calculated values have met preset appraisal guidelines appropriate for the tax year in question. Approximately in March the final ratios will be presented to the board comparing prior year values to newly calculated values. Any ratios that indicate an ISD would qualify for a grace period (90-95%) in the PVS or that would receive an invalid finding (<90%) resulting in state values will be identified for board consideration and possible amendment of the reappraisal plan.

Commercial Property Valuation Process

INTRODUCTION

Appraisal Responsibility

The Commercial (real property) Appraisal Department is responsible for the valuation of all commercial real property, including land and improvements, located within the boundaries of TAD's jurisdiction. This currently includes approximately 34,500 improved and 8,900 unimproved taxable accounts and 18,300 accounts with various tax exemptions. Commercial real property types generally include multi-family, office, retail, warehouse/manufacturing and various other categories of business-related facilities. Tax exempted accounts may include worship centers, hospitals, private and public schools, community and municipal buildings and land. The staff appraisers also value all commercial and rural land parcels. In general terms, the commercial appraisal staff is responsible for establishing market value on any real property for which the highest and best use is determined to be non-residential.

Commercial appraisal assignments are delineated from residential assignments on the basis of an assigned state use code. All accounts in the software are given a "Class Code" that reflects the primary use of the property, as defined by the Texas State Comptroller's Property Classification guidelines. Commercial class codes include the state category AC, BC, C1C, D1, EC, F1, F2, and J. Generally, the commercial staff values all commercially improved properties including apartments, vacant commercial land, vacant rural acreage, and the underlying land of improved acreage. Residential properties located in areas of transition to commercial, or interim-use properties, are also valued by the commercial division. If the interim-use property does not have a residential homestead exemption, the commercial appraisal staff collects the property data and appraises using commercial valuation models. Otherwise, these properties are maintained and valued using residential models for purposes of calculating the 10% limitation on increases to the appraised value for a property with a general residential homestead exemption.

Appraisal Resources

Personnel - Staffing details can be found in the budget adopted by the TAD Board for 2025 and 2026. The real property portion of the Commercial Appraisal Department is organized into three separate divisions or areas of responsibilities. The divisions are Commercial Appraisal, Complex Properties, and Commercial Research/Reporting. The Commercial Appraisal division is staffed with two managers and appraisers. The Complex Properties and Commercial Research/Reporting divisions are each staffed with a manager and appraisers. Support staff provides administrative support for each division. Each Division Manager reports to the Director of Commercial Appraisal.

A separate Litigation Division also resides within the commercial department structure. This staff consists of a manager, litigation appraisers, and support staff. Property owners and taxing units may appeal decisions of the ARB to district court. Litigation staff activities include performing value reviews or appraisals, assigning cases and corresponding with TAD's attorneys, negotiating settlements, and working with independent expert witnesses prior to any judicial court proceedings. The litigation division also manages other post-ARB remedies including binding arbitration, which is an administrative appeal process that allows property owners of real property

valued at $5,000,000 or less to appeal their ARB value to an arbitrator rather than to District Court. Owners also have the right to appeal properties valued at more than $1,000,000 and have the case heard by a chief administrative law judge with the State Office of Administrative Hearings (SOAH).

Commercial Appraisal and Complex Properties Division

The Commercial Appraisal and Complex Properties Divisions are responsible for valuing all commercial improved real property, vacant commercial land, and vacant acreage within TAD.

The Commercial Appraisal Division is staffed with two managers, appraiser analysts and commercial appraisers. In addition, support staff and a support staff supervisor are assigned to assist all divisions within the commercial department. In the Appraisal division, duties and responsibilities are divided between two workgroups. Each appraiser is assigned to a workgroup or team that is supervised by a manager. The manager for each workgroup is responsible for assigning property categories and market areas of responsibility to each appraiser in order to complete the various valuation and field tasks.

One workgroup values industrial and office-related categories and establishes the land values for all non-complex commercial properties. This team also works plat/split/merge records changes using a redescribe workflow. The other workgroup values multi-family and retail-related categories and is responsible for building permit data collection using a permit workflow process. They are also responsible for the reappraisal field effort. During this field-inspection phase, the commercial appraisal staff makes on-site physical inspections and photographs real estate accounts within a designated portion of the county.

The Complex Properties Division is responsible for valuing complex and unique properties as well as properties subject to abatement agreements. This division consists of a manager, an appraiser analyst, commercial appraisers and support staff. Complex properties include golf courses, utilities, railroads, high-rise downtown office buildings, the Fort Worth downtown central business district, the Panther Island redevelopment district, regional and local airports, regional shopping malls and lifestyle centers, hospitals, and possessory interest properties. The Complex properties staff also monitors properties located within designated Tax Increment Financing (TIF) areas. The higher profile complex properties that have a significant impact on the North Texas economy include Hurricane Harbor, Six Flags Theme Park, DFW and Alliance Airport, American Airlines, General Motors, Alcon Laboratories, Facebook, Fidelity Investments, Gaylord Texan Resort and five regional malls.

Research and Reporting Division

The Research and Reporting Division consists of a manager, appraiser analysts, research appraisers and support staff. This section is primarily responsible for collecting, processing, and maintaining sales and income information that is used in the valuation process. After the information is processed and verified, the sales and income information is entered into the valuation module and stored in database tables. The database tables are integrated within the appraisal software valuation models. The information is easily accessible for the appraisers to use in the sale model building and calibration process, edit/valuation process, informal discussions, and Appraisal Review Board hearings. Land sales data are processed into the

appraisal software and GIS mapping software is used to outline and post the sale data onto the TAD appraisal base maps. This data is stored as a year-based layer within the Geographic Information System.

The Research and Reporting Division, with input from the commercial appraisal staff, is responsible for updating and maintaining the commercial classification manual. This includes the periodic review of building class characteristics data that affects cost, sales and income valuation models. Cost-related data fields are specified and monitored in accordance with the requirements of the integrated MVP cost tables in the CAMA software. The division is also responsible for calibration of the cost and depreciation tables for features. The research staff is also responsible for monitoring and implementing new or revised appraisal methods and techniques in order to stay proficient with current appraisal technique and maintain compliance with USPAP Standard Six for mass appraisal. An extensive resource library and on-line repository of information is maintained and includes commercial real estate and financial publications, published survey data, on-line appraisal data sources, appraisal educational textbooks and software, periodicals and journals, comptroller's reports and various other resources to assist the appraisal process.

PRELIMINARY ANALYSIS & DATA COLLECTION

Prior to beginning of the valuation activities for an appraisal year, the appraisal department management team completes a thorough review of the results of the preceding year. Goals and objectives are determined and managers establish a plan of action. Budget, calendar issues and resource availability are all considered. Appraisal activities must be coordinated between other TAD departments to avoid conflicts and ensure availability of personnel. Appraisal resources, including staff and system needs are evaluated. Appraisal Review Board activity and value changes in the informal appeals process are analyzed. Most importantly, a preliminary internal ratio study is produced to identify any property category or geographic area that may require more research or analysis. The appraisal staff works with the research division to identify priority areas for sale and income data collection and any necessary enhancements to the standardized appraisal classification manual.

TAD also coordinates its discovery and valuation activities with adjoining appraisal districts. Numerous field trips, interviews and data exchanges with adjacent appraisal districts are conducted to ensure compliance with state statues. In addition, TAD administration and personnel interact and exchange information with other assessment officials through professional trade organizations including the International Association of Assessing Officers, Texas Association of Appraisal Districts and its subchapter Texas Metropolitan Association of Appraisal Districts and the Texas Association of Assessing Officers.

Area Analysis

Data on national and regional economic forces such as regional location factors, general trends in real property prices and rents, interest rates, discount rates, and financing trends, availability of vacant land, and construction trends and costs are collected from private vendors and public sources. Appraisal analysts and managers analyze the data and meet regularly to discuss how these factors and trends could impact the local real estate market. More detailed analysis is then

completed to determine what model recalibration and specification will need to occur during the upcoming valuation cycle.

Neighborhood Analysis

Commercial properties are generally stratified by locational and economic factors to better analyze and accurately determine market value. The hierarchy of this breakdown is market, sub-market, and then neighborhood. A commercial neighborhood, submarket or market economic area is comprised of land and the commercial properties located within the boundaries of a specifically defined geographic location (See Appendix D). Every commercial account, as part of its specified appraisal site is coded with a Neighborhood, Sub-market and Market Area identifier. A market area consists of a wide variety of both competing and complimentary property types including residential, commercial, industrial and governmental. Market area descriptions can be based on man-made, political, or natural boundaries. Further market stratification is made at the submarket and neighborhood level to further analyze how physical, economic, governmental and social forces at the local, national and international level influence or affect property values. A neighborhood is the smallest delineation of comparable properties, often described as having homogeneous and complementary land uses. The effects of these market forces, at the neighborhood level, are used to determine the highest and best use for a property, and to more accurately calibrate and assign the appropriate sale, income and cost data in the valuation process.

Commercial Market areas are typically defined for each of the various improved property types (apartment, office, retail, warehouse and special use) based upon a qualitative and quantitative analysis of similar economic or market forces. These include but are not limited to similarities of rental rates, quality of overall buildings or projects (also known as “building rank” by area commercial market experts), date of construction, levels of market activity and competition, supply and demand, submarket stability, city ordinances, availability of infrastructure and other pertinent influences. TAD-delineated commercial Neighborhood, Sub-Market and Market boundaries closely mirror the areas defined by other generally accepted Commercial Real Estate sources including local and National Commercial Brokerage Firms, MPF Research (multifamily property), Axiometrics/RealPage and CoStar Properties, which is a published subscription source of commercial sales, sales listings and rental data. Economic area identification and delineation by each major property use type is a key component in a mass-appraisal, commercial valuation system. All the appraisal software income and sales comparison valuation models are Neighborhood, Submarket or Market Area specific. Economic market areas are periodically reviewed to determine if a revised delineation is required.

Highest and Best Use Analysis

The highest and best use is the most reasonable and probable use that generates the highest present value of the real estate, as of the date of valuation. The highest and best use of any given property must be physically possible, legally permissible, financially feasible, and maximally productive. It is that use that will generate the highest net return to the property over a period of time. For vacant tracts of land within a jurisdiction, the highest and best use is considered speculative but market-oriented, and is based on the surrounding land uses in a competing land market area. The appraiser must consider the most probable use that is permitted under local administrative regulations and ordinances. While its current zoning regulation may restrict a property’s use, the appraiser may also consider the probability that the zoning could be changed,

based on activity in the area and a city's propensity for approving zoning change requests.

For improved properties, highest and best use is evaluated as currently improved and as if the site were still vacant. In many instances, the property's current use is the same as its highest and best use. However, the appraiser may determine that the existing improvements have a transitional use, interim use, nonconforming use, multiple uses, speculative use, excess land, or a different optimum use, if the site were vacant. Improved properties reflect a wide variety of highest and best uses which include, but are not limited to: office, retail, apartment, warehouse, light industrial, special purpose, or interim uses. Proper highest and best use analysis insures that the most accurate estimate of market value can be derived.

In November 2009, the Texas constitution was amended by voters to limit the appraisal of a residence homestead to its value as a residence homestead, regardless of whether its residential use was the highest or best use. This change became effective on 01/10/2010.

"Value in use" represents the value of a property to a specific user for a specific purpose. An example of value in use is agricultural or productivity value. The Texas Property Tax Code has specific provisions for appraisal of certain types of property that require a value based on a specific use. The complex properties division manages the special requirements for appraising possessory interests and restricted use properties.

Appraisal Site Classification

An appraisal site consists of a parcel or grouping of parcels recognized by investors in the market as a single property unit. An appraisal site generally requires common ownership and physical contiguity with natural or geographic boundaries and may contain one or more TAD accounts. In addition, the highest and best use is most probable that it would sell as one property. A commercial appraiser determines an appraisal site grouping as part of the highest and best use analysis. The appraiser creates an appraisal site valuation record by identifying the account numbers and other required characteristics data as indicated in the appraisal site class section of the commercial classification manual. The high-level criteria that describe the valuation site are otherwise known as Appraisal Site Class Codes. There are currently 116 appraisal site class codes in the commercial manual. An appraisal site class code represents the primary use of the entire property, such as low-rise office, master-metered apartment, or distribution warehouse. An appraisal site may be comprised of several accounts with multiple building classes, such as a shopping center or auto dealership. The Neighborhood Market Area represents the location, submarket or competing market area for the appraisal site property unit. Appraisal Class Codes are necessary and critical for the grouping of similar or "like" properties in the mass appraisal valuation models. Commercial appraisers make market value determinations at both the account or "parcel" level and the appraisal site or "property" level.

Market Analysis

Mass-appraisal market analysis relates directly to economic market forces affecting supply and demand that affect a group of similar or "like" properties. This study involves the relationships between social, economic, environmental, governmental, and site conditions. Appraisers consider such general market data as submarket supply and demand, zoning and code restrictions, municipal services, school district characteristics, crime rate patterns, job growth patterns, income levels, population trends, transportation issues, interest rate levels, investment

patterns and a myriad of other factors that influence the local real estate market.

Specific market data is gathered and analyzed including sales of commercial properties, new construction and other permit activity, new leases, lease rates, absorption rates, vacancies, typical property operating expenses, expense ratio trends, discount rates and going-in, stabilized and reversion capitalization rate indicators. This data is used to determine market ranges in price, operating costs and investment return expectations.

DATA COLLECTION / VALIDATION

A standardized set of data characteristics for each commercial property in Tarrant County is collected and data entered by the commercial appraisal staff into the appraisal software. This property-specific data drives the software's valuation modules. Additional required data includes verified sales of vacant land and improved properties and the pertinent data obtained from each (sales price levels, capitalization rates, income multipliers, equity dividend rates, marketing period, etc.). Other data used by the appraisers includes sale listings, fee appraisals, actual income and expense data (typically obtained through the appeals process), actual contract rental data, leasing information (commissions, tenant finish, length of terms, etc.), and actual construction cost data. In addition to the actual data obtained from specific properties, market data publications and published market surveys are also reviewed to provide additional support for market trends

Data Collection Manuals

The Commercial Appraisal Classification Manual is the primary source and standard applicable to commercial property data collection and documentation. The commercial manual is utilized to establish uniform procedures for the correct listing of real property by field appraisers. This compilation of data collection guidelines is continually updated, providing a uniform system for listing the multitude of field data elements necessary to describe commercial real properties. All commercial properties located in TAD's jurisdiction are identified or described according to the manual and the three approaches to value are structured and calibrated based on this identification system. The field appraisers study and use the manuals extensively during their initial training and as a guide in the field inspection of properties. The guidelines in the manual are available in a PDF file available on each appraiser's PC or portable computer. Most of the data collection that is described in the manual is represented in the appraisal software through a series of drop-down selection lists. Standardized field descriptions are developed and used to describe commercial property at both the parcel and the appraisal site level. For example, one key characteristic of a property, at the individual parcel or account level, is building class or use. This is calibrated to the Marshall and Swift MVP component called "building occupancy". TAD employs the use of 111 different building classes (uses) to describe the various types of commercial structures. To assist the appraiser in determining effective year of construction for a structure, the manual also contains data collection guidelines for various site and ancillary improvements and recommended depreciation guidelines based on condition.

Commercial Building Permits

Every city within TAD's jurisdiction has a system of issuing building permits to property owners in order to ensure that building code standards are followed for all new construction or major remodeling projects. Permits may also be issued for repair or replacement of plumbing, electrical, HVAC, roofing, foundations, canopies, interior or exterior finish, parking lots, and ancillary structures. On a monthly basis, copies of those permits are either forwarded to TAD or downloaded by TAD staff from various city websites. Permits are matched to a corresponding commercial account and pertinent permit data is entered into the appraisal software. The Commercial appraisers field inspect and measure the permitted properties as part of an annual reappraisal work plan assignment during the building permit work cycle. Changes to property characteristics, as a result of the completed permit work, are recorded at both the account and Appraisal Site level. Value added to the roll from new construction is tabulated and reported to each taxing units for the use in their effective tax rate calculation. The following grid shows historic and projected Commercial permit activity:

Number of Permit Issued for Appraisal Yr.	**2021**	**2022**	**2023**	**2024**	**2025****	**2026****
New Construction	706	795	1,314	1,281	1,250	1,250
Other Commercial Permits	3,503	4,858	4,804	5,192	5,250	5,250
Total # of Permits	4,209	5,653	6,118	6,473	6,500	6,500
Total Value of Permitted New Construction (taxable)	$3,961,373,248	$2,717,632,751	$1,292,671,052	$1,127,818,009	$1,200,000,000	$1,200,000,000
					**Projected	**Projected

Comparable Sales Data

Commercial sales data is collected, verified and processed by the commercial research staff. A standardized workflow procedure is followed to track and accurately process the documents. The sale data items are preliminarily reviewed and verified to determine reliability of the content and the source. Some preliminary sale information is entered by research clerks into the Rights Transfer Sales Detail screen, in the Records module, which already contains County deed filing information initially captured by Tarrant Appraisal District's Deed-Records staff. The clerical staff then assembles photos, maps, deeds and other supporting information to create a detailed information packet about each sold property. The research appraisal staff reviews the compiled sale packet and verifies that all the physical and income characteristics, for the sale, are accurately represented in an appraisal site record in order to create a "snapshot" of the appraisal site and sold parcels as of the time of sale. Efforts are made to verify sale prices that obtained from third party sources. A research appraiser may also conduct a field inspection to verify the accuracy of the existing property characteristics data and attempt to determine if the property characteristics have changed since the sale date. Property, location and financial data s documented and entered in the appraisal software sale entry record. A final quality control review of the recorded and entered data occurs and the sales data is then released to the appraisers and for the purpose of mass appraisal valuation. Sales can be viewed in the appraisal software individually, in the records module, or as part of a model-driven sales summary grid in the sales comparison module. The paper documentation for all processed sale and income information is temporarily maintained in files in the research area. This vast amount of documentation is later

scanned as part of a workflow process and archived into the TAD imaging application. Property owners may request access to the sales data used to value their individual properties and all non-private entity source data is available to the public under provisions of the Open Records Act.

Income and Expense Data

Income and expense data consists of property rent rolls and income statements and is generally provided by property owners during the appeals process. The appraisal staff forwards the data to the research section where it is immediately scanned into an image-processing workflow application based on property type. The data is retrieved by appraisers and processed into the appraisal software's Reported Income interface. The district also subscribes to several real estate publications, such as Axiometrics/Real Page and CoStar Properties that provide individual summarized income data within each specified submarket or improved market area. Data is also obtained via public Internet web postings from numerous online news sources and real estate-related business postings and publications. Pertinent income data includes contract and market rental rates, asking rental rates, physical and economic vacancies, tenant reimbursements, operating expenses, capitalization rates, discount rates, lease up projections, and finish out costs.

Sources of Commercial Data

Property specific data is gathered as part of an on-site field inspection. The majority of cost related data is provided by either Aumentum's integrated MVP tables or from Marshall Valuation Services "Brown Book" or "Commercial Estimator" products. Closing statements, actual cost documents, rent rolls and income statements provided by owners during the appeals and ARB process are considered the most reliable sources of property data. Another reliable source of verified sales and income data is the local fee appraiser community. Networking with others in the appraisal profession benefits the overall quality and credible application of the data. The TAD Records division should receive a copy of the deeds recorded in Tarrant, Dallas, Denton, Johnson, Parker, and Ellis County that convey commercially classed properties located within the TAD jurisdiction. When a deed involving a change in commercial property ownership is entered into the TAD system, a set of commercial survey letters are produced. One letter is mailed to the buyer and one to the seller, in an attempt to obtain the pertinent sale information. TAD also subscribes to CoStar, a vendor of commercial sale and property data, and to the Multiple Listing Service (MLS). Other sales sources are contacted such as the brokers involved in the sale, property managers, commercial real estate vendors, the Texas State Comptrollers Property Tax Division and other knowledgeable parties. The research staff attempts to confirm and verify all data from secondary sources.

The following grid identifies historic and projected number of commercial sales by source type. Unlike the majority of states, Texas laws do not require mandatory disclosure of sale prices. TAD Commercial sales data is provided by voluntary disclosure or purchased from third party vendors.

Sources of Commercial Sales	2019	2020	2021	2022	2023	2024*
Closing Statements	195	171	352	263	51	3
CoStar Properties-Trepp (2018-22)	250	178	211	227	149	17
Multiple Listing Service (MLS)	129	104	216	188	160	0
Fee Appraisal Sale Comparable	1	1	0	0	0	0
Grantor/Grantee Survey Letters	133	138	131	133	88	6
Other	143	129	177	93	26	7
Total Commercial Sales	851	721	1,087	904	474	33

* As of report date

VALUATION APPROACH/FORMULAS (Model Specification)

The Aumentum Valuation module consists of mass appraisal applications of the sales comparison, cost, and income approaches to value. The applications were developed based on economic theory, market analysis, and generally accepted appraisal techniques. Each approach to value represents a specific model or formula that defines property characteristics and their relationships in an effort to arrive at an indication of market value for a given property. The final value is a reconciliation of one or more approaches to value.

Cost Approach Models

The very basic valuation model is **Market Value = Land Value plus Improvement Value.** This model represents the formula for the cost approach to value. The formula for a cost driven valuation model begins with an estimate of replacement cost new (RCN) for all improvements (buildings, fencing, paving etc.) on a parcel of land. Three forms of depreciation are considered and subtracted from the RCN to result in an estimate of value for the improved portion of the real estate. The sales comparison approach is typically the most reliable method to value the underlying land. An overall value is then computed by adding the depreciated value of the improvements to the value of the land.

Improvement Valuation

Cost model specification involves categorizing or grouping commercial improvements by construction type or use. The Commercial Department considers the primary function of a structure when assigning one of the 111 building class designations to each building in order to represent the various types of commercial property construction. For each building class, key

characteristics are used to describe a typical or benchmark property. The characteristics include construction quality, construction class (framing), floor level and a number of key structural elements such as interior finish, roof type, roof materials, heating/cooling, exterior walls, foundation, story height, building shape, and number of stories. The Commercial Valuation Manual contains a thorough description and a list of these specific characteristics for each property class. Photo examples of each building class are provided to assist the appraisers in making class determinations. Additional site improvements or features for each building class, such as concrete paving, light standards, canopies, garages, and storage buildings are also specified and valued using the cost approach. Over 100 ancillary improvement types are defined and valued in the cost model.

Other key data necessary for cost valuation includes gross and net building areas, year built and effective year of construction (EYOC), percent and quality of finish-out, percent of completion, and property condition. A base cost rate is associated with each commercial building class. An improvement value or replacement cost is then computed by multiplying the base rate times the structures gross building area. An improvement can have more than one building class.

The total improvement value for an account represents the sum of the depreciated improvement value of all taxable objects plus any value for the additional site improvements/features associated with the account.

Depreciation

Accrued depreciation is the sum of all forms of loss affecting the contributory value of the improvements. It is the measured loss against replacement cost new taken from all forms of physical deterioration, functional and economic obsolescence. Accrued depreciation is estimated and developed based on losses typical for each property type at that specific age. Physical depreciation is expressed as a percentage that is computed and subtracted from estimated replacement cost value. This percentage rate is extracted from depreciation tables and is dependent on the class, condition, effective age and economic life of each improvement. Individual or market-derived determinations are made for functional and economic depreciation rates based on property of market specific conditions. Models for these can be built and applied to one or many properties impacted by the same deficiency. The sum of the three rates is utilized to compute a depreciated improvement value.

Land Valuation

During a reappraisal process, commercial land values are analyzed to compare appraised values with recent sale prices and to verify uniformity. The appraisers in the land workgroup are assigned a specific geographic area to collect land characteristics data and determine land values. An assigned land area may contain approximately 9,000 accounts and may include one or more land submarket areas. The parcel count per appraiser may vary depending on the land-use density and the total size of an assigned area. A densely populated urban land area generally has more

accounts than a less populated rural assignment. The Complex Properties Section manages the land valuation for the 5,120 complex property accounts.

During the land reappraisal, the appraisers review sales to develop or adjust base land rates on per acre or per square footage basis. A land base rate, also known as a site rating, represents the unit value for a "benchmark" land parcel whose property characteristics are described by a particular size, use, shape, zoning, topography, location, and other characteristics. Properties within a competing area that differ from the benchmark will be valued using the base rate and then adjusted for those characteristics that differ from the benchmark property. Percentage based adjustment factors and adjustment reason codes are applied on individual properties based on corner influence, depth and shape of site, easements across site, visibility, and other factors that may influence value.

The land value for each account is computed by multiplying the land size by the adjusted land rate. The depreciated improvement value is added to the land value to compute a total cost approach value at the account level. For an appraisal site, the cost approach value represents the sum of the cost for all accounts associated with the site.

Sales Comparison Approach Models

Although all three of the approaches to value are based on market data, the Sales Comparison Approach is most frequently referred to as the Market Approach. This approach is utilized for estimating land value and also in comparing sales of similarly improved properties to parcels on the appraisal roll. Sales of similarly improved properties can also provide a basis for the depreciation schedules in the Cost Approach, rates and multipliers used in the Income Approach, and as a direct comparison in the Sales Comparison Approach. Improved sales are also used in ratio studies, which afford the appraiser an excellent means of judging the present level and uniformity of the appraised values.

The formula for the sales comparison approach is **Market Value = Sale Price of Comparable Properties plus or minus adjustments** (for differences between the comparable and the subject). In this model, market value is a total amount without a separation for improvement and land values. Commercial sales modeling begins by processing and storing extensive physical and financial data for each commercial sales transaction. Data related to the deed information, such as sale price, sale source, value at time of sale and income at time of sale is collected in the Records Module in Sales Information form. Additionally, almost every physical attribute associated with the sale parcel is captured in the Valuation module and available as a variable for sales modeling. This amount of information is necessary to determine comparability and adjustments factors. The sales comparison approach requires an adequate amount of sales data to be accurate. Some commercial property categories cannot be valued with this technique because of a limited amount of verifiable sales data.

Sales model specification involves the process of designing the model based on economic factors, appraisal theory and market analysis. Market variables are determined based on the characteristics that influence value in the local marketplace. The commercial mass appraisal sales model is specified or defined based on several standardized property characteristics or comparison fields and the commercial division has created over 40 variables for use in this

process. While some fields are for descriptive purposes such as Appraisal Site number, legal description, sales price and property address, the majority of the fields serve as interactive variables that more accurately define market value for a specific type of property. The variables provide a means of stratifying or grouping sales by class, age, size, location and other key attributes that influence value. The highest levels of model specification are appraisal class and neighborhood. Other key levels of stratification are effective age, net leasable building area, overall rank, Mapsco or property address, physical occupancy, average rents per square foot and condition. The model is specified to select comparable sales that are the most similar to the subject when considering these key variables.

Before the models are defined, the appraisers study and analyze sales using various analysis tools contained in the Valuation Module, including Visual Analysis, GIS Analysis and Sales Ratio Analysis. This market analysis aids in revealing patterns in value that vary due to location, size, age, etc. The appraiser determines which Neighborhood Market Area combinations have enough credible sales data to create and calibrate a sales model. The analysis also provides a means for establishing adjustment amounts, value ranges and weightings for each comparison criteria on a property type basis. For example, sale analysis may reveal that wide ranges in net rentable area may not have as much influence on value for high-rise office sales as compared to apartments. The appraisers also use various forms of statistical analysis in Excel to measure and predict many market driven value indicators.

Income Approach Modeling

The income approach to value is applied to those real properties which are typically viewed by market participants as “income producing”, and for which the income methodology is considered a leading value indicator. The basic formula for the income approach is **Market Value = Net Operating Income Divided by Overall Cap Rate.** This is also known as “Direct Capitalization”, which is a generally accepted appraisal technique used to convert one year’s stabilized income into an indication of market value. The income approach module provides the mechanism to capture and specify a property’s income characteristics using three levels or techniques known as “actual”, “default model” (market) and “pro forma”. These income calculations are laid out in three separate sections in the income module. The income formula is the same for each income approach technique but the data used to calibrate or populate each technique may differ. A thorough analysis of both actual income and default model income data is used to develop an indication of market value represented in the income pro forma calculation. The pro forma allows the appraiser to blend market rate comparable income data with actual income characteristics that are property specific. The definition of market value denotes that appraisals are based on fee-simple interest. Therefore, income parameters are based on market data to ensure that TAD is not appraising based on the leased fee interest. Commercial properties should not be appraised using above or below market rental data in the application of the income approach for property tax purposes, unless stipulated by a special appraisal provision in the tax code.

The key model fields in the income approach formula include potential gross rent, physical vacancy, economic vacancy, secondary income, total operating expenses, net operating income and total tax rate, and capitalization rate.

The income approach formula is generally expressed the following way. A brief definition of each component of the formula is listed below.

Potential Gross Rent

Minus Vacancy & Collection Loss

Equals	Effective Gross Rent
Plus	Secondary Income
Equals	Effective Gross Income
Minus	Operating Expenses
Equals	Net Operating Income
Then	**Net Operating Income/Overall Cap Rate=Value**

Potential Gross Rent (PGR) - Total economic or market rent at 100% occupancy; Usually expressed as an annual amount on a per square foot or per unit basis.

Vacancy and Collection (V & C) - Loss in rental income because of physical vacancy, bad debt or economic rental concessions; often expressed as a percent of PGR; based on market cycles and trends.

Effective Gross Rent (EGI) - Rental Income after subtracting vacancy & rental loss from potential gross rent.

Secondary or Other Income - Income, other than rent, that is received from concessions; laundry rooms, parking, storage area rental, electronic communication roof space rental, and other sources related to ordinary operation of a property. (Secondary income can be expressed as a percentage of PGR or EGR or dollar amount per unit of measure.)

Effective Gross Income - Amount of actual income received from rent and secondary sources.

Operating Expenses - Expenses necessary to maintain a cash flow from the real property (not from the business). Typical expenses include management, utilities, property insurance, property taxes, repairs and maintenance, etc. This dollar amount can also be expresses as a percentage or ratio that represents total expenses divided by effective gross income.

Net Operating Income (NOI) - Income remaining after subtracting operating expenses from Effective Gross Income. This amount is income before debt service, property depreciation, personal income taxes, amortization, or interest payments.

Overall Capitalization Rate (OAR) - Rate used to convert income into value. An overall rate represents the requirements of discount (return), recapture and effective tax rates for the whole property. This is expressed as cap rate plus tax rate. If the tax rate is “loaded” into the cap rate, then the amount of real estate taxes is removed as an expense item.

Actual income data is property specific, but income characteristics derived from these “actuals” are generally representative of typical, market-based characteristics for similar income-producing properties. Standardized or “default income models” are developed by grouping these actual income comparables based on specific comparison or search criteria. The groupings provide a result set of income parameters that are analyzed and calibrated to create a pre-defined or “defaulted” income model. The income parameters that are modeled include potential gross rent per square foot, economic vacancy percent, other income per square foot, expenses per square foot and as a percentage of potential gross rent.

Physical property attributes and property income/expense comparison fields are used to group and develop income models. Model variable criteria can vary by property type. The variable criteria provide a means of stratifying or grouping sales by class, age, size, location and other key attributes that influence income characteristics. The highest level of model specification is by Neighborhood Market Area, Appraisal Class, building class, effective age range and building size range. Other major search fields may include average unit size, lease type, Mapsco location, number of units, rent per square foot, income level and property rank. The TAD commercial staff strives to develop a model for every improved category that has an adequate amount of income data. Each default model is then utilized in the mass appraisal of properties with the same Neighborhood Market Area/Appraisal Class/age and size range. There are approximately 50 general default income models with property-specific variable specifications used in the valuation over 29,000 improved commercial appraisal sites.

During the 2009 legislative session, Section 23.24(b) was added to the Texas Property Tax Code to address specific circumstances where an income approach valuation may take into consideration both personal property and real property components. Effective as of 01/01/2010, the appraisal district may not separately appraise any personal property valued, as a portion of the income of the real property, and the market value of the real property must include the combined value of the real and personal property. With a few exceptions, TAD’s real property values for apartments and motel/hotels reflect compliance with this new mandate.

VALUATION PROCESS (Model Calibration)

Model calibration involves the process of estimating and periodically adjusting the mass appraisal formulas, tables, and schedules to reflect current local market conditions. Three valuation models are utilized in the mass appraisal process; cost, income and sales comparison models. These are represented in three separate modules in the commercial system. The software developed to create the commercial valuation models has been specified according to appropriate Uniform Standards of Professional Appraisal Practices and International Association of Assessing Officers mass appraisal standards and techniques. On an annual basis, adjustments or calibrations are made to reflect local market trends, new construction procedures, materials and/or costs, new improved market area delineations, current sale and market income factors and market

capitalization rates, which can vary from year to year. The basic structure of the overall mass appraisal model can be valid over an extended period of time, with recalibration or trending factors utilized for updating 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.

Cost & Depreciation Schedules

The cost approach to value is applied to all improved real property utilizing the comparative unit or square foot method to determine replacement cost new. Replacement cost new should include all direct and indirect costs, including materials, labor, supervision, architect and legal fees, overhead and a reasonable profit. The CAMA software includes integrated MVP commercial cost tables. Application of the comparative cost unit for each building class involves classifying building and features according to the software and per the Tarrant Appraisal District classification manual guidelines. Actual cost data is also collected and used to test classification categories and depreciation rates. MVP contains base cost rates for each building class (use) and represents the replacement cost per unit for a benchmark property for each class. Date and location modifiers are included to adjust cost data to reflect conditions in a specific market and changes in costs over a period of time.

Additional cost modifiers for each building class can be developed to adjust individual properties for construction components that differ from the base property integrated cost model. These are applied using adjustment models with the CAMA Software. Modifiers can be developed for additional physical deficiencies or additives that are not included in the adjusted base cost.

The process of updating the commercial classification manual is ongoing and continues to undergo refinement. Field data lists, codes and features table rates are reviewed periodically for update as needed. The research staff employees several methods to determine table adjustments. MVP and Marshall Valuation Service provides cost-trend factors for indexing existing costs as well as formula driven cost calculations. This data will be reconciled with actual cost data provided by local property developers to determine which cost rates require adjustments which can be modeled.

Accrued depreciation is estimated and developed based on losses typical for each property type at that specific age Physical depreciation is the loss in value due to wear and tear and exposure to natural forces. For each major class of commercial property, integrated physical depreciation tables have been employed based on physical condition and the building life expectancy. These schedules are based on improvements with a 15, 20, 30, 40, 50, 60 or 70-year economic life expectancy. These schedules are tested annually using sales of relatively new properties to ensure they are reflective of current market conditions. The actual and effective age of all improvements are noted in the appraisal software. Effective age estimates are based on the utility of the improvements relative to where the improvement lies on the scale of its total economic life and its competitive position in the marketplace. In addition to age, physical depreciation is also based on five condition ratings, poor to excellent that relate to the level of property maintenance. These condition ratings are further described in the Commercial Appraisal Classification Manual.

Additional depreciation can be applied to a property or a group of properties by building an adjustment model. These adjustment models are typically applied to a specific property type or location based on actual and market data or they can be developed via ratio studies or other market analyses. Accuracy in the application of the MVP cost schedules, condition ratings and depreciation schedules will usually minimize the necessity of this type of an adjustment factor.

Sales Comparison Default Model Calibration

The commercial sale models are calibrated by populating the various comparison fields (variables) with specific sales search criteria. The goal of accurate calibration is to return a group of sales that are comparable to the subject property and require the least amount of adjustments. This is accomplished by accurately populating several of the 40-model comparison or variable fields with accurate and category specific search and display criteria. Examples of variables used in calibration include Neighborhood Market Area, Appraisal Site Class, net leasable area, gross area, number of units, sale date range, Mapsco, effective age, ISD, land size and land to building ratio. The weight placed on the model characteristics can vary by property type. For example, the field “average unit size” is more critical in apartment modeling but not considered as a key variable for office model specification

Prior to the final value edit process each year, commercial managers and supervisors analyze all improved sales and determine which Neighborhood Market Area/ Appraisal Class/age/ size variables and variable configurations are essential in calibrating the sale modeling tool in the Valuation software. Through accurate model specification, Appraisal Site properties within each Neighborhood Market Area that have similar physical, economic and location characteristics will be valued using similar market–driven sales indicators. There is a general valuation sales model engine that is capable of valuing any improved commercial appraisal site, where sales are adequate to measure the market. This adequacy is statistically tested up front using analysis tools in the software, including sale ratio analysis. The general sale comp model is calibrated such that key variables are considered and weighted (indexed) for the subject and comps. Additionally, adjustments to sales are developed and applied, based on the subject property’s attributes. In the future, regression testing may be employed to further assist the commercial appraisal staff in adjustment development. In Valuation sales comparable model application, the resulting comp grid will generate the most comparable adjusted sales and return an indicated value for the subject properties. The sales model can be applied in mass per property type, per neighborhood or can be calibrated to run for a single property.

After the sales comparison models are applied and the sale grids are produced the appraiser has the ability to review the results, per appraisal site, to determine if the sample is sufficient and representative of the subject appraisal site. If the sample is either not sufficient, or too large to be representative, the appraiser can recalibrate and re-run the sales model, or deselect less comparable sales to return a modified sales sample. The appraiser can also add or override adjustments, as a percentage or dollar amount to individual sales, to account for differences between the sale and the subject.

Based on the weighted and adjusted sales, the application displays the average and median per unit prices and computes a total sales comparison value indication. To complete the appraisal process, the appraiser reviews either the median value, the average value or the indicated value or value range. The appraiser then has the ability to override the indicated value for the subject property as a final step in the overall reconciliation process.

Income Model Calibration (Actual, Market, Pro Forma)

Property owners often provide TAD with rent rolls, operating statements and other income documentation that reflect the actual income characteristics of a given property. This type of data is based on actual tenant or contract rent received and actual expenses incurred by the owner. The information is analyzed and entered into the "reported" income tool provided in the Valuation appraisal software. Each income record is tied to an "Income Statement" within the application. This year-based data is generally representative of the entire appraisal site or Neighborhood Market Area level but a rent space entry option also exists to capture data at the building class and leasing space level. The TAD commercial research staff processes an average of 2,200 income-related statements each year. The entry of this property-specific rental and expense data serves to assist in calibrating income models for each given property type. The information can also be utilized in calculating Direct Cap and Yield Cap income proformas for individual appraisal sites. Income from third-party or contributed sources that is not considered "actual" income is labeled as pro-forma data. This type of income can also be processed into reported income, with the source of information identified in the income statement record. Asking rental data can also be similarly captured and stored.

Commercial property income models are calibrated by populating the various income variable fields with comparable income and expense data. There is a lease comp analysis tool that assists the appraisal managers and research staff in determining income parameters based on key market-driven income comparability factors. The goal of accurate model development is to gather and analyze a grouping of market lease comparable properties that can be used to determine income parameters for a specified Neighborhood Market Area, considering Appraisal Class, age, rank, income level and size. This is accomplished by analyzing income data using both data and tools provided in the software as well as gleaning additional market data from reliable commercial real estate sources such as Co-Star, Loopnet, ALN, Axiometrics, Commercial broker web sites, local fee appraisers, SEC documents, Fannie Mae, Freddie Mac, Real Estate Center at Texas A&M and other market publication.

Commercial Income models are calibrated with the appropriate income parameters per property type and Neighborhood. For example, in addition to Neighborhood Market Area, Appraisal Class, age and size range criteria, an appraiser may also calibrate an apartment model for the following:

Comparison Field	Calibrated Search Criteria
Rank (qualitative)	
Income Level	
EYOC	Greater than 1995
# Of Units	Greater than 200 units
Economic Vacancy	Less than 15%
Rents per SF	Greater than $10.00
Expenses per SF or as a Percentage of Income	

The appraisal software income application assists in analysis of the market rent comps through analysis tools such as Lease Comp Analysis, Visual Analysis, and GIS analysis.

A default income model for each Neighborhood Market Area/Appraisal Class/Building Use is then calibrated using all sources of market related data. The default income model fields include those that are defined include potential gross rent or PGR, economic vacancy percent, other income, expense per square foot or percent of PGR, cap rate, rent type, age range and size range.

Pro Forma Income Valuation

A pro forma is an operating statement used to project probable gross income, operating expenses, and net operating income based on specified market derived assumptions. The direct capitalization income approach is based on projecting rent and expense quantities that reflect how a typical, prudent property owner would manage the property. The cap rate is selected based on the projected quantity, quality and duration of these income characteristics of a property. These projections are defined or calibrated in the pro forma portion of the income module. Adjustments to actual and model income data are developed and applied in the pro forma to reflect differences between a subject property's performance versus a typical property's operating performance or cash flow characteristics. Adjustments for income differences may relate to physical, functional or economic influences that affect a property's ability to generate income. Market-based similarities or differences may be represented in the pro forma model through application of higher vacancy or expense ratios, differences in capitalization rates or through application of a lease up cost adjustment. Reconciliation of actual income and model market-driven data is used to populate the income pro forma and results in a final indication of market value for each property.

Final Valuation Summary and Reconciliation

Based on the market data analysis and the methodology described in the cost, income and sales approaches, the various models are calibrated and values are developed for each commercial property. The cost approach mass appraisal model is applied to every improved property. Additional valuation indicators may be developed and applied using the sales comparison and income approaches, depending on the property type and availability of data. The total appraisal site value, resulting from the execution of each approach, is displayed on a Value Correlation/Reconciliation Screen. The final valuation of a property is estimated based on reconciling these indications of value considering the weight of the market information available for evaluation and analysis in these approaches to value.

Statistical and Capitalization Analysis

Statistical analysis of final values is an essential component of quality control. This methodology represents a comparison of the final value against the standard and provides a concise measurement of the appraisal performance. Statistical comparisons of many different standards are used including sales of similar properties, the previous year's appraised value, audit trails, value change analysis and sales ratio analysis.

Appraisal statistics of central tendency and dispersion generated from sales ratios are calculated for each property type with available sales data. These summary statistics including, but not limited to, the weighted mean provide the appraisers an analytical tool by which they determine both the level and uniformity of appraised values of a particular property type. The level of appraised values can be determined by the weighted mean for individual properties within a specific type, and a comparison of weighted means can reflect the general level of appraised values.

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

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

INDIVIDUAL VALUE REVIEW PROCEDURES

Field Review

The date of last inspection, extent of that inspection, and the TAD appraiser responsible are listed in the appraisal software. If a property owner disputes the District's records concerning this data in a protest hearing, data may be altered based on the credibility of the evidence provided. Normally, a new field inspection is then required to verify this information for the current or for the next year's valuation. In addition, if a building permit is issued for a particular property indicating a change in characteristics, that property is added to a work file for review and field inspection.

A major effort is made by appraisers to field review economic areas experiencing large numbers of remodels, renovations, or retrofits, changes in occupancy levels or rental rates, new leasing activity, new construction, or wide variations in sale prices on as many properties as time and resources allow. Additionally, the appraisers frequently field review subjective data items such as building class, quality of construction (known as cost modifiers), condition, and physical, functional and economic obsolescence factors contributing significantly to the market value of the property. In some cases, field reviews are warranted when sharp changes in occupancy or rental rate levels occur between building classes or between economic areas. While in the field, the appraisers make an effort to inspect sold and unsold properties for comparability and consistency of values.

Office Review

Office reviews are completed, as authorized by the International Association of Assessing Offers standards, on properties subject to field inspections and are performed in compliance with the guidelines required by the existing classification system. Office reviews are typically limited by the available market data presented for final value analysis. The appraisers may utilize aerial and street-level photography as a means to verify building characteristics and location without an on-site field inspection. These reviews summarize the pertinent data of each property as well as comparing the previous value to the proposed value conclusions of the various approaches to value. These evaluations and reviews show proposed value changes; income model attributes or overrides, economic factor (cost overrides) and special factors affecting the property valuation such as new construction status, and a three years sales history. The three-year sales history is required by the Uniform Standards of Property Appraisal Practices (USPAP) for non-residential property. The appraiser may review methodology for appropriateness to ascertain that it was completed in accordance with USPAP or more stringent statutory and district policies. This review is performed after preliminary ratio statistics have been applied. If the ratio statistics are generally acceptable overall the review process is focused primarily on locating skewed results on an individual basis. Previous values resulting from protest hearings are individually reviewed to determine if the value remains appropriate for the current year based on market conditions. Each appraiser's review is limited to properties in their area of responsibility by property type (improved) or geographic area (commercial vacant land).

Once the appraiser, supervisors and managers are satisfied with the level and uniformity of value for each commercial property within the appraiser’s area of responsibility, the estimates of value are prepared to send a notice of proposed appraised value. Each parcel is subjected to the value parameters appropriate for its use type.

PERFORMANCE TESTS

Sales Ratio Studies

The primary tool to measure appraisal performance is a ratio study. A ratio study compares appraised values to market values. Sales ratio studies are an integral part of estimating equitable and accurate market values, and ultimately property assessments for the taxing jurisdictions. The primary uses of sale ratio studies include the determination of a need for general reappraisal; prioritizing selected groups of property types for reappraisal; identification of potential problems with appraisal procedures; assist in market analyses; and, to calibrate models used to estimate appraised values during valuation or reappraisal cycles.

TAD has adopted the policies of the International Association of Assessing Officers IAAO STANDARD ON RATIO STUDIES, circa July 2010 regarding its ratio study standards and practices. Ratio studies generally have six basic steps: (1) determination of the purpose and objectives, (2) data collection and preparation, (3) comparing appraisal and market data, (4) stratification, (5) statistical analysis, and (6) evaluation and application of the results.

On an annual basis, appraisal managers analyze the results of the previous year's Property Value Study that is conducted by the Property Tax Division of the State Comptroller's Office. Commercial Research also produces internal ratio reports at various times during the annual appraisal cycle.

Comparative Appraisal Analysis

The commercial appraiser performs an average unit value comparison in addition to a traditional ratio study. These studies are performed on commercially classified properties by property use type such as apartment, office, retail and warehouse or special use. The objective to this evaluation is to determine appraisal performance of sold and unsold properties. Appraisers compute the average unit prices of sold properties and the average unit appraised values of the same parcels to develop a comparison of average value changes of sold and unsold properties. These studies are conducted on substrata such as building class and on properties located within various economic areas. In this way, overall appraisal performance is evaluated geographically, by specific property type to discern whether sold parcels have been selectively appraised. When sold parcels and unsold parcels are appraised equally, the average unit values are similar. These sales and equity studies are performed prior to final appraisal and generation of notices of proposed appraised values.

Business Personal Property & Mineral Valuation

Introduction

Appraisal Responsibility

The Business Personal Property, Utility and Mineral Department (BPP) of TAD is responsible for developing fair and uniform market values for business personal property, utility and mineral interests located within the district. There are several different account types appraised: (1) standard business personal property, (2) leased asset/special property at multiple locations, (3) commercial and business aircraft, (4) special inventory, (5) "J" State Code utility properties and (6) mineral interest accounts (which are real property but the valuation is contracted out and managed by the department).

Appraisal Resources

Personnel – The BPP staff consists of a department director, department manager, appraisal supervisors, valuation analysts, valuation technicians, appraisers, senior appraisers and a support staff with a supervisor. The BPP Director reports to the Executive Director/Chief Appraiser.

Data – A common set of data characteristics for each account in the district are collected by appraisers in the field, by phone, and other pertinent sources and are entered into the TAD computer system. These assigned property characteristics can be used in the CAMA system to set a preliminary account value.

Additionally, a third-party appraisal firm that values minerals and certain utility properties gathers data from the Texas Railroad Commission and other proprietary sources.

VALUATION APPROACH (model specification)

Business Classification Code Analysis

Due to the highly mobile nature of business personal property, specific geographic market areas are not delineated. However, numeric business classification codes are used as the basis for categorizing and valuing business personal property accounts. TAD utilizes the North American

Industry Classification System (NAICS) for classifying and identifying business categories. For a listing of NAICS codes, please refer to Appendix E.

NAICS code identification and delineation is the cornerstone of the business personal property valuation system. Analysis work completed in association with the valuation process is specific to each NAICS code. Theses codes are delineated based on observable aspects of homogeneity and periodically reviewed to determine if revision is necessary.

Highest and Best Use Analysis

The highest and best use of property is the most reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legally permissible, financially feasible, and maximally productive. The highest and best use of business personal property is generally its current use. In the rare occasion highest and best use is different than its current use; notations will be contained within the individual account records.

DATA COLLECTION / VALIDATION

Data Collection Procedures

Appraisal and data collection procedures are maintained in the Business Personal Property Manual and are supplemented with work memorandums as needed. Procedures are reviewed and revised to meet the changing requirements of field data collection. While a physical recheck of every business is not done annually due to time and taxpayer availability restrictions, business personal property appraisers reappraise all businesses each year through various discovery means and resources. Also, since business owners are required to render annually, appraisal staff rely on this data as well.

Sources of Data

Standard Business Personal Property Account

District appraisers collect new data via an annual reappraisal. Various discovery methods such as internet searches, Texas Department of Transportation commercially registered vehicle listing currently provided by InfoNation, sales tax permit listings, and local occupancy permits are also

used during the reappraisal. Newspapers, business publications, business owners, and district residents provide information and other useful facts related to discovery and valuation.

Leased Asset/Special Property at Multiple Locations Account

The primary source of discovery for these accounts is owner renditions submitted in either hard copy or electronic format. Property owner survey letters, on-site inspections and the renditions of lessees are sometimes used to supplement this information.

Commercial and Business Aircraft

“Air Pac”, a private company in Edmond, Oklahoma, consolidates information from the Federal Aviation Administration (FAA) along with local airport/airfield management and provides TAD with a listing of commercial and business aircraft with situs in this district. Valuation is accomplished by referencing the Aircraft Blue Book Price Guide (Winter Edition) and the Airliner Price Guide to establish market value. Owner renditions (and when necessary the Bureau of Transportation Statistics website) are then referenced for aircraft allocation.

Special Inventory

Monthly statements and annual declaration forms for boat, heavy equipment, manufactured housing, and motor vehicle dealers (as defined by Section 23 of the Texas Property Tax Code) are used for discovery and valuation of special inventory accounts. Copies of annual declarations are maintained by TAD. Alternate discovery methods may sometimes be used as described in the Standard Business Personal Property Account section. TAD works closely with the Tarrant County Tax Assessor-Collector’s VIT Department on discovery as well.

Certain Utility, Pipeline and Mineral Accounts

TAD contracts with a third-party appraisal firm for certain appraisal assignments such as electric power plants, electric distribution systems, telecom systems, pipelines and oil and gas mineral accounts. Uniform Standards of Professional Appraisal Practices (USPAP) certification and biennial reappraisal plans are provided to TAD though the third-party appraisal firm. The current vendor’s contract ends at the end of 2024 and the District will be considering bids for a new

contract. As reference, a copy of the current vendor's 2025-2026 reappraisal plan is included in the addenda to the TAD report (See Appendix F). Other utility accounts not handled by the third-party appraisal firm are worked by TAD appraisers.

VALUATION AND STATISTICAL ANALYSIS (model calibration)

Cost Schedules

Appraisal staff develop cost schedules according to NAICS. Cost data is analyzed from property owner renditions, Settlement and Waiver of Protest documentation, and Appraisal Review Board (ARB) hearing evidence. Value models are updated when practical to reflect changing market conditions and are presented exclusively in a cost per square foot format.

Depreciation Schedule and Trending Factors

While all three approaches to value are considered, TAD's primary approach to the valuation of business personal property is the cost approach. The replacement cost new (RCN) is either obtained from property owner reported historical cost or from TAD developed valuation models. Trending factors can be used to develop RCN and are based on published valuation guides. The "percent good", or remaining economic life, is considered to recognize the trend for changes in cost factors. These are also based on valuation guides. Index factors and percent good depreciation factors are used to develop the present value factors (PVF) as shown below:

PVF = Index Factor x Percent Good Factor

The PVF is applied to reported historical cost as shown:

Market Value Estimate = PVF x Historical Cost

Mass appraisal PVF schedules are used to ensure that estimated values are uniform and consistent within the market.

Depreciation schedules are reviewed annually and adjusted on an as-needed basis. Any revisions are then adopted and their use is reflected in all of the calculations for that property. Application of this schedule ensures that market values are uniform and equal.

Computer Assisted Mass Appraisal (CAMA)

The two main objectives of the CAMA valuation process are to (1) analyze and adjust existing Business Classification models and (2) develop new models for business classifications not previously integrated into the CAMA. Models are created and refined using 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 that tax year.

The data sampling process is conducted in the following order 1) prioritizing NAICS codes for model analysis and 2) compiling the data and developing the reports. The models are built and adjusted using software specifically developed for this purpose. The typical cost per square foot is determined by a statistical analysis of the available data.

Standard Business Personal Property Account

CAMA model values are used in the general business personal property valuation program to estimate the value of new and/or existing accounts for which a property owner's rendition has either not been received or not used to estimate a value. Historical values are used to establish review 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 year's value is compared to the historical value by the valuation program. If the value being tested is within an established acceptable percentage tolerance range, 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.

Leased Asset/Special Property at Multiple Locations Account

Leased and multi-location assets are valued using the depreciation schedules mentioned above. If the asset to be valued in this category is a vehicle, then NADA published book values may be used.

Commercial and Business Aircraft

Valuation is accomplished by referencing the Aircraft Blue Book Price Guide (Winter Edition) and the Airliner Price Guide. The Texas Property Tax Code has a specific methodology for the valuation and/or allocation of all aircraft.

Special Inventory

The Texas Property Tax Code provides a specific methodology for valuing this category of property. Valuation is based upon the annual declaration filed by the property owner indicating the previous year's Texas sales (used as the numerator) and divided by a factor of 12 (the denominator). This establishes a monthly basis consistent with the owner's tax payment requirements. The appraisers can also review the monthly statements filed by the property owner throughout the previous year to compare to the declaration. In the absence of an annual declaration and/or the monthly statements, similar businesses that have filed declarations are identified and compared, with appropriate adjustments, to the subject property to establish an estimated market value. The county tax office also shares data for these properties as the same forms are due to their office.

INDIVIDUAL VALUE REVIEW PROCEDURES

Office Review

Standard Business Personal Property Account

A BPP valuation computer program identifies accounts in need of specific review based on a variety of conditions. Property owner renditions, accounts with field or other data changes, accounts with prior Appraisal Review Board hearings activity, newly established business accounts, and Business Classification value model changes are all considered. The accounts are processed by the valuation program and pass or fail preset tolerance parameters by comparing appraised values to historical information. An appraiser manually edits and reviews accounts that fail the tolerance parameters. For those that pass the parameters, they are still given a review by the appraiser, but minimal entry is necessary.

Leased Asset/Special Property at Multiple Locations Account

Leased Asset/Special Property accounts that have a high volume of vehicles or other assets are loaded programmatically if reported by the property owner electronically. Electronic renditions may require reformatting before they can be loaded to the account. The BPP support staff or an appraiser enters accounts that render via hard copy into a spreadsheet for importing. After data matching and entry, reports are generated and reviewed by an appraiser. Once proofed, necessary corrections are made, supervisor approval is granted, and the account is sent a notice of appraised value.

Commercial and Business Aircraft

The commercial and business aircraft accounts are simultaneously valued and reviewed with rendered data and third-party market value data.

Special Inventory

TAD periodically reviews records for dealers without a current declaration on file and they are contacted to advise them of their legal filing requirements and to provide TAD with the most current valuation/review data available. Tarrant Appraisal District receives assistance from the Tarrant County Tax Assessor-Collector's office in this process by both speaking with dealers and providing data to the appraisal district.

PERFORMANCE TESTS

Ratio Studies

Every other year the Property Tax Division of the State Comptroller's Office conducts a Property Value Study (PVS). The PVS is a ratio study used to measure 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 TAD's personal property values and ratios are determined.

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LIMITING CONDITIONS

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

TAD appraisals are prepared exclusively for ad valorem tax purposes as specified in the Texas Property Tax Code. Jurisdictional exceptions may apply where compliance with part or parts of USPAP is contrary to law or public policy applicable to TAD's appraisal assignment.

The property characteristic data upon which the appraisals are based is assumed correct. Exterior inspections of the property appraised are performed as staff resources and time allowed. Some interior inspections of property appraised are performed at the request of the property owner or as requested by the district for clarification purposes and to correct property descriptions.

Validation of sales transactions is attempted through questionnaires to buyer and seller, telephone survey and field review. In the absence of such confirmation, sales data obtained from vendors is considered reliable.

See Appendix B for a list of staff providing significant assistance to the person signing this certification.

Certification Statement:

"I, Joe Don Bobbitt, Chief Appraiser/Executive Director for Tarrant Appraisal District, solemnly swear that I have made or caused to be made a reappraisal plan for Tarrant Appraisal District for the 2025/2026 tax years as required by law."

Joe Don Bobbitt

Chief Appraiser/Executive Director

Appendix A. 2025-2026 Proposed Calendars of Key Activities

Projected Date **2025 REAPPRAISAL – RELATED ACTIVITY OR EVENT**

July 2024

- Appraisal Review Board Approves 2024 Appraisal Records to Create Appraisal Roll
- Chief Appraiser Certifies 2024 Appraisal Roll to Taxing Units
- Chief Appraiser Begins Preparing 2024 Mass Appraisal Report

August

- Begin 2025 Appraisal Field Work for Residential & Commercial New Construction
- Begin 2025 Commercial Land Reappraisal
- Begin Cost, Sale & Income Data Collection For 2025 Model Calibration
- Managers Review Ratio Study Results – Identify Key Areas For 2025 Value Review
- Staff Training For 2025 Commercial & Business Personal Property Field Data Collection
- Texas Association of Assessing Officers Annual Conference – Round Rock
- Information Systems Rollover of TAD Data Records to Begin Appraisal Year 2025

September

- Sept. 1st – Statutory Appraisal Date for Certain Inventory Properties (Sec. 23.12)
- Begin 2025 Commercial and BPP Data Collection Begins
- Legal Seminar on Ad Valorem Taxation – San Antonio
- Sept. 15th – Statutory Deadline for TAD Board of Directors to Approve 2025 Budget And 2025-2026 Reappraisal Plan
- Begin Residential 2025 Land Value Review

October

- Tax Office Mails 2024 Tax Bills – Appraisal Support for Phone & Customer Service
- Begin 2025 Commercial Market Analysis and Model Building
- Residential Begins Review of Neighborhood Delineations
- Complete 2025 Commercial Land Reappraisal

November

- TAD Managers & Supervisors Perform 2024 Employee Performance Reviews
- Complete 2025 Commercial Field Reappraisal – Managers Review QC Edits
- Continue 2025 Permit Field Work and Model Building
- Review and return PTD Clerical Error Report For 2025 Property Value Study

December

- 2025 Business Personal Property Data Analysis and Model Calibration
- Mail Business Personal Property Rendition Forms
- Manager review of 2025 Appraisal ratios for Land and Improvement Properties

- Receive Final report for 2024-PTAD MAP Review
- Complete 2025 Commercial market Analysis and Model Building
- Begin 2025 Commercial Valuation Edit Process

January 2025

- Jan. 1st – Statutory Appraisal Date for Most Categories of Taxable Property
- Residential Statistical Analysis Begins
- Complete 2025 Commercial Permit Field Work
- Analysis & Preparation for Final Value Edits - Personal Property

February

- Begin Application of Residential Neighborhood Market Adjustments
- Business Personal Property Wrap-up Of 2025 Field Verification Activities
- Begin Working 2025 Business Personal Property Renditions
- Texas Association of Appraisal Districts Conference – Austin

March

- Finalize Residential Calculations for comparison to 2024
- Appraisal Manager Review of 2025 Ratios for Land and Improved Properties
- Board of Directors to Review Ratios
- Complete 2025 Commercial Valuation Edits and Manager QC

April

- First Mailing of 2025 Residential Homestead Notices
- First Mailing of 2025 Commercial Value Notices
- BPP Rendition Deadline on April 15th
- Finalize Commercial & BPP Changes Prior To First Value Notice Run
- Deadline to File Abatement & Exemption Applications on April 30th
- Begin Hearing Informal Appeals
- Chief Appraiser Submits Completed 2025 Appraisal records to ARB
- 2025 Appraisal Review Board Hearings Begin
- Begin Preparation For 2026 Budget

May

- Continue Mailing Of 2025 Real & BPP Value Notices
- Continue Hearing Informal Appeals
- BPP Rendition Extension Deadline on May 15th
- Statutory Deadline to File Appraisal Review Board Protest

June

- Continued Mailing Of 2025 Real & BPP Value Notices
- Continue Hearing Informal Appeals
- 2025 Appraisal Review Board Hearings Continue
- Mineral Property First Notice Run

July

- Appraisal Review Board Approves 2025 Appraisal Records to Create Appraisal Roll

- Chief Appraiser Certifies 2025 Appraisal Roll to Taxing Units
- Chief Appraiser Begins Preparing 2025 Mass Appraisal Report

2026 REAPPRAISAL – RELATED ACTIVITY OR EVENT

August 2025

- Begin 2026 Appraisal Field Work for Residential & Commercial New Construction
- Begin Cost, Sale & Income Data Collection For 2026 Model Calibration
- Begin 2026 Commercial Land Reappraisal
- Staff Training For 2026 Commercial & Business Personal Property Field Data Collection
- Texas Association of Assessing Officers Annual Conference – Round Rock
- Legal Seminar on Ad Valorem Taxation – San Antonio
- Information Systems Rollover of TAD Data Records to Begin Appraisal Year 2026

September

- Sept. 1st – Statutory Appraisal Date for Certain Inventory Properties (Sec. 23.12)
- Begin 2026 Commercial and BPP Field Reappraisal
- Sept. 15th – Statutory Deadline for TAD Board of Directors to Approve 2026 Budget
- Begin Residential 2026 Land Value Review
- Complete 2026 Commercial Land Reappraisal
- Provide PTAD with data for 2025 Property Value Study

October

- Tax Office Mails 2025 Tax Bills – Appraisal Support for Phone & Customer Service
- Begin 2026 Commercial Market Analysis and Model Building
- Residential Begins Review of Neighborhood Delineations

November

- TAD Managers & Supervisors Perform 2025 Employee Performance Reviews
- Complete 2026 Commercial Field Reappraisal – Managers Review QC Edits

December

- 2026 Business Personal Property Data Analysis and Model Calibration
- Mail Business Personal Property Rendition Forms
- Complete 2026 Commercial Market Analysis and Model Building
- Begin 2026 Commercial Valuation Edits

January 2026

- Jan. 1st – Statutory Appraisal Date for Most Categories of Taxable Property
- Residential Market & Statistical Analysis Begins
- Complete 2026 Commercial Permit Field Work
- Appraisal Departments Prep for 2026 PTAD MAP Review
- Analysis & Preparation for Final Value Edits - Personal Property
- 2025 Property Value Study Results Received

February

- Begin Application of Residential Neighborhood Market Adjustments
- Business Personal Property Wrap-up Of 2026 Field Verification Activities
- Begin Working 2026 Business Personal Property Renditions
- Texas Association of Appraisal Districts Conference – Austin
- Begin On-Site 2026 PTAD MAP Review

March

- Finalize Residential Calculations for comparison to 2025 and verify clear and convincing evidence for increases greater than 5%
- Appraisal Manager Review of 2026 Ratios for Land and Improved Properties
- Board of Directors to Review Ratios
- Complete 2026 Commercial Valuation Edits and Manager QC

April

- First Mailing of 2026 Residential Homestead Notices
- First Mailing of 2026 Commercial Value Notices
- BPP Rendition Deadline on April 15th
- Finalize BPP Changes Prior To First Value Notice Run
- Deadline to File Abatement & Exemption Applications on April 30th
- Begin 2026 Hearing Informal Appeals
- Begin Preparation For 2027 Budget and 2027-2028 Reappraisal Plan
- Chief Appraiser Submits Completed 2026 Appraisal records to ARB
- Appraisal review Board Hearings Begin

May

- Continue Mailing Of 2026 Real & BPP Value Notices
- Mineral Property First Notice Run
- Continue Hearing Informal Appeals
- BPP Rendition Extension Deadline on May 15th
- Statutory Deadline to File Appraisal Review Board Protest

June

- Continued Mailing Of 2026 Real & BPP Value Notices
- Continue Hearing Informal Appeals
- 2026 Appraisal Review Board Hearings Continue

July 2024

- Appraisal Review Board Approves 2026 Appraisal Records to Create Appraisal Roll
- Chief Appraiser Certifies 2026 Appraisal Roll to Taxing Units
- Chief Appraiser Begins Preparing 2026 Mass Appraisal Report

Appendix B. Key Appraisal Personnel in Reappraisal Plan Implementation

DEPARTMENT	EMPLOYEE	POSITION
	JOE DON BOBBITT	CHIEF APPRAISER/EXECUTIVE DIRECTOR
ADMINISTRATION	BRAD PATRICK	DIRECTOR OF ADMINISTRATION
	GRADY EWING	QUALITY ASSURANCE MANAGER
	VICKI WILLKIE	ARB OPERATIONS MANAGER
RESIDENTIAL	ERIC WATKINS	DIRECTOR OF RESIDENTIAL APPRAISAL
	BRANDON CANARD	RESEARCH & VALUATION MANAGER
	BRYAN McKISSICK	DATA COLLECTION MANAGER
	COREY MYLIUS	DATA QUALITY SUPERVISOR
	VICTOR GUADALUPE	DATA COLLECTION SUPERVISOR
	BRANDON HALLER	RESEARCH & VALUATION SUPERVISOR
COMMERCIAL	WILLIAM DURHAM	DEPUTY CHIEF APPRAISER/DIRECTOR OF COMMERCIAL APPRAISAL
	WILLIE BRAND	COMMERCIAL/COMPLEX PROPERTY MANAGER
	MISSY McALLISTER-KERR	RESEARCH & REPORTING MANAGER
	RANDY REID	LITIGATION MANAGER
	TERRY SPRADLIN	REGIONAL MANAGER
	CASEY EARLE	REGIONAL MANAGER
BPP, MINERALS & UTILITIES	ROBERT EVANS	DIRECTOR OF BPP, UTILITIES & MINERAL APPRAISAL
	STEVE McKEEHAN	BPP APPRAISAL MANAGER
	CLINT RANDOLPH	DIVISION SUPERVISOR
	JIMMY THOMAS	DIVISION SUPERVISOR
	WENDY WOLFGANG	DIVISION SUPERVISOR

SUPPORT SERVICES	DONNA PERLICK	DIRECTOR OF SUPPORT SERVICES
	PRECIOUS BOWERS	SUPPORT SERVICES MANAGER
	DAMIANA REYES	CUSTOMER SERVICE SUPERVISOR
	TRACY LYONS	DEED RECORDS SUPERVISOR
	DEBBIE BRANCH	EXEMPTIONS SUPERVISOR
INFORMATION SYSTEMS	BRIAN LIPKA	DIRECTOR OF INFORMATION SERVICES
	BLAKE WALKER	IT ENGINEERING & OPERATIONS MANAGER
	STEVE OAKES	ENTERPRISE APPLICATIONS MANAGER
	DON MORRIS	WEB SOLUTIONS MANAGER
	MICHAEL RUSSELL	BUSINESS ANALYST MANAGER

Appendix C. Residential Market Areas/Neighborhoods

1A010A	1L040P	1M200E	2N0109	2Z300G	3H020B	3M300B	3W200C	4S120D	A3B010C
1A010B	1L040Q	1M200F	2N010A	2Z300H	3H020C	3M300C	3X010A	4S120E	A3B010D
1A010C	1L040R	1M200G	2N010BB	2Z300I	3H020D	3M300D	3X010B	4S120I	A3B010E
1A010D	1L040S	1M300A	2N010D	2Z300J	3H020E	3M300E	3X010C	4S120P	A3B010F
1A010E	1L040T	1M300B	2N010E	2Z300K	3H030A	3M300F	3X010D	4S120R	A3B010H
1A010F	1L050A	1M300C	2N010F	2Z300N	3H030C	3M300G	3X010E	4S120S	A3B010J
1A010G	1L050B	1M300D	2N010I	2Z300O	3H030D	3M300H	3X010F	4S120T	A3C010A
1A010H	1L0601	1M5001	2N010J	2Z300P	3H040A	3M300I	3X010G	4S121A	A3C010C
1A010I	1L0602	1M5002	2N010K	2Z500A	3H040D	3M300J	3X010H	4S121B	A3C010D
1A010J	1L0604	1M5003	2N010L	2Z500B	3H040F	3M300K	3X010I	4S121C	A3C010E
1A010K	1L0605	1M5004	2N010N	2Z500C	3H040G	3M300L	3X010J	4S130A	A3C010G
1A010L	1L0606	1M5005	2N010O	2Z500D	3H040H	3M300M	3X010K	4S130B	A3C010T
1A010M	1L0607	1M500A	2N010Q	2Z500E	3H040J	3M300N	3X010L	4S130C	A3C010V
1A010N	1L0608	1M500B	2N010R	2Z500F	3H040K	3M300O	3X010M	4S130D	A3C010W
1A010O	1L060A	1M500C	2N010V	2Z500G	3H040L	3M400A	3X010N	4S130F	A3C020A
1A010P	1L060B	1M500D	2N010X	2Z500H	3H040M	3M400C	3X010O	4S130G	A3C020A1
1A010Q	1L060C	1M500E	2N020A	2Z500I	3H040N	3M400D	3X010P	4S130H	A3C020A2
1A010R	1L060D	1M500F	2N020B	3B010A	3H040V	3M400E	3X010Q	4S240A	A3F020A
1A010S	1L060E	1M500G	2N020C	3B010B	3H040W	3M400F	3X0201	4S240B	A3G010A
1A010T	1L060F	1M500H	2N020D	3B010C	3H040X	3M400G	3X020A	4S240C	A3G010B
1A010U	1L060G	1M500I	2N020E	3B010D	3H040Y	3M400H	3X020B	4S240D	A3G010C
1A010V	1L060H	1M500J	2N020F	3B010E	3H050A	3M400J	3X020C	4S240E	A3G010D
1A010W	1L060I	1M500K	2N020G	3B010F	3H050B	3M400K	3X020D	4S240F	A3G010E
1A010X	1L060J	1M500L	2N020H	3B010G	3H050C	3M400L	3X020E	4S240G	A3G010F
1A010Y	1L060K	1M500M	2N020I	3B010H	3H050D	3M400M	3X020F	4S240H	A3G010F1
1A010Z	1L060L	1M500N	2N020J	3B010I	3H050E	3M400N	3X020G	4S240I	A3G010G
1A020A	1L060M	1M500O	2N020K	3B010J	3H050F	3M400O	3X020H	4S350A	A3G010H
1A020B	1L060N	1M500P	2N020L	3B010K	3H050I	3M400P	3X020I	4S350B	A3G010I
1A020C	1L060P	1M500Q	2N020M	3B010L	3H050J	3M400Q	3X020J	4S350C	A3G010J
1A020D	1L060Q	1M500R	2N020N	3B010M	3H050K	3M500A	3X020K	4S350D	A3G010K
1A020E	1L060R	1M500S	2N020O	3B010N	3H050L	3M500B	3X020L	4S350E	A3G010L
1A020F	1L060S	1M500T	2N020P	3B010O	3H050M	3M500C	3X020M	4S350F	A3G010M
1A020G	1L060T	1M500U	2N020Q	3B010R	3H050N	3M500D	3X020N	4S350G	A3G010N
1A020I	1L060U	1M500V	2N030A	3B020A	3H050O	3M500E	3X020O	4S360A	A3G010O
1A020J	1L060V	1M500W	2N030B	3B020B	3H050P	3M500F	3X020P	4S360B	A3G010P
1A020L	1L060W	1M500X	2N030C	3B020C	3H060A	3M500G	3X020Q	4S360C	A3G010Q

1A020N	1L060X	1M500Y	2N030D	3B020D	3H060B	3M500H	3X020R	4S360D	A3G010R
1A020O	1L060Y	1M500Z	2N030E	3B020E	3H060C	3M500I	3X020S	4S360E	A3G010S
1A020P	1L060Z	1M600A	2N030F	3B020F	3H060D	3M500J	3X020T	4S360G	A3G010T
1A020R	1L0701	1M600B	2N030H	3B020G	3H060E	3M500K	3X020U	4S360H	A3G010U
1A020S	1L0702	1M600C	2N030I	3B020H	3H060F	3M500L	3X020V	4S360I	A3G010V
1A030A	1L0703	1M600D	2N030J	3B020I	3H060G	3M500M	3X020W	4S360J	A3G010W
1A030B	1L070A	1M600E	2N030K	3B020J	3H060H	3M500O	3X020X	4S360K	A3G010X
1A030C	1L070B	1M600F	2N030L	3B020K	3H070A	3M500P	3X020Y	4S360L	A3G010Y
1A030D	1L070C	1M600G	2N030M	3B020L	3H070B	3M500Q	3X020Z	4S360M	A3G010Z
1A030E	1L070D	1M600H	2N040A	3B020N	3H070C	3M500R	3X030A	4S360N	A3G020C
1A030F	1L070E	1M600J	2N040B	3B020O	3K100A	3M500S	3X030D	4S360P	A3G020P
1A030G	1L070F	1M600K	2N040C	3B020P	3K100B	3M500T	3X030E	4S360Q	A3G020T
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1A030J	1L070I	1M800B	2N040F	3B020S	3K100E	3M600A	3X030I	4S410B	A3H010B
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1A030O	1L070M	1M800F	2N040J	3B030B	3K200A	3M600H	3X030P	4S410H	A3H010F
1A030P	1L070N	1M800G	2N040K	3B030C	3K200B	3M600I	3X030Q	4S411A	A3H010G
1A030Q	1L070P	1M800H	2N040L	3B030D	3K200C	3M600J	3X030R	4S411B	A3H010H
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1A030T	1L070S	1M800K	2N040O	3B030G	3K200F	3M600N	3X030U	4T001B	A3H010L
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1B010C	1L070Y	1M900B	2N040U	3B030M	3K200L	3M700E	3X040B	4T001H	A3H010S
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1B030J	1L080I	1M900L	2N050G	3B040E	3K300C	3M700Q	3X1001	4T001S	A3K010D
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1B030L	1L080K	1M900N	2N050I	3B040H	3K300E	3M700S	3X100B	4T001U	A3K010E
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1C041B	1L120K	1S030A	2N300A1	3C030O	3K600E	3S040F	4A300D	4W001A	A4C050F
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1C200M	1L130G	1S040K	2N300V	3C031U	3K600Z	3S050A	4A400S	4W003O	A4R010E
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1C250B	1L140H	1X020G	2N400V	3C050E	3M010N	3S100L	4B012E	A1A010G	A4S010D
1C250C	1L140I	1X020H	2N400W	3C050F	3M010O	3S100M	4B012F	A1A010H	A4S010E
1C250D	1L140J	1X020I	2N400X	3C050G	3M010P	3S100N	4B012G	A1A010I	A4S010F
1C250E	1L140K	1X020J	2N400Z	3C050H	3M010Q	3S100O	4B012H	A1A010J	A4S010G
1C250F	1L140L	1X020K	2N500A	3C050I	3M010R	3S300A	4B012I	A1A010K	A4S010H
1E010A	1L140M	1X020L	2N500B	3C050J	3M010S	3S300B	4B012J	A1A010L	A4S010J
1E010B	1L140N	1X020M	2N500C	3C050K	3M010T	3S300C	4B012K	A1A010M	A4S010K
1E010C	1L140O	1X020N	2N500D	3C050M	3M010U	3S300D	4B020A	A1A010N	A4S010L
1E020A	1L140P	1X030A	2N500E	3C050N	3M010V	3S300E	4B020B	A1A010O	A4S010M

1E020B	1L150A	1X030B	2N500F	3C050O	3M010X	3S300F	4B020C	A1A010P	A4S010N
1E020C	1L150B	1X030C	2N500G	3C100A	3M010Y	3S300G	4B020D	A1A010Q	A4S010Q
1E020D	1L150C	1X030D	2N500H	3C100B	3M020A	3S300H	4B020E	A1A010R	A4S010R
1E020E	1L150D	1X030E	2N500J	3C100C	3M020B	3S300I	4B020F	A1A010S	A4S010S
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1E030B	1L150G	1X040A	2W100B	3C100F	3M020E	3S300L	4B020I	A1A010W	A4T010D
1E030C	1L150H	1X040B	2W100C	3C100G	3M020F	3S300N	4B020J	A1A010X	A4T010E
1E030D	1L150I	1X040C	2W100E	3C100H	3M020G	3S300O	4B020K	A1A010Y	A4T010F
1E030E	1L150J	1X040D	2W100I	3C100I	3M020H	3S300P	4B020L	A1A010Z	A4T010G
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1E030G	1L160A	1X050C	2W100N	3C100K	3M020J	3S300R	4B020O	A1A0202	A4T010I
1E030H	1L160B	1X050E	2W100P	3C100L	3M020K	3S300S	4B030A	A1A0203	A4T010J
1E030I	1L160C	1X050F	2W100Q	3C100M	3M020L	3S300T	4B030B	A1A0204	A4T010K
1E030J	1L160D	1X050G	2W100R	3C100N	3M020M	3S300U	4B030C	A1A020A	A4T010L
1E030K	1L160E	1X050I	2W100T	3C200A	3M020P	3S300V	4B030D	A1A020C	A4T010M
1E030L	1L160F	1X050J	2W100U	3C200B	3M020Q	3S300W	4B030E	A1A020D	A4T010N
1E040A	1L160G	1X110A	2W100V	3C200C	3M020R	3S300X	4B030H	A1A020E	A4T010N1
1E040B	1L160H	1X110B	2W100W	3C200D	3M020S	3S400B	4B030I	A1A020F	A4T010O
1E040C	1L160I	1X110C	2W200A	3C200E	3M020T	3S400C	4B030J	A1A020G	A4T010P
1E040D	1L160J	1X110D	2W200B	3C200F	3M020U	3S400D	4B030K	A1A020H	A4T010Q
1H010A	1L160K	1X110E	2W200C	3C200G	3M020V	3S400E	4B030L	A1A020I	A4T010R
1H010B	1L160L	1X110F	2W3001	3C200H	3M020W	3S400G	4B030M	A1A020J	A4T010T
1H020A	1L160M	1X110G	2W3002	3C200I	3M020X	3S400H	4B030N	A1A020K	A4W010A
1H020B	1L160N	1X110H	2W3003	3C200J	3M020Y	3S400I	4B030O	A1A020L	A4W010B
1H020C	1L160O	1X110I	2W3004	3C200K	3M0301	3S500A	4B030P	A1A020M	A4W010C
1H020D	1L160P	1X110J	2W300A	3C200L	3M0302	3S500B	4B030Q	A1A020N	newres2153
1H020E	1M010A	1X110K	2W300B	3C200M	3M0305	3S500C	4B030R	A1A020O	newres2804
1H030B	1M010B	1X110L	2W300C	3C200N	3M0306	3S500D	4B030S	A1A020P	newres2820
1H030C	1M010C	1X110M	2W300D	3C200O	3M0307	3S500E	4B030T	A1A020Q	M1A02A
1H030D	1M010D	1X110N	2W300E	3C200P	3M0308	3S500F	4B030U	A1A020R	M1A02H
1H030F	1M010E	1X110O	2W300F	3C200Q	3M0309	3S500G	4C010A	A1A020S	M1A02N
1H030G	1M010F	1X110P	2W300G	3C200R	3M030A	3T010A	4C020A	A1A020T	M1A05A
1H030H	1M010G	1X120A	2W300H	3C500A	3M030B	3T010B	4C100A	A1A020U	M1A05B
1H030I	1M010H	1X120B	2W300I	3C500B	3M030C	3T010C	4C100B	A1A020V	M1A05C
1H030J	1M010I	1X120C	2W300J	3C500D	3M030D	3T010D	4C110A	A1A020V1	M1A05D
1H040A	1M010J	1X120D	2W300K	3C500E	3M030E	3T010E	4C110B	A1A020V2	M1A05E
1H040B	1M010K	1X120E	2W300L	3C500G	3M030F	3T010F	4C120A	A1A020V3	M1A05W
1H040C	1M010L	1X120F	2W300M	3C500H	3M030G	3T010G	4C120B	A1A020W	M1F01A

1H040D	1M010M	1X120G	2W300N	3C500I	3M030H	3T010H	4C120D	A1A020W1	M1F01W
1H040E	1M010N	1X120H	2W300O	3C500J	3M030I	3T010I	4C121A	A1A020W2	M1F02A
1H040F	1M010O	1X120I	2W300P	3C500K	3M030J	3T010J	4C121B	A1A020X	M1F02B
1H040G	1M010P	1X130A	2W300Q	3C500L	3M030K	3T010L	4C121C	A1A020Y	M1F02C
1H040H	1M010Q	1X130B	2W300R	3C500M	3M030L	3T010M	4C121D	A1A020Z	M1F02E
1H040I	1M010R	1X130C	2W300S	3C500N	3M030M	3T020A	4C121E	A1A030A	M1M01A
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1H040K	1M010T	1X130E	2W300U	3C500P	3M030O	3T020E	4C122A	A1A030C	M1M01E
1H040L	1M010U	1X130F	2W300V	3C500Q	3M030P	3T020F	4C122B	A1A030D	M1M01F
1H040M	1M010V	1X130G	2W300W	3C500R	3M030Q	3T020G	4C122C	A1A030D1	M1M01H
1H040N	1M010W	1X130H	2W300X	3C600A	3M030R	3T020H	4C130A	A1A030E	M1M01I
1H040O	1M010X	1X130I	2W300Y	3C600B	3M030T	3T020I	4C130B	A1A030F	M1M01K
1H040P	1M010Y	1X130J	2Y1001	3C600C	3M030U	3T020J	4C130C	A1A030G	M1M01M
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1H040R	1M020A	1X130L	2Y1003	3C600F	3M030W	3T0301	4C130F	A1A030J	M1M01W
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1H050A	1M020H	1X130T	2Y100D	3C700B	3M0405	3T030F	4D001B	A1A030S	M2S01K
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1H050E	1M020L	1X200C	2Y100H	3C700F	3M040C	3T030J	4D004D	A1AO10K1	M2W01E
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1H050H	1M020P	1X200F	2Y100K	3C700I	3M040F	3T030M	4D004G	A1AO10K6	M2W01L
1H050I	1M020Q	1X200G	2Y100L	3C700L	3M040G	3T030N	4R002A	A1AO10K7	M2W01W
1H050J	1M020R	1X200H	2Y100M	3C800A	3M040H	3T030Q	4R002B	A1AO10K8	M3G01E
1H050K	1M020S	1X200I	2Y100N	3C800A2	3M040I	3T030R	4R002C	A1F010A	M3G01F
1H060A	1M020T	1X200J	2Y100O	3C800B	3M040J	3T030S	4R002D	A1F010B	M3G01K
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1H060C	1M030B	2A100B	2Y100Q	3C800D	3M040L	3T030T	4R002H	A1F010D	M3G01T
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1H060F	1M030E	2A200B	2Y100T	3C800G	3M040O	3T030W	4R003C	A1F020A	M3H01R
1H070A	1M050A	2A200C	2Y100U	3C800H	3M040P	3T030X	4R003D	A1F020B	M3H01S

1H070B	1M050B	2A200D	2Y100V	3C800I	3M040Q	3T030Y	4R003E	A1F020C	M3K01A
1H070C	1M050C	2A200E	2Y100W	3C800J	3M040R	3T030Z	4R003F	A1F020D	M3K01A1
1H070D	1M050D	2A200F	2Y100X	3C800L	3M040S	3W020A	4R003G	A1F020E	M3K01B
1H070E	1M050E	2A200G	2Y100Y	3C800M	3M040T	3W020B	4R003H	A1F020F	M3K01F
1H070F	1M050F	2A300A	2Y100Z	3C800N	3M040U	3W020C	4R003I	A1F020H	M3K01I
1H070G	1M050G	2A400A	2Y2001	3C800O	3M040V	3W020D	4R003J	A1F020J	M3K01J
1H070H	1M050H	2A400B	2Y2002	3C800P	3M040W	3W020E	4R003K	A1F020K	M3M02C
1H070I	1M050I	2C010A	2Y200A	3C800Q	3M040Y	3W020G	4R004A	A1F020L	M3M02E
1H070J	1M050J	2C010B	2Y200B	3C800S	3M040Z	3W020H	4R004B	A1F020M	M3M02F
1H070K	1M050K	2C010C	2Y200C	3C800T	3M070A	3W020I	4R004C	A1F020N	M3M02Q
1H080A	1M050L	2C010D	2Y200D	3C800U	3M070B	3W020J	4R004D	A1F020O	M3M02Y
1H080B	1M050M	2C020A	2Y200E	3G010A	3M070C	3W020K	4R004E	A1F020P	M4B10B
1H080C	1M050N	2C020B	2Y200F	3G010B	3M070D	3W020N	4R010A	A1N010A	M4B10H
1H080D	1M060A	2C020C	2Y200G	3G010F	3M070E	3W020O	4R010B	A1N010B	M4B10L
1H080E	1M060B	2C020D	2Y200H	3G010G	3M070F	3W020P	4R010C	A1N010C	M4C02A
1H080F	1M060C	2C020E	2Y200I	3G010H	3M070G	3W020Q	4R010D	A1N010D	M4C02B
1H080G	1M060D	2C020F	2Y200J	3G010I	3M070H	3W020R	4R020A	A1N010E	M4C02C
1H080H	1M060E	2C020G	2Y200K	3G010J	3M100A	3W020S	4R020B	A1N010F	M4D07E
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1H080J	1M060G	2C020J	2Y200M	3G010L	3M100C	3W020U	4R020D	A1N010H	M4R01A
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1L010B	1M070E	2C030F	2Y200R	3G020A	3M110A	3W0301	4R030I	A1N010M	M4R04E
1L010C	1M070F	2D100A	2Y200S	3G020B	3M110B	3W030B	4R030J	A1N010P	M4R04T
1L010D	1M070G	2D100B	2Y200T	3G020C	3M110C	3W030C	4R030K	A1N010Q	M4R04W
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1L010H	1M070K	2D100F	2Y200X	3G020G	3M110H	3W030G	4R040D	A1S010D	M4S05D
1L010I	1M070L	2D100H	2Y200Y	3G020H	3M110I	3W030H	4R040E	A1S010E	M4S05P
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1L010K	1M070N	2D100K	2Y300A	3G020J	3M120B	3W030J	4S001A	A1S010G	M4S05U
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1L010O	1M070R	2D100O	2Y300E	3G020O	3M120F	3W030N	4S001E	A1S010L	M4T03O
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1L020C	1M070T	2D101B	2Y300G	3G020S	3M120H	3W030P	4S002A	A1S010N	M4W06B
1L020D	1M080A	2D101C	2Y300H	3G020T	3M120I	3W030Q	4S002B	A1S010O	M4W06M
1L020E	1M080B	2D101D	2Y300I	3G020U	3M120J	3W030R	4S002C	A1S010P	M4W06W
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1L020G	1M080D	2M100A	2Y300L	3G020W	3M120L	3W030T	4S002E	A1S010S	newres2955
1L030A	1M080E	2M100B	2Y300M	3G020X	3M120M	3W030U	4S002F	A1S010T	U4001A
1L030B	1M080F	2M100C	2Y300N	3G030A	3M130B	3W030V	4S002G	A1S010U	U4001B
1L030C	1M080G	2M100D	2Y300P	3G030B	3M130C	3W030Y	4S002H	A1S010V	U4001B1
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1L040C	1M090J	2M200G	2Z201K	3G050E	3M200F	3W040N	4S004O	A2K010B	U4002B
1L040D	1M100A	2M200H	2Z201L	3G050F	3M200G	3W040O	4S004P	A2L010A	U4002C
1L040E	1M100B	2M200I	2Z201M	3H010A	3M200H	3W040P	4S004Q	A2L010B	U4002D
1L040F	1M100C	2M200J	2Z201N	3H010B	3M200I	3W040Q	4S004R	A2L010C	U4002E
1L040G	1M100D	2M210A	2Z201O	3H010C	3M200J	3W040T	4S004S	A2L010D	U4002F
1L040H	1M100E	2M210B	2Z201Q	3H010D	3M200K	3W040U	4S004T	A2L010E	U4002G
1L040I	1M100F	2M210C	2Z201R	3H010E	3M200L	3W040W	4S004U	A2L010F	U4003A
1L040J	1M100G	2M210D	2Z300A	3H010F	3M200M	3W040X	4S004V	A2L010G	U4003A1
1L040K	1M100H	2M210E	2Z300B	3H010G	3M200N	3W040Y	4S004W	A2L010H	U4003B
1L040L	1M100I	2N0103	2Z300C	3H010H	3M200O	3W040Z	4S004X	A2L010J	
1L040M	1M200A	2N0104	2Z300D	3H010I	3M200P	3W050A	4S004Y	A2L010K	
1L040N	1M200B	2N0107	2Z300E	3H010J	3M200Q	3W200A	4S004Z	A3B010A	
1L040O	1M200D	2N0108	2Z300F	3H020A	3M300A	3W200B	4S120B	A3B010B	

Appendix D. Commercial Improved Market Areas

APARTMENT SECTORS

Apartment Sector 1 – NORTHWEST TARRANT COUNTY

Mapsco Numbers: 1A-Z, 2A-Z, 3A-Z, 4A-Z, 5A-Z, 6ABEFJKNPSTWX, 15A-Z, 16A-Z, 17A-Z, 18A-Z, 19A-Z, 20ABEFJKNPSTWX, 29A-Z, 30A-Z, 31A-Z, 32A-Z, 33A-Z, 34A-Z, 44BCDGHM, 45ABCDEFGHJKLMPQRTUVWXYZ, 46A-Z, 47ABCDEFGHJKLMNW, 48ABCEF, 58DHM, 59ABCDEFGHJKLMPQRTUVXYZ, 60A-Z, 61ABEFJKNPST, Parker County, Wise County

Apartment Sector 2 – NORTHEAST TARRANT COUNTY

Mapsco Numbers: 6CDGHLMQRUVYZ, 7A-Z, 8A-Z, 9A-Z,10A-Z, 11A-Z, 12A-Z, 13A-Z, 14A-Z, 20CDGHLMQRUVYZ, 21A-Z, 22A-Z, 23A-Z, 24A-Z, 25A-Z, 26A-Z, 27A-Z, 28A-Z, 35ABCDEFGHJKLMNPQR, 36ABCDEFGHJKLMNPQR, 37ABCDEFGH, 39ABCDEFGHKLMQRUV, 40ABCDEFGHKLMNPQRSTUV, 41ABCDEFGHJKLM, Denton County

Apartment Sector 3 – HEB

Mapsco Numbers: 39JNPSTWXYZ, 40WXYZ, 41NPQRSTUVWXYZ, 42A-Z (DFW AIRPORT), 52HMQRUVXYZ, 53A-Z, 54ABCDEFGHJKLMNPQRSTUV, 55ABCDEFGHJKLMNPQR, 56ABCDEFGH

Apartment Sector 4 – CENTREPORT

Mapsco Numbers: 54WXYZ, 55STUVWXYZ, 56JKLMNPQRSTUVWXYZ

Apartment Sector 5 – NORTH ARLINGTON

Mapsco Numbers: 68A-Z, 69A-Z, 70A-Z, 81D, 82ABCD, 83ABCD, 84ABCD

Apartment Sector 6 – CENTRAL ARLINGTON

Mapsco Numbers: 81GHJKLMNPQRUVZ, 82EFGHJKLMNPQRSTUVWXYZ, 83EFGHJKLMNPQRSTUVWXYZ, 84EFGHJKLMNPQRSTUVWXYZ

Apartment Sector 7 – SOUTH ARLINGTON/MANSFIELD/KENNEDALE

Mapsco Numbers: 80NPQRSTUVWXYZ, 81STWXY, 93HMRUVYZ, 94A-Z, 95A-Z, 96A-Z, 97A-Z, 98A-Z, 107CDGHLM, 108ABCDEFGHJKLMNPQRVZ, 109A-Z, 110A-Z, 111A-Z, 112A-Z, 123A-Z, 124A-Z, 125A-Z, 126A-Z, Ellis County, Johnson County

Apartment Sector 8 – SOUTH TARRANT COUNTY

Mapsco Numbers: 76UVYZ, 77EJNSW, 90CDGHLMQRUVYZ,

91A-Z, 92A-Z, 93CDEFGJKLNPQSTWX, 104CDGHLMQRUVYZ, 105A-Z, 106A-Z, 107ABEFJKNPQRSTUVWXYZ, 108STUWXY, 118A-Z, 119A-Z, 120A-Z, 121A-Z, 122A-Z

Apartment Sector 9 – SOUTHWEST FORT WORTH (BRYANT IRVIN/HULEN)

Mapsco Numbers: 74XYZ, 75UVWXYZ, 76STWX, 88A-Z, 89ABCDEFGHJKLNPS, 90A, 102ABC

Apartment Sector 10 – SOUTHWEST TARRANT COUNTY/BENBROOK

Mapsco Numbers: 73QRSTUVWXYZ, 86PQRTUVXYZ, 87BCDFGHJKLMNPQRSTUVWXYZ, 89MQRTUVWXYZ, 90BEFJKNPSTWX, 99MPQRSTUVWXYZ, 100BCDEFGHJKLMNPQRSTUVWXYZ, 101A-Z, 102DEFGHJKLMNPQRSTUVWXYZ, 103A-Z, 104ABEFJKNPSTWX, 113A-Z, 114A-Z, 115A-Z, 116A-Z, 117A-Z

Apartment Sector 11 – WESTERN HILLS

Mapsco Numbers: 43A-Z, 44AEFJKLNPQRSTUVWXYZ, 45NS, 57A-Z, 58ABCEFGJKLNPQRSTUVWXYZ, 59NSW, 71A-Z, 72A-Z, 73ABCDEFGHJKLMNP, 85A-Z, 86ABCDEFGHJKLMNSW, 87AE, 99ABCDEFGHJKLN, 100A

Apartment Sector 12 – RIDGLEA/RIDGMAR/ARLINGTON HEIGHTS

Mapsco Numbers: 74ABCDEFGHJKLMNPQRSTUVW, 75ABCDEFGHJKLMNPQRST

Apartment Sector 13 – NORTH FORT WORTH

Mapsco Numbers: 47PQRSTUVXYZ, 48DGHJKLMNPQRSTUVWXYZ, 49JKLMNPQRSTUVWXYZ, 50JNSW, 61CDGHLMQRUVWXYZ, 62ABCDEFGHJKLMNPQRSTUV, 63ABCDEFGHJKLMNPQRSTUVXYZ, 64NPQRSTUVWXYZ, 77BCD

Apartment Sector 14 – FOSSIL CREEK

Mapsco Numbers: 35STUVWXYZ, 36STUVWXYZ, 49ABCDEFGH, 50ABCDEFGH

Apartment Sector 15 – HALTOM CITY/RICHLAND HILLS

Mapsco Numbers: 37JKLMNPQRSTUVWXYZ, 38A-Z, 50KLMPQRTUVXYZ, 51A-Z, 52ABCDEFGJKLNPSTW, 64ABCDEFGHJKLM, 65ABCDEFGH, 66A

Apartment Sector 16 – WOODHAVEN

Mapsco Numbers: 65JKLMNPQRSTUVWXYZ, 66BCDEFGHJKLMNPQRSTUVWXYZ, 79ABCD, 80ABCEFGJKLM

Apartment Sector 17 – EASTCHASE

Mapsco Numbers: 67A-Z, 80DH, 81ABCEF

Apartment Sector 18 – STOP 6

Mapsco Numbers: 77FGHKLMPQRTUVXYZ, 78A-Z, 79EFGHJKLMNPQRSTUVWXYZ, 93AB

Apartment Sector 19 – DOWNTOWN/CULTURAL DISTRICT

Mapsco Numbers: 62WXYZ, 63W, 76ABCDEFGHJKLMNPQR, 77A

INDUSTRIAL BUILDING SECTORS

Industrial Sector 1 - DOWNTOWN / 7TH STREET / TRINITY RIVER

Mapsco Numbers: 62GLMQRTUVWXTZ, 63JNSW, 76ABCD, 77A

Industrial Sector 2 - NORTH FORT WORTH

Mapsco Numbers: 20KPTUVXYZ, 21NPQRSTUVWXYZ, 22NPQRSTUVWXYZ, 33BCDGHLMQRUVYZ, 34BCDFGHJKLMNPQRSTUVWXYZ, 35ABCDEFGHJKLMNPQRSTUVWXZ,

36ABCDEFGHJKLMNPQRSTUVWXZ, 37JKLMNPQRSTUVWXYZ, 38BCDEFGHJKLMNPQRSTUVWXYZ, 39JNSTWX, 47CDGHLM, 48ABCDEFGHJKLMNPQRSTUVXYZ,

49ABCDEFGHJKLMNPQRSTUVWXZ, 50 ABCDEFGHJKLMNPQRSTUVWXZ, 51ABCDEFGHJKLMNPQRSTUVW, 52ABCDEFGJKNPSW, 63BCD, 64ABCD

Industrial Sector 3 - NORTHWEST TARRANT COUNTY

Mapsco Numbers: 1 ABCDEFGHJKLMNPQRSTUVWXZ, 2 ABCDEFGHJKLMNPQRSTUVWXZ,

3ABCDEFGHJKLMNPQRSTUVWXZ, 4 ABCDEFGHJKLMNPQRSTUVWXZ,

5ABCDEFGHJKLMNPQRSTUVWXZ, 6AEJNSW, 15 ABCDEFGHJKLMNPQRSTUVWXZ,

16ABCDEFGHJKLMNPQRSTUVWXZ, 17ABCDEFGHJKLMNPQRSTUVWXZ, 18ABCDEFGHJKLMNPQRSTUVWXZ, 19ABCDEFGHJKLMNPQRSTUVWXZ, 20AEJNSW, 29ABCDFGHKLMQRUV, 30ABCDEFGHJKLMNPQRSTUVWXZ, 31ABCDEFGHJKLMNPQRSTUVWXZ, 32ABCDEFGHJKLMNPQRSTUVWXZ, 33AEFJKNPSTWX, 34AE, 44BCDGHM, 45ABCDEFGHJKLMNPQR, 46ABCDEFGHJKLMNPQRSTU, 47ABEFJKNP

Industrial Sector 4 - ALLIANCE/ALLIANCE GATEWAY

Mapsco Numbers: 6BCDFGHKLMPQRTUVXYZ, 7ABCDEFGHJKLMNPQRSTUVWXZ, 8ABCDEFGHJKLMNPQRSTUVWXZ, 9ABCDEFGHJKLNPSTW, 20BCDGHLMQR, 21ABCDEFGHJKLM, 22ABCDEFGHJKLM

Industrial Sector 5 - NORTHEAST TARRANT COUNTY

Mapsco Numbers: 9MQRUVXYZ, 10ABCDEFGHJKLMNPQRSTUVWXZ, 11ABCDEFGHJKLMNPQRSTUVWXZ, 12ABCDEFGHJKLMNPQRSTUVWXZ, 13ABCDEFGHJKLMNPQRSTUVWXZ, 14ABCDEFGHJKLMNPQRSTUVWXZ, 23ABCDEFGHJKLMNPQRSTUVWXZ, 24ABCDEFGHJKLMNPQRSTUVWXZ, 25ABCDEFGHJKLMNPQRSTUVWXZ, 26ABCDEFGHJKLMNPQRSTUVWXZ, 27ABCDEFGHJKLMNPQRSTUVWXZ, 28ABCDEFGHJKLMNPQRSTUVWXZ, 37ABCDEFGH, 38A, 39ABCDEFGHKLMPQRUV, 40ABCDEFGHJKLMNPQRSTUV, 41ABCDEFGHJKLMNS, 42ABCDEFGHJKLMNPQRTUVXYZ, 56ABCDEFGH

Industrial Sector 6 - MID-CITIES (HURST, EULESS, BEDFORD)

Mapsco Numbers: 39YZ, 40WXYZ, 41PQRTUVWXYZ, 42SW, 52HLMQRTUVXYZ, 53ABCDEFGHJKLMNPQRSTUVWXZ, 54ABCDEFGHJKLMNPQRSTUVWXZ, 55ABCDEFGHJKLMNPQRSTUVWXZ

Industrial Sector 7 - CENTREPORT/GSID

Mapsco Numbers: 56JKLMNPQRSTUVYZ, 70BCDFGHKLMPQRTUVXYZ, 84BCDFGHKLMPQRTUVXYZ, 98BCDFGHKLM

Industrial Sector 8 - NORTH ARLINGTON

Mapsco Numbers: 56WX, 68BCDFGHKLMPQRSTUVWXYZ, 69ABCDEFGHJKLMNPQRSTUVWXZ, 70AEJNSW, 80PQRSTUVWXYZ, 81CDFGHJKLMNPQRSTUVWXYZ, 82ABCDEFGHJKLMNPQRSTUVWXZ, 83ABCDEFGHJKLMNPQRSTUVWXZ, 84AEJNSW

Industrial Sector 9 - SOUTH ARLINGTON/MANSFIELD

Mapsco Numbers: 93HMR, 94ABCDEFGHJKLMNPQRSTUV, 95ABCDEFGHJKLMNPQRSTUVWXZ, 96ABCDEFGHJKLMNPQRSTUVWXZ, 97A-Z, 98AEJNPQRSTUVWXYZ, 108DHMR, 109ABCDEFGHJKLMNPQRSTUVWXZ, 110ABCDEFGHJKLMNPQRSTUVWXZ, 111ABCDEFGHJKLMNPQRSTUVWXZ, 112ABCDEFGHJKLMNPQRSTUVWXZ, 123ABCDEFGHJKLMPQRTUVXYZ,

124ABCDEFGHJKLMNPQRSTUVWXZ, 125ABCDEFGHJKLMNPQRSTUVWXZ, 126ABCDEFGHJKLMNPQRSTUVWXZ

Industrial Sector 10 - SOUTH TARRANT COUNTY

Mapsco Numbers: 90UVYZ, 91STUVWXYZ, 92SWXYZ, 93UVWXYZ, 94WXYZ, 104BCDFGHKLMPQRTUVXYZ, 105ABCDEFGHJKLMNPQRSTUVWXZ, 106ABCDEFGHJKLMNPQRSTUVWXZ, 107ABCDEFGHJKLMNPQRSTUVWXZ, 108ABCEFGJKLNPQSTUVWXYZ, 117DHLMQRVZ, 118ABCDEFGHJKLMNPQRSTUVWXZ, 119ABCDEFGHJKLMNPQRSTUVWXZ, 120ABCDEFGHJKLMNPQRSTUVWXZ, 121ABCDEFGHJKLMNPQRSTUVWXZ, 122ABCDEFGHJKLMNPQRSTUVWXZ, 123NSW

Industrial Sector 11 - SOUTHWEST TARRANT COUNTY

Mapsco Numbers: 85ABCDEFGHJKLMNPQRSTUVWXZ, 86ABCDEFGHJKLMNPQRSTUVWXZ, 99ABCDEFGHJKLMNPQRSTUVWXZ, 100ABCDEFGHJKLMNPQRSTUVWXZ, 101ABCDEFGHJKLMNPQRSTUVWXZ, 102ABCDEFGHJKLMNPQRSTUVWXZ, 103ABCDEFGHJKLMNPQRSTUVWXZ, 113ABCDEFGHJKLMNPQRSTUVWXZ, 114ABCDEFGHJKLMNPQRSTUVWXZ, 115ABCDEFGHJKLMNPQRSTUVWXZ, 116ABCDEFGHJKLMNPQRSTUVWXZ, 117ABCEFGJKNPSTUWXY

Industrial Sector 12 - WEST TARRANT COUNTY

Mapsco Numbers: 29EJNPSTWXYZ, 43A-Z, 44AEFJKLNPQRSTUVWXYZ, 45STUVWXYZ, 46XWY, 57ABCDEFGHJKLMNPQRSTUVWXZ, 58ABCDEFGHJKLMNPQRSTUVWXZ, 59ABCDEFGJK, 60ABC, 71ABCDEFGHJKLMNPQRSTUVWXZ, 72ABCDEFGHJKLMNPQRSTUVWXZ

Industrial Sector 13 - SOUTH FORT WORTH/SEMINARY

Mapsco Numbers: 76GHLMQRUVYZ, 77EJNSW, 89MR, 90BCDEFGHJKLMNPQR, 91AEJN

Industrial Sector 14 - SOUTHEAST FORT WORTH

Mapsco Numbers: 65WXYZ, 66WXYZ, 67WXYZ, 77FGHKLMPQRTUVXYZ, 78ABCDEFGHJKLMNPQRSTUVWXZ, 79ABCDEFGHJKLMNPQRSTUVWXZ, 80ABCDEFGHJKLMN, 81ABE, 91BCDFGHKLMPQR, 92ABCDEFGHJKLMNPQRTUV, 93ABCDEFGJKLNPQST

Industrial Sector 15 - AIRPORT FREEWAY/BIRDVILLE

Mapsco Numbers: 51XYZ, 63FGHKLMPQRTUVXYZ, 64EFGHJKLMNPQRSTUVWXYZ, 65ABCDEFGHJKLMNPQRSTUV, 66ABCDEFGHJKLMNPQRSTUV, 67ABCDEFGHJKLMNPQRSTUV, 68AEJN, 77BCD

Industrial Sector 16 - WEST FORT WORTH / HULEN

61YZ, 73JKLMNPQRSTUVWXYZ, 74EFGHJKLMNPQRSTUVWXYZ, 75CDEFGHJKLMNPQRSTUVWXYZ, 76EFJKNPSTWX, 87ABCDEFGHJKLMNPQRSTUVWXYZ, 88ABCDEFGHJKLMNPQRSTUVWXYZ, 89ABCDEFGHJKLNPQSTUVWXYZ, 90ASTWX, 104AEJNSW

Industrial Sector 17 - FORT WORTH - NORTHSIDE

46VZ, 47 QRSTUVWXYZ, 48W, 59HLMNPQRSTUVWXYZ, 60DEFGHJKLMNPQRSTUVWXYZ, 61ABCDEFGHJKLMNPQRSTUVWX, 62ABCDEFHJKNPS, 63AE, 73ABCDEFGH, 74ABCD, 75AB

MODIFIED 1/6/2011

SHOPPING CENTER SECTORS

Shopping Center Sector 1 – NORTHWEST TARRANT COUNTY

Mapsco Numbers: 1A-Z, 2A-Z, 3A-Z, 4A-Z, 5A-Z, 6A-Z, 7ABCDEFGJKLNPSTWX, 15A-Z, 16A-Z, 17A-Z, 18A-Z, 19A-Z,

20A-Z, 21ABEFJNSW, 29A-Z, 30A-Z, 31A-Z, 32A-Z, 33A-Z, 34A-Z, 35AEJNSW, 43A-Z, 44A-Z, 45A-Z, 46A-Z, 47A-Z, 48A-Z, 49ABEFJKNPSTWX, 57A-Z, 58A-Z, 59A-Z, 60A-Z, 61A-Z, 62ABCDEFGHJKLMNPQRSTUVWXYZ, 63AEJNS, 71ABCDEFGHJKLM, 72ABCDEFGHJ, 73ABCDEFGH, 74ABCDEFGH, 75ABCDEFGH, 76ABCEFG, Parker County, Wise County

Shopping Center Sector 2 – NORTHEAST FORT WORTH

Mapsco Numbers: 7HMQRUVYZ, 8A-Z, 9AEJNPS, 21CDGHKLMPQRTUVXYZ, 22A-Z, 35BCDFGHKLMPQRTUVXYZ, 36ABCDEFGHJKLMNPQRSTUWX, 49CDGHLMQRUVYZ, 50A-Z, 63BCDFGHKLMPQRTUVXYZ, 64A-Z, 65ABEFGHJKLMNPQRSTUVWXYZ, 66A-Z, 67A-Z, 68ABEJ, Denton County

Shopping Center Sector 3 – NORTHEAST TARRANT COUNTY

Mapsco Numbers: 9BCDFGHKLMQRTUVWXYZ, 10A-Z, 11A-Z, 12A-Z, 13A-Z, 14A-Z, 23A-Z, 24A-Z, 25A-Z, 26A-Z, 27A-Z, 28A-Z, 37ABCDEFGH, 38A, 39ABCDEFGHKLMPQRTUV, 40ABCDEFGHJKLMNPQR, 41ABCDEFGHJKLMNS, 42ABCDEFGHJKLM

Shopping Center Sector 4 – NORTH RICHLAND HILLS

Mapsco Numbers: 36VYZ, 37JKLMNPQRSTUVWXYZ, 38BCDEFGHJKLMNPQRSTUVWXYZ, 51ABCDEFGHJKLMNPQSTU, 52ABCEFJKNP

Shopping Center Sector 5 – HURST/RICHLAND HILLS

Mapsco Numbers: 39JNSWX, 51RVWXYZ, 52DGHLMQRSTUVWXYZ, 53ABEFJKNPSTUWXYZ

Shopping Center Sector 6 – BEDFORD/EULESS

Mapsco Numbers: 39YZ, 40STUVWXYZ, 41PQRTUVWXYZ, 42NPQRSTUVWXYZ, 53CDGHLMQRV, 54ABCDEFGHJKLMNPQRSTUV, 55ABCDEFGHJKLMNPQR, 56ABCDEFGH

Shopping Center Sector 7 – ARLINGTON/CENTREPORT

Mapsco Numbers: 54WXYZ, 55STUVWXYZ, 56JKLMNPQRSTUVWXYZ, 68CDFGHKLMNPQRSTUVWXYZ, 69A-Z, 70A-Z, 80NPQRSTUVWXYZ, 81DFGHJKLMNPQRSTUVWXYZ,

82A-Z, 83A-Z, 84A-Z, 93HMRV, 94A-Z, 95A-Z, 96A-Z, 97A-Z, 98A-Z, 108CDHLMQRVZ, 109A-Z, 110A-Z, 111A-Z, 112A-Z, 123A-Z, 124A-Z, 125A-Z, 126A-Z, Ellis County

Shopping Center Sector 8 – SOUTHEAST FORT WORTH/EVERMAN/FOREST HILL

Mapsco Numbers: 77BCDFGHKLMPQRTUVXYZ, 78A-Z, 79A-Z, 80ABCDEFGHJKLM, 81ABCE, 91BCDFGHKLMPQRTUVXYZ, 92A-Z, 93ABCDEFGJKLNPQSTUWXYZ, 106A-Z, 107A-Z, 108ABEFGJKNPSTUWXY, 120A-Z, 121A-Z, 122A-Z

Shopping Center Sector 9 – SOUTHWEST TARRANT COUNTY

Mapsco Numbers: 71NPQRSTUVWXYZ, 72KLMNPQRSTUVWXYZ, 73JKLMNPQRSTUVWXYZ, 74JKLMNPQRSTUVWXYZ, 75JKLMNPQRSTUVWXYZ, 76HJKLMNPQRSTUVWXYZ, 77EJNSW, 85A-Z, 86A-Z, 87A-Z, 88A-Z, 89A-Z, 90A-Z, 91AEJNSW, 99A-Z, 100A-Z, 101A-Z, 102A-Z, 103A-Z, 104A-Z, 105A-Z, 113A-Z, 114A-Z, 115A-Z, 116A-Z, 117A-Z, 118A-Z, 119A-Z, Johnson County

Shopping Center Sector 10 – CBD

Mapsco Numbers: 62Z, 63W, 76D, 77A

OFFICE BUILDING SECTORS

Office Sector 1 – Central Business District

Mapsco Numbers: 62YZ, 63W, 76C, 76D, 77A

Office Sector 2 – Northwest Tarrant County

Mapsco Numbers: 1A-Z, 2A-Z, 3A-Z, 4A-Z, 15A-Z, 16A-Z, 17A-Z, 18A-Z, 19A-Z, 29A-Z, 30A-Z, 31A-Z, 32A-Z, 33A-Z, 34A-Z, 44A-Z, 45A-Z, 46A-Z, 47A-Z, 48A-Z, 60D, 61ABCDFGHM, 62ABCDEFGHJKLMNPQRSTUV, 63AEJNS, Wise County, Parker County

Office Sector 3 – North Tarrant County

Mapsco: 5A-Z, 6A-Z, 7A-Z, 8A-Z, 20A-Z, 21A-Z, 22A-Z, 35A-Z,

36A-Z, 37JKLMNPQRSTUVYXYZ, 38A-Z, 49A-Z, 50A-Z, 51A-Z, 52ABCEFGJKLNPSTWZ, 63CDFGHKLMPQRUVYZ, 64ABCDEFGHJKLMN, 65ABCDEF, Denton County

Office Sector 4 – Northeast Tarrant County

Mapsco Numbers: 9A-Z, 10A-Z, 11A-Z, 12A-Z, 13A-Z, 14A-Z,

23A-Z, 24A-Z, 25A-Z, 26A-Z, 27A-Z, 28A-Z, 37ABCDEFGH, 39A-Z, 40ABCDEFGHJKLMNPQRSTUV, 41ABCDEFGHJKLMN, 42A-Z

Office Sector 5 – Mid-Cities (Hurst, Euless, Bedford)

Mapsco Numbers: 40WXYZ, 41PQRSTUVXYZ, 52DGHMQRUVXYA, 53A-Z, 54A-Z, 55A-Z

Office Sector 6 - North Arlington

Mapsco Numbers: 56A-Z, 68A-Z, 69A-Z, 70A-Z, 81ABCDEFGHJKLM, 82ABCDEFGH, 83ABCDEFGH, 84ABCDEFGH, 89ABCDEFGH

Office Sector 7 – S. Arlington, Grand Prairie, Mansfield

Mapsco Numbers: 80NPQRSTUVWXYZ, 81NPQRSTUVWXYZ, 82NPQRSTUVWXYZ, 83JKLMNPQRSTUVWXYZ, 84JKLMNPQRSTUVWXYZ, 89KLP, 93RVZ, 94A-Z, 95A-Z, 96A-Z, 97A-Z, 98A-Z, 108A-Z, 109A-Z, 110A-Z, 111A-Z, 112A-Z, 123BCDGHM, 124A-Z, 125A-Z, 126A-Z, Ellis County

Office Sector 8 – South Tarrant County

Mapsco Numbers: 76GHLMQRUVYZ, 77EFGHJKLMNPQRSTUVWXYZ, 89MQRTUVWXYZ, 90A-Z, 91A-Z, 92JKNPQRSTUVWXYZ, 103A-Z, 104A-Z, 105A-Z, 106A-Z, 107A-Z, 116A-Z, 117A-Z, 118A-Z, 119A-Z, 120A-Z, 121A-Z, 122A-Z, 123AEFJKLNPQRSTUVWXYZ, Johnson County

Office Sector 9 – Southwest Tarrant County

Mapsco Numbers: 85A-Z, 86A-Z, 87A-Z, 88JKLMNPQRSTUVWXYZ, 89JPNS, 99A-Z, 100A-Z, 101A-Z,

102A-Z, 113A-Z, 114A-Z, 115A-Z

Office Sector 10 – West Tarrant County

Mapsco Numbers: 43A-Z, 57A-Z, 58A-Z, 59A-Z, 60ABCEFGHJKLMNPQRSTUVWXYZ, 61EJKLNPQRSTUVWXYZ, 62WX, 71A-Z, 72A-Z, 73A-Z, 74A-Z, 75A-Z, 76ABEFJKNPSTWX, 88ABCDEFGH

Office Sector 11 – East Tarrant County

64PQRSTUVWXYZ, 65GHJKLMNPQRSTUVWXYZ, 66A-Z, 67A-Z, 77BCD, 78A-Z, 79A-Z, 80ABCDEFGHJKLM, 82J, 92ABCDEFGHLM, 93ABCDEFGHJKLMNPQ

WAREHOUSE SECTORS

Warehouse Sector 1 - DOWNTOWN / 7TH STREET / TRINITY RIVER

Mapsco Numbers: 62GLMQRTUVWXYZ, 63JNSW, 76ABCD, 77A

Warehouse Sector 2 - NORTH FORT WORTH

Mapsco Numbers: 20KPTUVXYZ, 21NPQRSTUVWXYZ, 22NPQRSTUVWXYZ, 33BCDGHLMQRUVYZ, 34BCDFGHJKLMNPQRSTUVWXYZ, 35ABCDEFGHJKLMNPQRSTUVWXZ,

36ABCDEFGHJKLMNPQRSTUVWXZ, 37JKLMNPQRSTUVWXYZ, 38BCDEFGHJKLMNPQRSTUVWXYZ, 39JNSTWX, 47CDGHLM, 48ABCDEFGHJKLMNPQRSTUVXYZ,

49ABCDEFGHJKLMNPQRSTUVWXZ, 50 ABCDEFGHJKLMNPQRSTUVWXZ, 51ABCDEFGHJKLMNPQRSTUVW, 52ABCDEFGJKNPSW, 63BCD, 64ABCD

Warehouse Sector 3 - NORTHWEST TARRANT COUNTY

Mapsco Numbers: 1 ABCDEFGHJKLMNPQRSTUVWXZ, 2 ABCDEFGHJKLMNPQRSTUVWXZ,

3ABCDEFGHJKLMNPQRSTUVWXZ, 4 ABCDEFGHJKLMNPQRSTUVWXZ,

5ABCDEFGHJKLMNPQRSTUVWXZ, 6AEJNSW, 15 ABCDEFGHJKLMNPQRSTUVWXZ,

16ABCDEFGHJKLMNPQRSTUVWXZ, 17ABCDEFGHJKLMNPQRSTUVWXZ, 18ABCDEFGHJKLMNPQRSTUVWXZ, 19ABCDEFGHJKLMNPQRSTUVWXZ, 20AEJNSW, 29ABCDFGHKLMQRUV, 30ABCDEFGHJKLMNPQRSTUVWXZ, 31ABCDEFGHJKLMNPQRSTUVWXZ, 32ABCDEFGHJKLMNPQRSTUVWXZ, 33AEFJKNPSTWX, 34AE, 44BCDGHM, 45ABCDEFGHJKLMNPQR, 46ABCDEFGHJKLMNPQRSTU, 47ABEFJKNP

Warehouse Sector 4 - ALLIANCE/ALLIANCE GATEWAY

Mapsco Numbers: 6BCDFGHKLMPQRTUVXYZ, 7ABCDEFGHJKLMNPQRSTUVWXZ, 8ABCDEFGHJKLMNPQRSTUVWXZ, 9ABCDEFGHJKLNPSTW, 20BCDGHLMQR, 21ABCDEFGHJKLM, 22ABCDEFGHJKLM

Warehouse Sector 5 - NORTHEAST TARRANT COUNTY

Mapsco Numbers: 9MQRUVXYZ, 10ABCDEFGHJKLMNPQRSTUVWXZ, 11ABCDEFGHJKLMNPQRSTUVWXZ, 12ABCDEFGHJKLMNPQRSTUVWXZ, 13ABCDEFGHJKLMNPQRSTUVWXZ, 14ABCDEFGHJKLMNPQRSTUVWXZ, 23ABCDEFGHJKLMNPQRSTUVWXZ, 24ABCDEFGHJKLMNPQRSTUVWXZ, 25ABCDEFGHJKLMNPQRSTUVWXZ, 26ABCDEFGHJKLMNPQRSTUVWXZ, 27ABCDEFGHJKLMNPQRSTUVWXZ, 28ABCDEFGHJKLMNPQRSTUVWXZ, 37ABCDEFGH, 38A, 39ABCDEFGHKLMPQRUV, 40ABCDEFGHJKLMNPQRSTUV, 41ABCDEFGHJKLMNS, 42ABCDEFGHJKLMNPQRTUVXYZ, 56ABCDEFGH

Warehouse Sector 6 - MID-CITIES (HURST, EULESS, BEDFORD)

Mapsco Numbers: 39YZ, 40WXYZ, 41PQRTUVWXYZ, 42SW, 52HLMQRTUVXYZ, 53ABCDEFGHJKLMNPQRSTUVWXZ, 54ABCDEFGHJKLMNPQRSTUVWXZ, 55ABCDEFGHJKLMNPQRSTUVWXZ

Warehouse Sector 7 - CENTREPORT/GSID

Mapsco Numbers: 56JKLMNPQRSTUVYZ, 70BCDFGHKLMPQRTUVXYZ, 84BCDFGHKLMPQRTUVXYZ, 98BCDFGHKLM

Warehouse Sector 8 - NORTH ARLINGTON

Mapsco Numbers: 56WX, 68BCDFGHKLMPQRSTUVWXYZ, 69ABCDEFGHJKLMNPQRSTUVWXZ, 70AEJNSW, 80PQRSTUVWXYZ, 81CDFGHJKLMNPQRSTUVWXYZ, 82ABCDEFGHJKLMNPQRSTUVWXZ, 83ABCDEFGHJKLMNPQRSTUVWXZ, 84AEJNSW

Warehouse Sector 9 - SOUTH ARLINGTON/MANSFIELD

Mapsco Numbers: 93HMR, 94ABCDEFGHJKLMNPQRSTUV, 95ABCDEFGHJKLMNPQRSTUVWXZ, 96ABCDEFGHJKLMNPQRSTUVWXZ, 97A-Z, 98AEJNPQRSTUVWXYZ, 108DHMR, 109ABCDEFGHJKLMNPQRSTUVWXZ, 110ABCDEFGHJKLMNPQRSTUVWXZ, 111ABCDEFGHJKLMNPQRSTUVWXZ, 112ABCDEFGHJKLMNPQRSTUVWXZ, 123ABCDEFGHJKLMPQRTUVXYZ,

124ABCDEFGHJKLMNPQRSTUVWXZ, 125ABCDEFGHJKLMNPQRSTUVWXZ, 126ABCDEFGHJKLMNPQRSTUVWXZ

Warehouse Sector 10 - SOUTH TARRANT COUNTY

Mapsco Numbers: 90UVYZ, 91STUVWXYZ, 92SWXYZ, 93UVWXYZ, 94WXYZ, 104BCDFGHKLMPQRTUVXYZ, 105ABCDEFGHJKLMNPQRSTUVWXZ, 106ABCDEFGHJKLMNPQRSTUVWXZ, 107ABCDEFGHJKLMNPQRSTUVWXZ, 108ABCEFGJKLNPQSTUVWXYZ, 117DHLMQRVZ, 118ABCDEFGHJKLMNPQRSTUVWXZ, 119ABCDEFGHJKLMNPQRSTUVWXZ, 120ABCDEFGHJKLMNPQRSTUVWXZ, 121ABCDEFGHJKLMNPQRSTUVWXZ, 122ABCDEFGHJKLMNPQRSTUVWXZ, 123NSW

Warehouse Sector 11 - SOUTHWEST TARRANT COUNTY

Mapsco Numbers: 85ABCDEFGHJKLMNPQRSTUVWXZ, 86ABCDEFGHJKLMNPQRSTUVWXZ, 99ABCDEFGHJKLMNPQRSTUVWXZ, 100ABCDEFGHJKLMNPQRSTUVWXZ, 101ABCDEFGHJKLMNPQRSTUVWXZ, 102ABCDEFGHJKLMNPQRSTUVWXZ, 103ABCDEFGHJKLMNPQRSTUVWXZ, 113ABCDEFGHJKLMNPQRSTUVWXZ, 114ABCDEFGHJKLMNPQRSTUVWXZ, 115ABCDEFGHJKLMNPQRSTUVWXZ, 116ABCDEFGHJKLMNPQRSTUVWXZ, 117ABCEFGJKNPSTUWXY

Warehouse Sector 12 - WEST TARRANT COUNTY

Mapsco Numbers: 29EJNPSTWXYZ, 43A-Z, 44AEFJKLNPQRSTUVWXYZ, 45STUVWXYZ, 46XWY, 57ABCDEFGHJKLMNPQRSTUVWXZ, 58ABCDEFGHJKLMNPQRSTUVWXZ, 59ABCDEFGJK, 60ABC, 71ABCDEFGHJKLMNPQRSTUVWXZ, 72ABCDEFGHJKLMNPQRSTUVWXZ

Warehouse Sector 13 - SOUTH FORT WORTH/SEMINARY

Mapsco Numbers: 76GHLMQRUVYZ, 77EJNSW, 89MR, 90BCDEFGHJKLMNPQR, 91AEJN

Warehouse Sector 14 - SOUTHEAST FORT WORTH

Mapsco Numbers: 65WXYZ, 66WXYZ, 67WXYZ, 77FGHKLMPQRTUVXYZ, 78ABCDEFGHJKLMNPQRSTUVWXZ, 79ABCDEFGHJKLMNPQRSTUVWXZ, 80ABCDEFGHJKLMN, 81ABE, 91BCDFGHKLMPQR, 92ABCDEFGHJKLMNPQRTUV, 93ABCDEFGJKLNPQST

Warehouse Sector 15 - AIRPORT FREEWAY/BIRDVILLE

Mapsco Numbers: 51XYZ, 63FGHKLMPQRTUVXYZ, 64EFGHJKLMNPQRSTUVWXYZ, 65ABCDEFGHJKLMNPQRSTUV, 66ABCDEFGHJKLMNPQRSTUV, 67ABCDEFGHJKLMNPQRSTUV, 68AEJN, 77BCD

Warehouse Sector 16 - WEST FORT WORTH / HULEN

61YZ, 73JKLMNPQRSTUVWXYZ, 74EFGHJKLMNPQRSTUVWXYZ, 75CDEFGHJKLMNPQRSTUVWXYZ, 76EFJKNPSTWX, 87ABCDEFGHJKLMNPQRSTUVWXYZ, 88ABCDEFGHJKLMNPQRSTUVWXYZ, 89ABCDEFGHJKLNPQSTUVWXYZ, 90ASTWX, 104AEJNSW

Warehouse Sector 17 - FORT WORTH - NORTHSIDE

46VZ, 47 QRSTUVWXYZ, 48W, 59HLMNPQRSTUVWXYZ, 60DEFGHJKLMNPQRSTUVWXYZ, 61ABCDEFGHJKLMNPQRSTUVWX, 62ABCDEFHJKNPS, 63AE, 73ABCDEFGH, 74ABCD, 75AB

MODIFIED 1/6/2011

Appendix E. North American Industry Classification System (NAICS)

Code	Description
112111	Beef Cattle Ranching and Farming
112920	Horses and Other Equine Production
112990	All Other Animal Production
115112	Soil Preparation, Planting, and Cultivating
541940	Veterinary Services
812910	Pet Care (except Veterinary) Services
541320	Landscape Architectural Services
561730	Landscaping Services
561730	Landscaping Services
211111	Crude Petroleum and Natural Gas Extraction
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
213112	Support Activities for Oil and Gas Operations
212312	Crushed and Broken Limestone Mining and Quarrying
212319	Other Crushed and Broken Stone Mining and Quarrying
212321	Construction Sand and Gravel Mining
236115	New Single-Family Housing Construction (except Operative Builders)
236116	New Multifamily Housing Construction (except Operative Builders)
236210	Industrial Building Construction
237310	Highway, Street, and Bridge Construction
237310	Highway, Street, and Bridge Construction
237110	Water and Sewer Line and Related Structures Construction
237990	Other Heavy and Civil Engineering Construction
238220	Plumbing, Heating, and Air-Conditioning Contractors

238320 Painting and Wall Covering Contractors

238210 Electrical Contractors and Other Wiring Installation Contractors

238140 Masonry Contractors

238310 Drywall and Insulation Contractors

238340 Tile and Terrazzo Contractors

238350 Finish Carpentry Contractors

238330 Flooring Contractors

238160 Roofing Contractors

238110 Poured Concrete Foundation and Structure Contractors

221310 Water Supply and Irrigation Systems

238120 Structural Steel and Precast Concrete Contractors

238150 Glass and Glazing Contractors

238190 Other Foundation, Structure, and Building Exterior Contractors

238910 Site Preparation Contractors

238290 Other Building Equipment Contractors

238990 All Other Specialty Trade Contractors

311611 Animal (except Poultry) Slaughtering

311512 Creamery Butter Manufacturing

311513 Cheese Manufacturing

311514 Dry, Condensed, and Evaporated Dairy Product Manufacturing

311520 Ice Cream and Frozen Dessert Manufacturing

311511 Fluid Milk Manufacturing

311422 Specialty Canning

311421 Fruit and Vegetable Canning

311941 Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing

311411 Frozen Fruit, Juice, and Vegetable Manufacturing

311211 Flour Milling

311111 Dog and Cat Food Manufacturing

311999 All Other Miscellaneous Food Manufacturing

311812 Commercial Bakeries

311312 Cane Sugar Refining

311330 Confectionery Manufacturing from Purchased Chocolate

311340 Non-chocolate Confectionery Manufacturing

311911 Roasted Nuts and Peanut Butter Manufacturing

311223 Other Oilseed Processing

311225 Fats and Oils Refining and Blending

311225 Fats and Oils Refining and Blending

312111 Soft Drink Manufacturing

312130 Wineries

312140 Distilleries

312111 Soft Drink Manufacturing

311930 Flavoring Syrup and Concentrate Manufacturing

311711 Seafood Canning

311920 Coffee and Tea Manufacturing

311919 Other Snack Food Manufacturing

312113 Ice Manufacturing

311823 Dry Pasta Manufacturing

311999 All Other Miscellaneous Food Manufacturing

313210 Broad woven Fabric Mills

313249 Other Knit Fabric and Lace Mills

313311 Broad woven Fabric Finishing Mills

313221 Narrow Fabric Mills

315111 Sheer Hosiery Mills

315119 Other Hosiery and Sock Mills

315191 Outerwear Knitting Mills

315192 Underwear and Nightwear Knitting Mills

313312 Textile and Fabric Finishing (except Broad woven Fabric) Mills

313312 Textile and Fabric Finishing (except Broad woven Fabric) Mills

314110 Carpet and Rug Mills

313111 Yarn Spinning Mills

313113 Thread Mills

314991 Rope, Cordage, and Twine Mills

314999 All Other Miscellaneous Textile Product Mills

315222 Men's and Boy's Cut and Sew Suit, Coat, and Overcoat Manufacturing

315223 Men's and Boy's Cut and Sew Shirt (except Work Shirt) Manufacturing

315224 Men's and Boy's Cut and Sew Trouser, Slack, and Jean Manufacturing

315228 Men's and Boy's Cut and Sew Other Outerwear Manufacturing

315232 Women's and Girl's Cut and Sew Blouse and Shirt Manufacturing

315239 Women's and Girl's Cut and Sew Other Outerwear Manufacturing

315231 Women's and Girl's Cut and Sew Lingerie, Loungewear, and Nightwear Manufacturing

315991 Hat, Cap, and Millinery Manufacturing

315233 Women's and Girl's Cut and Sew Dress Manufacturing

315234 Women's and Girl's Cut and Sew Suit, Coat, Tailored Jacket, and Skirt Manufacturing

315292 Fur and Leather Apparel Manufacturing

315992 Glove and Mitten Manufacturing

315999 Other Apparel Accessories and Other Apparel Manufacturing

314121 Curtain and Drapery Mills

314912 Canvas and Related Product Mills

314999 All Other Miscellaneous Textile Product Mills

313222 Schiffli Machine Embroidery

314999 All Other Miscellaneous Textile Product Mills

113310 Logging

321113 Sawmills

321113 Sawmills

321918 Other Millwork (including Flooring)

337110 Wood Kitchen Cabinet and Countertop Manufacturing

321213 Engineered Wood Member (except Truss) Manufacturing

321920 Wood Container and Pallet Manufacturing

321920 Wood Container and Pallet Manufacturing

321991 Manufactured Home (Mobile Home) Manufacturing

321992 Prefabricated Wood Building Manufacturing

321114 Wood Preservation

321999 All Other Miscellaneous Wood Product Manufacturing

337122 Non-upholstered Wood Household Furniture Manufacturing

337121 Upholstered Household Furniture Manufacturing

337124 Metal Household Furniture Manufacturing

337910 Mattress Manufacturing

337129 Wood Television, Radio, and Sewing Machine Cabinet Manufacturing

337125 Household Furniture (except Wood and Metal) Manufacturing

337211 Wood Office Furniture Manufacturing

337214 Office Furniture (except Wood) Manufacturing

337127 Institutional Furniture Manufacturing

337215 Showcase, Partition, Shelving, and Locker Manufacturing

337215 Showcase, Partition, Shelving, and Locker Manufacturing

337920 Blind and Shade Manufacturing

337127 Institutional Furniture Manufacturing

322110 Pulp Mills

322121 Paper (except Newsprint) Mills

322130 Paperboard Mills

322213 Setup Paperboard Box Manufacturing

322211 Corrugated and Solid Fiber Box Manufacturing

322214 Fiber Can, Tube, Drum, and Similar Products Manufacturing

322215 Non-folding Sanitary Food Container Manufacturing

322212 Folding Paperboard Box Manufacturing

322221 Coated and Laminated Packaging Paper Manufacturing

322222 Coated and Laminated Paper Manufacturing

322223 Coated Paper Bag and Pouch Manufacturing

322224 Uncoated Paper and Multiwall Bag Manufacturing

322231 Die-Cut Paper and Paperboard Office Supplies Manufacturing

322291 Sanitary Paper Product Manufacturing

322232 Envelope Manufacturing

322233 Stationery, Tablet, and Related Product Manufacturing

322299 All Other Converted Paper Product Manufacturing

511110 Newspaper Publishers

511120 Periodical Publishers

511130 Book Publishers

323117 Books Printing

511199 All Other Publishers

323110 Commercial Lithographic Printing

323111 Commercial Gravure Printing

323119 Other Commercial Printing

323116 Manifold Business Forms Printing

511191 Greeting Card Publishers

323118 Blank book, Loose leaf Binders, and Devices Manufacturing

323121 Trade binding and Related Work

323122 Prepress Services

323122 Prepress Services

325181 Alkalis and Chlorine Manufacturing

325120 Industrial Gas Manufacturing

325131 Inorganic Dye and Pigment Manufacturing

325188 All Other Basic Inorganic Chemical Manufacturing

325211 Plastics Material and Resin Manufacturing

325212 Synthetic Rubber Manufacturing

325221 Cellulosic Organic Fiber Manufacturing

325222 Non-cellulosic Organic Fiber Manufacturing

325411 Medicinal and Botanical Manufacturing

325412 Pharmaceutical Preparation Manufacturing

325413 In-Vitro Diagnostic Substance Manufacturing

325414 Biological Product (except Diagnostic) Manufacturing

325611 Soap and Other Detergent Manufacturing

325612 Polish and Other Sanitation Good Manufacturing

325613 Surface Active Agent Manufacturing

325620 Toilet Preparation Manufacturing

325510 Paint and Coating Manufacturing

325199 All Other Basic Organic Chemical Manufacturing

325320 Pesticide and Other Agricultural Chemical Manufacturing

325520 Adhesive Manufacturing

325920 Explosives Manufacturing

325910 Printing Ink Manufacturing

325182 Carbon Black Manufacturing

325998 All Other Miscellaneous Chemical Product and Preparation Manufacturing

324110 Petroleum Refineries

324121 Asphalt Paving Mixture and Block Manufacturing

324122 Asphalt Shingle and Coating Materials Manufacturing

324191 Petroleum Lubricating Oil and Grease Manufacturing

324199 All Other Petroleum and Coal Products Manufacturing

326211 Tire Manufacturing (except Retreading)

316211 Rubber and Plastics Footwear Manufacturing

326220 Rubber and Plastics Hoses and Belting Manufacturing

339991 Gasket, Packing, and Sealing Device Manufacturing

326291 Rubber Product Manufacturing for Mechanical Use

326299 All Other Rubber Product Manufacturing

326113 Un-laminated Plastics Film and Sheet (except Packaging) Manufacturing

326121 Un-laminated Plastics Profile Shape Manufacturing

326130 Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing

326122 Plastics Pipe and Pipe Fitting Manufacturing

326160 Plastics Bottle Manufacturing

326140 Polystyrene Foam Product Manufacturing

325991 Custom Compounding of Purchased Resins

326191 Plastics Plumbing Fixture Manufacturing

326199 All Other Plastics Product Manufacturing

316110 Leather and Hide Tanning and Finishing

316999 All Other Leather Good and Allied Product Manufacturing

316213 Men's Footwear (except Athletic) Manufacturing

316214 Women's Footwear (except Athletic) Manufacturing

316219 Other Footwear Manufacturing

315992 Glove and Mitten Manufacturing

316991 Luggage Manufacturing

316992 Women's Handbag and Purse Manufacturing

316993 Personal Leather Good (except Women's Handbag and Purse) Manufacturing

316999 All Other Leather Good and Allied Product Manufacturing

327211 Flat Glass Manufacturing

327213 Glass Container Manufacturing

327212 Other Pressed and Blown Glass and Glassware Manufacturing

327215 Glass Product Manufacturing Made of Purchased Glass

327310 Cement Manufacturing

327121 Brick and Structural Clay Tile Manufacturing

327122 Ceramic Wall and Floor Tile Manufacturing

327124 Clay Refractory Manufacturing

327123 Other Structural Clay Product Manufacturing

327112 Vitreous China, Fine Earthenware, and Other Pottery Product Manufacturing

327331 Concrete Block and Brick Manufacturing

327390 Other Concrete Product Manufacturing

327320 Ready-Mix Concrete Manufacturing

327410 Lime Manufacturing

327420 Gypsum Product Manufacturing

327991 Cut Stone and Stone Product Manufacturing

327910 Abrasive Product Manufacturing

327993 Mineral Wool Manufacturing

327125 Non-clay Refractory Manufacturing

327999 All Other Miscellaneous Non-metallic Mineral Product Manufacturing

331111 Iron and Steel Mills

331511 Iron Foundries

331513 Steel Foundries (except Investment)

331419 Primary Smelting and Refining of Non-ferrous Metal (except Copper and Aluminum)

331492 Secondary Smelting, Refining, and Alloying of Non-ferrous Metal (except Copper and Aluminum)

331421 Copper Rolling, Drawing, and Extruding

331491 Non-ferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding

335929 Other Communication and Energy Wire Manufacturing

331521 Aluminum Die-Casting Foundries

331522 Non-ferrous (except Aluminum) Die-Casting Foundries

331524 Aluminum Foundries (except Die-Casting)

331525 Copper Foundries (except Die-Casting)

331528 Other Non-ferrous Foundries (except Die-Casting)

332811 Metal Heat Treating

332618 Other Fabricated Wire Product Manufacturing

332431 Metal Can Manufacturing

332439 Other Metal Container Manufacturing

332211 Cutlery and Flatware (except Precious) Manufacturing

332212 Hand and Edge Tool Manufacturing

332510 Hardware Manufacturing

332998 Enameled Iron and Metal Sanitary Ware Manufacturing

332913 Plumbing Fixture Fitting and Trim Manufacturing

333414 Heating Equipment (except Warm Air Furnaces) Manufacturing

332312 Fabricated Structural Metal Manufacturing

332321 Metal Window and Door Manufacturing

332313 Plate Work Manufacturing

332322 Sheet Metal Work Manufacturing

332323 Ornamental and Architectural Metal Work Manufacturing

332999 All Other Miscellaneous Fabricated Metal Product Manufacturing

332721 Precision Turned Product Manufacturing

332722 Bolt, Nut, Screw, Rivet, and Washer Manufacturing

332111 Iron and Steel Forging

332112 Non-ferrous Forging

332116 Metal Stamping

332115 Crown and Closure Manufacturing

332116 Metal Stamping

332813 Electroplating, Plating, Polishing, Anodizing, and Coloring

332812 Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers

332994 Small Arms Manufacturing

332995 Other Ordnance and Accessories Manufacturing

332911 Industrial Valve Manufacturing

332912 Fluid Power Valve and Hose Fitting Manufacturing

332611 Spring (Heavy Gauge) Manufacturing

332919 Other Metal Valve and Pipe Fitting Manufacturing

332611 Spring (Heavy Gauge) Manufacturing

332618 Other Fabricated Wire Product Manufacturing

322225 Laminated Aluminum Foil Manufacturing for Flexible Packaging Uses

332996 Fabricated Pipe and Pipe Fitting Manufacturing

332999 All Other Miscellaneous Fabricated Metal Product Manufacturing

333611 Turbine and Turbine Generator Set Units Manufacturing

333618 Other Engine Equipment Manufacturing

333111 Farm Machinery and Equipment Manufacturing

333112 Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing

333120 Construction Machinery Manufacturing

333131 Mining Machinery and Equipment Manufacturing

333132 Oil and Gas Field Machinery and Equipment Manufacturing

333921 Elevator and Moving Stairway Manufacturing

333922 Conveyor and Conveying Equipment Manufacturing

333923 Overhead Traveling Crane, Hoist, and Monorail System Manufacturing

333924 Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing

333512 Machine Tool (Metal Cutting Types) Manufacturing

333513 Machine Tool (Metal Forming Types) Manufacturing

333514 Special Die and Tool, Die Set, Jig, and Fixture Manufacturing

333518 Other Metalworking Machinery Manufacturing

333210 Sawmill and Woodworking Machinery Manufacturing

333291 Paper Industry Machinery Manufacturing

333293 Printing Machinery and Equipment Manufacturing

333294 Food Product Machinery Manufacturing

333298 All Other Industrial Machinery Manufacturing

333412 Industrial and Commercial Fan and Blower Manufacturing

333993 Packaging Machinery Manufacturing

333612 Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing

333994 Industrial Process Furnace and Oven Manufacturing

333613 Mechanical Power Transmission Equipment Manufacturing

333999 All Other Miscellaneous General Purpose Machinery Manufacturing

334111 Electronic Computer Manufacturing

334112 Computer Storage Device Manufacturing

334113 Computer Terminal Manufacturing

334119 Other Computer Peripheral Equipment Manufacturing

333313 Office Machinery Manufacturing

333313 Office Machinery Manufacturing

333311 Automatic Vending Machine Manufacturing

333415 Air-Conditioning and Warm Air Heating Equip.& Commercial & Ind. Refrigeration Equip. Mfg.

333319 Other Commercial and Service Industry Machinery Manufacturing

336311 Carburetor, Piston, Piston Ring, and Valve Manufacturing

333996 Fluid Power Pump and Motor Manufacturing

333999 All Other Miscellaneous General Purpose Machinery Manufacturing

335311 Power, Distribution, and Specialty Transformer Manufacturing

335313 Switchgear and Switchboard Apparatus Manufacturing

335312 Motor and Generator Manufacturing

335991 Carbon and Graphite Product Manufacturing

335314 Relay and Industrial Control Manufacturing

335999 All Other Miscellaneous Electrical Equipment and Component Manufacturing

335221 Household Cooking Appliance Manufacturing

335211 Electric Housewares and Household Fan Manufacturing

335228 Other Major Household Appliance Manufacturing

335110 Electric Lamp Bulb and Part Manufacturing

335931 Current-Carrying Wiring Device Manufacturing

335932 Non-current-Carrying Wiring Device Manufacturing

335121 Residential Electric Lighting Fixture Manufacturing

335122 Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing

335129 Other Lighting Equipment Manufacturing

334310 Audio and Video Equipment Manufacturing

334612 Prerecorded Compact Disc (except Software), Tape, and Record Reproducing

334210 Telephone Apparatus Manufacturing

334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing

334290 Other Communications Equipment Manufacturing

334411 Electron Tube Manufacturing

334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing

334413 Semiconductor and Related Device Manufacturing

334414 Electronic Capacitor Manufacturing

334419 Other Electronic Component Manufacturing

335912 Primary Battery Manufacturing

335999 All Other Miscellaneous Electrical Equipment and Component Manufacturing

336211 Motor Vehicle Body Manufacturing

336120 Heavy Duty Truck Manufacturing

336399 All Other Motor Vehicle Parts Manufacturing

336212 Truck Trailer Manufacturing

336213 Motor Home Manufacturing

336411 Aircraft Manufacturing

336412 Aircraft Engine and Engine Parts Manufacturing

336413 Other Aircraft Parts and Auxiliary Equipment Manufacturing

336611 Ship Building and Repairing

336510 Railroad Rolling Stock Manufacturing

336991 Motorcycle, Bicycle, and Parts Manufacturing

336414 Guided Missile and Space Vehicle Manufacturing

336214 Travel Trailer and Camper Manufacturing

336999 All Other Transportation Equipment Manufacturing

334511 Search, Detection, Navigation, Guidance, Aeronautical, & Nautical System & Instrument Mfg.

334512 Automatic Environmental Control Manufacturing for Residential, Commercial, & Appliance Use

334513 Instruments & Related Products Mfg. for Measuring, Displaying, & Controlling Ind. Process Variables

334514 Totalizing Fluid Meter and Counting Device Manufacturing

334515 Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals

334516 Analytical Laboratory Instrument Manufacturing

333314 Optical Instrument and Lens Manufacturing

334519 Other Measuring and Controlling Device Manufacturing

339112 Surgical and Medical Instrument Manufacturing

339113 Surgical Appliance and Supplies Manufacturing

339114 Dental Equipment and Supplies Manufacturing

334517 Irradiation Apparatus Manufacturing

334510 Electro medical and Electrotherapeutic Apparatus Manufacturing

339115 Ophthalmic Goods Manufacturing

333315 Photographic and Photocopying Equipment Manufacturing

334518 Watch, Clock, and Part Manufacturing

339911 Jewelry (except Costume) Manufacturing

332211 Cutlery and Flatware (except Precious) Manufacturing

339913 Jewelers Material and Lapidary Work Manufacturing

339992 Musical Instrument Manufacturing

339931 Doll and Stuffed Toy Manufacturing

339932 Game, Toy, and Children's Vehicle Manufacturing

339920 Sporting and Athletic Goods Manufacturing

339941 Pen and Mechanical Pencil Manufacturing

339943 Marking Device Manufacturing

339914 Costume Jewelry and Novelty Manufacturing

339993 Fastener, Button, Needle, and Pin Manufacturing

339950 Sign Manufacturing

339999 All Other Miscellaneous Manufacturing

482111 Line-Haul Railroads

485111 Mixed Mode Transit Systems

485999 All Other Transit and Ground Passenger Transportation

485310 Taxi Service

485210 Interurban and Rural Bus Transportation

485510 Charter Bus Industry

485510 Charter Bus Industry

485410 School and Employee Bus Transportation

488490 Other Support Activities for Road Transportation

484110 General Freight Trucking, Local

484121 General Freight Trucking, Long-Distance, Truckload

484122 General Freight Trucking, Long-Distance, Less Than Truckload

492110 Couriers and Express Delivery Services

493130 Farm Product Warehousing and Storage

493120 Refrigerated Warehousing and Storage

493110 General Warehousing and Storage

493190 Other Warehousing and Storage

488490 Other Support Activities for Road Transportation

713930 Marinas

481111 Scheduled Passenger Air Transportation

481212 Non-scheduled Chartered Freight Air Transportation

481211 Non-scheduled Chartered Passenger Air Transportation

488119 Other Airport Operations

488190 Other Support Activities for Air Transportation

486910 Pipeline Transportation of Refined Petroleum Products

561510 Travel Agencies

561520 Tour Operators

561599 All Other Travel Arrangement and Reservation Services

488510 Freight Transportation Arrangement

532411 Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing

488991 Packing and Crating

488999 All Other Support Activities for Transportation

517210 Wireless Telecommunications Carriers (except Satellite)

517110 Wired Telecommunications Carriers

517919 All Other Telecommunications

515112 Radio Stations

515120 Television Broadcasting

515210 Cable and Other Subscription Programming

517919 All Other Telecommunications

517919 All Other Telecommunications

221119 Other Electric Power Generation

486210 Pipeline Transportation of Natural Gas

221210 Natural Gas Distribution

221121 Electric Bulk Power Transmission and Control

221122 Electric Power Distribution

221310 Water Supply and Irrigation Systems

562219 Other Non-hazardous Waste Treatment and Disposal

562998 All Other Miscellaneous Waste Management Services

221330 Steam and Air-Conditioning Supply

221310 Water Supply and Irrigation Systems

423110 Automobile and Other Motor Vehicle Merchant Wholesalers

423120 Motor Vehicle Supplies and New Parts Merchant Wholesalers

423130 Tire and Tube Merchant Wholesalers

423140 Motor Vehicle Parts (Used) Merchant Wholesalers

423210 Furniture Merchant Wholesalers

423220 Home Furnishing Merchant Wholesalers

423310 Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers

423320 Brick, Stone, and Related Construction Material Merchant Wholesalers

423330 Roofing, Siding, and Insulation Material Merchant Wholesalers

423390 Other Construction Material Merchant Wholesalers

423410 Photographic Equipment and Supplies Merchant Wholesalers

423420 Office Equipment Merchant Wholesalers

423430 Computer and Computer Peripheral Equipment and Software Merchant Wholesalers

423440 Other Commercial Equipment Merchant Wholesalers

423450 Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers

423460 Ophthalmic Goods Merchant Wholesalers

423490 Other Professional Equipment and Supplies Merchant Wholesalers

423510 Metal Service Centers and Other Metal Merchant Wholesalers

423610 Electrical Apparatus & Equipment, Wiring Supplies, & Related Equip. Merchant Wholesalers

423620 Electrical and Electronic Appliance, Television, and Radio Set Merchant Wholesalers

423690 Other Electronic Parts and Equipment Merchant Wholesalers

423710 Hardware Merchant Wholesalers

423720 Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers

423730 Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers

423740 Refrigeration Equipment and Supplies Merchant Wholesalers

423810 Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers

423820 Farm and Garden Machinery and Equipment Merchant Wholesalers

423830 Industrial Machinery and Equipment Merchant Wholesalers

423840 Industrial Supplies Merchant Wholesalers

423850 Service Establishment Equipment and Supplies Merchant Wholesalers

423860 Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers

423910 Sporting and Recreational Goods and Supplies Merchant Wholesalers

423920 Toy and Hobby Goods and Supplies Merchant Wholesalers

423930 Recyclable Material Merchant Wholesalers

423940 Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers

423990 Other Miscellaneous Durable Goods Merchant Wholesalers

424110 Printing and Writing Paper Merchant Wholesalers

424120 Stationery and Office Supplies Merchant Wholesalers

424130 Industrial and Personal Service Paper Merchant Wholesalers

424210 Drugs and Druggists Sundries Merchant Wholesalers

424310 Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers

424320 Men's and Boy's Clothing and Furnishings Merchant Wholesalers

424330 Women's, Children's, and Infants Clothing and Accessories Merchant Wholesalers

424340 Footwear Merchant Wholesalers

424410 General Line Grocery Merchant Wholesalers

424420 Packaged Frozen Food Merchant Wholesalers

424430 Dairy Product (except Dried or Canned) Merchant Wholesalers

424440 Poultry and Poultry Product Merchant Wholesalers

424450 Confectionery Merchant Wholesalers

424460 Fish and Seafood Merchant Wholesalers

424470 Meat and Meat Product Merchant Wholesalers

424480 Fresh Fruit and Vegetable Merchant Wholesalers

424490 Other Grocery and Related Products Merchant Wholesalers

424510 Grain and Field Bean Merchant Wholesalers

424520 Livestock Merchant Wholesalers

424590 Other Farm Product Raw Material Merchant Wholesalers

424610 Plastics Materials and Basic Forms and Shapes Merchant Wholesalers

424690 Other Chemical and Allied Products Merchant Wholesalers

424710 Petroleum Bulk Stations and Terminals

424720 Petroleum & Petroleum Products Merchant Wholesalers (except Bulk Stations / Terminals)

424810 Beer and Ale Merchant Wholesalers

424820 Wine and Distilled Alcoholic Beverage Merchant Wholesalers

424910 Farm Supplies Merchant Wholesalers

424920 Book, Periodical, and Newspaper Merchant Wholesalers

424930 Flower, Nursery Stock, and Florists Supplies Merchant Wholesalers

424940 Tobacco and Tobacco Product Merchant Wholesalers

424950 Paint, Varnish, and Supplies Merchant Wholesalers

424990 Other Miscellaneous Non-Durable Goods Merchant Wholesalers

444110 Home Centers

444120 Paint and Wallpaper Stores

444130 Hardware Stores

444220 Nursery, Garden Center, and Farm Supply Stores

453930 Manufactured (Mobile) Home Dealers

452111 Department Stores (except Discount Department Stores)

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

445110 Supermarkets and Other Grocery (except Convenience) Stores

445210 Meat Markets

445230 Fruit and Vegetable Markets

445292 Confectionery and Nut Stores

445299 All Other Specialty Food Stores

311811 Retail Bakeries

445299 All Other Specialty Food Stores

441110 New Car Dealers

441120 Used Car Dealers

441310 Automotive Parts and Accessories Stores

447190 Other Gasoline Stations

441222 Boat Dealers

441221 Motorcycle, ATV, and Personal Watercraft Dealers

441229 All Other Motor Vehicle Dealers

448110 Men's Clothing Stores

448120 Women's Clothing Stores

448150 Clothing Accessories Stores

448130 Children's and Infants Clothing Stores

448140 Family Clothing Stores

448210 Shoe Stores

448190 Other Clothing Stores

442110 Furniture Stores

442210 Floor Covering Stores

442291 Window Treatment Stores

442299 All Other Home Furnishings Stores

443111 Household Appliance Stores

443112 Radio, Television, and Other Electronics Stores

443120 Computer and Software Stores

451220 Prerecorded Tape, Compact Disc, and Record Stores

451140 Musical Instrument and Supplies Stores

722110 Full-Service Restaurants

722410 Drinking Places (Alcoholic Beverages)

446110 Pharmacies and Drug Stores

445310 Beer, Wine, and Liquor Stores

453310 Used Merchandise Stores

451110 Sporting Goods Stores

451211 Book Stores

453210 Office Supplies and Stationery Stores

448310 Jewelry Stores

451120 Hobby, Toy, and Game Stores

443130 Camera and Photographic Supplies Stores

453220 Gift, Novelty, and Souvenir Stores

448320 Luggage and Leather Goods Stores

451130 Sewing, Needlework, and Piece Goods Stores

454113 Mail-Order Houses

454210 Vending Machine Operators

454390 Other Direct Selling Establishments

454312 Liquefied Petroleum Gas (Bottled Gas) Dealers

453110 Florists

453991 Tobacco Stores

451212 News Dealers and Newsstands

446130 Optical Goods Stores

453998 All Other Miscellaneous Store Retailers (except Tobacco Stores)

521110 Monetary Authorities-Central Bank

522110 Commercial Banking

522110 Commercial Banking

522120 Savings Institutions

522130 Credit Unions

522130 Credit Unions

522292 Real Estate Credit

522291 Consumer Lending

522210 Credit Card Issuing

522190 Other Depository Credit Intermediation

522390 Other Activities Related to Credit Intermediation

522310 Mortgage and Non-mortgage Loan Brokers

523120 Securities Brokerage

523140 Commodity Contracts Brokerage

523930 Investment Advice

523210 Securities and Commodity Exchanges

524113 Direct Life Insurance Carriers

524114 Direct Health and Medical Insurance Carriers

524114 Direct Health and Medical Insurance Carriers

524126 Direct Property and Casualty Insurance Carriers

524127 Direct Title Insurance Carriers

525120 Health and Welfare Funds

524128 Other Direct Insurance (except Life, Health, and Medical) Carriers

524210 Insurance Agencies and Brokerages

531120 Lessors of Non-residential Buildings (except Mini-warehouses)

531110 Lessors of Residential Buildings and Dwellings

531110 Lessors of Residential Buildings and Dwellings

531190 Lessors of Other Real Estate Property

531190 Lessors of Other Real Estate Property

531210 Offices of Real Estate Agents and Brokers

541191 Title Abstract and Settlement Offices

237210 Land Subdivision

812220 Cemeteries and Crematories

551112 Offices of Other Holding Companies

525910 Open-End Investment Funds

525990 Other Financial Vehicles

525920 Trusts, Estates, and Agency Accounts

533110 Lessors of Non-financial Intangible Assets (except Copyrighted Works)

523999 Miscellaneous Financial Investment Activities

721110 Hotels (except Casino Hotels) and Motels

721310 Rooming and Boarding Houses

721214 Recreational and Vacation Camps (except Campgrounds)

721211 RV (Recreational Vehicle) Parks and Campgrounds

812320 Dry cleaning and Laundry Services (except Coin-Operated)

812331 Linen Supply

812310 Coin-Operated Laundries and Drycleaners

561740 Carpet and Upholstery Cleaning Services

812332 Industrial Launderers

812320 Dry cleaning and Laundry Services (except Coin-Operated)

541921 Photography Studios, Portrait

812112 Beauty Salons

812111 Barber Shops

811430 Footwear and Leather Goods Repair

812210 Funeral Homes and Funeral Services

541213 Tax Preparation Services

812199 Other Personal Care Services

541810 Advertising Agencies

541850 Display Advertising

541840 Media Representatives

541890 Other Services Related to Advertising

561440 Collection Agencies

561450 Credit Bureaus

541860 Direct Mail Advertising

561439 Other Business Service Centers (including Copy Shops)

541922 Commercial Photography

541430 Graphic Design Services

561492 Court Reporting and Stenotype Services

561710 Exterminating and Pest Control Services

561790 Other Services to Buildings and Dwellings

532291 Home Health Equipment Rental

532412 Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing

532490 Other Commercial and Industrial Machinery and Equipment Rental and Leasing

561311 Employment Placement Agencies

561320 Temporary Help Services

541511 Custom Computer Programming Services

511210 Software Publishers

541512 Computer Systems Design Services

518210 Data Processing, Hosting, and Related Services

519190 All Other Information Services

541513 Computer Facilities Management Services

532420 Office Machinery and Equipment Rental and Leasing

811212 Computer and Office Machine Repair and Maintenance

541519 Other Computer Related Services

561613 Armored Car Services

561621 Security Systems Services (except Locksmiths)

519110 News Syndicates

812921 Photofinishing Laboratories (except One-Hour)

541990 All Other Professional, Scientific, and Technical Services

532120 Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing

532111 Passenger Car Rental

532112 Passenger Car Leasing

532120 Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing

812930 Parking Lots and Garages

811121 Automotive Body, Paint, and Interior Repair and Maintenance

811112 Automotive Exhaust System Repair

326212 Tire Retreading

811122 Automotive Glass Replacement Shops

811113 Automotive Transmission Repair

811111 General Automotive Repair

811198 All Other Automotive Repair and Maintenance

811192 Car Washes

811198 All Other Automotive Repair and Maintenance

811211 Consumer Electronics Repair and Maintenance

811310 Commercial and Industrial Machinery and Equipment Repair and Maintenance

811219 Other Electronic and Precision Equipment Repair and Maintenance

811490 Other Personal and Household Goods Repair and Maintenance

811420 Re-upholstery and Furniture Repair

811310 Commercial and Industrial Machinery and Equipment Repair and Maintenance

335312 Motor and Generator Manufacturing

811490 Other Personal and Household Goods Repair and Maintenance

512110 Motion Picture and Video Production

512199 Other Motion Picture and Video Industries

512120 Motion Picture and Video Distribution

512120 Motion Picture and Video Distribution

512131 Motion Picture Theaters (except Drive-Ins)

512132 Drive-In Motion Picture Theaters

532230 Video Tape and Disc Rental

713990 All Other Amusement and Recreation Industries

711110 Theater Companies and Dinner Theaters

711190 Other Performing Arts Companies

713950 Bowling Centers

711320 Promoters of Performing Arts, Sports, and Similar Events without Facilities

711212 Racetracks

713940 Fitness and Recreational Sports Centers

713910 Golf Courses and Country Clubs

713120 Amusement Arcades

713110 Amusement and Theme Parks

713990 All Other Amusement and Recreation Industries

713990 All Other Amusement and Recreation Industries

621111 Offices of Physicians (except Mental Health Specialists)

621210 Offices of Dentists

621111 Offices of Physicians (except Mental Health Specialists)

621310 Offices of Chiropractors

621320 Offices of Optometrists

621391 Offices of Podiatrists

621399 Offices of All Other Miscellaneous Health Practitioners

623311 Continuing Care Retirement Communities

623110 Nursing Care Facilities

623990 Other Residential Care Facilities

622110 General Medical and Surgical Hospitals

622210 Psychiatric and Substance Abuse Hospitals

622310 Specialty (except Psychiatric and Substance Abuse) Hospitals

621511 Medical Laboratories

339116 Dental Laboratories

621610 Home Health Care Services

621492 Kidney Dialysis Centers

621498 All Other Outpatient Care Centers

621999 All Other Miscellaneous Ambulatory Health Care Services

541110 Offices of Lawyers

611420 Computer Training

611410 Business and Secretarial Schools

611519 Other Technical and Trade Schools

611699 All Other Miscellaneous Schools and Instruction

624190 Other Individual and Family Services

624310 Vocational Rehabilitation Services

624410 Child Day Care Services

623312 Homes for the Elderly

813319 Other Social Advocacy Organizations

712110 Museums

712130 Zoos and Botanical Gardens

813910 Business Associations

813920 Professional Organizations

813930 Labor Unions and Similar Labor Organizations

813410 Civic and Social Organizations

813940 Political Organizations

813110 Religious Organizations

813910 Business Associations

541330 Engineering Services

541310 Architectural Services

541370 Surveying and Mapping (except Geophysical) Services

541211 Offices of Certified Public Accountants

541712 Research & Development in the Physical, Engineering, & Life Sciences (except Biotechnology)

541720 Research and Development in the Social Sciences and Humanities

541720 Research and Development in the Social Sciences and Humanities

541380 Testing Laboratories

561110 Office Administrative Services

541611 Administrative Management and General Management Consulting Services

541820 Public Relations Agencies

541618 Other Management Consulting Services

519190 All Other Information Services

812990 All Other Personal Services

722110 Full-Service Restaurants

722110 Full-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722110 Full-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

238990 All Other Specialty Trade Contractors

321999 All Other Miscellaneous Wood Product Manufacturing

336413 Other Aircraft Parts and Auxiliary Equipment Manufacturing

493190 Other Warehousing and Storage

423990 Other Miscellaneous Durable Goods Merchant Wholesalers

424990 Other Miscellaneous Non-Durable Goods Merchant Wholesalers

444110 Home Centers

444110 Home Centers

444110 Home Centers

444120 Paint and Wallpaper Stores

444120 Paint and Wallpaper Stores

444120 Paint and Wallpaper Stores

444120 Paint and Wallpaper Stores

444130 Hardware Stores

444130 Hardware Stores

444220 Nursery, Garden Center, and Farm Supply Stores

452111 Department Stores (except Discount Department Stores)

452111 Department Stores (except Discount Department Stores)

452111 Department Stores (except Discount Department Stores)

452111 Department Stores (except Discount Department Stores)

452111 Department Stores (except Discount Department Stores)

452111 Department Stores (except Discount Department Stores)

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

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452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

452990 All Other General Merchandise Stores

445110 Supermarkets and Other Grocery (except Convenience) Stores

445120 Convenience Stores

447110 Gasoline Stations with Convenience Stores

447110 Gasoline Stations with Convenience Stores

447110 Gasoline Stations with Convenience Stores

445110 Supermarkets and Other Grocery (except Convenience) Stores

447110 Gasoline Stations with Convenience Stores

447110 Gasoline Stations with Convenience Stores

445110 Supermarkets and Other Grocery (except Convenience) Stores

447110 Gasoline Stations with Convenience Stores

445110 Supermarkets and Other Grocery (except Convenience) Stores

447110 Gasoline Stations with Convenience Stores

447110 Gasoline Stations with Convenience Stores

445292 Confectionery and Nut Stores

311811 Retail Bakeries

445291 Baked Goods Stores

445299 All Other Specialty Food Stores

441310 Automotive Parts and Accessories Stores

441310 Automotive Parts and Accessories Stores

441310 Automotive Parts and Accessories Stores

441320 Tire Dealers

441320 Tire Dealers

441310 Automotive Parts and Accessories Stores

441320 Tire Dealers

441310 Automotive Parts and Accessories Stores

441310 Automotive Parts and Accessories Stores

448110 Men’s Clothing Stores

448110 Men’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448120 Women’s Clothing Stores

448140 Family Clothing Stores

448140 Family Clothing Stores

448140 Family Clothing Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448210 Shoe Stores

448190 Other Clothing Stores

442110 Furniture Stores

442110 Furniture Stores

442110 Furniture Stores

442110 Furniture Stores

442299 All Other Home Furnishings Stores

443112 Radio, Television, and Other Electronics Stores

443112 Radio, Television, and Other Electronics Stores

443112 Radio, Television, and Other Electronics Stores

451220 Prerecorded Tape, Compact Disc, and Record Stores

451220 Prerecorded Tape, Compact Disc, and Record Stores

722211 Limited-Service Restaurants

722110 Full-Service Restaurants

722212 Cafeterias, Grill Buffets, and Buffets

722110 Full-Service Restaurants

722110 Full-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722110 Full-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722110 Full-Service Restaurants

722110 Full-Service Restaurants

722110 Full-Service Restaurants

722110 Full-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722211 Limited-Service Restaurants

722110 Full-Service Restaurants

446110 Pharmacies and Drug Stores

446110 Pharmacies and Drug Stores

446110 Pharmacies and Drug Stores

446110 Pharmacies and Drug Stores

445310 Beer, Wine, and Liquor Stores

445310 Beer, Wine, and Liquor Stores

445310 Beer, Wine, and Liquor Stores

445310 Beer, Wine, and Liquor Stores

453310 Used Merchandise Stores

453310 Used Merchandise Stores

453310 Used Merchandise Stores

522298 All Other Non-Depository Credit Intermediation

453310 Used Merchandise Stores

451110 Sporting Goods Stores

451110 Sporting Goods Stores

451110 Sporting Goods Stores

451211 Book Stores

451211 Book Stores

451211 Book Stores

451211 Book Stores

451211 Book Stores

453210 Office Supplies and Stationery Stores

453210 Office Supplies and Stationery Stores

453210 Office Supplies and Stationery Stores

448310 Jewelry Stores

448310 Jewelry Stores

448310 Jewelry Stores

448310 Jewelry Stores

448310 Jewelry Stores

448310 Jewelry Stores

451120 Hobby, Toy, and Game Stores

451120 Hobby, Toy, and Game Stores

453220 Gift, Novelty, and Souvenir Stores

448320 Luggage and Leather Goods Stores

451130 Sewing, Needlework, and Piece Goods Stores

451130 Sewing, Needlework, and Piece Goods Stores

446130 Optical Goods Stores

446130 Optical Goods Stores

446130 Optical Goods Stores

446130 Optical Goods Stores

446130 Optical Goods Stores

453920 Art Dealers

446120 Cosmetics, Beauty Supplies, and Perfume Stores

446120 Cosmetics, Beauty Supplies, and Perfume Stores

453910 Pet and Pet Supplies Stores

444220 Nursery, Garden Center, and Farm Supply Stores

446120 Cosmetics, Beauty Supplies, and Perfume Stores

522110 Commercial Banking

523210 Securities and Commodity Exchanges

721110 Hotels (except Casino Hotels) and Motels

812320 Dry cleaning and Laundry Services (except Coin-Operated)

812331 Linen Supply

812199 Other Personal Care Services

532310 General Rental Centers

532310 General Rental Centers

532310 General Rental Centers

532310 General Rental Centers

532310 General Rental Centers

518210 Data Processing, Hosting, and Related Services

532420 Office Machinery and Equipment Rental and Leasing

512240 Sound Recording Studios

561499 All Other Business Support Services

541380 Testing Laboratories

532120 Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing

532112 Passenger Car Leasing

811113 Automotive Transmission Repair

811198 All Other Automotive Repair and Maintenance

811191 Automotive Oil Change and Lubrication Shops

811198 All Other Automotive Repair and Maintenance

811191 Automotive Oil Change and Lubrication Shops

811191 Automotive Oil Change and Lubrication Shops

561622 Locksmiths

532230 Video Tape and Disc Rental

532230 Video Tape and Disc Rental

532230 Video Tape and Disc Rental

713990 All Other Amusement and Recreation Industries

713990 All Other Amusement and Recreation Industries

621512 Diagnostic Imaging Centers

624410 Child Day Care Services

624410 Child Day Care Services

624410 Child Day Care Services

424910 Farm Supplies Merchant Wholesalers

Appendix F. Reappraisal Plan from Third Party Vendor

PRITCHARD & ABBOTT, INC.
VALUATION CONSULTANTS

S.B. 1652* BIENNIAL REAPPRAISAL PLAN

FOR THE ANNUAL APPRAISAL FOR

AD VALOREM TAX PURPOSES OF

MINERAL, INDUSTRIAL, UTILITY AND

RELATED PERSONAL PROPERTY

For Tax Years:

2025 and 2026**

Originally Printed: July 2024

***This biennial reappraisal plan is largely predicated on the Scope of Work Rule in the most recent version of Uniform Standards of Professional Appraisal Practice (USPAP) promulgated by The Appraisal Foundation's Appraisal Standards Board (ASB). The 2024 edition of USPAP has an effective start date but no end date. Because the standards have matured, the ASB now states that the need for the standards to be updated on a regular basis has decreased. Therefore, the 2024 USPAP will be effective for an indeterminate number of tax years, or until the next USPAP version is produced.*

*Senate Bill 1652 passed by the Texas Legislature, 79th Regular Session in 2005, amending Section 6.05 of the Texas Property Tax Code, adding Subsection (i) as follows:

"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 the requirements of 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 for the hearing. Not later than September 15 of each even-numbered 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."

POLICY STATEMENT OF PRITCHARD & ABBOTT, INC., ON THE UNIFORM STANDARDS OF PROFESSIONAL APPRAISAL PRACTICE

Pritchard & Abbott, Inc., (P&A), a privately held company engaged primarily, but not wholly, in the ad valorem tax valuation industry endorses Uniform Standards of Professional Appraisal Practice (USPAP) as the basis for the production of sound appraisals. Insofar as the statutory requirement to appraise groups (or a "universe") of real and personal property within an established period of time using standardized procedures—and subjecting the resulting appraisals to statistical measures—is the definition of mass appraisal, P&A subscribes to USPAP Standards 5 and 6 (Mass Appraisal, Development and Reporting) whenever applicable in the development and defense of values. When circumstances clearly dictate the use of single property appraisal procedures, P&A adheres to the spirit and intent of the remaining USPAP Standards within all appropriate, practical, and/or contractual limitations or specifications.

A biennial reappraisal plan is, at its core, a discussion of the CAD's intended implementation of the Scope of Work Rule in USPAP. This plan provides general information about this rather comprehensive USPAP rule, as well as the specific steps P&A takes in the actual appraisal of various property types per our contractual obligations. This Biennial Reappraisal Plan should not be confused or conflated with an "appraisal manual" or other "how-to" guide which may or may not exist within P&A for any particular property type we appraise.

This reappraisal plan discusses a few other USPAP rules that interact with the Scope of Work Rule, such as the Ethics Rule, the Record Keeping Rule, and Jurisdictional Exception Rule. For further information regarding other sections of USPAP, including the Competency Rule, definitions, and appraisal reports, please reference P&A's "USPAP report" which accompanies our appraisals and supporting documentation provided to clients per Property Tax Code, Sec. 25.01(c) at the completion of each tax year. An appraisal season thus begins with an appraisal plan (approved by the CAD's Board of Directors) and ends with appraisal reports. Providing these reports is definitely part of the plan. Likewise, much of the verbiage in the "USPAP report" is a reiteration of the Biennial Reappraisal Plan.

USPAP defines "appraisal" as the act or process of developing an opinion of value or pertaining to appraising and related functions such as appraisal practice or appraisal services. Valuation services is defined as services pertaining to an aspect of property value, regardless of the type of service and whether it is performed by appraisers or by others. The USPAP definition of "appraiser" is one who is expected to perform valuation services competently and in a manner that is independent, impartial, and objective. USPAP Advisory Opinion 21: USPAP Compliance states that this expectation (by clients and intended users of appraisal reports) is the basis that creates an ethical obligation to comply with USPAP, even if not legally required. Advisory opinions do not establish new standards or interpret existing standards, but instead are issued to illustrate the applicability of appraisal standards in specific situations.

The majority of property types that P&A typically appraises for ad valorem tax purposes are categorized as unique, complex, and/or "special purpose" properties (mineral interests, industrial,

utility, and related personal property). These categories of properties do not normally provide sufficient market data of reliable quality and/or quantity to support the rigorous use of all USPAP-prescribed mass appraisal development mandates (Standard 5: Mass Appraisal, Development), particularly with regards to some, but not all, of the model calibration and statistical performance testing confines. However, P&A does strive to employ all or most elements of mass appraisal techniques with regards to the definition and identification of property characteristics and model specification and application.

Per USPAP Advisory Opinion 32: Ad Valorem Property Tax Appraisal and Mass Appraisal Assignments, in the interests of equity, the scope of work in mass appraisal assignments for ad valorem taxation can include consideration of appraisal level (the overall proximity between appraised values and actual prices) and the

uniformity of property values (equity within groups of like properties). The appraiser is responsible for recognizing when the concepts of appraisal level and appraisal uniformity are necessary for credible assignment results in a mass appraisal assignment for ad valorem taxation.

Residential real estate property appraisers most frequently apply mass appraisal methods within the sales comparison (market) approach to value. Through the use of standardized data collection (i.e., actual market sales), specification and calibration of mass appraisal models, tables, and schedules are possible. Through ratio study analysis and other performance measures, a cumulative summary of valuation accuracy can thus be produced in order to calibrate the appraisal model(s). Where sufficient data of reliable quality exists, mass appraisal is also used for other types of real estate property such as farms, vacant lots, and some commercial uses (e.g., apartments, offices, and small retail).

Regarding mass appraisal reports due the client and other intended users per USPAP (Standard 6 (Mass Appraisal, Reporting), a written report of the mass appraisal as described in Standards 6-2 is not provided for each individual property. An individual property record or worksheet may describe the valuation of the specific property after the application of the mass appraisal model. To understand the individual property result developed in a mass appraisal requires the examination of all the information and analysis required by Standards 6-2.

P&A will clearly state or otherwise make known all extraordinary assumptions, hypothetical conditions, limitations imposed by assignment conditions, and/or jurisdictional exceptions in its appraisal reports as they are conveyed to our clients. Intended users of our reports are typically the client(s) for which we are under direct contract. Although taxpayers or their agents who own and/or represent the subject property being appraised often receive these reports either by law or as a courtesy of the client or P&A, this receipt does not mean these parties automatically

become Intended Users as defined by USPAP. A party receiving a copy of a report in order to satisfy disclosure requirements does not become an intended user of the appraisal or mass appraisal unless the appraiser specifically identifies such party as an intended user. Potential other users include parties involved in adjudication of valuation disputes (review board members, lawyers, judges, etc.), governmental agencies which periodically review our appraisals for various statutory purposes (such as the Texas Comptroller's Office) and private parties who may obtain copies of our appraisals through Open Records Requests made to governmental agencies.

USPAP does not currently address communications of assignment results prior to completion of the assignment, thus such communications have no requirements other than to comply with the general requirements in the Ethics Rule, the Competency Rule, and the Jurisdictional Exception Rule. The client and all intended users should be aware that mass appraisals, as opposed to most "fee" appraisals, are somewhat inherently "limited" versus "complete" and that appraisal reports, unless otherwise contracted for by the client, will most often be of a "restricted" nature whereas explanations of appraisal methods and results are more concise versus lengthy in order to promote brevity, clarity, and transparency to the intended user(s).

Per USPAP, the appropriate reporting option and level of information in a report are dependent on the intended use and the intended users. Although the reporting verbiage in USPAP Standard 6 does not specifically offer or promulgate a "Restricted Appraisal Report" such as in Standard 2 (Real Property Appraisal, Reporting) and Standard 8 (Personal Property Appraisal, Reporting), it should be noted that: a) all mass appraisals and mass appraisal reports deal with real and personal property in some form or fashion; and b) P&A is a private consulting firm, a fact which may necessitate the withholding of certain data and/or appraisal models/techniques which are deemed confidential, privileged and/or proprietary in nature. The use of "limited" appraisals in conjunction with "restricted" reports in no way implies non-compliance with USPAP. The substantive content of a report determines its compliance.

P&A believes that, with its vast experience and expertise in these areas of appraisal, all concluded values and reports thereof are credible, competent, understandable, uniform and consistent; and most importantly for ad

valorem tax purposes, accomplished in a cost-efficient and timely manner.

Per previous ASB comments under Standard 6-2(b) [scope of work... special limiting conditions]:

"Although appraisers in ad valorem taxation should not be held accountable for limitations beyond their control, they are required by this specific requirement to identify cost constraints and to take appropriate steps to secure sufficient funding to produce appraisals that comply with these standards. Expenditure levels for assessment administration are a function of a number of factors. Fiscal constraints may impact data completeness and accuracy, valuation methods, and valuation

accuracy. Although appraisers should seek adequate funding and disclose the impact of fiscal constraints on the mass appraisal process, they are not responsible for constraints beyond their control."

In any event, however, it is not P&A's intent to allow constraints, fiscal or otherwise, to limit the scope of work to such a degree that the mass appraisal results provided to our clients are not credible within the context of the intended use(s) of the appraisal.

PREAMBLE

The purpose of USPAP is to establish requirements and conditions for ethical, thorough, and transparent property valuation services. Valuation services pertain to all aspects of property value and include services performed by appraisers and other professionals including attorneys, accountants, insurance estimators, auctioneers, or brokers. Valuation services include appraisal, appraisal review, and appraisal consulting. The primary intent of these Standards is to promote and maintain a high level of public trust in professional appraisal practice.

It is essential that professional appraisers develop and communicate their analyses, opinions, and conclusions to intended users of their services in a manner that is meaningful and not misleading. The importance of the role of the appraiser places ethical obligations upon those who serve in this capacity. These USPAP Standards reflect the current standards of the appraisal profession.

These Standards are for both appraisers and users of appraisal services. To maintain a high level of professional practice, appraisers observe these Standards. However, these Standards do not in themselves establish which individuals or assignments must comply. The Appraisal Foundation nor its Appraisal Standards Board is not a government entity with the power to make, judge, or enforce law. Compliance with USPAP is only required when either the service or the appraiser is obligated to comply by law or regulation, or by agreement with the client or intended users. When not obligated, individuals may still choose to comply.

USPAP addresses the ethical and performance obligations of appraisers through Definitions, Rules, Standards, Statements (if any), and Advisory Opinions. USPAP Standards deal with the procedures to be followed in performing an appraisal or appraisal review and the manner in which each is communicated. A brief description of the USPAP Standards are as follows:

■ Standards 1 and 2: establish requirements for the development and communication of a real property

appraisal.

■ Standards 3 and 4: establishes requirements for the development and communication of an appraisal review.

■ Standards 5 and 6: establishes requirements for the development and communication of a mass appraisal.

■ Standards 7 and 8: establish requirements for the development and communication of a personal property

appraisal.

■ Standards 9 and 10: establish requirements for the development and communication of a business or

intangible asset appraisal.

Section 23.01(b) [Appraisals Generally] 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....” (underline added for emphasis)

Consequently, USPAP Standards 5 and 6 are assumed to be applicable for ad valorem tax purposes in Texas, if mass appraisal practices are in fact being used to appraise the subject property. USPAP Advisory Opinion 32 suggests several USPAP standards other than Standards 5 or 6 can apply in ad valorem tax work. It appears that an appraiser engaged in ad valorem tax work in Texas is not specifically required by law to rigorously follow USPAP standards if in fact mass appraisal practices have not been used to appraise the subject property. The Jurisdictional Exception Rule could then be invoked because of a contradiction between the requirements of USPAP and the law or regulation of a jurisdiction. Please see the P&A Policy Statement on USPAP as provided elsewhere in this report for a more detailed discussion regarding this matter.

ETHICS RULE

Because of the fiduciary responsibilities inherent in professional appraisal practice, the appraiser must observe the highest standards of professional ethics. This Ethics Rule is divided into four (4) sections:

- Nondiscrimination;
- Conduct;
- Management;
- Confidentiality.

This Rule emphasizes the personal obligations and responsibilities of the individual appraiser. However, it should be noted that groups and organizations which are comprised of individual appraisers engaged in appraisal practice effectively share the same ethical obligations. To the extent the group or organization does not follow USPAP Standards when legally required, individual appraisers should take steps that are appropriate under the circumstances to ensure compliance with USPAP.

Compliance with these Standards is required when either the service or the appraiser is obligated by law or regulation, or by agreement with the client or intended users, to comply. Compliance is also required when an individual, by choice, represents that he or she is performing the service as an appraiser.

An appraiser must not misrepresent his or her role when providing valuation services that are outside of appraisal practice.

Honesty, impartiality, and professional competency are required of all appraisers under USPAP Standards. To document recognition and acceptance of his or her USPAP-related responsibilities in communicating an appraisal or appraisal review completed under USPAP, an appraiser is required to certify compliance with these Standards.

NONDISCRIMINATION

An appraiser must not act in a manner that violates or contributes to a violation of federal, state, or local anti- discrimination laws or regulations. This includes the Fair Housing Act (FHAct), the Equal Credit Opportunity Act (ECOA), and the Civil Rights Act of 1866.

An appraiser must have knowledge of anti-discrimination laws and regulations and when those laws or regulations apply to the appraiser or to the assignment. An appraiser must complete an assignment in full compliance with applicable laws and regulations.

1. An appraiser, when completing a residential real property assignment, must not base their opinion of value in whole or in part on race, color, religion, national origin, sex, disability, or familial status.

2. An appraiser, when completing an assignment where the intended use is in connection with a credit transaction, not limited to credit secured by real property, must not base their opinion of value in whole or in part on race, color, religion, national origin, sex, marital status, age, source of income, or the good-faith exercise of rights under the Consumer Credit Protection Act.

3. An appraiser must not violate any state or local anti-discrimination laws or regulations applicable to the appraiser or to their assignment.

Whether or not any anti-discrimination law or regulation applies:

1. An appraiser must not develop and/or report an opinion of value that, in whole or in part, is based on the actual or perceived race, ethnicity, color, religion, national origin, sex, sexual orientation, gender, gender identity, gender expression, marital status, familial status, age, receipt of public assistance income, or disability of any person(s).

2. An appraiser must not base an opinion of value upon the premise that homogeneity of the inhabitants of a geographic area is relevant for the appraisal.

3. An appraiser must not perform an assignment with bias with respect to the actual or perceived race, ethnicity, color, religion, national origin, sex, sexual orientation, gender, gender identity, gender expression, marital status, familial status, age, receipt of public assistance income, or disability of any person(s).

4. An appraiser must not use or rely upon another characteristic as a pretext to conceal the use of or reliance upon race, ethnicity, color, religion, national origin, sex, sexual orientation, gender, gender identity, gender expression, marital status, familial status, age, receipt of public assistance income, or disability of any person(s), when performing an assignment.

If an assignment does not involve residential real property and the intended use is not in connection with a credit transaction, the FHAct and ECOA do not apply. If the FHAct and ECOA do not apply, and no other law or regulation prohibits the use of or reliance upon a protected characteristic,5 then the use of or reliance upon that characteristic is permitted only to the extent that it is essential to the assignment and necessary for credible assignment results.

CONDUCT

An appraiser must perform assignments with impartiality, objectivity, and independence, and without accommodation of personal interests.

An appraiser:

- must not perform an assignment with bias;
- must not advocate the cause or interest of any party or issue;
- must not accept an assignment that includes the reporting of predetermined opinions and conclusions;
- must not misrepresent his or her role when providing valuation services that are outside of appraisal practice;
- must not communicate assignment results with the intent to mislead or to defraud;
- must not use or communicate a report or assignment results known by the appraiser to be misleading or fraudulent;
- must not knowingly permit an employee or other person to communicate a report or assignment results that are misleading or fraudulent report;
- must not engage in criminal conduct;
- must not willfully or knowingly violate the requirements of the RECORD KEEPING RULE; and must not perform an assignment in a grossly negligent manner.

If known prior to accepting an assignment, and/or if discovered at any time during the assignment, an appraiser must disclose to the client, and in each subsequent report certification:

- any current or prospective interest in the subject property or parties involved; and
- any services regarding the subject property performed by the appraiser within the three-year period immediately preceding acceptance of the assignment, as an appraiser or in any other capacity.

The appraiser can agree with the client to keep the mere occurrence of a prior appraisal assignment confidential. If an appraiser has agreed with the client not to disclose that he or she has appraised a property, the appraiser must decline all subsequent assignment that fall with the three-year period. In assignments is which there is no report, only the initial disclosure to the client is required.

Presumably all parties in ad valorem tax appraisal will be aware of the ongoing yearly nature of the appraisal assignments performed by valuation consulting firms like Pritchard & Abbott, Inc.—i.e., it will not be confidential—so that this particular conduct instruction is more or less a moot point (regarding the three year period discussed) if the prior service is in fact the ad valorem tax appraisals performed in previous tax years.

MANAGEMENT

The payment of a fee, commission, or a thing of value by the appraiser in connection with the procurement of an assignment must be disclosed. This disclosure must appear in the certification and in any transmittal letter in which conclusions of value are stated; however, the disclosure of the amount paid is not required. Intra-company payments to employees of groups or organizations involved in appraisal practice for business development do not require disclosure.

It is unethical for an appraiser to accept compensation for performing an assignment when it is contingent upon the reporting of a predetermined result, a direction in assignment results that favors the cause of the client, the amount of a value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the appraiser's opinions and specific to the assignment's purpose.

Advertising for or soliciting assignments in a manner that is false, misleading, or exaggerated is unethical. Decisions regarding finder or referral fees, contingent compensation, and advertising may not be the responsibility of an individual appraiser, but for a particular assignment it is the responsibility of the individual appraiser to ascertain that there has been no breach of ethics, that

the assignment consulting assignment has been prepared in accordance with USPAP Standards, and that the report can be properly certified when required by USPAP Standards 2-3, 4-3, 6-3, 8-3, or 10-3.

An appraiser must affix, or authorize the use of, his or her signature to certify recognition and acceptance of his or her USPAP responsibilities in an appraisal or appraisal review assignment. An appraiser may authorize the use of his or her signature only on an assignment-by-assignment basis.

In addition, an appraiser must not affix the signature of another appraiser without his or her consent. An appraiser must exercise due care to prevent unauthorized use of his or her signature. However, an appraiser exercising such care is not responsible for unauthorized use of his or her signature.

CONFIDENTIALITY

An appraiser must protect the confidential nature of the appraiser-property owner relationship.

An appraiser must act in good faith with regard to the legitimate interests of the client in the use of confidential information and in the communication of assignment results.

An appraiser must be aware of, and comply with, all confidentiality and privacy laws and regulations applicable in an assignment.

An appraiser must not disclose confidential factual data obtained from a property owner to anyone other than:

1. The client;
2. Parties specifically authorized by the client;
3. State appraiser regulatory agencies;
4. Third parties as may be authorized by due process of law; or
5. A duly authorized professional peer review committee except when such disclosure to a committee would violate applicable law or regulation.

An appraiser must take reasonable steps to safeguard access to confidential information and assignment results by unauthorized individuals, whether such information or results are in physical or electronic form. In addition, an appraiser must ensure that employees, coworkers, subcontractors, or others who may have access to confidential information or assignments results, are aware of the prohibitions on disclosure of such information or results.

It is unethical for a member of a duly authorized professional peer review committee to disclose confidential information presented to the committee.

When all confidential elements of confidential information are removed through redaction or the process of aggregation, client authorization is not required for the disclosure of the remaining information, as modified.

RECORD KEEPING RULE

An appraiser must prepare a workfile for each appraisal or appraisal review assignment. A workfile must be in existence prior to the issuance of any report or other communication of assignment results. A written summary of an oral report must be added to the workfile within a reasonable time after the issuance of the oral report.

The workfile must include the name of the client and the identity, by name or type, of any other intended users, and true copies of all written reports, documented on any type of media. (A true copy is a replica of the report transmitted to the client. A photocopy or an electronic copy of the entire report transmitted to the client satisfies the requirement of a true copy.) A workfile must contain summaries of all oral reports or testimony, or a transcript of testimony, including the appraiser's signed and dated certification; and all other data, information, and documentation necessary to support the appraiser's opinions and conclusions and to show compliance with USPAP, or references to the location(s) of such other data, information, and documentation.

A workfile in support of a Restricted Appraisal Report or an oral appraisal report must be sufficient for the appraiser to produce an Appraisal Report. A workfile in support of an oral appraisal review report must be sufficient for the appraiser to produce an Appraisal Review Report.

An appraiser must retain the workfile for a period of at least five years after preparation or at least two years after final disposition of any judicial proceeding in which the appraiser provided testimony related to the assignment, whichever period expires last.

An appraiser must have custody of the workfile, or make appropriate workfile retention, access, and retrieval arrangements with the party having custody of the workfile. This includes ensuring that a workfile is stored in a medium that is retrievable by the appraiser throughout the prescribed record retention period. An appraiser having custody of a workfile must allow other appraisers with workfile obligations related to an assignment appropriate access and retrieval for the purpose of:

- submission to state appraiser regulatory agencies;
- compliance with due process of law;
- submission to a duly authorized professional peer review committee; or
- compliance with retrieval arrangements.

A workfile must be made available by the appraiser when required by a state appraiser regulatory agency or due process of law.

An appraiser who willfully or knowingly fails to comply with the obligations of this Record Keeping Rule is in violation of the Ethics Rule.

SCOPE OF WORK RULE

For each appraisal or appraisal review assignment, an appraiser must:

1. Identify the problem to be solved;
2. Determine and perform the scope of work necessary to develop credible assignment results; and
3. Disclose the scope of work in the report.

An appraiser must properly identify the problem to be solved in order to determine the appropriate scope of work. The appraiser must be prepared to demonstrate that the scope of work is sufficient to produce credible assignment results.

Scope of work includes, but is not limited to:

- the extent to which the property is identified;
- the extent to which tangible property is inspected;
- the type and extent of data researched; and
- the type and extent of analyses applied to arrive at opinions or conclusions.

Appraisers have broad flexibility and significant responsibility in determining the appropriate scope of work for an appraisal or appraisal review assignment. Credible assignment results require support by relevant evidence and logic. The credibility of assignment results is always measured in the context of the intended use.

PROBLEM IDENTIFICATION

An appraiser must gather and analyze information about those assignment elements that are necessary to properly identify the appraisal, appraisal review or appraisal consulting problem to be solved. The assignment elements necessary for problem identification are addressed in the Standard 6-2:

- client and any other intended users;
- intended use of the appraiser's opinions and conclusions;
- type and definition of value;
- effective date of the appraiser's opinions and conclusions;
- subject of the assignment and its relevant characteristics; and
- assignment conditions.

This information provides the appraiser with the basis for determining the type and extent of research and analyses to include in the development of an appraisal. Similar information is necessary for problem identification in appraisal review and appraisal consulting assignments. Assignment conditions include:

- assumptions;
- extraordinary assumptions;
- hypothetical conditions;
- laws and regulations;
- jurisdictional exceptions; and
- other conditions that affect the scope of work.

SCOPE OF WORK ACCEPTABILITY

The scope of work must include the research and analyses that are necessary to develop credible assignment results. The scope of work is acceptable when it meets or exceeds:

- the expectations of parties who are regularly intended users for similar assignments; and
- what an appraiser's peers' actions would be in performing the same or a similar assignment.

Determining the scope of work is an ongoing process in an assignment. Information or conditions discovered during the course of an assignment might cause the appraiser to reconsider the scope of work. An appraiser must be prepared to support the decision to exclude any investigation, information, method, or technique that would appear relevant to the client, another intended user, or the appraiser's peers.

An appraiser must not allow assignment conditions to limit the scope of work to such a degree that the assignment results are not credible in the context of the intended use. In addition, the appraiser must not allow the intended use of an assignment or a client's objectives to cause the assignment results to be biased.

DISCLOSURE OBLIGATIONS

The report must contain sufficient information to allow intended the client and other intended users to understand the scope of work performed. Proper disclosure is required because clients and

other intended users may rely on the assignment results. Sufficient information includes disclosure of research and analyses performed or not performed. The information disclosed must be appropriate for the intended use of the assignment results.

Sufficient information includes disclosure of research and analyses performed and might also include disclosure of research and analyses not performed. The appraiser has broad flexibility and significant responsibility in the level of detail and manner of disclosing the scope of work in the appraisal report or appraisal review report. The appraiser may, but is not required to, consolidate the disclosure in a specific section or sections of the report, or use a particular label, heading or subheading. An appraiser may choose to disclose the scope of work as necessary throughout the report.

JURISDICTIONAL EXCEPTION RULE

If any applicable law or regulation precludes compliance with any part of USPAP, only that part of USPAP becomes void for that assignment. When compliance with USPAP is required by federal law or regulation, no part of USPAP can be voided by a law or regulation of a state or local jurisdiction. When an appraiser properly follows this Rule in disregarding a part of USPAP, there is no violation of USPAP.

In an assignment involving a jurisdictional exception, an appraiser must:

- identify the law or regulation that precludes compliance with USPAP;
- comply with that law or regulation;
- clearly and conspicuously disclose in the report the part of USPAP that is voided by that law or regulation; and
- cite in the report the law or regulation requiring this exception to USPAP compliance.

The purpose of the Jurisdictional Exception Rule is strictly limited to providing a saving or severability clause intended to preserve the balance of USPAP if one or more of its parts are determined as contrary to law or public policy of a jurisdiction. By logical extension, there can be no violation of USPAP by an appraiser who disregards, with proper disclosure, only the part or parts of USPAP that are void and of no force and effect in a particular assignment by operation of legal authority.

It is misleading for an appraiser to disregard a part or parts of USPAP as void and of no force and effect in a particular assignment without identifying the part or parts disregarded and the legal authority justifying this action in the appraiser's report.

"Law" includes constitutions, legislative and court-made law, and administrative rules (such as from the Office of the Texas Comptroller of Public Accounts) and ordinances. "Regulations" include rules or orders having legal force, issued by an administrative agency. Instructions from a client or attorney do not establish a jurisdictional exception.

A jurisdictional exception prevalent in Texas is that appraisers are seeking to establish "fair market value" as defined by the Texas Property Tax Code instead of "market value" as found in the USPAP definitions section.

USPAP STANDARDS 5 AND 6: MASS APPRAISAL, DEVELOPMENT AND REPORTING

(General Discussion)

In developing a mass appraisal, an appraiser must be aware of, understand, and correctly employ those recognized methods and techniques necessary to produce and communicate credible mass appraisals.

Standards 5 and 6 apply to all mass appraisals of real and personal property regardless of the purpose or use of such appraisals. It is directed toward the substantive aspects of developing and communicating competent analyses, opinions, and conclusions in the mass appraisal of properties, whether real property or personal property. Standard 5 is directed toward the substantive aspects of developing credible analyses, opinions, and conclusions in the mass appraisal of properties, while Standard 6 addresses the content and level of information required in a written report that communicates the results of a mass appraisal. The reporting and jurisdictional exceptions applicable to public mass appraisals prepared for purposes of ad valorem taxation do not apply to mass appraisals prepared for other purposes.

A mass appraisal includes:

- identifying properties to be appraised;
- defining market areas of consistent behavior that applies to properties;

- identifying characteristics (supply and demand) that affect the creation of value in that market area;
- developing (specifying) a model structure that reflects the relationship among the characteristics affecting value in the market area;
- calibrating the model structure to determine the contribution of the individual characteristics affecting value;
- applying the conclusions reflected in the model to the characteristics of the properties being appraised; and
- reviewing the mass appraisal results.

The Jurisdictional Exception Rule may apply to several sections of Standards 5 and 6 because ad valorem tax administration is subject to various state, county, and municipal laws.

As previously stated in the P&A Policy Statement (page 2), it may not be possible or practicable for all the mass appraisal attributes listed above to be rigorously applied to the many types of complex and/or unique properties that P&A typically appraises. Often there are contractual limitations on the scope of work needed or required. More prevalently, these types of properties do not normally provide a reliable database of market transactions (or details of transactions) necessary for statistically supportable calibration of appraisal models and review of appraisal results. Generally, these two functions are effectively accomplished through annual extended review meetings with taxpayers (and clients) who provide data, sometimes confidentially, that allows for appraisal models to be adjusted where necessary. Nevertheless, and not withstanding whether P&A implicitly or explicitly employs or reports all attributes listed above, in all cases P&A at the minimum employs tenants of “generally accepted appraisal methods” which are the genesis of USPAP Standards.

Per USPAP guidelines, P&A will make known all departures and jurisdictional exceptions when invoked (if an appraisal method or specific requirement is applicable but not necessary to attain credible results in a particular assignment).

The various sections of Standard 5 (development of mass appraisal) and Standard 6 (communication of the mass appraisal results) are briefly summarized below:

- Standard 5-1: Establishes the appraiser’s technical and ethical framework. Specifically, appraisers must

recognize and use established principles, methods and techniques of appraisal in a careful manner while not committing substantial errors of fact or negligence that would materially affect

the appraisal results and not give a credible estimate of fair market value. To this end appraisers must continuously improve his or her skills to maintain proficiency and keep abreast of any new developments in the real and personal property appraisal profession. This Standards does not imply that competence requires perfection, as perfection is impossible to attain. Instead, it requires appraisers to employ every reasonable effort with regards to due diligence and due care.

- Standard 5-2: Defines the introductory framework requirements of developing a mass appraisal, focusing

on the identification and/or definition of: client(s), intended users, effective date, appraisal perspective, scope of work, extraordinary assumptions, hypothetical conditions, the type and definition of value being developed (typically “fair market value” for ad valorem tax purposes), characteristics of the property being appraised in relation to the type and definition of value and intended use, the characteristics of the property’s market, the property’s real or personal attributes, fractional interest applicability, highest and best use analysis along with other land-related considerations, and any other economic considerations relevant to the property.

- Standard 5-3: Defines requirements for developing and specifying appropriate mass appraisal data and

elements applicable for real and personal property. For real property, the data and elements include: existing land use regulations, reasonably probable modification of such regulations, economic supply and demand, the physical adaptability of the real estate, neighborhood trends, and highest and best use analysis. For personal property, the relevant data and elements include: identification of industry trends, trade level, highest and best use, and recognition of the appropriate market consistent with the type and definition of value.

- Standard 5-4: Further defines requirements for developing mass appraisal models, focusing on

development of standardized data collection forms, procedures, and training materials that are used uniformly on the universe of properties under consideration. This rule specifies that appraisers employ recognized techniques for specifying and calibrating mass appraisal models. Model specification is the formal development of a model in a statement or mathematical equation, including all due considerations for physical, functional, and external market factors as they may affect the appraisal. These models must accurately represent the relationship between property value and supply and demand factors, as represented by quantitative and qualitative property characteristics. Models must be calibrated using recognized techniques, including, but not limited to, multiple linear regression, nonlinear regression, and adaptive estimation. Models may be specified incorporating the income, market, and/or cost approaches to value and may be tabular, mathematical, linear, nonlinear, or any other structure suitable for representing the observable property characteristics such as adaptive estimation. Model calibration refers to the process of analyzing sets of property and market data to determine the specific parameters of a model.

- Standard 5-5: Defines requirements for collection of sufficient factual data, in both qualitative and

quantitative terms, necessary to produce credible appraisal results. The property characteristics collected must be contemporaneous with the effective date of the appraisal. The data collection

program should incorporate a quality control procedure, including checks and audits of the data to ensure current and consistent records. This rule also calls for calls for an appraiser, in developing income and expense statements and cash flow projections, to weigh historical information and trends, current market factors affecting such trends, and reasonably anticipated events, such as competition from developments either planned or under construction. Terms and conditions of any leases should be analyzed, as well as the need for and extent of any physical inspection of the properties being appraised.

- Standard 5-6: Defines requirements for application of a calibrated model to the property being appraised.

This rule calls for: the appraiser to recognize methods or techniques based on the cost, market, and income approaches for improved parcels; the appraiser to value sites by recognized methods or techniques such as allocation method, abstraction method, capitalization of ground rent, and land residual; the appraiser to develop value of leased fee or leasehold estates with consideration for terms and conditions of existing leases, and, when applicable by law, as if held in fee simple whereas market rents are substituted for actual contract rents; the appraiser to analyze the effect on value, if any, of the assemblage of the various parcels, divided interests, or component parts of a property; the appraiser to analyze anticipated public or private improvements located on or off the site, and analyze the effect on value, if any, of such anticipated improvements to the extent they are reflected in market actions.

- Standard 5-7: Defines the reconciliation process of a mass appraisal. Specifically, appraisers must analyze

the results and/or applicability of the various approaches used while ensuring that, on an overall basis, standards of reasonableness and accuracy are maintained with the appraisal model selected (underline added for emphasis). It is implicit in mass appraisal that, even when properly specified and calibrated models are used, some individual value conclusions will not meet standards of reasonableness, consistency, and accuracy. Appraisers have a professional responsibility to ensure that, on an overall basis, models produce value conclusions that meet attainable standards of accuracy.

- Standard 6-1: Defines general requirements of a mass appraisal report which is required to be in writing;

no option exists for oral reports. This standard addresses the level of information required so that the report is clearly understood (i.e., not misleading) and sufficiently qualified with any assumptions and conditions (elements of which are further detailed in the next three sections of this report that discuss P&A appraisal procedures with regards to specific categories of property).

- Standard 6-2: Defines specific content required to be included in a mass appraisal written report.

- Standard 6-3: Defines the certification of the mass appraisal written report.

The following sections of this report discuss in more detail the various elements of the development of P&A's mass appraisals and associated written reports as required by USPAP Standards 5 and 6, with regards to P&A appraisal of Mineral Interests, Industrial, Utility, Related Personal Property, and Real Estate.

USPAP STANDARDS 5, 6-1, 6-2: MASS APPRAISAL OF MINERAL INTERESTS

INTRODUCTION

Definition of Appraisal Responsibility (Scope of Effort): The Mineral Valuation Department of Pritchard & Abbott, Inc. ("P&A" hereinafter), is responsible for developing credible values for mineral interests (full or fractional percentage ownership of oil and gas leasehold interest, the amount and type of which are legally and/or contractually created and specified through deeds and leases, et.al.) associated with producing (or capable of producing) leases. Mineral interests are typically considered real property because of their derivation from the bundle of rights associated with original fee simple ownership of land. Typically all the mineral interests that apply to a single producing lease are consolidated by type (working vs. royalty) with each type then appraised for full value which is then distributed to the various fractional decimal interest owners prorata to their individual type and percentage amount.

P&A's typical client is a governmental entity charged with appraisal responsibility for ad valorem tax purposes, although other types of clients (private businesses, individuals, etc.) occasionally contract for appraisal services which are strictly for various non-ad valorem tax purposes so that no conflicts of interest are created with P&A's core ad valorem tax work.

P&A hereby makes the assumption that, in all appraisal assignments performed for governmental entities in satisfaction of contractual obligations related to ad valorem tax, the client does not wish to or cannot legally request the appraisal report not identify the client.

Intended users of our reports are typically the client(s) for which we are under direct contract. Although taxpayers or their agents who own and/or represent the subject property being appraised often receive these reports either by law or as a courtesy of the client or P&A, this receipt does not mean these parties automatically become Intended Users as defined by USPAP. A party receiving a copy of a report in order to satisfy disclosure requirements does not become an intended user of the appraisal or mass appraisal unless the appraiser specifically identifies such party as an intended user. Potential other users include parties involved in adjudication of

valuation disputes (review board members, lawyers, judges, etc.), governmental agencies which periodically review our appraisals for various statutory purposes (such as the Texas Comptroller's Office) and private parties who may obtain copies of our appraisals through Open Records Requests made to governmental agencies.

This section of P&A's USPAP report is not applicable to any mineral or mineral interest property that an appraisal district appraises outside of P&A's appraisal services, in which case the appraisal district's overall USPAP report should be referenced.

P&A makes the Extraordinary Assumption that all properties appraised for ad valorem tax purposes are marketable whereas ownership and title to property are free of encumbrances and other restrictions that would affect fair market value to an extent not obvious to the general marketplace. If and/or when we are made aware of any encumbrances, etc., these would be taken into account in our appraisal in which case the extraordinary assumption stated above would be revoked.

P&A is typically under contract to determine current market value or "fair market value" of said mineral interests. Fair market value is typically described as the price at which a property would sell for if:

- exposed in the open market with a reasonable time for the seller to find a purchaser;
- both the buyer and seller know of all the uses and purposes to which the property is, or can be, adapted and of the enforceable restrictions on its use; and
- both the buyer and seller seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other. [Exigencies are pressing or urgent conditions that leave one party at a disadvantage to the other.]

For ad valorem tax purposes the effective date is usually legislatively specified by the particular State in which we are working - for example, in Texas the lien date is January 1 per the Texas Property Tax Code. For ad valorem tax purposes, the date of the appraisals and reports are typically several months past the effective date, thereby leaving open the possibility that a retrospective approach is appropriate under limited and prescribed circumstances (information after the effective date being applicable only if it confirms a trend or other appraisal condition that existed and was generally known as of the effective date).

P&A believes this section of this report, in conjunction with any attached or separately provided P&A-generated report(s), meets the USPAP definition of “typical practice”; i.e., it satisfies a level of work that is consistent with:

- the expectations of participants in the market for the same or similar appraisal services; and
- what P&A’s peers’ actions would be in performing the same or similar appraisal services in compliance with USPAP.

Legal and Statutory Requirements: In Texas, the provisions of the Texas Property Tax Code and other relevant legislative measures involving appraisal administration and procedures control the work of P&A as an extension of the Appraisal District. Other states in which P&A is employed will have similar controlling legislation, regulatory agencies, and governmental entities. P&A is responsible for appraising property on the basis of its fair market value as of the stated effective date (January 1 in Texas) for ad valorem tax purposes for each taxing unit that imposes ad valorem taxes on property in the contracted Appraisal District. All mineral properties (interests) are reappraised annually. The definition of Fair Market Value is provided and promulgated for use in ad valorem tax work in Texas by the Texas Property Tax Code, and therefore as a Jurisdictional Exception supersedes the definition of “market value” as found in USPAP definitions.

NOTE: IN TEXAS, P&A BELIEVES THE PROPERTY BEING APPRAISED AND PLACED ON THE TAX ROLL IS THE INTEREST AND NOT THE OIL OR GAS MINERAL ITSELF, PER PROPERTY TAX CODE SECTION 1.04(2)(F). WHILE OIL AND GAS RESERVES CERTAINLY HAVE VALUE, THE FACT IS THAT IT IS THE INTERESTS IN THESE MINERALS THAT ARE BOUGHT AND SOLD, NOT THE MINERALS THEMSELVES. THE SALE OF MINERALS AS THEY ARE EXTRACTED FROM THE SUBSURFACE OF THE LAND WHERE THEY RESIDE AS MINERALS IN PLACE “MONETIZES” THE INTEREST AND THUS GIVES THE INTEREST ITS VALUE. WHENEVER P&A REFERS TO “MINERAL PROPERTIES” IN THIS REPORT OR IN ANY OTHER SETTING, IT IS THE MINERAL INTEREST, AND NOT THE MINERAL ITSELF, THAT IS THE SUBJECT OF THE REFERENCE.

Administrative Requirements: P&A endorses the principals of the International Association of Assessing Officers (IAAO) regarding its appraisal practices and procedures. P&A also endorses, and follows when possible, the standards promulgated by the Appraisal Foundation known as the Uniform Standards of Professional Appraisal Practice (USPAP). In all cases where IAAO and/or USPAP requirements cannot be satisfied for reasons of practicality or irrelevancy, P&A subscribes to “generally accepted appraisal methods and techniques” so that its value conclusions are credible and defendable. P&A submits annual or biannual contract bids to the Appraisal District Board of Directors or the Office of the Chief Appraiser and is bound to produce appraisal estimates on mineral properties within the cost constraints of said bid. Any appraisal practices and procedures followed by P&A not explicitly defined or allowed through IAAO or USPAP requirements are specified by the Texas Property Tax Code or at the specific request or direction of the Office of the Chief Appraiser.

Appraisal Resources

Personnel: The Mineral Valuation Division staff consists of competent Petroleum Engineers, Geologists, and Appraisers. All personnel are Registered Professional Appraisers with the State of Texas, or are progressing towards this designation within the allowable time frames prescribed by the Texas Department of Licensing and Regulation (TDLR) and/or other licensing and regulatory agencies as applicable.

Data: For each mineral property a common set of data characteristics (i.e. historical production, price and expense data) is collected from various sources and entered into P&A's mainframe computer system. Historical production data and price data is available through state agencies (Texas Railroad Commission, Texas Comptroller, et al.) or private firms who gather, format and repackage such data for sale commercially. Each property's characteristic data drives the computer-assisted mass appraisal approach to valuation.

Information Systems: The mainframe systems are augmented by the databases that serve the various in-house and 3rd-party applications on desktop personal computers. In addition, communication and dissemination of appraisals and other information is available to the taxpayer and client through electronic means including internet and other phone-line connectivity. The appraiser supervising any given contract fields many of the public’s questions or redirects them to the proper department personnel.

VALUATION APPROACH (MODEL SPECIFICATION)

Concepts of Value: The valuation of oil and gas properties is not an exact science, and exact accuracy is not attainable due to many factors. Nevertheless, standards of reasonable performance do exist, and there are usually reliable means of measuring and applying these standards.

Petroleum properties are subject to depletion, and capital investment must be returned before economic exhaustion of the resource (mineral reserves). The examination of petroleum properties involves understanding the geology of the resource (producing and non-producing), type of reservoir energy, the methods of secondary and enhanced recovery (if applicable), and the surface treatment and marketability of the produced petroleum product(s).

Evaluation of mineral properties is a continuous process; the value as of the lien date merely represents a “snapshot” in time. The potential value of mineral interests derived from sale of minerals to be extracted from the ground change with mineral price fluctuation in the open market, changes in extraction technology, costs of extraction, and other variables such as the value of money.

Approaches to Value for Petroleum Property

Cost Approach: The use of cost data in an appraisal for market value is based upon the economic principle of substitution. The cost approach typically derives value by a model that begins with replacement cost new (RCN) and then applies depreciation in all its forms (physical depreciation, functional and economic obsolescence). This method is difficult to apply to oil and gas properties since lease acquisition and development may bear no relation to present worth. Though very useful in the appraisal of many other types of properties, the cost approach is not readily applicable to mineral properties. [Keep in mind that the property actually being appraised is the mineral interest and not the oil and gas reserves themselves. Trying to apply the cost approach to evaluation of mineral interests is like trying to apply the cost approach to land; it is a moot point because both are real properties that are inherently non-replaceable.] As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., does not employ the cost approach in the appraisal of mineral interests.

Market Approach: This approach may be defined as one which uses data available from actual transactions recorded in the market place itself; i.e., sales of comparable properties from which a comparison to the subject

property can be made. Ideally, this approach’s main advantage involves not only an opinion but an opinion supported by the actual spending of money. Although at first glance this approach seems to more closely incorporate the aspects of fair market value per its classical definition, there are two factors that severely limit the usefulness of the market approach for appraising oil and gas properties. First, oil and gas property sales data is seldom disclosed (in non-disclosure states such as Texas); consequently there is usually a severe lack of market data sufficient for meaningful statistical analysis. Second, all conditions of each sale must be known and carefully investigated to be sure one does have a comparative indicator of value per fair market value perquisites.

Many times when these properties do change hands, it is generally through company mergers and acquisitions where other assets in addition to oil and gas reserves are involved; this further complicates the analysis whereby a total purchase price must be allocated to the individual components - a speculative and somewhat arbitrary task at best. In the case of oil and gas

properties, a scarcity of sales requires that every evidence of market data be investigated and analyzed. Factors relative to the sale of oil and gas properties are:

- current production and estimated declines forecast by the buyer;
- estimated probable and potential reserves;
- general lease and legal information which defines privileges or limitation of the equity sold;
- undeveloped potential such as secondary recovery prospects;
- proximity to other production already operated by the purchaser;
- contingencies and other cash equivalents; and
- other factors such as size of property, gravity of oil, etc.

In the event that all these factors are available for analysis, the consensus effort would be tantamount to performing an income approach to value (or trying to duplicate the buyer's income approach to value), thereby making the market approach somewhat moot in its applicability. As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., rarely employs a rigorous application of the market approach in the appraisal of mineral interests.

Income Approach: This approach to value most readily yields itself to the appraisal of mineral interests. Data is readily available whereby a model can be created that reasonable estimates a future income stream to the property. This future income may then be converted (discounted) into an estimate of current value. Many refer to this as a capitalization method, because capitalization is the process of converting an income stream into a capital sum (value). As with any method, the final value is no better than the reliability of the input data. The underlying assumption is that people purchase the property for the future income the property will yield. If the land or improvements are of any residual value after the cessation of oil and gas production, that value should also be included (if those components are also being appraised).

The relevant income that should be used is the expected future net income. Assumptions of this method are:

- Past income and expenses are not a consideration, except insofar as they may be a guide to estimating future net income.
- That the producing life as well as the reserves (quantity of the minerals) are estimated for the property.
- Future income is less valuable than current income, and so future net income must be discounted to make it equivalent to the present income. This discount factor reflects the premium

of present money over future money, i.e., interest rate, liquidity, investment management, and risk.

As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., relies predominantly on the income approach to value in the appraisal of mineral interests.

DATA COLLECTION/VALIDATION

Sources of Data: The main source of P&A's property data is data from the Railroad Commission of Texas as reported by operators. As a monthly activity, the data processing department receives data tapes or electronic files which have updated and new well and production data. Other discovery tools are fieldwork by appraisers, financial data from operators, information from chief appraisers, tax assessors, trade publications and city and local newspapers. Other members of the public often provide P&A information regarding new wells and other useful facts related to property valuation.

Another crucial set of data to obtain is the ownership of these mineral interests. Typically a mineral lease is fractionated and executed with several if not many owners. This information is typically requested (under a promise of confidentiality concerning owners' personal information) from pipeline purchasers and/or other entities (such as operators) who have the responsibility of disbursing the income to the mineral interest owners. Another source of ownership information is through the taxpayers themselves who file deeds of ownership transfer and/or correspond with P&A or the appraisal district directly.

Data Collection Procedures: Electronic and field data collection requires organization, planning and supervision of the appraisal staff. Data collection procedures for mineral properties are generally accomplished globally by the company; i.e., production and price data for the entire state is downloaded at one time into the computer system. Appraisers also individually gather and record specific and particular information to the appraisal file records, which serves as the basis for the valuation of mineral properties. P&A is divided into four district offices covering different geographic areas. Each office has a district manager, appraisal and ownership maintenance staff, and clerical staff as appropriate. While overall standards of performance are established and upheld for the various district offices, quality of data is emphasized as the goal and responsibility of each appraiser.

VALUATION ANALYSIS (MODEL CALIBRATION)

Appropriate revisions and/or enhancements of schedules or discounted cash flow software are annually made and then tested prior to the appraisals being performed. Calibration typically involves performing multiple discounted cash flow tests for leases with varying parameter input to check the correlation and relationship of such indicators as: Dollars of Value Per Barrel of Reserves; Dollars of Value Per Daily Average Barrel Produced; Dollars of Expense Per Daily Average Barrel Produced; Years Payout of Purchase Price (Fair Market Value). In a more classical calibration procedure, the validity of values by P&A's income approach to value is tested against actual market transactions, if and when these transactions and verifiable details of these transactions are disclosed to P&A. Of course these transactions must be analyzed for meeting all requisites of fair market value definition. Any conclusions of this analysis are then compared to industry benchmarks for reasonableness before being incorporated into the calibration procedure.

INDIVIDUAL VALUE REVIEW PROCEDURES

Individual property values are reviewed several times in the appraisal process. P&A's discounted cash flow software dynamically generates various benchmark indicators that the appraiser reviews concurrent with the value being generated. These benchmarks often prompt the appraiser to reevaluate some or all of the parameters of data entry so as to arrive at a value more indicative of industry standards. Examples of indicators are dollars of value per barrel of oil reserve, years payout, etc. In addition to appraiser review, taxpayers are afforded the opportunity to review the appraised values, either before or after Notices of Appraised Value are prepared. Operators routinely meet with P&A's appraisers to review parameters and to provide data not readily available to P&A through public or commercial sources, such as individual lease operating expense and reserve figures. And of

course, all property values are subject to review through normal protest and Appraisal Review Board procedures, with P&A acting as an extension of the Office of the Chief Appraiser.

PERFORMANCE TESTS

An independent test of the appraisal performance of properties appraised by P&A is conducted by the State of Texas Comptroller’s Office through the annual Property Value Study for school funding purposes. This study determines the degree of uniformity and the median level of appraisal for mineral properties. School jurisdictions are given an opportunity to appeal any

preliminary findings. After the appeal process is resolved, the Comptroller publishes a report of the findings of the study, including in the report the median level of appraisal, the coefficient of dispersion around the median level of appraisal and any other standard statistical measures that the Comptroller considers appropriate.

USPAP STANDARDS 5, 6-1, 6-2: MASS APPRAISAL OF INDUSTRIAL, UTILITY AND RELATED PERSONAL PROPERTY

INTRODUCTION

Definition of Appraisal Responsibility (Scope of Effort): The Engineering Services Department of Pritchard & Abbott, Inc. (P&A) is responsible for developing fair and uniform market values for industrial, utility and personal properties.

P&A's typical client is a governmental entity charged with appraisal responsibility for ad valorem tax purposes, although other types of clients (private businesses, individuals, etc.) occasionally contract for appraisal services which are strictly for various non-ad valorem tax purposes so that no conflicts of interest are created with P&A's core ad valorem tax work.

P&A hereby makes the assumption that, in all appraisal assignments performed for governmental entities in satisfaction of contractual obligations related to ad valorem tax, the client does not wish to or cannot legally request the appraisal report not identify the client.

Intended users of our reports are typically the client(s) for which we are under direct contract. Although taxpayers or their agents who own and/or represent the subject property being appraised often receive these reports either by law or as a courtesy of the client or P&A, this receipt does not mean these parties automatically become Intended Users as defined by USPAP. A party receiving a copy of a report in order to satisfy disclosure requirements does not become an intended user of the appraisal or mass appraisal unless the appraiser specifically identifies such party as an intended user. Potential other users include parties involved in adjudication of valuation disputes (review board members, lawyers, judges, etc.), governmental agencies which periodically review our appraisals for various statutory purposes (such as the Texas Comptroller's Office) and private parties who may obtain copies of our appraisals through Open Records Requests made to governmental agencies.

This section of P&A's USPAP report is not applicable to any Industrial, Utility, or related Personal Property that an appraisal district appraises outside of P&A's appraisal services, in which case the appraisal district's overall USPAP report should be referenced.

P&A makes the Extraordinary Assumption that all properties appraised for ad valorem tax purposes are marketable whereas ownership and title to property are free of encumbrances and other restrictions that would affect fair market value to an extent not obvious to the general marketplace. If and/or when we are made aware of any encumbrances, etc., these would be taken into account in our appraisal in which case the extraordinary assumption stated above would be revoked.

P&A is typically under contract to determine current market value or "fair market value" of said industrial, utility, and related personal property. Fair market value is typically described as the price at which a property would sell for if:

- exposed in the open market with a reasonable time for the seller to find a purchaser;
- both the buyer and seller know of all the uses and purposes to which the property is, or can be, adapted and of the enforceable restrictions on its use; and
- both the buyer and seller seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other. [Exigencies are pressing or urgent conditions that leave one party at a disadvantage to the other.]

For ad valorem tax purposes the effective date is usually legislatively specified by the particular State in which we are working - for example, in Texas the lien date is January 1 per the Texas Property Tax Code. For ad valorem tax purposes, the date of the appraisals and reports are typically several months past the effective date, thereby leaving open the possibility that a retrospective approach is appropriate under limited and prescribed circumstances (information after the effective date being applicable only if it confirms a trend or other appraisal condition that existed and was generally known as of the effective date).

P&A believes this section of this report, in conjunction with any attached or separately provided P&A-generated report(s), meets the USPAP definition of "typical practice"; i.e., it satisfies a level of work that is consistent with:

- the expectations of participants in the market for the same or similar appraisal services; and
- what P&A's peers' actions would be in performing the same or similar appraisal services in compliance with USPAP.

Legal and Statutory Requirements: The provisions of the Texas Property Tax Code and relevant legislative measures involving appraisal administration and procedures control the work of P&A as a subcontractor to the Appraisal District. P&A is responsible for appraising property on the basis of its market value as of January 1 for ad valorem tax purposes for each taxing unit that imposes ad valorem taxes on property in the contracted Appraisal District. All industrial, utility and personal properties are reappraised annually. The definition of Fair Market Value is provided and promulgated for use in ad valorem tax work in Texas by the Texas Property Tax Code, and therefore as a Jurisdictional Exception supersedes the definition of "market value" as found in USPAP definitions.

Administrative Requirements: P&A follows generally accepted and/or recognized appraisal practices and when applicable, the standards of the International Association of Assessing Officers (IAAO) regarding its appraisal practices and procedures. P&A, when applicable, also subscribes to the standards promulgated by the Appraisal Foundation known as the Uniform Standards of Professional Appraisal Practice (USPAP). In all cases where IAAO and/or USPAP requirements cannot be satisfied for reasons of practicality or irrelevancy, P&A subscribes to "generally accepted appraisal methods and techniques" so that its value conclusions are credible and defendable. P&A submits annual or biannual contract bids to the Office of the Chief Appraiser and is bound to produce appraisal estimates on industrial, utility and personal properties within the cost constraints of said bid. Any appraisal practices and procedures followed by P&A not explicitly defined through IAAO or USPAP requirements are specified by the Texas Property Tax Code and/or at the specific request or direction of the Office of the Chief Appraiser.

Appraisal Resources

Personnel: The Engineering Services Department and P&A's appraisal staff consists of appraisers with degrees in engineering, business and accounting. All personnel are Registered Professional Appraisers with the State of Texas, or are progressing towards this designation as prescribed by the Texas Department of Licensing and Regulation (TDLR).

Data: A set of data characteristics (i.e. original cost, year of acquisition, quantities, capacities, net operating income, property description, etc.) for each industrial, utility and personal property is collected from various

sources. This data is maintained in either hard copy or computer files. Each property's characteristic data drives the appropriate computer-assisted appraisal approach to valuation.

Information Systems: P&A's mainframe computer system is composed of in-house custom software augmented by schedules and databases that reside as various applications on personal computers (PC). P&A offers a variety of systems for providing property owners and public entities with information services.

VALUATION APPROACH (MODEL SPECIFICATION)

Concepts of Value: The valuation of industrial, utility and personal properties is not an exact science, and exact accuracy is not attainable due to many factors. These are considered complex properties and some are considered Special Purpose properties. Nevertheless, standards of reasonable performance do exist, and there are reliable means of measuring and applying these standards.

The evaluation and appraisal of industrial, utility and personal property relies heavily on the discovery of the property followed by the application of recognized appraisal techniques. The property is subject to inflation and depreciation in all forms. The appraisal of industrial and personal property involves understanding petroleum, chemical, steel, electrical power, lumber and paper industry processes along with a myriad of other industrial processes. Economic potential for this property usually follows either the specific industry or the general business economy. The appraisal of utility properties involves understanding telecommunications, electrical transmission and distribution, petroleum pipelines and the railroad industry. Utility properties are subject to regulation and economic obsolescence. The examination of utility property involves the understanding of the present value of future income in a regulated environment.

The goal for valuation of industrial, utility and personal properties is to appraise all taxable property at "fair market value". The Texas Property Tax Code defines Fair Market value as 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 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
- both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

Approaches to Value for Industrial, Utility, and Personal Property

Cost Approach: The use of cost data in an appraisal for market value is based upon the economic principle of substitution. This method is most readily applicable to the appraisal of industrial and personal property and some utility property. Under this method, the market value of property equals the value of the land plus the current cost of improvements less accrued depreciation. An inventory of the plant improvements and machinery and equipment is maintained by personally inspecting each facility every year. As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., relies predominantly on the cost approach to value in the appraisal of industrial, utility, and personal property.

Market Approach: This approach is characterized as one that uses sales data available from actual transactions in the market place. There are two factors that severely limit the usefulness of the market approach for appraising industrial, utility and personal properties. First, the property sales data is seldom disclosed; consequently there

is insufficient market data for these properties available for meaningful statistical analysis. Second, all conditions of sale must be known and carefully investigated to be sure one does have a comparative indicator of value. Many times when these properties do change hands, it is generally through company mergers and acquisitions where other assets and intangibles in addition to the industrial, utility and personal property are involved. The complexity of these sales presents unique challenges and hindrances to the process of allocation of value to the individual components of the transaction.

In the case of industrial, utility and personal properties, a scarcity of sales requires that all evidence of market data be investigated and analyzed. Factors relative to the sale of these properties are:

- plant capacity and current production; terms of sale, cash or equivalent;

- complexity of property;
- age of property;
- proximity to other industry already operated by the purchaser; and
- other factors such as capital investment in the property.

As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., rarely employs a rigorous application of the market approach in the appraisal of industrial, utility, and personal property.

Income Approach: This approach to value most readily yields itself to all income generating assets, especially utility properties. Data for utility properties is available from annual reports submitted to regulatory agencies whereby future income may be estimated, and then this future income may be converted into an estimate of value. The valuation of an entire company by this method is sometimes referred to as a Unit Value. Many refer to this as a capitalization method, because capitalization is the process of converting an income stream into a capital sum (value). As with any method, the final value estimate is no better than the reliability of the input data. The underlying assumption is that people purchase the property for the future income the property will yield.

The relevant income that should be used in the valuation model is the expected future net operating income after depreciation but before interest expense (adjustments for Federal Income Taxes may or may not be required). Assumptions of this method are:

- Past income and expenses are a consideration, insofar as they may be a guide to future income, subject to regulation and competition.
- The economic life of the property can be estimated.
- The future production, revenues and expenses can be accurately forecasted. Future income is less valuable than current income, and so future net income must be discounted to make it equivalent to the present income. This discount factor reflects the premium of present money over future money, i.e., interest rate, liquidity, investment management, and risk.

As a general rule, and for the reasons stated above, Pritchard & Abbott, Inc., employs the income approach in the appraisal of industrial and utility property only when quantifiable levels of income are able to be reliably determined and/or projected for the subject property. P&A does not employ the income approach in the appraisal of personal property.

DATA COLLECTION/VALIDATION

Sources of Data: The main source of P&A's property data for industrial and personal property is through fieldwork by the appraisers and commercially/publicly available schedules developed on current costs. Data for

performing utility appraisals is typically provided by the taxpayer or is otherwise available at various regulatory agencies (Texas Railroad Commission, Public Utilities Commission, FERC, et. al.). Other discovery tools are financial data from annual reports, information from chief appraisers, renditions, tax assessors, trade publications and city and local newspapers. Other members of the public often provide P&A information regarding new industry and other useful facts related to property valuation.

Data Collection Procedures: Electronic and field data collection requires organization, planning and supervision of the appraisal staff. Data collection procedures have been established for industrial and personal properties. Appraisers gather and record information in the mainframe system, where customized programs serve as the basis for the valuation of industrial, utility and personal properties. P&A is divided into multiple district offices covering different geographic zones. Each office has a district manager and field staff. While overall standards of performance are established and upheld for the various district offices, quality of data is emphasized as the goal and responsibility of each appraiser. Additionally, P&A's Engineering Services Department provides supervision and guidance to all district offices to assist in maintaining uniform and consistent appraisal practices throughout the company.

VALUATION ANALYSIS (MODEL CALIBRATION)

The validity of the values by P&A's income and cost approaches to value is tested against actual market transactions, if and when these transactions and verifiable details of the transactions are disclosed to P&A. These transactions are checked for meeting all requisites of fair market value definition. Any conclusions from this analysis are also compared to industry benchmarks before being incorporated in the calibration procedure. Appropriate revisions of cost schedules and appraisal software are annually made and then tested for reasonableness prior to the appraisals being performed.

INDIVIDUAL VALUE REVIEW PROCEDURES

Individual property values are reviewed several times in the appraisal process. P&A's industrial, utility, personal property programs and appraisal spreadsheets afford the appraiser the opportunity to review the value being generated. Often the appraiser is prompted to reevaluate some or all of the parameters of data entry so as to arrive at a value more indicative of industry standards. Examples of indicators are original cost, replacement cost, service life, age, net operating income, capitalization rate, etc. In addition to appraiser review, taxpayers are afforded the opportunity to review the appraised values either before or after Notices of Appraised Value are prepared. Taxpayers, agents and representatives routinely meet with P&A's appraisers to review parameters and to provide data not readily available to P&A through public or commercial sources, such as investment costs and capitalization rate studies. And of course, all property values are subject to review through normal protest and Appraisal Review Board procedures, with P&A acting as a representative of the Office of the Chief Appraiser.

PERFORMANCE TESTS

An independent test of the appraisal performance of properties appraised by P&A is conducted by the State of Texas Comptroller’s Office through the annual Property Value Study for school funding purposes. This study determines the degree of uniformity and the median level of appraisal for utility properties. School jurisdictions are given an opportunity to appeal any preliminary findings. After the appeal process is resolved, the Comptroller publishes a report of the findings of the study, including in the report the median level of appraisal, the coefficient of dispersion around the median level of appraisal and any other standard statistical measures that the Comptroller considers appropriate.