

$D_{\text{ENTON}}\,C_{\text{ENTRAL}}\,A_{\text{PPRAISAL}}\,D_{\text{ISTRICT}}$

2021-2022 Reappraisal plan

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As we progress into the actual reappraisal process, we reserve the right to modify the plan as required in order to meet the requirements for this office as set forth in the Texas Property Tax Code.

EXECUTIVE SUMMARY

Denton Central Appraisal District has prepared and published this reappraisal plan to provide the Board of Directors, taxing units, citizens and taxpayers with a better understanding of the District's responsibilities and reappraisal activities

The Denton Central Appraisal District (DCAD) is a political subdivision of the State of Texas created on January 1, 1980. The provisions of the Texas Property Tax Code govern the legal, statutory, and administrative requirements of the appraisal district. A 6 member Board of Directors constitute the DCAD governing body. The Denton County Assessor/Collector serves as a non-voting member. The Chief Appraiser, appointed by the Board of Directors, is the chief administrator and chief executive officer of the appraisal district. Appendix A contains a list of Board of Directors members.

Denton Central Appraisal District is responsible for local property tax appraisal and exemption administration for the taxing units in Denton county. These jurisdictions are located in Appendix A. Each taxing unit sets its own tax rate to generate revenue to pay for services such as police and fire protection, public schools, road and street maintenance, recreational facilities, water and sewer systems, and other public services. Property appraisals are values established by the appraisal district and used by the taxing units to distribute the annual tax burden. Appraisals are based on each property's market value.

DCAD also administers and determines eligibility for various types of property tax exemptions that are authorized by state and local governments; such as homestead, over-65, disabled persons, disabled veterans, and charitable or religious exemptions.

A reappraisal plan as required by the Texas Property Tax Code and summary of the reappraisal activities which respond to these requirements is included in this report.

TEXAS PROPERTY TAX CODE REQUIREMENT

The Reappraisal Plan

Section 6.05(i) of the Texas Property Tax Code, is as follows:

(i) To ensure adherence with generally accepted appraisal practices, the board of directors of an appraisal district shall develop biennially a written plan for the periodic reappraisal of all property within the boundaries of the district according to 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 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.

Section 25.18(a) and (b) of the Texas Property Tax Code, reads as follows:

- (a) Each appraisal office shall implement the plan for periodic reappraisal of property approved by the board of directors under §6.05 (i).
- (b) The plan shall provide for the following reappraisal activities for all real and personal property in the district at least once every three years:
- (1) Identifying properties to be appraised through physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial photographs, land-based photographs, surveys, maps, and property sketches;
- (2) Identifying and updating relevant characteristics of each property in the appraisal records;
- (3) Defining Market Areas In The District;
- (4) Identifying property characteristics that affect property value in each market area, including:
 - (A) The location and market area of the property;
 - (B) Physical attributes of property, such as size, age, etc.
 - (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.

REAPPRAISAL ACTIVITIES

As required by Section 25.18 of the Texas Property Tax Code, Denton Central Appraisal District performs the following reappraisal activities:

1. Identifying properties to be appraised through physical inspection or by other reliable means of identification.

Accurate ownership and legal description data is maintained by processing recorded deeds and plats that are accessed through the County Clerk's website. The deeds are read and entered onto the computer assisted mass appraisal (CAMA) software system by the Mapping & Ownership Department. Information entered includes the grantor, grantee, date of recording, volume, and page. Property identification numbers are assigned to each parcel of property and remain with the property for its life. Maps have been developed that show ownership lines for all real estate in the county. The maps are stored electronically using ESRI software and are integrated with the CAMA software to provide staff and appraiser significant analysis capabilities. Aerial photography is purchased on a biannual basis and provides mapping staff and appraisal staff additional capability to review and identify property characteristics. Oil and gas wells are discovered using Texas Railroad Commission records. Business personal property is located by using data sources such as sales tax permit holder lists, business listings, commercial publications and by canvassing the county.

2. Identify and update relevant characteristics of each property in the appraisal record.

Real estate is reviewed annually. The property data related to new construction and other building permit activity is collected through an annual field review effort. Cities within DCAD's jurisdiction frequently provide permit information either electronically or in paper form. Comparable sales data is routinely verified as part of the building permit field review and reappraisal activities. Appraisers drive to market areas and gather data on houses, commercial buildings, and vacant land tracts, based on building permit information. Additional information is gathered during protests, from taxpayers, sales activity, and sales ratio analysis. The appraisers review property noting its condition, observing and noting any changes to the property since its last inspection. A picture of the property is taken and a sketch of the improvements is made, if there is none on the records. Characteristics such as bathrooms, fireplaces, air conditioning, type of roof, type of exterior, type of foundation and quality of construction are recorded or validated. All data is stored in the CAMA software and assists the appraiser in making value decisions when they return to the office. Business personal property is inspected and the appraiser makes notations of the type of business and the quality and density of both the inventory and furniture and fixtures.

3. Define market areas in the district.

Market areas are defined by the physical, economic, governmental and social forces that influence property values. A list can be found in appendix D. The effects of these forces are used to identify, classify, and stratify or delineate similarly situated properties into smaller, more comparable and manageable subsets for mass valuation purposes. Market sales are examined to confirm which areas are similar.

4. Identify property characteristics that affect property value in each market area.

Each parcel of property has detailed information recorded into the CAMA system. Each improvement may show the sketch and dimensions, the quality of construction, the year of construction, the exterior covering, then number of baths, fireplaces, air conditioning type, fences, pools and other attributes, and the overall condition of the

improvement. For land, the legal description, size, and special characteristics are noted and can be used when comparing to other land parcels.

5. Develop an appraisal model that reflects the relationship among the property characteristics affecting value in each market area.

General demographic, economic and financial trends, construction cost, market sales and income data are acquired through various sources. These may include internally generated questionnaires to buyer and seller, 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 protest and Appraisal Review Board process.

Revisions to cost models, income models, and market models are specified, updated and tested each appraisal year. Market area boundaries are reviewed and adjusted as indicated by growth patterns and market preferences and other factors.

The CAMA system begins with the cost approach to value to estimate the original cost of each improvement. That cost is based on local modifiers to information from national publications such as Marshall Valuation Service (Marshall & Swift) and also on local construction surveys. Components measured in the cost include the size of the structure, the exterior covering, the quality of construction, the number of stories, air conditioning and other special amenities.

The market sales are then studied for value contributions in each market area and adjustments to cost are applied to each market area in the form of a market adjustment.

6. Apply the conclusions reflected in the model to the characteristics of the properties being appraised.

By utilizing the age, quality, conditions, construction components and other variables, the model is developed and applied to all parcels within the market area.

7. Review the appraisal results to determine value.

After completing the process of assigning value to all parcels within a market area using the CAMA software, sales ratio reports are run for each market area to determine if the values that have been assigned are within acceptable ranges.

REAPPRAISAL PLAN DEVELOPMENT

Revaluation Policy - The Texas Property Tax code under section 25.18 requires each appraisal district to implement a plan to update the appraised values for real property at least once every three years. DCAD's current policy is to conduct a general reappraisal of real and business personal property value annually.

Performance Analysis - The certified values from the previous tax year will be analyzed with ratio studies to determine the appraisal accuracy and appraisal uniformity overall and by market area within property reporting categories. Ratio studies will be conducted in compliance with current *Standards on Ratio Studies* of the International Association of Assessing Officers.

Analysis of Available Resources – Staffing and budget requirements for tax year 2021 are detailed in the 2021 budget, as adopted by the board of directors and attached to the written biennial plan by reference. Staffing requirements for each operation and production activity will be identified and allocated accordingly to meet mandatory timelines. Aerial and oblique images and map layers will be updated according to available funding and contract specifications. Staffing and budget requirements for the 2022 tax year will be handled in a similar manner and detailed in the 2022 budget, as adopted by the board of directors no later than September 15, 2021.

Planning and Organization – A calendar of key events with critical completion dates is located in appendix C.

Mass Appraisal System – Computer Assisted Mass Appraisal (CAMA) system revisions required are specified and scheduled with the Information Technology division and the district's software vendor. All computer forms and IT procedures are reviewed and revised as required.

Data Collection – Field and office procedures will be reviewed and revised as required for data collection. Activities scheduled for each tax year include, discovery and listing of new construction, demolition, and remodeling; re-inspection of problematic market areas and the universe of properties on a three year cycle, as feasible; and verification of sales data and property characteristics. Re-inspection of properties will be completed by physical inspection or by other reliable means of identification, including deeds or other legal documentation, aerial and oblique imagery, street-level photographs, surveys, maps, and property sketches.

Analysis- Current market data will provide guidelines for the revision of mass appraisal models. These revised models will be tested using ratio studies conducted by property type and market areas. Ratio studies will be conducted in accordance with IAAO standards. The ratio studies determine the accuracy, uniformity, and reliability of estimated values.

Valuation by tax year – Valuation models are specified and calibrated in compliance with supplemental standards from IAAO and the Uniform Standards of Professional Appraisal Practices (USPAP) using market analysis of comparable sales, comparable income data, and locally tested cost data. Calculated values are tested for accuracy and uniformity using ratio studies.

Mass Appraisal Report - Each tax year the Texas Property Tax Code required mass appraisal report will be prepared and certified by the chief appraiser at the conclusion of the appraisal phase of the ad valorem tax calendar (on or about May 15th). The mass appraisal report will be completed in compliance with USPAP Standard 6. The signed certification by the chief appraiser is compliant with USPAP Standard Rule 6-3.

Final Performance Analysis – Value defense evidence to be used by the district to meet its burden of proof for market value and appraisal equity in both informal and formal hearings is specified and tested as applicable. In addition, Section 5.10 of the Texas Property Tax code requires the State Comptroller Property Tax Assistance Division to conduct a property value study of each school district within the state at least once every two years. This study utilizes statistical analysis of sold properties and appraisals of unsold properties as a basis for assessment ratio reporting.

PLAN REVIEW, AMENDMENTS and ALTERATIONS

The Board of Directors, acting on a request from the Chief Appraiser, may review, amend or alter this plan, if:

- 1. The Chief Appraiser's request is made during a public Board of Directors meeting and is properly listed on the agenda for the Board meeting; and
- 2. The Chief Appraiser identifies the portion of the plan to be altered or amended and substantiates the need to alter or amend the plan.

Calendar Amendments and Alterations – The Chief Appraiser is authorized to administratively amend or alter the 2021-2022 Calendar of key events, shown in Appendix C, as deemed necessary. Calendar changes can be made periodically and will not be considered alterations or amendments to the plan and do not require action by the Board of Directors.

2021-2022 REAPPRAISAL PLAN SCOPE OF RESPONSIBILITIES

Estimated number of accounts

	2016	2017	2018	2019	2020
Real	277,815	285,677	299,432	311,035	319,097
ВРР	19,258	20,110	20,343	20,119	20,303
Mineral	104,666	147,830	147,050	152,256	152,256
Total Accounts	401,739	453,617	466,825	483,410	491,656

REVALUATION POLICY

The Texas Property Tax Code, under Sec. 25.18, requires each appraisal office to implement a plan to update appraised values for real property at least once every three years. Denton Central Appraisal District's current policy is to conduct a general reappraisal of real and business personal property value annually, meaning that a property's appraised value is established and reviewed for equality and uniformity each year. The district conducts an onsite field review of real property in a portion of the county annually as part of a reappraisal cycle. Business personal property is verified on an annual basis through various means, including onsite field review, property owner rendition submissions, and district initiated owner questionnaires.

The Chief Appraiser will provide a notice of appraised value for each property in compliance with Section 25.19, Texas Property Tax Code.

Appraisal Frequency and Method Summary

Land Appraisal - Vacant rural land is valued using comparable sales. Lot values in subdivisions are computed by market sales, or if unavailable, as an allocated percentage.

Residential Appraisal - Residential new construction is physically examined as part of an annual building permit data collection process. Appraisers determine size, class, year built, effective year of construction and other property characteristics and features that are used in the cost and sales comparison valuation methods. Improved residential properties are delineated by market areas as defined later in this document. On an annual basis, the residential department performs statistical analysis to evaluate whether values are equitable and consistent with the market. Based on analysis of the sales activity, market adjustment factors are developed and applied to adjust the appraised values in market areas or specified geographic areas on comparable properties.

Commercial Appraisal - Commercial real estate is verified by attempting to field observe and photograph each property at least once every three 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. Economic units are delineated by improved market areas. On an annual basis, commercial market values are established using generally accepted appraisal methods and techniques. Land values are generally determined using comparable sales. For improved properties, appraisers consider the cost, sales comparison and income approaches and then reconcile the final value, based on the quality and availability of the most accurate and credible data for each valuation approach.

Business Personal Property – Business Personal Property is observed annually by appraisers to identify and document business personal property quality and density. A rendition is mailed annually to each business. Comparable businesses are analyzed to determine consistency of appraisal values per square foot or unit. Businesses are categorized using Standard Industrial Codes. Rendition laws provide additional information on which to base values of all business personal property accounts.

PERFORMANCE ANALYSIS

In each appraisal year, the previous appraisal year's equalized values are analyzed with ratio studies to determine appraisal accuracy and appraisal uniformity overall. In its annual procedures, the district tests values by market area within state property reporting categories. Ratio studies are conducted in compliance with the current Standard on Ratio Studies from the IAAO. Mean, median, and weighted mean ratios are calculated as measures of central tendency for properties in each reporting category to measure the level of appraisal (appraisal accuracy). In each reappraisal year this analysis is used to develop the starting point for establishing the level of accuracy of appraisal performance.

ANALYSIS OF AVAILABLE RESOURCES

Staffing and budget requirements for appraisal year 2021 are detailed in the 2021 appraisal district budget, as adopted by the Board of Directors. This reappraisal plan is adjusted to reflect the expected available staffing in appraisal year 2021 and the anticipated staffing for appraisal year 2022. Staffing will impact the cycle of real property re-inspection and personal property on-site review that can be accomplished in this time period. (See Appendix B for listing of key appraisal staff)

Changes in legislation involving appraisal districts may occur in 2021 when the legislature is called into session. These new laws may require adjustments to the budget, staffing, and programming.

Existing appraisal practices, which are continued from year to year, are identified in procedure manuals and district staff is appropriately trained in order to keep their skills current. Real property appraisal cost new tables and depreciation tables are reviewed and updated as necessary based upon cost data obtained from national publications such as Marshall Valuation Service (Marshall & Swift) and local market data. The preliminary values produced by these updates are tested against verified sales data and independent fee appraisals, and adjustments are made as necessary to fit the local market area. Income studies by commercial real property use type are conducted and models are updated from current market data. This includes a review of economic rents and capitalization rates from the local market, data obtained through ARB hearing process, and information from published sources. Personal property density schedules are analyzed, tested and updated based on cost data obtained by rendition and ARB hearing documentation.

Information Technology support is detailed with year specific functions identified by management and system upgrades are scheduled with the district's software vendor. Computer generated forms are reviewed for revisions based on year and reappraisal status. Legislative changes are scheduled for completion and also tested through coordination between the district's IT department and its software vendor. Existing maps and data requirements are developed and updates coordinated between the district's GIS and IT departments in order to make the tools available to appraisal staff.

PLANNING AND ORGANIZATION

A calendar of key events with critical completion dates is prepared for the district. This calendar identifies the key events for developing the appraisal roll (See Appendix C for Calendar of Events.) This plan encompasses the normal processes carried out for each year by the district, therefore catastrophic events or significant legislative action may have a detrimental effect to the district's operations and require changes to this plan.

MASS APPRAISAL SYSTEM

Information Technology (IT) maintains Denton Central Appraisal District's information technology infrastructure. The various Management Information Support functions include technical support, computer operations, applications systems development and support, internet support functions, data communications, network and personal computer workstation support, data management, geographic information systems in support of mapping, and multiple layers of GIS related intelligence and digital photography for utilization by all operating departments of the organization. Multiple network servers are in place to support the access through the internal and external networks for use by individuals. The DCAD data structures reside and are supported by multiple database tables accessible through the PC workstation and network structure. These systems provide direct support for all operating departments involved in appraisal functions, customer service, exemption administration and the Appraisal Review Board support activities. The server data is also utilized to fulfill all the reporting requirements for the taxing units and the State Comptroller's Property Tax Assistance Division.

Computer Assisted Mass Appraisal (CAMA) system revisions are specified by the district management team and scheduled with IT and the district's software vendor. Legislative mandates will be addressed and implemented into the necessary systems applications. All computer generated forms, letters, notices and orders will be reviewed annually and revised as necessary. The following details how they relate to the 2021 and 2022 appraisal years:

The district's website makes a range of information available for public access, including information on appraisal district operations. The site also provides links to connect users to related websites for taxing units, other appraisal districts and state government resources. Property owners can access additional online information from Denton CAD's website (www.dentoncad.com) that includes property characteristics, preliminary and certified values, protests and appeal procedures, and property maps.

Real Property Valuation

Revisions to cost models, income models, and market models are specified, updated and tested each appraisal year. Market area boundaries are reviewed and adjusted as indicated by growth patterns and market preferences and other factors. Deeds are processed on an ongoing basis to transfer ownership, establish the basis for land size, and assign account numbers to newly platted lots as an addition to the appraisal roll. The district will also update and process exemptions and special use appraisal applications as necessary and applicable.

Cost schedules are tested with market data (sales) to insure that the appraisal district is in compliance with Texas Property Tax Code, Section 23.011. Replacement cost new tables as well as depreciation tables are based on cost data from national publications such as Marshall Valuation Service (Marshall & Swift) and from local market data. The resulting schedules are tested for accuracy and uniformity using ratio studies.

Land tables are updated using current market data (sales) and then tested with a ratio study.

Income, expense, and occupancy data is updated in the income models for each property use category and market area. Property categories are reviewed to ensure their continued applicability. Capitalization rate studies are completed using current sales data when available, and published sources are also utilized. The resulting models are tested using ratio study tools.

Personal Property Valuation

Density schedules are updated using data received during the previous appraisal year from renditions and hearing documentation. Valuation procedures are reviewed, modified as necessary, and tested.

Appraisal Notices

Appraisal Notices will be sent in accordance with Texas Property Tax Code, Section 25.19. Appraisal notices will be reviewed for legal sufficiency and correctness. Enclosures will be updated, including the latest version of the comptroller's *Property Taxpayer's Remedies*. Real property notices will generally be mailed in early April and personal property notices will be mailed in mid-May for each year covered by the plan.

Hearing Process

Appraisal managers & supervisors will conduct training for staff in early April of each appraisal year to ensure preparedness for informal and formal hearings, which will generally begin in mid-April of each year covered by the plan. Logistical staff will attend the stated mandated training for ARB members typically held in March.

Revisions and enhancements to existing hearing scheduling procedures for informal and formal appraisal review board hearings will be reviewed and updated to ensure efficiency and timely certification of the appraisal roll. Standards of documentation and the appraisal districts hearing evidence will be reviewed and updated to reflect the current valuation methods and practices. Production of evidence will be tested and compliance with Tax Code requirements will be ensured.

Pilot Study

New or revised mass appraisal models will be tested on randomly selected market areas. Sales ratio studies will be used to test the models. Actual test results will be compared against anticipated results and those models not performing satisfactorily will be refined and retested. The procedures used for model specification and model calibration will comply with USPAP Standard 5.

DATA COLLECTION

IDENTIFYING & UPDATING PROPERTY CHARACTERISTICS

Field appraisers are currently provided with standardized field collection devices in order to verify existing property characteristics or record new property data. The work assignments are based on the geographic area that is delineated for reappraisal. Existing appraisal data is displayed on a field device used by the appraiser to record new or modified data during an on-site inspection. Each parcel of property has detailed information recorded into the CAMA system. Each improvement shows the sketch and dimensions, the quality of construction, the year of construction, the exterior covering, then number of baths, fireplaces, air conditioning type, fences, pools and other attributes, and the overall condition of the improvement. For land the legal description, size, and special characteristics are noted and can be used when comparing to other land parcels.

Other field inspection resources for all departments may include a MAPSCO street directory, sales and income data, fire damage reports, building permits, certificates of occupancy, building plans, site plans, recorded deeds and plats, photos, published articles and actual cost information.

Field and office procedures are reviewed and revised as required for the data collection process. Activities scheduled for each appraisal year include market area delineation, new construction and demolitions, remodeling, re-inspection of problematic areas, re-inspection of the universe of properties, verification of sales data, and quality control.

Residential	Commercial	Personal Property
2021	2021	2021
Continue audit of of new software conversion	Continue Audit of of new software conversion	Continue Audit of of new software conversion
Implement new software into mobile field devices	Implement new software into mobile field devices	Implement new software into mobile field devices
Review residential cost schedules & consider available vendors	Review commercial cost Schedules & consider available vendors	
Procedure manual update and review	Procedure manual update and review	Procedure manual update and review
Residential network drive cleanup and archiving	Commercial network drive cleanup and archiving	BPP network drive cleanup and archiving
Review and remove unused & obsolete codes	Review and remove unused & obsolete codes	Review and remove unused & obsolete codes
Inspections for required tagged properties	Inspections for required tagged properties	Inspections for required tagged properties
	Consider creating an income model for all commercial property types	Drive all areas annually for new or adjusted BPP accounts and business closures.
	Review land adjustments	Properties that were not rendered in the last two years will be reviewed with an onsite field inspection.
	Review Economic unit groups	Continue audit of exemptions
		Have schedules inputted into our system
2022	2022	2022
Continue Audit of of new software conversion	Continue Audit of of new software conversion	Continue Audit of of new software conversion
Consider reassigning appraiser regions to maximize productivity, staff knowledge, and continued development.	Consider reassigning appraiser regions & property types to maximize productivity, staff knowledge, and continued development.	Consider reassigning appraiser regions to maximize productivity, staff knowledge, and continued development.
Inspections for required tagged properties	Inspections for required tagged properties	Inspections for required tagged properties
	Review and automate commercial equity and sales grids	Drive all area for new, existing, moved, and/or closed accounts
	Collect financing data to calculate a "typical" loan to value ratio	Inspection of non-rendered accounts that have not rendered in the past two years.
	Review all commercial property values	Review the possibility of the cama system to direct by situs in the field for each area.
	Review and cleanup market area codes for uniformity	Software system to develop Online rendition submission

Market Area Delineation

Market areas are defined by the physical, economic, governmental and social forces that influence property values. The effects of these forces are 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 or the market area boundary lines on a map or, it can also involve statistical separation or stratification based on attribute analysis. These homogeneous properties have been delineated into valuation market areas for residential & commercial property, as well as property use & submarket for commercial property, but because there are discernible patterns of growth that characterize a market area, analyst staff will annually evaluate the market area boundaries or market segments to ensure homogeneity of property characteristics.

New Construction/Demolition

Field and office review procedures for inspection of new construction will be reviewed and revised as required in order to complete the data collection phase. Field production standards are established and procedures for monitoring tested to meet field review deadlines. Sources of building permit data is confirmed and system input procedures are identified in the procedures adopted by the department.

Remodeling

Market areas with extensive remodeling will be identified through permits and on-site inspections will be planned to verify property characteristic data. Reappraisal of significantly changed properties will take place and values will be tested with ratio studies before they are finalized.

Re-Inspection of Problematic Market Areas

Real property market areas, stratified by property classification, will be tested for low or high protest volumes; low or high sales ratios; and high coefficients of dispersion. Market areas that fail any or all of these tests will be determined to be problematic. Field reviews will be scheduled to verify and correct property characteristics data. Additional sales data will be researched and verified in order to assess whether the market area is correctly stratified. In the absence of adequate market data, market area boundary lines may need to be redrawn and clustered for a representation of the overall market area will be established.

Re-Inspection of the Universe of Properties

Texas Property Tax Code, Section 25.18(b) requires the re-inspection of the universe of properties at least once every three years. The district's re-inspection activity is dictated by availability of staff, which is dependent on the completion of current year protests and certification. Re-inspection of properties will be completed using a combination of field inspections and office review. Office review of property for the 2021-2022 years will include the examination of aerial photography using the DCAD's most recently flown oblique and orthographic imagery provided by Pictometry Inc., property sketches, existing property characteristics, and existing street-view images captured by district staff.

Verification of Sales Data and Property Characteristics

Sales information must be verified and property characteristics data contemporaneous with the date of sale will be captured. Since Texas does not require full sales disclosure of sales transactions, the district will obtain sales prices through deeds, voluntarily disclosed closing statements or fee appraisals (usually submitted as evidence in a protest hearing) buyer and seller mail questionnaires, or third party sources such as, real estate agents and market data vendors.

Quality Control

Appraisal department managers and data management employees conduct on-going quality control of the entire data entry process. Supervisors and managers verify the accuracy of collected data with periodic on-site field reviews. The review process may pinpoint areas where additional appraiser training is required.

VALUATION METHODS BY PROPERTY TYPE

RESIDENTIAL PROPERTY VALUATION

Scope of Responsibility

The Residential Appraisal staff is responsible for developing equal and uniform market values for residential properties. There were approximately 253,397 residential improved parcels in Denton County in 2019.

Residential assignments are delineated from commercial assignments on the basis of property use type codes. Generally, the staff values residential single family, all multifamily housing other than apartments, and mobile homes. The Residential Division is responsible for appraising vacant residential lots and tracts in neighborhoods.

State Code	codeDescription	
A020	BUILDER HOME PLANS - REFERENCE ONLY	Residential
A021	Builder Home Plans - Reference Only	Residential
A1	REAL, RESIDENTIAL, SINGLE-FAMILY	Residential
A2	REAL, RESIDENTIAL, MOBILE HOME	Residential
A3	REAL, RESIDENTIAL, WATERFRONT	Residential
A4	REAL, RESIDENTIAL, CONDOS	Residential
A5	REAL, RESIDENTIAL, TOWNHOMES	Residential
A6	REAL, RESIDENTIAL, GOLF COURSE	Residential
B020	BUILDER HOME PLANS - REFERENCE ONLY	Residential
B021	Builder Home Plans - Reference Only	Residential
B2	REAL, RESIDENTIAL, DUPLEXES	Residential
C1	VACANT PLATTED RESIDENTIAL LOT	Residential
C3	VACANT LOT OUTSIDE CITY	Residential
C5	VACANT LOT WATERFRONT	Residential
M1	MOBILE HOME	Residential
E1	LAND AND IMPROVEMENTS (NON AG QUALIFIED)	Land/Res/Ag
E3	MOBILE HOMES ON NON AG QUALIFIED LAND	Land/Res/Ag
E4	VACANT NON QUALIFIED NON HOMESITE LAND	Land/Res/Ag
D1	QUALIFIED AG LAND	Land/Ag
D2	FARM AND RANCH IMPSS ON QUALIFIED OPEN-SPACE	Land/Ag

Appraisal Resources

Personnel - The Residential Appraisal staff consists of one manager, two supervisors, 12 appraisers, and 6 support staff. A detailed count may be found in the adopted budget.

Data gathering - A common set of data characteristics for each residential dwelling in Denton County is collected in the field and data entered to the computer. Land data resources include property-specific (view attributes, topography, site plan approvals, sales, listings, and zoning, *e.g.*) and general (neighborhood trends, investment criteria, *e.g.*) data, acquired from field inspection, aerial imagery, public records, owner survey, as well as contract

services that report sale and listing information, general market trend and investment criteria, *etc.* Denton CAD uses personal field devices to make data entry more efficient in the field work. These PFD's will enable the appraiser to enter data as it is gathered, thus eliminating errors and saving time due to not re-writing the gathered data and another employee interpreting the data. This property-specific data drives the DCAD computer-assisted mass appraisal (CAMA) approaches to valuation. Residential appraisal also requires verified sales data, actual construction cost data, and other real estate sources and data. Appraisers also review various real estate related publications to determine patterns and trends in the market data.

Specific Valuation Objectives

Each year, new land accounts created by subdivision, condominium declaration, or by split/merge activity. Field inspections ascertain land characteristics for these new accounts, for the development status of subdivision / condominium developments that were partially complete in the previous year, and for existing individual properties or land market areas targeted for review. On an annual basis, in cooperation with Residential and Commercial real property appraisal divisions, existing land values are compared with recent market data within designated land market areas. All qualifying D1 properties are reappraised annually as to their productivity values, as are qualifying O properties' inventory values.

In addition to properties identified by building permits, sales, protests, and administrative review, Denton Central Appraisal District proposes to review:

- 1. Continue audit of of new software conversion
- 2. Implement new software into mobile field devices
- 3. Review residential cost schedules & consider available vendors
- 4. Procedure manual update and review
- 5. Residential network drive cleanup and archiving
- 6. Review and remove unused & obsolete codes
- 7. Inspections for required tagged properties
- Consider reassigning appraiser regions to maximize productivity, staff knowledge, and continued development.

New construction/demolition - New construction and office review procedures are identified and revised as needed. Building permits provided by the cities are a main source of discovering construction or demolition properties. This data is acquired periodically from the cities and used in identifying properties for annual inspection.

Sales data is researched and verified – Sales with a sales ratio of 75% below or 25% above the Denton CAD market value must be verified and property characteristics data gathered with the date of sale captured. The sales ratio formula is Denton CAD appraisal of the property divided by the sales price.

Highest and Best Use Analysis – Highest and best use of property is the reasonable and probable use that supports the highest present values as of the appraisal date. The highest and best use of residential property is normally its current use. This being due to the fact that residential development, in most areas, through deed restrictions and zoning preclude other land uses. Residential valuation reassessment is used in transition areas and areas of mixed residential and commercial use. In transition areas with ongoing renovations of neighborhoods no longer prosperous, the appraiser would review the residential property

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

VALUATION AND STATISTICAL ANALYSIS (Model Calibration)

Cost Schedules

Geographically adjusted, from national publications such as Marshall Valuation Service (Marshall & Swift) cost schedules utilized are reviewed and adjusted periodically in order to consistently reflect market costs or any changing economic trends. These are costs compared with sales of new improvements and evaluated from year to year and indexed to reflect the local residential building and labor market. Costs may also be adjusted for market area factors and influences that affect the total replacement cost of the improvements in a smaller market area based on evidence taken from a sample of market sales. The cost schedules are reviewed regularly and any variation greater than a range of plus or minus 10% from nationally recognized cost schedules is documented.

Tables are also produced in order to uniformly apply value for added amenities as determined by the marketplace. Examples may include pools, bathhouses, outbuildings, boathouses, tennis courts, and other market driven value items.

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 due to it's being more sensitive to economic, social and physical characteristics of a given property.

Income Models

The income approach to value may be useful to 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, sales vendors, builders, realtors and brokers.

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 market area. Market area sales reports are generated as an analytical tool for the appraisers 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 analysis 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.

Statistical Analysis

The residential appraisal staff performs statistical analysis annually to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on residential market areas 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 market area 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 the managers a tool by which to determine both the level and uniformity of appraised value on a market area basis. The level of appraised value is determined by the weighted mean for individual properties within a market area, and a comparison of market area weighted means reflect the general level of appraised value between comparable market areas. Review of the standard deviation, coefficient of variation, and coefficient of dispersion discerns appraisal uniformity within and between market areas.

The appraisers, through the sales ratio analysis process, review market areas annually. The first phase involves market area ratio studies that compare the recent sales prices of market area properties to the appraised values of these 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 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 market area needs to be updated in an upcoming reappraisal, or whether the level of appraised value is acceptable. The residential appraisers perform statistical analysis annually to evaluate whether estimated values are equitable and consistent with the market.

Market Area and Market Analysis

Market area analysis of market sales to achieve an acceptable sale ratio or level of appraisal is also the reconciliation of the market and cost approaches to valuation. Market factors are developed from appraisal statistics provided from market analyses and ratio studies and are used to ascertain that estimated values are consistent with the market and to reconcile cost indicators. The district's primary approach to the valuation of residential properties uses a hybrid cost-sales comparison approach This type of approach accounts for market area influences not particularly specified in a purely cost model.

The following equation denotes the hybrid model used:

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

Market Value = Land Value + ((Cost New – Depreciation) Market Adjustment)

In accordance with the cost approach, the estimated market value (MV) of the property equals the land value (LV) plus the replacement cost new of property improvements (CN) less depreciation (D) times the market adjustment factor (MA). The MA is only applied to the improvement value, not the land value. As the cost approach separately estimates both land and building contributory values and uses depreciated replacement costs, which reflect only the supply side of the market, it is expected that adjustments to the cost values may be needed to bring the level of appraisal to an acceptable standard as indicated by market sales. Thus, demand side economic factors and influences may be observed and considered. These market, or location adjustments, may be abstracted and applied uniformly within market areas to account for location variances between market areas or across a jurisdiction.

Market Adjustment or Trending Factors

Market Area adjustment factors are developed from appraisal statistics provided from ratio studies and are used to ensure that estimated values are consistent with the market. The district's primary approach to the valuation of residential properties is the market or sales comparison approach.

Statistical analysis of present appraised value as compared with recent sales determines the appropriate market adjustment for a market area. Statistical programs developed by the DCAD Residential Department staff are used to study 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 owner qualifies for a residential homestead exemption. The appraised value of a qualified residence homestead will be the LESSER of:

- the market value; or
- the preceding year's appraised value PLUS 10 percent PLUS the value of any improvements added since the last re-appraisal.

The appraised value of a homestead increases 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.

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.

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

Office Review

Office reviews are performed in compliance with the International Association of Assessing Officer standards, and with the guidelines required by the existing classification system. The appraiser may utilize aerial photography as a means to verify building characteristics and location without an on-site inspection.

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

Once an appraisal manager is satisfied with the level and uniformity of value for each 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 appraisal manager to measure and improve performance is the ratio study. The district ensures that the appraised values produced meet the standards of accuracy in several ways. Overall sales ratios are generated for each ISD to allow the appraiser to review general market trends within their area of responsibility, and provide an indication of market appreciation over a specified period of time. In addition to the mainframe sales ratios by school district and market area, sales ratios statistics are generated. Reported in the sales ratio statistics is a level of appraisal value and uniformity profile by use and appraised value ranges.

Management Review Process

Once the proposed value estimates are finalized, the appraisal supervisors review the sales ratios by market area and present pertinent valuation data, such as weighted sales ratio and pricing trends to the Residential Manager. This review includes comparison of level of value between related market areas within and across jurisdiction lines. The primary objective of this review is to ensure that the proposed values have met preset appraisal guidelines appropriate for the tax year in question.

COMMERCIAL PROPERTY VALUATION

Appraisal Responsibility

Commercial Appraisal operates within the Commercial Department of Denton Central Appraisal District which is responsible for the valuation of all commercial real property, including land and improvements, located within the boundaries of Denton Central Appraisal District's jurisdiction. Commercial real property types generally include multi-family, office, retail, warehouse/manufacturing and various other categories of business related facilities. 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. There are approximately 9,128 improved commercial properties.

Commercial appraisal assignments are delineated from residential assignments on the basis of state use code guidelines established by the State Comptroller. Generally the commercial staff values all commercially improved properties including apartments, retail, office and industrial. Non-Homestead residential properties located in areas of transition to commercial, known as interim-use properties, are also valued by the commercial division. Property data and valuation models for commercial accounts are stored in the CAMA System.

State Code	codeDescription	
B1	REAL, RESIDENTIAL, APARTMENTS	Commercial
C2	VACANT LOT COMMERCIAL	Commercial
F010	COMMERCIAL BUILDER PLANS - REFERENCE ONLY	Commercial
F1	REAL, COMMERCIAL	Commercial
F2	REAL, INDUSTRIAL	Commercial
F3	REAL - COMMERCIAL MH PARKS	Commercial
F4	REAL - COMMERCIAL OFFICE CONDO'S	Commercial
OC2	INVENTORY, VACANT COMMERCIAL LOTS	Commercial
OA1	INVENTORY, RESIDENTIAL SINGLE FAMILY UNDER 5	Land
OA2	INVENTORY, RESIDENTIAL	Land
OA3	INVENTORY, WATERFRONT	Land
OA4	INVENTORY, CONDOS	Land
OA5	INVENTORY TOWNHOMES	Land
OB2	INVENTORY, DUPLEX	Land
OC1	INVENTORY, VACANT PLATTED LOTS/TRACTS	Land
OC3	INVENTORY, VACANT LOTS, OUTSIDE CITY	Land
OC5	INVENTORY - WATERFRONT VACANT LOT	Land
OD1	INVENTORY, AG PROPERTY	Land
D1	QUALIFIED AG LAND	Land/Ag
D2	FARM AND RANCH IMPSS ON QUALIFIED OPEN-SPACE	Land/Ag
E1	LAND AND IMPROVEMENTS (NON AG QUALIFIED)	Land/Res/Ag
E3	MOBILE HOMES ON NON AG QUALIFIED LAND	Land/Res/Ag
E4	VACANT NON QUALIFIED NON HOMESITE LAND	Land/Res/Ag

Appraisal Resources

Personnel – The Commercial Appraisal Section is staffed with a Commercial Manager, 2 Commercial Supervisors, 5 appraisers, and 2 support staff. Appraisal duties and responsibilities are divided by commercial property type and include Multi-family, Industrial, Office and Retail.

Commercial Appraisal - The Commercial Appraisal Division is responsible for valuing all commercial improved real property within Denton Central Appraisal District. Appraisers are responsible for all aspects of data collection, valuation, and valuation appeal (protests).

The assignment of the exact area of responsibility is reviewed and assigned each appraisal year by the Commercial Manager. Appraisers are also given the task of completing field reviews for all permits issued in their designated appraisal areas. Appraisers are consistently cross trained so they are knowledgeable and competent to appraise any/all commercial property types within DCAD's jurisdiction, even when those properties fall outside of their assigned area or property type.

Research - Appraisers are responsible for collecting, processing, and maintaining income information that is used in the valuation process. After the information is processed and verified, the information is entered into the database. Income information may also be maintained in databases outside of the CAMA system for use during the appeals season. Sales are collected and processed by the sales & research department.

The commercial appraisal staff is responsible for updating and maintaining the commercial data. This includes the periodic review and calibration of various cost and depreciation tables.

Data - A standardized set of data characteristics for each commercial property in Denton County is collected and data entered by the commercial appraisal staff into the CAMA system. This property-specific data drives the three valuation models. 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.

Specific Valuation Objectives

Each year, new land accounts created by subdivision, condominium declaration, or by split/merge activity are appraised based on recent market data. Field inspections ascertain land characteristics for these new accounts, for the development status of subdivision/condominium developments that were partially complete in the prior year, and for existing individual properties or land market areas targeted for review. On an annual basis, in cooperation with Residential and Commercial real property appraisal divisions, existing land values are compared with recent market data within designated land market areas.

Residential Inventory

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

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 land appraisal staff applies the same generally accepted appraisal techniques to determine the market value of residential real property inventory.

In addition to properties identified by building permits, sales, protests, and administrative review, Denton Central Appraisal District proposes to:

- 1. Continue Audit of of new software conversion
- 2. Implement new software into mobile field devices
- 3. Review commercial cost Schedules & consider available vendors
- 4. Procedure manual update and review
- 5. Commercial network drive cleanup and archiving
- 6. Review and remove unused & obsolete codes
- 7. Inspections for required tagged properties
- 8. Consider creating an income model for all commercial property types
- 9. Review land adjustments
- 10. Review Economic unit groups
- Consider reassigning appraiser regions & property types to maximize productivity, staff knowledge, and continued development.
- 12. Review and automate commercial equity and sales grids
- 13. Collect financing data to calculate a "typical" loan to value ratio
- 14. Review all commercial property values
- 15. Review and cleanup market area codes for uniformity

PRELIMINARY ANALYSIS & DATA COLLECTION

Prior to beginning the valuation activities for an appraisal year, the appraisal department management team completes a review of the results of the preceding year. Budget, calendar issues, and resource availability are all considered. Appraisal activities must be coordinated between DCAD departments to avoid conflicts and ensure availability of personnel. Appraisal Review Board activity and value changes during the appeals process are analyzed. DCAD takes a proactive approach to create organizational efficiencies by reviewing prior year activities and refining internal processes.

Area Analysis

Data on regional economic forces such as demographic patterns, regional location factors, employment and income patterns, general trends in real property prices and rents, interest rates, discount rates, and financing trends, availability of vacant land, and construction trends and costs are collected from private vendors and public sources. More detailed analysis is then completed to determine what appraisal area market changes will need to occur during the upcoming valuation cycle.

Market Area Analysis

A commercial market area, submarket or economic area consists of land and the commercial properties located within the boundaries of a specifically defined area. The term used in the CAMA system is "market area". A market area consists of a wide variety of both competing and complementary property types including residential, commercial, industrial and governmental. Market area delineations can be based on man-made, political, or natural boundaries.

The effects of these forces are used to determine the highest and best use for a property, and to select the appropriate sale, income, and cost data in the valuation process.

Area identification and delineation by major property use type is a key component in a mass- appraisal, commercial valuation system. 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 ensures that the most accurate estimate of market value can be derived.

Market Analysis

A 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, job growth patterns, population trends, transportation issues, 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 building permit activity, new leases, lease rates, absorption rates, vacancies, typical property expenses (inclusive of replacement reserves, if recognized by the market), expense ratio trends, and capitalization rate indicators. This data is used to determine market ranges in price, operating costs and investment return expectations.

DATA COLLECTION VALIDATION

Data Collection Procedures/Field Inspections

Data collection of commercial real property involves maintaining data characteristics of the property into the CAMA system. The information contained for each property includes site characteristics, such as land size and topography, and improvement data such as square footage of the building, actual and effective years of construction, quality of construction, condition and all of the miscellaneous details. The appraisers are required to use a property classification system that established uniform procedures for the correct listing of real property. All properties are

coded according to a classification system. The appraisers use property classification references during training and as a guide in the field inspection of property and when adding new properties to the appraisal roll.

When the appraisers are doing field inspections, they review all characteristics of the property and make changes where there are discrepancies. They review items such as building class, quality of construction, condition, and physical, functional and economic obsolescence factors contributing to the market value of the property. All comments, changes, date of inspection are added to the property records.

Commercial Building Permits

Cities within DCAD's jurisdiction have 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 regular basis, copies of those permits are either forwarded to DCAD or downloaded by a DCAD employee from various city websites. Permits are matched to a corresponding commercial account and pertinent permit data is entered into the CAMA system.

Comparable Sales Data

Commercial sales data is collected, verified and processed by the sales & research department. The sale data is reviewed and verified to determine reliability of the content and the source. Sale details are compiled to create a "snapshot" of the sold parcels as of the time of sale. A commercial appraiser may conduct a field inspection to verify the accuracy of the existing property characteristics data.

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 scans the information into the CAMA system or forwards the data to the support section where it is immediately scanned into the property. The data can be retrieved by appraisers and processed into the CAMA system income and expense tables. The district also subscribes to several real estate publications, such as CoStar, Real Capital Analytics and Axiometrics that provide individual summarized income data within each specified submarket or improved market area. 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 compiled by subscribing to national publications such as Marshall Valuation Service (Marshall & Swift) and from local market data. Closing statements, actual cost documents, rent rolls and income statements provided by owners or agents during the protest and ARB process are considered the most reliable sources of property data. DCAD should receive all copies of the deeds recorded in Denton County that convey commercially classed properties located within the DCAD jurisdiction. When a deed involving a change in commercial property ownership is entered into the DCAD system, data mining techniques are employed to gather as much sale and sale related appraisal information as possible. Denton Central Appraisal District subscribes to CoStar, a vendor of commercial sale and property data, and other subscription based data sources. Other sales sources are contacted such as the brokers involved in the sale, property managers, commercial real estate vendors, Fannie Mae, the Texas State Comptroller's Property Tax Division and other knowledgeable parties. The commercial appraisal staff attempts to confirm and

verify data from secondary sources. Unlike the majority of states, Texas laws do not require mandatory disclosure of sale prices. DCAD Commercial sales data is provided by voluntary disclosure or purchased from third party vendors.

VALUATION APPROACH

The commercial appraisal system, developed and maintained in Prodigy, consists of mass appraisal applications of the sales comparison, cost, and income approaches to value. 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.

Cost Approach

The very basic valuation model is:

$$V = LV + (RCN - D)$$

(Value = Land Value + (Replacement Cost New – Depreciation)

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 uses a numerical coding system of building classes that represent commercial property construction. For each building class, key characteristics are used to describe a typical or benchmark property. The characteristics may include construction quality, plumbing, interior, flooring, roof type, roof materials, heating/cooling, exterior, foundation, story height, and number of stories. The Appraisal Manual contains a description and a list of these specific characteristics for each property class. Additional site improvements for each building class, such as concrete paving, canopies, garages, and storage buildings are also specified and valued using the cost approach.

Other key data necessary for cost valuation includes gross building area, year built and effective year of construction, 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 structure's 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 improvements plus any value for the additional site improvements 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 Prodigy depreciation tables and is dependent on the class, condition, effective age and economic life of each improvement. Individual determinations are made for functional and economic depreciation rates based on property specific conditions. The sum of the three rates is utilized in the CAMA application to compute a depreciated improvement value.

Land Valuation

On an annual basis, commercial land values are analyzed by the Commercial Department. The Commercial Department will review, update and adjust any land parcels.

Sales Comparison Approach

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 adjusted for differences between the comparables and the subject.

In this model, market value is a total amount without a separation for improvement and land values. 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.

Commercial mass appraisal using sales is specified or defined based on several standardized property characteristics or comparison fields. Sales within market areas are used to more accurately define market value for that specific type of property. For commercial properties valued using the Market or Sales method a sales ratio report is conducted by the market area in Prodigy. The sales ratio report allows the commercial appraiser to determine the market adjustment necessary by calculating the mean for sales during a given time frame.

Before the market adjustments are defined in Prodigy, the appraisers study and analyze the sales in each market segment. This market analysis aids in revealing patterns in value that vary due to location, size, age, etc. The appraiser then determines what market areas have enough credible sales data to make market adjustments based on sales.

Income Approach

The income approach to value is applied to those real properties which are typically viewed by market participants as "income producing", and for which the income methodology is considered a leading value indicator. The 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 for levels or variable situations known as "Pro Forma", "Direct Cap" (actual) and "Schedule" (market). These income calculations are under Income Value in separate tabs in the Prodigy income module. A thorough analysis of actual market data is performed by the commercial appraisal team. The "Direct Cap" allows the appraiser to use actual income characteristics that are property specific to create an income model individual to the property.

The income approach formula includes gross potential income, economic vacancy, secondary income, total operating expenses, net operating income 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.

Gross Potential Rent

Plus

Secondary Income

Minus

Vacancy & Collection Loss

Equals

Effective Gross Income

Minus

Operating Expenses

Equals

Net Operating Income

Then

Net Operating Income/Overall Cap Rate = Value

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

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. Can be expressed as a percentage of GPR or EGR or dollar amount per unit of measure.

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

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

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 expressed 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.

VALUATION PROCESS

Valuation 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 as separate options for commercial valuation in Prodigy. Prodigy software is developed to create valuation models specified according to appropriate Uniform Standards of Professional Appraisal Practices and International Association of Assessing Officers mass appraisal standards and techniques.

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. Development of a comparative cost unit for each building class involves the utilization of national cost data reporting services as well as consideration of actual cost information on comparable properties. A base cost rate has been developed for each building class and represents the replacement cost per unit for a benchmark property for each class.

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, standardized physical depreciation tables have been developed based on physical condition and the building life expectancy. 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.

A depreciation calculation override can be used if the condition or effective age of a property varies from the standard. These adjustments are typically applied to a specific property in the form of physical adjustment, economic adjustment or functional adjustment.

Final Valuation Summary and Reconciliation

Based on the market data analysis and the methodology described in the cost, income and sales approaches values are determined by the appraiser for each commercial property. The cost approach mass appraisal model is applied to

every improved property. The final valuation is applied using the cost, sales comparison, or income approach, depending on the property type and availability of data.

Statistical and Capitalization Analysis

The Commercial Appraisers perform statistical analysis annually to evaluate whether estimated values are equitable and consistent with the market. Appraisers review every commercial property type annually through the sales ratio analysis process. Ratio studies are conducted on commercial properties to judge the two primary aspects of mass appraisal accuracy – level and uniformity of value. Appraisal statistics of central tendency generated from sales ratios are evaluated and analyzed for the market areas. The level of appraised values is determined by the weighted mean ratio for sales of individual properties, and a comparison of weighted means reflect the general level of appraised values.

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 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 appraiser identifies individual properties in critical need of field review through sales ratio analysis. All properties are periodically reviewed to check for accuracy of property characteristics. Field Reviews of selected market areas are conducted on an annual basis.

Office Review

Office reviews are conducted on all properties. As authorized by the International Association of Assessing Officer standards, on properties subject to field inspection and are performed in compliance with the guidelines required by the existing classification system. The appraiser may utilize aerial photography as a means to verify building characteristics and location without an on-site inspection.

Valuation reports comparing the previous year's values against proposed and final values are generated for all commercial properties. Previous values from protest hearings are reviewed to determine if the value remains the same for the current year based on sales and market conditions. The percentage of value differences are noted for each property within a delineated market segment allowing the appraiser to identify, research and resolve value anomalies before final appraised values are determined. Each appraiser's review is limited to properties in their area of responsibility or by property type.

Once the appraiser and manager 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.

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.

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.

BUSINESS PERSONAL PROPERTY VALUATION

General Overview

Business Personal Property Appraisal of Denton Central Appraisal District is responsible for developing fair and uniform market value appraisal procedures for business personal property (BPP) located within the district. BPP account categories: standard business personal property consisting of merchandise, supplies, furniture, fixtures machinery, equipment and vehicles; leased assets; commercial aircraft and boats; utilities; special inventory for dealers selling autos, boats and boat trailers, manufactured homes, and heavy equipment; and mineral properties. There are approximately 17,753 BPP accounts and 154,887 utility and mineral accounts.

State Code	codeDescription	
L1	BPP TANGIBLE COMMERCIAL PROPERTY	BPP
L1M	Commercial Personal - Vehicles Under 1 Ton	BPP
L2	BPP TANGIBLE INDUSTRIAL PROPERTY	BPP
L2A	Industrial Personal - Vehicle 1 Ton and Over	BPP
L2D	Conversion	BPP
L2E	Conversion	BPP
L2F	Industrial Personal Drilling Rigs	BPP
L2G	Industrial Personal - Machinery and Equipment	BPP
L2H	Industrial Personal - Leased Equipment	BPP
L2J	Wardlaw Appraised Utility/Industrial	BPP
L2M	Industrial Personal - Vehicles Under 1 Ton	BPP
L2N	Industrial Personal - Underground Stored LPG	BPP
L2O	Industrial Personal - Computers	BPP
L2P	Industrial Personal - Radio Towers	BPP
L2Q	Industrial Personal - Radio Tower Equipment	BPP
L3	BPP TANGIBLE COMMERCIAL LEASED EQUIPMENT	BPP
L5	AIRCRAFT	BPP
M2	NON INCOME PRODUCING - AIRCRAFT/BOATS	BPP
M3	NON INCOME PRODUCING PERSONAL PROPERTY (BOAT)	BPP
N1	INTANGIBLES	BPP
S	SPECIAL INVENTORY	BPP

State Code	codeDescription	
G1	OIL AND GAS	Wardlaw
G2	MINERALS	Wardlaw
G3	OTHER SUBSURFACE INTEREST IN LAND	Wardlaw
J1	REAL & TANGIBLE PERSONAL, UTILITIES, WATER SY	Wardlaw
J2	REAL & TANGIBLE PERSONAL, UTILITIES, GAS COMP	Wardlaw
J3	REAL & TANGIBLE PERSONAL, UTILITIES, ELECTRIC	Wardlaw
J3A	Electric Other Personal	Wardlaw
J4	REAL & TANGIBLE PERSONAL, UTILITIES, TELEPHONE	Wardlaw
J4A	Telephone Other Personal	Wardlaw
J5	REAL & TANGIBLE PERSONAL, UTILITIES, RAILROAD	Wardlaw
J6	REAL & TANGIBLE PERSONAL, UTILITIES, PIPELINE	Wardlaw
J6A	Conversion	Wardlaw
J7	REAL & TANGIBLE PERSONAL, UTILITIES, CABLE TV	Wardlaw
J8	REAL & TANGIBLE PERSONAL, UTILITIES, OTHER	Wardlaw
J8B	Conversion	Wardlaw
J9	UTILITIES, RAILROAD ROLLING STOCK	Wardlaw

Appraisal Resources

Personnel –BPP staff consists of one manager, one supervisor, 4 personal property Appraisers, and 3 support staff.

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 DCAD computer files by both the appraisal and support staff. These assigned property characteristics produce a computer-assisted personal property appraisal (CAPPA) used for comparison purposes when working renditions to determine whether an account's rendered value or CAPPA value will be selected by the category appraiser. The category appraisers also utilize the CAPPA system during the review of their SIC code assignments to value accounts that fail to render.

Specific Valuation Objectives

For the 2021 tax year, Denton Central Appraisal District proposes to:

- 1. Continue Audit of of new software conversion
- 2. Implement new software into mobile field devices
- 3. Procedure manual update and review
- 4. BPP network drive cleanup and archiving
- 5. Review and remove unused & obsolete codes
- 6. Inspections for required tagged properties
- 7. Drive all areas annually for new or adjusted BPP accounts and business closures.
- 8. Properties that were not rendered in the last two years will be reviewed with an onsite field inspection.
- 9. Continue audit of exemptions

10. Have schedules inputted into our system

Identify all new businesses needing set up for appraisal year, track all existing business closures and business relocations within Denton County. Staff will utilize all available resources to research whether identified businesses have opened, closed or moved to a new location within Denton County. Staff will re-drive roads to review and update, close and/or pick up new accounts not currently on the appraisal roll.

BPP utilizes indicators to highlight account questions or reasons of concern. All such indicators require specific actions by the appraisers to be notated on the field card.

Criteria for upcoming year's field inspections and/or indicators requiring action by the appraisers:

- 1. All new BPP setups.
- 2. Unrendered properties > \$20,000.
- 3. Relocations/Ownership changes

For the 2022 tax year, Denton Central Appraisal District proposes to:

Follow the same guidelines as outlined below and described above.

- 1. Continue Audit of of new software conversion
- Consider reassigning appraiser regions to maximize productivity, staff knowledge, and continued development.
- 3. Inspections for required tagged properties
- 4. Drive all area for new, existing, moved, and/or closed accounts
- 5. Inspection of non-rendered accounts that have not rendered in the past two years.
- 6. Review the possibility of the cama system to direct by situs in the field for each area.
- 7. Software system to develop Online rendition submission
- 8. Consider Further stratifying SIC codes by adding an alpha suffix to certain SIC codes in order to expand business category groups having similar property characteristics.
- 9. Continue to develop, test, and create more schedules

Review building permits and certificate of occupancy issuances prior to field work to assist field appraisers in flagging new accounts. The BPP support staff will also assist the field appraisers with researching whether the businesses have closed or moved to a new location within Denton County.

Adjustment of Criteria for upcoming year's field inspections and/or indicators requiring action by the appraisers will vary depending on what results are found from the prior year field work results.

VALUATION APPROACH

SIC Code Analysis

Standard Industrial Classification (SIC) codes were created in the 1930s to develop a plan of business classification by the Federal Government. These four digit numeric codes are used as the basis for classifying and valuing business personal property accounts. The North American Classification System (NAICS) was released in 1998 to

replace SIC codes, but the software system used by DCAD has not yet been converted to accept the six digit NAICS code. Until that conversion is made, SIC codes will continue to be utilized.

SIC code identification and delineation is the cornerstone of the business personal property valuation system in the district. All of the analysis work done in association with the valuation process is SIC code specific. DCAD uses SIC codes to classify local business categories. SIC code delineation is periodically reviewed to determine if further refinements are 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 normally its current use.

DATA COLLECTION/VALIDATION

Data Collection Procedures

Appraisal and data collection procedures are maintained in the Business Personal Property Manual and supplemented with departmental memorandums as needed. Procedures are reviewed and revised to meet the changing requirements of field data collection. Business personal property appraisers reappraise all businesses each year through various discovery means and resources.

Sources of Data

Standard Business Personal Property Accounts

Before the field appraisers begin their new-year field work in August/September, a comparison is done between DCAD active field accounts, internally created reports and third party data providers to assist the appraisal staff with identifying accounts that are given priority for inspection/re-inspection.

Various discovery publications are utilized which include, but are not limited to, the Texas Department of Motor Vehicles website, Comptroller's sales tax permits listings, Texas Secretary of State business organizations website for corporations, and the County Clerk's assumed name filings records. This data may be accessed by the field appraisers during the discovery period from various external and internal databases, and printed data may be filed with the appropriate field card.

Leased Asset/Special Property at Multiple Locations Accounts

The primary source of discovery for these accounts is the owner renditions submitted in either hard copy or electronic format by the lessors, or lease companies. BPP renditions have a section requesting information on leased assets from the lessee. This data is reviewed by the staff to verify the lessor is on the appraisal roll.

Commercial and Business Aircraft & Boat Accounts

The Federal Aviation Administration's (FAA) website provides DCAD with the commercial aircraft registered in Denton County. In addition, local airport/airfield management submit listings of commercial and business aircraft having situs in this district. Commercial boats are identified via renditions.

Special Inventory Accounts

Monthly statements and annual declaration dealer forms for motor vehicles, boats outboard motors and boat trailers, heavy equipment, and manufactured homes (as defined by Section 23 of the Texas Property Tax Code) are used for the discovery and valuation of special inventory accounts. To verify all special inventory dealers are on the appraisal roll, BPP staff checks with the state agencies responsible for licensing these dealers: Texas Department of Transportation for motor vehicle dealers, Texas Parks and Wildlife for boat dealers, and the Texas Department of Housing and Community Affairs for manufactured home dealers. Heavy equipment dealers are not licensed.

Utility, Pipeline and Mineral Accounts

Denton Central Appraisal District contracts with a third party appraisal firm, Wardlaw Appraisal Group, L.C. (WAG) for the appraisal of the categories identified with G, J, and some L2 State Codes. Uniform Standards of Professional Appraisal Practices or USPAP certification and reappraisal plan information on these properties are maintained at Wardlaw Appraisal Group offices.

VALUATION AND STATISTICAL ANALYSIS (model calibration)

Cost Schedules

The BPP staff develops the cost schedules (CAPPA grids) specific to the related SIC codes. Cost data is analyzed from property owner renditions, Settlement and Waiver of Protest documentation, and Appraisal Review Board (ARB) hearing evidence to produce SIC grids specifically from these sources only when the value data has been accepted by the appraisal staff. The computation of the SIC grids involves using min, max, mean and percentile functions on the population of accepted accounts. Schedules are reviewed as necessary to reflect changing market conditions and are presented exclusively in a reproduction-cost new (RCN) per square foot format.

Statistical Analysis

Summary statistics such as the median, weighted mean, and standard deviation provide appraisers analytical tools by which to determine both the level and uniformity of appraised value by SIC code. Review of standard deviation can distinguish appraisal uniformity within SIC codes.

Depreciation Schedule and Trending Factors

Although all three approaches to value are considered, Denton Central Appraisal District's primary approach to the valuation of business personal property is the cost approach. The trending factors used by DCAD in the development of the depreciation schedule are based on IAAO standards. Price Indexes and Utilization factors from the Bureau of Labor and Statistics, and other local factors are used to calculate the current present value factors (PFV) that are applied to the rendered cost data to calculate the fair market value (FMV) of the fixed assets.

Depreciation and schedules are reviewed and adjusted as needed. Studies of rendered fixed assets provide guidance for establishing conventions related to specific SIC codes. Any revisions are then adopted and their use is reflected in all of the calculations for that SIC coded business category. Consistent application of this schedule ensures that

market values are uniform and equal. All rendered assets are initially valued using rendered costs calculated by the adopted PVF tables, or rendered good faith estimates.

Computer Assisted Personal Property Appraisal (CAPPA) Valuations

The two main objectives of the CAPPA valuation process are to: (1) analyze and adjust existing SIC models and (2) develop new models for business classifications not previously integrated into CAPPA. The delineated sample is reviewed for accuracy of SIC code, square footage, field data, and original cost information. Models are created and refined using actual original cost data to derive a typical per square foot value for a specific category of assets.

The data sampling process is conducted in the following order: 1) Prioritizing SIC codes for model analysis. 2) Compiling the data and developing the reports. 3) Field inspecting the selected samples. The models are built and adjusted using internally developed software. The models are then tested against the previous year's data. The typical cost per square foot is determined by a statistical analysis of the available data using the percentile function of the population of rendered indexed costs per square foot.

Standard Business Personal Property Account

CAPPA 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 based on comparable properties. The calculated current year value is compared to the indicated CAPPA model value by the category appraiser. All rendered accounts are analyzed and the rendition's appraised value is selected by the assigned category appraiser.

Exemption Application Processing

Freeport Goods (Sec. 11.251) and Goods-In-Transit (Sec. 11.253) annual exemption applications as well as are reviewed by the BPP Department and either approved, disallowed, or denied as per Section 11.43. The review consists of an audit of supporting worksheet documents and an analysis of the exemption applications to verify the form's accuracy. If no supporting worksheet documents are provided, the application is disallowed and written requests for omitted documentation are made. Upon the receipt of the worksheet documents, the exemptions are either approved, modified and approved, disapproved with a written request for additional documentation to support the application's claim, or denied with a written letter detailing the status of the application. The BPP department also reviews Pollution Control exemptions (Sec. 11.31) and abatements.

Certain vehicles specified under Sec. 11.254 that are used for both the production of income and personal use may receive an exemption for a single vehicle. The exemption applications are reviewed by the appraisal staff and use the same approval or denial procedures as stated for freeport goods and goods- in-traffic above. A vehicle that has been granted this exemption is not required to file an annual exemption application unless requested by the chief appraiser or in cases where there is a vehicle replacement or an ownership change.

Leased Asset/Special Property at Multiple Locations Account

Leased and multi-location assets are valued using the depreciation schedules mentioned earlier. If the asset to be valued in this category is a vehicle, either the NADA published "trade-in" values or a DCAD depreciation schedule developed for motor vehicles is used.

Commercial and Business Aircraft

Valuation for commercial aircraft designated as a certified air carrier, and business aircraft used for business purposes is processed through the utilization of pricing guides as the Aircraft Blue Book Price Guide. The Texas Property Tax Code has specific methodology for the valuation and/or allocation of all aircraft for aircraft used both inside and outside this state; Sec. 21.05 states the method for valuing commercial aircraft and Sec. 21.055 refers to the valuation of business aircraft.

Special Inventory

The Texas Property Tax Code provides special valuation procedures for the appraisal of this category of property consisting of dealer motor vehicles, boats outboard motors and boat trailers, manufactured homes, and heavy equipment. Annual Dealer Inventory Declaration forms filed by the property owner on or before February 1st are the basis for the appraisal of special inventory. The declaration form details the dealer's previous year's Texas sales (used as the numerator) and divided by either a factor of 12 or the number of months the dealer was open the prior year (the denominator). This establishes a monthly basis consistent with the owner's tax payment requirements. In the absence of an annual declaration, comparable dealers that have filed declarations are identified and adjusted to the subject property to establish an estimated market value.

Dealer's Inventory Tax Statement forms that are filed monthly beginning February 10th and ending January 10th of the following year detail the current year sales for the previous month. Dealers file these forms with both the appraisal district and the assessor-collector's office and make monthly property tax payments to the assessor-collector based on the prior month's sales.

INDIVIDUAL VALUE REVIEW PROCEDURES

Rendered BPP Accounts Review

Standard Business Personal Property Account

A BPP smartlist reporting rendered accounts that have been imaged into the system identifies accounts ready to be processed by the support staff, and after their entry of the rendered information, an additional query alerts the category appraiser of the rendered accounts ready for their review and value selection. This report also flags accounts that require special review procedures: accounts that have either increased or decreased their total area from the prior year; accounts that had a prior year ARB decision thereby compelling the appraiser to analyze that decision to determine if DCAD has substantial evidence to alter the prior year's ARB determination for the current year's appraisal per Sec. 23.01(c); newly established business accounts; and revisions to SIC cost tables.

Leased Assets

Leased Asset/Special Property accounts that have a high volume of assets and/or vehicles have the highest percentage of rendered accounts of any BPP category. These renditions are commonly filed by the property owner in an Excel compatible format via email or CD. The property owner's spreadsheet is copied over to a template that also contains a present value factor lookup table. The appraiser assigns taxing entities based on asset/vehicle situs, the life class is assigned by asset description, and the value is then calculated. After sorting assets by common taxing entities, a property ID number is assigned to each entity set of assets and the appraiser assigns the value for that

account onto the system. Accounts that render by hardcopy must be manually entered into the template by support staff or the appraiser.

Commercial and Business Aircraft

The commercial and business aircraft account's renditions are simultaneously reviewed and valued utilizing a third party market value appraisal guide.

Special Inventory

Special inventory dealers with a current declaration on file are reviewed by the assigned appraiser to assess their validity and value based on the prior year's sales divided by 12 or the total number of months doing business in the prior year.

Un-Rendered BPP Accounts Review

Standard Business Personal Property Account

BPP accounts that fail to render are scrutinized by the field appraiser during their field work and the category appraiser prior to 25.19 Notice of Appraised Values are mailed to the property owner. The field appraiser is responsible for assigning the business category SIC code, the total area of the business, the Quality/Density grid factors and any comments detailing specific information picked up during field reviews. The category appraiser will review all un-rendered accounts by SIC code to determine the value in comparison with rendered properties.

Leased Assets

The appraiser responsible for processing the leased asset accounts will contact properties that have failed to render to determine the reason why a rendition was not received.

Commercial and Business Aircraft

Un-rendered commercial and business aircraft accounts are valued the same as rendered properties of the same category, through the utilization of pricing guides such as the Aircraft Blue Book Price Guide with year and model numbers identified based on the aircraft's N number.

Special Inventory

Special inventory dealers that fail to render are reported to the State licensing agency responsible for issuing licenses, in accordance with the State Property Tax Code. The appraiser will compare un-rendered special inventory accounts with comparable sized dealers of the same category and value the property based on that comparison.

PERFORMANCE TESTS

Ratio Studies

Each 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 DCAD's personal property values and ratios are determined.

MASS APPRAISAL REPORT

Each tax year the Texas Property Tax Code required mass appraisal report will be prepared and certified by the chief appraiser at the conclusion of the appraisal phase of the ad valorem tax calendar (on or about May 15th). The mass appraisal report will be completed in compliance with USPAP Standard Rule 6. The signed certification by the chief appraiser is compliant with USPAP Standard Rule 6-3.

FINAL PERFORMANCE ANALYSIS

Value Defense

Evidence to be used by the appraisal district to meet its burden of proof for market value and equity in both informal and formal appraisal review board hearing is specified and tested annually.

A variety of evidence is utilized by the district depending on the property type of the subject of the protest. In addition, the district updates the evidence supplied to an owner, an agent, or the Appraisal Review Board to be contemporaneous with the valuation procedures utilized. Some examples of evidence that may be used include, but are not limited to:

- 1. Property sales information
- 2. Property sales adjustment grids
- 3. Property equity adjustment grids
- 4. Gross rent/ Income multiplier data
- 5. Proforma and actual income data
- 6. Property characteristics data including photos as applicable
- 7. Aerial photography
- 8. Cost approach reports as applicable
- 9. Property renditions as applicable
- 10. Published reports regarding cost, market or income data
- 11. Schedules and or models utilized
- 12. Any other information collected by the district

Independent Performance Test

According to Chapter 5 of the Texas Property Tax Code and Section 403.302 of the Texas Government Code, the State Comptroller's Property Tax Division (PTD) conducts a property value study (PVS) of each Texas school district within each appraisal district at least once every two years. As a part of this study, the Code also requires the Comptroller to: use sales and recognized auditing and sampling techniques; review each appraisal district's appraisal methods, standards and procedures to determine whether the district used recognized standards and practices (MAP review); test the validity of school district taxable values in each appraisal district and presume the appraisal roll values are correct when values are valid; and, determine the level and uniformity of property tax appraisal in each appraisal district. The methodology used in the property value study includes stratified samples to improve sample representativeness and techniques or procedures of measuring uniformity. This study utilizes statistical analysis of sold properties (sale ratio studies) and appraisals of unsold properties (appraisal ratio studies) as a basis for assessment ratio reporting. For appraisal districts, the reported measures include median level of appraisal, coefficient of dispersion (COD), the percentage of properties within 10% of the median, the percentage of properties

within 25% of the median, and price-related differential (PRD) for properties overall and by state category (i.e., categories A, B, C, D and Fl are directly applicable to real property).

The preliminary results of this study are released in January of the year following the year of appraisal. The final results of this study are certified to the Education Commissioner of the Texas Education Agency (TEA) in the following July of each year for the year of appraisal.

This outside (third party) ratio study provides additional assistance to Denton Central Appraisal District in determining areas of market activity or changing market conditions. Results from Property Value Studies will be reviewed and analyzed by appraisal managers. Areas or property categories with unsatisfactory ratio results will be added to the next work plan and next reappraisal cycles.

LIMITING CONDITIONS

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

- 1. The appraisals were prepared exclusively for ad valorem tax purposes.
- 2. The property characteristic data upon which the appraisals are based is assumed to be correct. Exterior inspections of the property are performed as staff resources and time allows. Some interior inspections of properties are performed at the request of the property owner and required by the district for clarification purposes and to correct property descriptions.
- 3. Validation of sales transactions was made using sales letters, telephone calls to buyer, seller or realtor, and field review. Sales data obtained from vendors is also considered to be a reliable source.
- 4. Our analyses, opinions, and conclusions were developed in conformity with the Uniform Standards of Professional Appraisal Practices (USPAP) of the Appraisal Foundation, Code of Professional Ethics, as well as the requirements of the state of Texas.
- 5. Appendix B has a list of staff providing significant assistance to the person signing this certification.
- 6. The goal of the Appraisal District is to analyze and estimate market value of each property located in Denton County and in no way were the results or conclusions predetermined or biased.

Certification Statement:

"I, Hope Mcclure, Chief Appraiser for the Denton Central Appraisal District, solemnly swear that I have made or caused to be made a reappraisal plan for Denton Central Appraisal District as required by law."

Hope Mcclure, RPA, RTA, CTA, CCA

Chief Appraiser

Appendix A

Denton Central Appraisal District Board of Directors

Charles Stafford Chairman

David Terre Vice Chairman

Roy Atwood Secretary

George Pryor Member

Bryan Webb Member

Michelle French Ex Officio Member

Entities

Cities and Schools

Taxing	Unit Taxing Unit Name	Taxing	Unit	Taxing Unit Name			
CAD	DENTON CAD	C38	HASLET	Γ CITY OF			
C01	AUBREY CITY OF	C39	GRAPE	VINE CITY OF			
C02	CARROLLTON CITY OF	C40	NEWAR	K CITY OF			
C03	THE COLONY CITY OF	C41	RHOME	CITY OF			
C04	CORINTH CITY OF	C42	DISH TO	OWN OF			
C05	DENTON CITY OF	C43	KELLE	R CITY OF			
C06	EASTVILLE CITY OF	C44	WESTL	AKE TOWN OF			
C07	FLOWER MOUND TOWN OF	C45	NEW FA	AIRVIEW CITY OF			
C08	HIGHLAND VILLAGE CITY OF	C46	AUROR	A CITY OF			
C09	JUSTIN CITY OF	C47	DRAPE	R TOWN OF			
C10	KRUM CITY OF	C48	PROSPE	ER TOWN OF			
C11	LAKE DALLAS CITY OF	C49	CELINA	CITY OF			
C12	LEWISVILLE CITY OF	C50	HEBRO	N CITY OF			
C13	LITTLE ELM TOWN OF	C51	PROVID	DENCE VILLAGE TOWN OF			
C14	PILOT POINT CITY OF						
C15	PONDER TOWN OF						
C16	SANGER CITY OF	S01	ARGYL	E ISD			
C17	ROANOKE CITY OF	S02	AUBRE	Y ISD			
C18	KRUGERVILLE CITY OF	S03	CARRO	LLTON-FB ISD			
C19	HICKORY CREEK TOWN OF	S04	CELINA	ISD			
C20	DALLAS CITY OF	S05	DENTON ISD				
C21	COPPELL CITY OF	S06	FRISCO ISD				
C22	HACKBERRY CITY OF	S07	KRUM I	SD			
C23	MARSHALL CREEK TOWN OF	S08	LAKE D	OALLAS ISD			
(Co	ONSOLIDATED W/C17 FOR 2008 FORWARD)						
C24	OAK POINT CITY OF	S09	LEWISV	/ILLE ISD			
C25	LAKEWOOD VILLAGE TOWN OF	S10	LITTLE	ELM ISD			
C26	ARGYLE TOWN OF	S11	NORTH	WEST ISD			
C27	COPPER CANYON TOWN OF	S12	PILOT F	POINT ISD			
C28	TROPHY CLUB TOWN OF	S13	PONDE	R ISD			
C29	PLANO CITY OF	S14	SANGE	R ISD			
C30	DOUBLE OAK TOWN OF	S15	ERA ISI)			
C31	BARTONVILLE TOWN OF	S16	SLIDEL	L ISD			
C32	FRISCO CITY OF	S17	PROSPE	ER ISD			
C33	NORTHLAKE TOWN OF	S18	COPPEI	LL ISD			
C34	SHADY SHORES TOWN OF	S19	GRAPE	VINE- COLLEYVILLE ISD			
C35	CROSS ROADS TOWN OF	S20	CARRO	LL ISD			
C36	FORT WORTH CITY OF						
C37	SOUTHLAKE CITY						

Counties & Special Districts

Taxing Unit Taxing Unit Name	Taxing Unit Taxing Unit Name
CTZ1 CETRZ NO 1	PID OLD LEWISVILLE PUBLIC IMPROVEMENT
	DIST NO 1 (INACTIVE)
E01 DENTON CED	PID1 LEWISVILLE PUBLIC IMPROVEMENT
E02 DENTON CED	PID10 VALENCIA ON THE LAKE PID
E03 CARROLLTON CED	PID11 RAYZOR RANCH PID NO1
E05 DENTON CED	PID12 CASTLE HILLS PID NO 2
E07 DENTON CED	PID13 THE HIGHLANDS PID
E08 DENTON CED	PID14 RIVENDALE BY THE LAKE PID NO 1
E09 DENTON CED	PID15 THE CREEKS OF LEGACY PID
E10 DENTON CED	PID16 RIVERWALK PID 1
E11 DENTON CED	PID17 HICKORY CREEK PID NO 1 (ROAD M
E12 DENTON CED	PID18 HICKORY CREEK PID 1 (INACTIVE)
E13 DENTON CED	PID19 HACKBERRY PID 3
E14 DENTON CED	PID2 CROSS ROADS PID NO 1
E14 DENTONCED	PID20 JOSEY LANE PID
ESD1 DENTON CO EMERGENCY SERVICE DI	PID21 HILLSTONE POINTE PID (DISSOLVED)
ESD2 TROPHY CLUB PID NO 1 EMERGENCY	PID22 THE COLONY PID NO 1
ESD2 TROTTIT CEOD TID NOT EMERGENCT	PID23 RIVENDALE BY THE LAKE PID NO 2
F01 DENTON CO FIRE DISTRICT	PID24 JACKSON RIDGE PID
101 DENTON COTTRE DISTRICT	PID25 WILDRIDGE PID NO 1 (INACTIVE)
G01 DENTON COUNTY	PID26 PONDER PID
G02 COOKE COUNTY	PID27 CARROLLTON CASTLE HILLS PID 1
G03 GRAYSON COUNTY	PID28 SHAHAN PRAIRIE ROAD PID 1
G04 WISE COUNTY	PID29 LAKESIDE EST PID 2 (FKA PID)
G05 TARRANT COUNTY	PID3 CASTLE HILLS PID
G06 DALLAS COUNTY	PID30 RUDMAN TRACT PID
G09 DALLAS CO-LISD	PID31 HILLSTONE POINTE PID NO.2
G27 TARRANT COUNTY	PID32 WATERBROOK OF ARGYLE PID
oz, maant cociti	PID33 WINN RIDGE SOUTH PID
L01 DENTON CO LEVY IMP DIST	PID34 PRAIRIE OAKS PID NO 1
Bot BEITTON CO EET I IMI BIOT	PID35 CARROLLTON CASTLE HILLS PID 2
MMD1 HIGHWAY 380 MUNICIPAL MANAGEME	PID36 THE HIGHLANDS OF ARGYLE PID 1
MMD2 COMANCHE MMD NO.1 (DISSOLVED)	PID37 SUTTON FIELDS II PID
MMD3 NORTHLAKE MMD 1	PID38 RIVENDALE BY THE LAKE PID NO 3
MMD4 NORTHLAKE MMD 2	PID39 TIMBERBROOK PID NO 1 (INACTIVE)
	11207 111.1221.0011121.001 (11.11011.12)
Taxing Unit Taxing Unit Name	Taxing Unit Taxing Unit Name
	g
PID4 TROPHY CLUB PID NO 1	T01 SPEEDWAY TIF NUMBER 1
PID40 OAK POINT PID NO 2	T02 SPEEDWAY TIF NUMBER 2
PID41 WILDRIDGE PID IA NO 2	T03 FLOWER MOUND TIRZ NO 1
PID42 WILDRIDGE PID NO 1 O&M	TIF1 LEWISVILLE CITY TIRZ NO 1
PID43 SHAHAN PRAIRIE RD PID NO 1 O&M	TIF10 VALENCIA ON THE LAKE TIRZ NO 4
PID44 TIMBERBROOK PID IA NO 1	TIF11 CORINTH TIRZ NO 14-1
PID45 TIMBERBROOK PID NO 1 MIA	TIF12 LITTLE ELM TIRZ NO 5
PID46 PRAIRIE OAKS PID NO 1 - O&M	TIF13 NORTHLAKE TIRZ NO 1
PID47 PRAIRIE OAKS PID 1 - PH 1C	TIF14 GRAPEVINE TIRZ 1 (MALL) - NOT IN DENTON
PID48 PRAIRIE OAKS PID 1 - PH 1	TIF15 NORTHLAKE TIRZ NO 2

PID49	PRAIRIE OAKS PID NO 1 - MIA	TIF16	NORTHLAKE TIRZ NO 3
PID5	BRIARWYCK PUBLIC IMPROVEMENT D	TIF17	LITTLE ELM TIRZ NO 6
PID50	RIVENDALE POINTE PID	TIF18	WATERBROOK OF ARGYLE TIRZ NO 1
PID51	WILDRIDGE PID MIA	TIF19	JACKSON RIDGE TIRZ 1
PID52	WILDRIDGE PID IA NO 1	TIF2	LEWISVILLE CITY TIRZ NO 2
PID53	PRAIRIE OAKS PID 1 PH 2	TIF20	LEWISVILLE CITY TIRZ NO 3
PID54	HICKORY FARMS PID	TIF21	PILOT POINT TIRZ NO 1
PID55	WILDRIDGE PID NO 1 - IA#3	TIF3	LITTLE ELM TIRZ NO 3
PID6	HACKBERRY HIDDEN COVE PID 2	TIF4	LITTLE ELM TIRZ 2 (INACTIVE)
PID7	NORTHLAKE PID NO 1	TIF5	LAKE DALLAS TIRZ NO 1 (INACTIVE)
PID8	HICKORY CREEK PID 1	TIF6	DENTON CITY DOWNTOWN TIRZ NO 1
PID9	HICKORY CREEK PID 2	TIF7	KRUGERVILLE TIRZ (INACTIVE)
		TIF8	THE COLONY TIRZ NO 1
		TIF9	DENTON CITY TIRZ 2 (Westpark)
R01	DENTON CO REC, RD & UTL DIST	W40	MOBBERLY MUD (INACTIVE)
RUD	DENTON CO RUD (Dissolved)	W43	OAK POINT WCID NO 4
		W44	CANYON FALLS MUD NO 1
		W44 W46	CANYON FALLS MUD NO 1 FORT WORTH MUD NO 1 (DISSOLVED)
		W46	FORT WORTH MUD NO 1 (DISSOLVED)
		W46 W47	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6
		W46 W47 W48	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1
		W46 W47 W48 W49	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9
		W46 W47 W48 W49 W50	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9 DENTON CO MUD NO 7
		W46 W47 W48 W49 W50 W54	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9 DENTON CO MUD NO 7 DENTON CO MUD NO 10
		W46 W47 W48 W49 W50 W54 W55	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9 DENTON CO MUD NO 7 DENTON CO MUD NO 10 BIG SKY MUD RANCH AT FM 1385 MUD
		W46 W47 W48 W49 W50 W54 W55 W56	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9 DENTON CO MUD NO 7 DENTON CO MUD NO 10 BIG SKY MUD RANCH AT FM 1385 MUD TRIBUTE AT THE COLONY - PD18
		W46 W47 W48 W49 W50 W54 W55	FORT WORTH MUD NO 1 (DISSOLVED) DENTON CO MUD NO 6 FAR NORTH FORT WORTH MUD 1 DENTON CO MUD NO 9 DENTON CO MUD NO 7 DENTON CO MUD NO 10 BIG SKY MUD RANCH AT FM 1385 MUD

Appendix B

Denton Central Appraisal District

List of Key Personnel

Name Title

Hope Mcclure Chief Appraiser

Don Spencer Deputy Chief Appraiser

Kim Collins HR Finance Manager

Rebecca Townsend Customer Service Manager

Chuck Saling Commercial Manager

Dustin Vernor Business Personal Property Manager

To be filled Residential Manager

George Clerihew Sales & Research Manager

Thomas Soret IT Manager

Appendix C

2021 CALENDAR OF EVENTS

January 2021 Appraisal Date (except for properties appraised under Sec 23.12(f))

BPP renditions and exempt property applications mailed

March 2021 Field work for real property to be completed

PTAD ARB Training for new members

Oil & Gas Orientation

PTAD ARB Training for existing members

April 2021 Estimates of taxable value sent to entities (sent weekly until certification)

BPP Rendition deadline (without extension request)
Deadline for appraisers to turn work in for data entry

Process real property appraisal notices

Deadline for exemption applications including Ag, Freeport and Pollution

Mail real property appraisal notices

May 2021 Meeting with the City Managers of Denton County

Turn records over to the ARB

ARB hearings begin Mineral notices mailed

Meeting with the Superintendents and Denton County Judge

BPP rendition deadline (with extension)

Process BPP appraisal notices Mail BPP appraisal notices Protest deadline for real property

June 2021 Protest deadline for BPP

Mineral hearings

July 2021 ARB approves records

Chief Appraiser certifies roll

August 2021 EPTS & EARS reports submitted to PTAD

Field work begins for next appraisal year

September 2021 Appraisal date for Sec 23.12(f) properties

^{**}Actual day is tentative.

2022 CALENDAR OF EVENTS

January 2022 Appraisal Date (except for properties appraised under Sec 23.12(f))

BPP renditions and exempt property applications mailed

March 2022 Field work for real property to be completed

PTAD ARB Training for new members

Oil & Gas Orientation

PTAD ARB Training for existing members

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Deadline for exemption applications including Ag, Freeport and Pollution

Mail real property appraisal notices

May 2022 Meeting with the City Managers of Denton County

Turn records over to the ARB

ARB hearings begin Mineral notices mailed

Meeting with the Superintendents and Denton County Judge

BPP rendition deadline (with extension)

Process BPP appraisal notices
Mail BPP appraisal notices
Protest deadline for real property

June 2022 Protest deadline for BPP

Mineral hearings

July 2022 ARB approves records

Chief Appraiser certifies roll

August 2022

EPTS & EARS reports submitted to PTAD Field work begins for next appraisal year

September 2022 Appraisal date for Sec 23.12(f) properties

^{**}Actual day is tentative.

Appendix D

marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea
0	DC02020	DC02079A	DC02134	DC03003	DC03070	DC04035	DC04352	DC05037	DC05084	DC05131	DC05176
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AA01G01	DC02023GC	DC02082	DC02138	DC03004B	DC03072	DC04039	DC05001A	DC05040	DC05088	DC05134	DC05180
AA01LAND	DC02024	DC02083	DC02139	DC03005	DC03073	DC04040	DC05001B2	DC05041	DC05089	DC05135	DC05181
AA01PAVING	DC02025	DC02084	DC02140	DC03007	DC03074	DC04041	DC05001C	DC05042	DC05090	DC05136	DC05182
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C03	DC02028	DC02088	DC02142	DC03014	DC03075A	DC04043	DC05003	DC05044	DC05092	DC05139	DC05184
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cFV .	DC02031	DC02090	DC02148	DC03018	DC03077	DC04045	DC05004	DC05046	DC05094	DC05141A	DC05186
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DC01008	DC02046	DC02098TH	DC02153	DC03024	DC04001	DC04052	DC05007B2	DC05053	DC05101	DC05146	DC05194
C01009	DC02046G	DC02099	DC02154	DC03024B	DC04002	DC04053	DC05008	DC05054	DC05102	DC05147	DC05195
DC01010	DC02047	DC02100	DC02155	DC03025	DC04003	DC04054	DC05009	DC05055	DC05103	DC05148	DC05196
DC01011	DC02049	DC02101	DC02155A	DC03026	DC04004	DC04055	DC05010	DC05056	DC05104	DC05149	DC05197
OC01012	DC02050	DC02102	DC02156	DC03027	DC04005	DC04056	DC05011	DC05057	DC05105	DC05150	DC05198
OC01012L	DC02050L	DC02103	DC02157	DC03030	DC04006	DC04057	DC05012	DC05058	DC05105B2	DC05151	DC05199
DC01012MH	DC02051	DC02104	DC02158	DC03031	DC04007	DC04058	DC05013	DC05059CO	DC05106	DC05152	DC05200
DC01013	DC02052	DC02105	DC02158A	DC03032	DC04008	DC04059	DC05014	DC05060	DC05107	DC05153	DC05201
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C02011	DC02072	DC02127	DC02802 DC02802TH	DC03060	DC04027W	DC04079	DC05032	DC05078	DC05126	DC05171	DC05221
C02012	DC02073	DC02128	DC028021H	DC03065	DC04027VV	DC04079	DC05033 DC05033B2		DC05128	DC05172	DC05221
DC02013		DC02129 DC02130	DC02803		DC04028 DC04029			DC05080 DC05081	DC05128 DC05128B2		
	DC02075	DC02130 DC02131		DC03066		DC04081	DC05034			DC05174	DC05223
OC02015	DC02076		DC02804TH	DC03067	DC04031	DC04082	DC05035	DC05082	DC05129	DC05174B2	DC05224
DC02017 DC02019	DC02077	DC02132	DC03001	DC03068GH		DC04085	DC05036	DC05083	DC05130	DC05175	DC05225
JC02019	DC02078 DC02079	DC02133	DC03002	DC03068TH	DC04033						

Decessor Decessor	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketAre	marketArea	marketArea	marketArea	marketArea	marketArea
CODESS/28 CODESS/14 CODESS/14 <t< td=""><td>DC05226</td><td>DC05271</td><td>DC053121</td><td>DC05345MH</td><td>DC05923</td><td>DC07004</td><td>DC07052</td><td>DC07111</td><td>DC07183</td><td>DC07246</td><td>DC07839</td><td>DC08016</td></t<>	DC05226	DC05271	DC053121	DC05345MH	DC05923	DC07004	DC07052	DC07111	DC07183	DC07246	DC07839	DC08016
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COCES229 DCGS276 DCGS376 DCGS310 DCGS540 DCGS5209 DCG70030 DCG70030 DCG70030 DCG05310 DCGGS310 DCGGS310 DCGGS310 DCGGS310 DCGGS310 DCGGS310 DCGGS311 DCGGS311 DCGGS311 DCGGS312 DCGS3176 DCGGS321 DCGS3176 DCGGS321 DCGGS3176 DCGGS321 DCGGS3176 DCGGS321 DCGGS3176 DCGGS312 DCGGS321 DCGGS3176 DCGGS321 DCGGS321 DCGGS3176 DCGGS321 DCGGS322 DCGGS322 DCGGS322 DCGGS322	DC05228	DC05273	DC05314	DC05347	DC05927	DC07006	DC07054	DC07111H8	DC07183B2	DC07248	DC07841	DC08018
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DC48008	DG04024F	DG05011H	DR07KR05F	DS01009M	DS02011MH	DS04004	DS05040MH		DS05927	DS07030
DC48009	DG04024OB	DG05011KB	DR07KR05MH		DS02012	DS04004B	DS05041	DS05330GC	DS05928	DS07031
DC49001	DG04025	DG05012	DR14KS01	DS01011	DS02012A	DS04004F	DS05041F	DS05331B	DS05929	DS07032
DC49002	DG04026	DG05013	DR14KS01B	DS01012	DS02013	DS04004MH	DS05041MH		DS05930	DS07033
DC49003	DG04027	DG05013P	DR14KS01F	DS0101355	DS02013A	DS04005L	DS05042B	DS05332	DS05930CO	DS07034
DC99999	DG04028	DG05013SP	DR14KS01MH	DS01013B	DS02014	DS04CE01	DS05043	DS05333	DS05931	DS07035
DCO5345MH	DG04029	DG05014	DR14KS02	DS01014	DS02014A	DS04CE01B	DS05044	DS05334	DS05933	DS07036
DG01001	DG04029F	DG05030	DR14KS02B	DS01015	DS02015	DS04CE01F	DS05044GC	DS05335	DS05934	DS07037MH
DG02001	DG04029MH		DR14KS02F	DS01015A	DS02016	DS04CE01MH		DS05335GC		DS07038
DG02004	DG04030	DG05032	DR14KS02MH		DS02017	DS04PASTUR		DS05337	DS05936	DS07039
DG02005	DG04031	DG05033	DR14KS03	DS01015N	DS02018	DS05001	DS05110	DS05340	DS05937	DS07040
DG02010	DG04032B	DG05034	DR14KS03B	DS01015T	DS02019	DS05002	DS0511MH	DS05343	DS05938	DS07041
DG02011	DG04032F	DG05034DR	DR14KS03F	DS01016	DS02020	DS05003	DS0512MH	DS05531B	DS05DS03	DS07042
DG02012	DG04041	DG05034S	DR14KS03MH	DS01017	DS02021	DS05004	DS0514F	DS05531F	DS05PASTUR	DS07043
DG02013	DG04042	DG05035	DR14SA01	DS01018	DS02030	DS05005	DS0514MH	DS05532B	DS05W1900	DS07044
DG02014	DG04042H	DG05100	DR14SA01B	DS01019	DS02031	DS05006	DS05155	DS05532F	DS06003	DS07044MH

DS07046 DS07047 DS07048 DS07049 DS07050 DS07051 DS07052	DS09PASTUR DS10001 DS10001L DS10001LV DS10002	DS10604 DS10605 DS10606	DS11046 DS11047	DS11900	DS12023A	DS13015	DS14010	DS14046	DS16002	EX11.31PC
DS07047 DS07048 DS07049 DS07050 DS07051 DS07052	DS10001L DS10001LV		DS11047							
DS07048 DS07049 DS07050 DS07051 DS07052	DS10001LV	DS10606		DS11900MH	DS12023B	DS13016MH	DS14011	DS14047	DS16002MH	EX23.18
DS07049 DS07050 DS07051 DS07052			DS11048	DS11901	DS12023F	DS13017	DS14012	DS14048	DS16PASTUR	EX23.93
DS07050 DS07051 DS07052	DS10002	DS10PASTUR	DS11049	DS11901C	DS12024	DS13018	DS14013	DS14050	DS17001	EXEMPT
DS07051 DS07052		DS11001	DS11049-MH	DS11901N	DS12024F	DS13018MH	DS14014	DS14051	DS17001MH	EXEMPTC01
DS07052	DS10002L	DS11002	DS11049MH	DS11902	DS12025	DS13019	DS14015	DS14051MH	DS17002	EXEMPTC02
	DS10003	DS11003	DS11050	DS11PAST01	DS12025A	DS13019H	DS14016	DS14052	DS17002MH	EXEMPTC04
DS07052MH	DS10003B2	DS11004	DS11051	DS11PAST02	DS12025B	DS13020	DS14017	DS14053	DS17003	EXEMPTC05
	DS10003MH	DS11005	DS11053	DS11PAST03	DS12025F	DS13020MH	DS14018	DS14054	DS17004	EXEMPTC07
DS07055	DS10004	DS11005H	DS11054	DS11PAST04	DS12026	DS13021	DS14019	DS14056	DS17005	EXEMPTC08
DS07056	DS10004A2	DS11006	DS11055	DS11PAST05	DS12027	DS13021MH	DS14020	DS14056N	DS17006	EXEMPTC09
DS07057	DS10004B	DS11007	DS11055MH	DS11PAST06	DS12028	DS13022	DS14020MH	DS14057	DS17007	EXEMPTC10
DS07PASTUR	DS10004F	DS11008	DS11056	DS11PAST07	DS12029	DS13023	DS14021	DS14057B	DS17010	EXEMPTC11
DS08001	DS10004MH	DS11008N	DS11056MH	DS11PASTUR	DS12030	DS13024	DS14022	DS14057M	DS17010C	EXEMPTC12
DS08002	DS10005	DS11009	DS11057	DS12001	DS12031	DS13026	DS14023	DS14060	DS17010N	EXEMPTC14
DS08003	DS10005B	DS11010	DS11060	DS12002	DS12032	DS13028	DS14024	DS14061	DS17011	EXEMPTC15
DS08004	DS10005F	DS11011	DS11061	DS12003	DS12033	DS13030	DS14025	DS14062B-9	DS17012	EXEMPTC16
DS08004MH	DS10005L	DS11012	DS11061-MH	DS12004	DS12034	DS13031	DS14026	DS14062B6-	DS17013	EXEMPTC17
DS08PASTUR	DS10006	DS11013	DS11062	DS12004MH	DS12035	DS13032	DS14027	DS14062F	DS17013B	EXEMPTC18
DS09	DS10006L	DS11014	DS11064MH	DS12006	DS12036	DS13033	DS14027B	DS14062MH	DS17013F	EXEMPTC19
DS09001	DS10007	DS11014MH	DS11065	DS12007	DS12037	DS13034	DS14027F	DS14063B	DS17013L	EXEMPTC21
DS09001C	DS10008	DS11015	DS11065MH	DS12008	DS12037MH	DS13034N	DS14027MH	DS14063F	DS17013MH	EXEMPTC24
DS09002	DS10008B	DS11016	DS11066	DS12009	DS12038	DS13035	DS14028	DS14063MH	DS17014	EXEMPTC26
DS09003	DS10008F	DS11017	DS11067MH	DS12010	DS12039A	DS13036	DS14029	DS14064	DS17PASTUR	EXEMPTC27
DS09004	DS10008MH	DS11018	DS11068MH	DS12011	DS12039B	DS13040	DS14030	DS14065	DS19020L	EXEMPTC28
DS09005	DS10009	DS11020	DS11069	DS12011A	DS12039F	DS13040MH	DS14031	DS14066	DS32101N	EXEMPTC31
DS09007	DS10010	DS11022	DS11070	DS12012	DS12039L	DS13041	DS14032	DS14067B	DS75011	EXEMPTC32
DS09008	DS10011	DS11022MH	DS11070B	DS12012A	DS12040	DS13042	DS14033	DS14067F	ESMT	EXEMPTC33
DS09009	DS10012	DS11024	DS11070F	DS12013	DS12040A	DS13043	DS14034	DS14067MH	EX11.11CNY	EXEMPTC34
DS09011	DS10012MH	DS11025	DS11070MH	DS12014	DS12041	DS13044	DS14035	DS14068	EX11.11CTY	EXEMPTC35
DS09012	DS10013MH	DS11025N	DS11071B	DS12014A	DS12041A	DS13045	DS14035B	DS14069	EX11.11FWD	EXEMPTC36
DS09013	DS10014	DS11027H	DS11072	DS12015MH	DS12042	DS13046	DS14035F	DS14070L	EX11.11ISD	EXEMPTC37
DS09014	DS10015	DS11028	DS11073	DS12016	DS12900	DS13047	DS14035MH	DS14071	EX11.11STT	EXEMPTC48
DS09015	DS10016	DS11028H	DS11073MH	DS12016B	DS12900MH	DS13047A	DS14036	DS14072MH	EX11.11UNV	EXEMPTDC03
DS09015G	DS10020	DS11029	DS11074	DS12016F	DS12PASTUR	DS13047B	DS14036B	DS14073	EX11.12FED	EXEMPTDC13
DS09016	DS10021	DS11030	DS11074MH	DS12016MH	DS13001	DS13047MH	DS14036F	DS14074	EX11.17CEM	EXEMPTDC22
DS09016MH	DS10030	DS11031	DS11075	DS12017	DS13003	DS13048	DS14036MH	DS14074MH	EX11.18	EXEMPTDC25
DS09017	DS10030MH	DS11033	DS11076	DS12018	DS13003N	DS13050	DS14037	DS14075	EX11.181	EXEMPTDC29
DS09018	DS10031	DS11034	DS11076G	DS12019	DS130047A	DS13PASTUR	DS14037B	DS14076	EX11.184	EXEMPTDS06
DS09019	DS10031MH	DS11035	DS11078G01	DS12019A	DS13006	DS14001	DS14037F	DS14077	EX11.184ML	EXEMPTDS10
DS09020	DS10050	DS11036	DS11079	DS12020A	DS13006MH	DS14002	DS14037MH	DS14078	EX11.19YSM	EXEMPTS01
DS09021	DS10051	DS11037	DS11080	DS12020B	DS13007	DS14003	DS14038	DS14079	EX11.20REL	EXEMPTS02
DS09022	DS1009	DS11038	DS11081	DS12020F	DS13008	DS14004	DS14039	DS14080	EX11.20REO	EXEMPTS05
DS09023	DS1016	DS11039	DS11082	DS12020L	DS13009	DS14005	DS14040	DS14081	EX11.21	EXEMPTS06
DS09023TH	DS1017	DS11040	DS11082A	DS12021	DS13011	DS14005B	DS14042	DS14200R	EX11.23	EXEMPTS07
DS09024	DS105000	DS11041	DS11082B	DS12022A	DS13012	DS14005MH	DS14042MH	DS14900	EX11.231ED	EXEMPTS09
DS09025	DS10601	DS11042	DS11082C	DS12022B	DS13012A2	DS14006	DS14043	DS14PASTUR	EX11.23MIS	EXEMPTS11
DS09026	DS10602	DS11043	DS11082MH	DS12022F	DS13013	DS14007	DS14044	DS15001	EX11.27	EXEMPTS12
DS09398A	DS10603	DS11044	DS11083	DS12023	DS13014	DS14009	DS14045	DS16001	EX11.30WTR	EXEMPTS13

marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea	marketArea
EXEMPTS14	MF01A3S08	MF01B23S08	MF02B1S05T	MF06C1U	MF25S14H	OF01B2S09L	OFB1S14	RE05G01C	RE40S09	SC01G01C3
EXHB366	MF01A3S09	MF01B23S09	MF02B1S05U	MF06C2U	MHPARKS	OF01B2S10S	OFB2C07	RE06G01	RE40S10	SC05G01A
EXPPV	MF01A3S10	MF01B23S10	MF02B2S05T	MF06C3U	OF01A1C02H	OF01C1S05G	OFB2C07A	RE100G01	RE40S11	SC05G01B
FL00GO1	MF01A3S11	MF01B23S11	MF02B2S05U	MF06C4U	OF01A1C02W	OF01C1S05O	OFB2C07F	RE100G01K	RE40S14	SC05G01C
FL01G01D	MF01A3S14	MF01B23S14	MF02B3S05T	MF06G01A1	OF01A1C03P	OF01C1S09A	OFB2C07T	RE100G01L	RE45G01	SC10G011
FL020G01B	MF01AA01	MF01C02A1	MF02B3S05U	MF06G01B1	OF01A1S05A	OF01C1S09E	OFB2C08	RE10AA001	RE50G01	SC10G012
FL025G01	MF01B11C02	MF01C02B1C	MF02B4S05T	MF06G01C1	OF01A1S05C	OF01C1S09M	OFB2S05	RE10G01	RE55G01	SC10G013A
FL20G01A	MF01B11C03	MF01C02B1D	MF02B4S05U	MF06S05A1U	OF01A1S05G	OF01G01	OFB2S09	RE10G01B	RE55G01A	SC10G013B
FL20G01B	MF01B11S05	MF01C02B2C	MF02B5S05T	MF06S09C1	OF01A1S09M	OF02C02B	OFB2S09F	RE10G01BL	RE55G01D	SC10G013B
FL20G01C	MF01B11S08	MF01C02B2D	MF02B5S05U	MF07G01	OF01A1S09R	OF02S05B1	OFB4S09	RE10G01D	RE55G01DC	SC15G01
FL20S05LGT	MF01B11S09	MF01C03B1	MF02C1S05T	MF10G01A	OF01A1S10	OF02S05B2	OFBS10	RE10G01R	RE55G01H	SC20G01A
FL20S09PP	MF01B11S10	MF01C1C02	MF02C1S05U	MF10G01B	OF01A1S10W	OF02S05B3	OFC1C02	RE20C01SS	RE55G01L	SC20G01B
FL20S10B	MF01B11S11	MF01C1C03	MF02C2S05T	MF10G01C	OF01A1S11I	OF02S05M	OFC1C03	RE20G01SS	RE55S05A	SC20G01C
FL20S11GT	MF01B11S14	MF01C1S05	MF02C2S05U	MF15G01A1	OF01A1S11T	OF02S05S	OFC1S05	RE20G01TL	RE55S05B	SC30G01A1
FL20S11UG	MF01B12C02	MF01C1S08	MF02C3S05T	MF15G01A2	OF01A2C02D	OF02S09B1	OFC1S09	RE20GO1T	RE55S05C	SC30G01A2
G01	MF01B12C03	MF01C1S09	MF02C3S05U	MF15G01B1	OF01A2C02G	OF02S09B2	OFC1S11	RE25AA001	RE55S05C1	SC30G01A3
HC01G01A	MF01B12S05		MF02C4S05T		OF01A2C02H	OF02S11	OFC1S14	RE25G01	RE55S05C2	SC30G01A4
HC01G01B	MF01B12S08		MF02C4S05U		OF01A2C02J	OF02S14	OFC2C08	RE25G01G1		SC30G01B1
HC01G01C	MF01B12S09		MF02C5S05T	MF15G01C2	OF01A2C02M	OF05G01	OFC2S05	RE25G01G2		SC30G01B2
HC05G01C	MF01B12S10		MF02C5S05U		OF01A2C02MR		OFC2S09	RE25G01G3		SC30G01B3
HC05G01E	MF01B12S11		MF02G01CO	MF16G01A1	OF01A2C02P	OFA1C03	OFC3S05	RE25G01G4		SC30G01B4
HC10G01	MF01B12S14		MF02S05A1	MF20G01	OF01A2S05P	OFA1C07	OFC3S09	RE25G01G5		SC35G01
HC15G01	MF01B13C02		MF02S05B1	MF20G01M	OF01A2S05U	OFA1C07F	OFC4S05	RE25G01K	RE75G01	SC45C02A1
HC20G01	MF01B13C03		MF02S05B1N		OF01A2S09C	OFA1C16	OFM1C02	RE30A1G01	RE80G01	SC45C02A2
HC25G01	MF01B13S05		MF02S05B2N		OF01A2S09L	OFA1S05	OFM1S05	RE30AC02	RE85S05	SC45C02A3
HC25G01O	MF01B13S08		MF02S05B2S		OF01A2S09P	OFA1S09	OFM1S09	RE30AC03	RE85S09	SC45C02B1
HC30G01A	MF01B13S09		MF02S05B2T		OF01A2S10C	OFA1S10	OFM2S05	RE30AS05	RE85S11J	SC45C02B1
HC30G01B	MF01B13S10		MF02S05B2U		OF01A2S10E	OFA1S11	OFM3S05	RE30AS09	RE85S11P	SC45C02B3
HC30G01C	MF01B13S11		MF02S05C1N		OF01A2S10L	OFA1S14	OFS08	RE30AS10	RE85S11R	SC45C02C1
HC35G01	MF01B13S14		MF02S05C1S		OF01A2S10O	OFA2C07	OFS09	RE30AS11	RE85S14A	SC45C02C2
MF01A1C02	MF01B21C02		MF02S05C1T		OF01A2S10P	OFA2C07C	RE01G01AA		RE85S14K	SC45C02C3
MF01A1C03	MF01B21C03		MF02S05C1U		OF01A2S10R	OFA2C07W	RE01G01AB		RE85S14P	SC45C03A
MF01A1S05	MF01B21S05		MF02S09B2	MF25B2S05	OF01A2S10S	OFA2C08	RE01G01AC		RE85S14S	SC45C03A
MF01A1S08	MF01B21S08		MF02S09B2	MF25B2S05 MF25B3S05	OF01A2S10S	OFA2S05	RE01G01SP	RE30BS051	RE90G0120	SC45C03B
MF01A1S09	MF01B21S09		MF02S14A1	MF25B4S05	OF01A2S10V	OFA2S05P	RE02G01	RE30BS09	RE90G0180	SC45G01A3
MF01A1S10	MF01B21S10		MF02S14B1	MF25B5S05	OF01A2S10W	OFA2S05PW	RE055G01	RE30BS091	RE90G0190	SC45S05A
MF01A1S11	MF01B21S11	Maka manua manua man	MF02S14B2	MF25C1S05	OF01AA001	OFA2S09	RE05AA01	RE30BS11	RE90G01S	SC45S05A1
MF01A1S14	MF01B21S14		MF02S14C1	MF25C2S05	OF01B1C02F	OFA2S091	RE05AS05	RE30BS14	ROW	SC45S05B
MF01A2C02	MF01B22C02		MF05G01A1	MF25C3S05	OF01B1C03E	OFA2S09C	RE05AS09	RE30BS141	S05	SC45S05C
MF01A2C03		MF01S05C1D	MF05G01B1	MF25C4S05	OF01B1S05N	OFA2S09W	RE05AS10	RE30G01	S08	SC45S08A
MF01A2S05			MF05G01B2	MF25C5S05	OF01B1S05R	OFA2S10	RE05AS11	RE30S11C	S09	SC45S08B
MF01A2S08	MF01B22S08		MF05G01C1	MF25S05A1	OF01B1S05S	OFA3S09	RE05BS05	RE35G01	S10	SC45S08C
MF01A2S09	MF01B22S09		MF06A1U	MF25S05B1	OF01B1S09L	OFB1C03	RE05BS09	RE40AA01	S11	SC45S09A1
MF01A2S10	MF01B22S10		MF06A2U	MF25S05B2	OF01B1S09R	OFB1C2	RE05BS10	RE40C02	S14	SC45S09A2
MF01A2S11	MF01B22S11		MF06B1U	MF25S05B3W	OF01B1S09T	OFB1S05	RE05BS11	RE40C03	SC01G01A	SC45S09A3
MF01A2S14	MF01B22S14		MF06B2U	MF25S05C1	OF01B1S14R	OFB1S05S	RE05CS05	RE40G01S	SC01G01B1	
MF01A3C02	MF01B23C02		MF06B3U	MF25S05H	OF01B2C02H	OFB1S09	RE05CS09	RE40OT	SC01G01B2	
MF01A3C03	MF01B23C03	MF01S14B1	MF06B4U	MF25S09H	OF01B2C02J	OFB1S09OT	RE05G01A	RE40S05	SC01G01B3	SC45S09C1
MF01A3S05	MF01B23S05	MF02AA001	MF06B5U	MF25S11H	OF01B2S05F	OFB1S11	RE05G01B	RE40S08	SC01G01C1	SC45S09C2

marketArea	marketArea
SC45S10A1	WH60S05C
SC45S10A2	WH60S05M
SC45S10A3	WH60S05S
SC45S10B1	WH60S05SL
SC45S11A	WH60S08S
SC45S11A1	WH60S09C
SC45S11B	WH60S09M
SC45S11C	WH60S09S
SC45S14A	WH60S10A
SC45S14B	WH60S10M
SC45S14C	WH60S10S
SC55G01	WH60S11M
SC55G01A	WH60S11S
SD5109A	WH60S14A
SE10G01	WH60S14S
SE20G01	
SE30G01	
SE36G01	
SE40G01	
SE50G01	
SP05G01	
SP20G01	
WH01G01M	
WH01S05M	
WH01S11NW	
WH01S11TH	
WH05G01	
WH10G01	
WH15A1C02	
WH15A1C05	
WH15A1C07	
WH15A1C12	
WH15A1C36	
WH15B1C02	
WH15BS05	
WH15G01	
WH25G01	
WH25G01F	
WH35G01	
WH40G01A	
WH40G01B	
WH40G01C	
WH55G01	
WH55G01L	
WH60C02C	
WH60C02S	
WH60C03C	
WH60C03S	
WH60G01	