



# Harris County Appraisal District



2011  
Mass Appraisal Report

# Harris County Appraisal District

## 2011 Mass Appraisal Report



### INTRODUCTION

#### *Scope of Responsibility*

The Harris County Appraisal District has prepared and published this report to provide our citizens and taxpayers with a better understanding of the district's responsibilities and activities. This mass appraisal report was written in compliance with Standards Rule 6-7 of the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of The Appraisal Foundation. This report has several parts: a general introduction and then several sections describing information specific to particular appraisal divisions.

The 2011 mass appraisal was prepared under the provisions of the Texas Property Tax Code. Taxing jurisdictions that participate in the district must use the appraisals as the basis for imposition of property taxes. The State of Texas allocates state funds to school districts based upon the district's appraisals, as tested and modified by the state comptroller of public accounts.

The 2011 mass appraisal results in an estimate of the market value of each taxable property within the district's boundaries. Where required by law, the district also estimates value on several bases other than market value. These are described where applicable later in this report.

#### *General Assumptions and Limiting Conditions*

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

- The appraisals were prepared exclusively for ad valorem tax purposes.
- The property characteristics data upon which the appraisals are based is assumed to be correct.
- Physical inspections of the property appraised were performed as staff resources and time allowed.
- Validation of sales transactions occurred through questionnaires to buyer and seller, telephone survey and field review. In the absence of such confirmation, residential sales data obtained from vendors was considered reliable.
- No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to any property is assumed to be good and marketable, unless otherwise stated.
- All property is appraised as if free and clear of any or all liens or encumbrances, unless otherwise stated. All taxes are assumed to be current.
- All property is appraised as though under responsible, adequately capitalized ownership and competent property management.

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- All engineering is assumed to be correct. Any plot plans and/or illustrative material contained with the appraisal records are included only to assist in visualizing the property.
- It is assumed that there is full compliance with all applicable federal, state and local environmental regulations and laws unless noncompliance is stated, defined and considered in this mass appraisal report.
- It is assumed that all applicable zoning and use regulations and restrictions have been complied with unless nonconformity has been stated, defined and considered in this mass appraisal report.
- It is assumed that all required licenses, certificates of occupancy, consents or other legislative or administrative authority from any local, state or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
- It is assumed that the utilization of the land and improvements of the properties described are within the boundaries or property lines, and that there are no encroachments or trespasses unless noted on the appraisal record.

Unless otherwise stated in this report, the appraiser is not aware of the existence of hazardous substances or other environmental conditions. The value estimates are predicated on the assumption that there is no such condition on or in the property or in such proximity thereto that it would cause a loss in value. No responsibility is assumed for any such conditions, or for any expertise or engineering knowledge required to discover them.

## ***Effective Date of Appraisal and Date of the Report***

With the exception of certain inventories for which the property owner has elected a valuation date of September 1, 2010; all appraisals are as of January 1, 2011. The date of this report is June 27, 2011.

## ***Definition of Value***

Except as otherwise provided by the Texas Property Tax Code (hereafter "Tax Code"), all taxable property is appraised at its "market value" as of January 1. Under the tax code, "market value" means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

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

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The Tax Code defines special appraisal provisions for the valuation of several different categories of property. Specially appraised property is taxed on a basis other than market value as defined above. These categories include residential homestead property (Sec. 23.23, Tax Code), agricultural and timber property (Chapter 23, Subchapters C and D, Tax Code), real and personal property inventory (Sec. 23.12, Tax Code), certain types of dealer inventory (Sec. 23.121, 23.124, 23.1241 and 23.127), and nominal (Sec. 23.18) or restricted use properties (Sec. 23.83).

### ***Properties Appraised***

This mass appraisal appraised all taxable real and personal property known to the district as of the date of this report, with the exception of certain properties on which valuation was not complete as of the date of this report. These, by law, will be appraised and supplemented to the jurisdictions after equalization. The property rights appraised were fee simple interests, with the exception of leasehold interests in property exempt to the holder of the property's title. The latter are appraised under a statutory formula described in Sec. 25.07, Tax Code. The description and identification of each property appraised is included in the appraisal records submitted to the Harris County Appraisal Review Board on May 13, 2011.

### ***Scope of Work Used to Develop the Appraisal***

This mass appraisal valued all taxable real and tangible personal property within the boundaries of the Harris County Appraisal District, which encompasses all of Harris County, Texas, including the City of Houston. This involves over 1.7 million accounts. The district is the third largest assessment entity by population and the second largest by parcel count in the United States. The district distributes the work of the appraisal among several appraisal divisions. The following sections describe, by division, the scope of work performed and those items addressed in USPAP standard 6-7 (k) through (p).

The Chief Appraiser, who is the chief executive officer of the appraisal district, manages the district. All district departments and divisions report to the chief appraiser through the chief deputy. The district is further subdivided into four departments and a separate office of Human Resources. The four departments are Appraisal, responsible for all appraisal activities, Support Services, responsible for property records maintenance, taxpayer information and assistance, and support of the appraisal review board, Administration, responsible for budget and financial matters, and Information Systems, which operates the district's computer facilities. Property tax professionals are required to be registered with the Texas Department of Licensing and Regulation.

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The appraisal district staff consists of 630 employees with the following classifications:

- 25 Official/Administrator (Executive Level Administration)
- 61 Professional (Supervisory and Management)
- 289 Technicians (Appraisers, Program Analysts and Network Support)
- 249 Administrative Support (Professional, Customer Service, Clerical and other)
- 6 Protective Services (Security)

While the appraisal district staff conducted most of the appraisal activities, the district received significant assistance from three appraisal contract firms. The appraisal district's boundaries are the same as the county's boundaries. An adjoining appraisal district will now be involved only in cases where the property is actually split by the county line. If the county line does split your property, you will receive value notices from the appraisal districts for both counties, and must file homestead exemption or agricultural productivity value applications with both. In such cases, if you choose to file a value protest, you must do so with the appraisal review boards in both counties.

## ***Determination of Highest and Best Use for Real Property***

The district's market value appraisals are performed pursuant to Article VIII, Sec. 1., Texas Constitution, which provides that property must be taxed in proportion to its value as determined by law, Sec. 23.01, Tax Code implements this provision as follows:

### ***§ 23.01. Appraisals Generally***

- (a) Except as otherwise provided by this chapter, all taxable property is appraised at its market value as of January 1.
- (b) The market value of property shall be determined by the application of generally accepted appraisal methods and techniques. If the appraisal district determines the appraised value of a property using mass appraisal standards, the mass appraisal standards must comply with the Uniform Standards of Professional Appraisal Practice. The same or similar appraisal methods and techniques shall be used in appraising the same or similar kinds of property. However, each property shall be appraised based upon the individual characteristics that affect the property's market value.
- (c) Notwithstanding Section 1.04(7)(C), in determining the market value of a residence homestead, the chief appraiser may not exclude from consideration the value of other residential property that is in the same neighborhood as the residence homestead being appraised and would otherwise be considered in appraising the residence homestead because the other residential property:
  - (1) was sold at a foreclosure sale conducted in any of the three years preceding the tax year in which the residence homestead is being appraised and was comparable at the time of sale based on relevant characteristics with other residence homesteads in the same neighborhood; or
  - (2) has a market value that has declined because of a declining economy.

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- (c) Notwithstanding any provision of this subchapter to the contrary, if the appraised value of property in a tax year is lowered under Subtitle F, the appraised value of the property as finally determined under that subtitle is considered to be the appraised value of the property for that tax year. In the following tax year, the chief appraiser may not increase the appraised value of the property unless the increase by the chief appraiser is reasonably supported by substantial evidence when all of the reliable and probative evidence in the record is considered as a whole. If the appraised value is finally determined in a protest under Section 41.41(a)(2) or an appeal under Section 42.26, the chief appraiser may satisfy the requirement to reasonably support by substantial evidence an increase in the appraised value of the property in the following tax year by presenting evidence showing that the inequality in the appraisal of property has been corrected with regard to the properties that were considered in determining the value of the subject property. The burden of proof is on the chief appraiser to support an increase in the appraised value of property under the circumstances described by this subsection.
- (c) The market value of a residence homestead shall be determined solely on the basis of the property's value as a residence homestead, regardless of whether the residential use of the property by the owner is considered to be the highest and best use of the property.

Previous to the addition of 23.01(c) concerning residential homesteads, there was no specific statute defining highest and best use as it applies in appraisals conducted under the Property Tax Code. However, Texas courts have acknowledged that highest and best use is a factor that must be considered in determining market value. *King v. Real* 466 S.W.2d 1 TEX.Civ.App., 1971, *Exxon Pipeline Co. v. Zwahr* 2002 WL 1027003 Tex., 2002. In an unpublished opinion, the Houston Court of Appeals approved the following definition of highest and best use:

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

With the exception of residence homesteads, this definition of highest and best use still applies to appraisals conducted under the Property Tax Code.

### ***Appraisal Performance tests and performance measures attained***

Government Code Section 403.302 requires the Comptroller to conduct a study to determine the degree of uniformity and the median level of appraisals by the appraisal district with each major category of property, as required by Section 5.10, Tax Code. This study is required every other year. If the locally appraised value in a school district is within the statistical margin of error of the state value, the Comptroller's Property Tax Assistance Division (PTAD) certifies a school district's local tax roll value to the Commissioner of Education. A 5% margin of error is used to establish the upper and lower value limit for each school district. If the local value is outside the

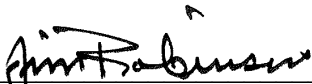
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acceptable range, the PTAD certifies the state value, unless the school district is eligible for a grace period, which is a period when local value is used even though it is determined to be invalid.

Section 5.102, Tax Code requires the Comptroller of Public Accounts to review county appraisal district (CAD) governance, taxpayer assistance, operating standards and appraisal standards, procedures and methodology at least once every two years. School districts located in counties that do not receive the Methods and Assistance Program (MAP) reviews in a year will be subject to property value studies in that year. Harris CAD was selected for a 2010 MAP review, and therefore, was not the subject of a property value study until 2011. Harris CAD received the MAP results on January 27, 2011. There are five mandatory requirements that are graded as a pass/fail. Each mandatory requirement was passed. There are four appraisal district activities that are graded as one of the following based on a numerical score; exceeds, meets, needs improvement and unsatisfactory. Harris CAD received an EXCEEDS rating for each.

<b><i>Certification Statement:</i></b>
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"I, Jim Robinson, Chief Appraiser for the Harris County Appraisal District, solemnly swear that I have made or caused to be made a diligent inquiry to ascertain all property in the district subject to appraisal by me, and that I have included in the records all property that I am aware of at an appraised value which, to the best of my knowledge and belief, was determined as required by law."



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Jim Robinson  
Chief Appraiser

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STAFF PROVIDING SIGNIFICANT  
MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Sands Stiefer	Chief Deputy and Chief Legal Officer	67390	Oversight of Appraisal, Support Services, Information Systems, and Administration Departments
Guy Griscom	Assistant Chief Appraiser	00611	Direct Appraisal Department activities
Teresa Terry	Assistant Chief Appraiser	66552	Direct Support Services, Account Correction, Information & Assistance and Jurisdiction Support divisions
Glenn Traylor	Assistant Chief Appraiser	72740	Direct Information System activities
Sharon Boyd	Director, Appraisal Operations	61842	Direct Appraisal Operations activities
Dennis Mabe	Appraisal Information Specialist III	65998	Provide data analysis and assist in appraisal operations
April Holcomb	Appraisal Information Specialist III	70887	Provide problem resolution, training, and process development
Edward Wrenn	Appraisal Information Specialist I	72691	Provide problem resolution, training, and process development
Liz Hernandez	Appraisal Information Specialist I	72679	Provide statistical data analysis and training



## Report by Appraisal Division

As noted previously, the district allocated the work of the mass appraisal among several divisions within the appraisal department. The Appraisal Administration Division, under Assistant Chief Appraiser Guy Griscom, directs the overall operations of the appraisal department, including the Review Appraisal Division, which deals with litigation. The appraisal divisions, which report directly to Appraisal Operations, consist of the Residential Property Division, the Commercial Property Division, and the Business/Industrial Property Division. The Residential Property Division also includes the real property Corrections section. The Business/Industrial Property Division encompasses business and complex industrial properties, some of which are appraised through mass appraisal models, others of which are directly appraised. Additionally, the division's management coordinates the work of the district's appraisal contractors and, a section manager oversees personal property corrections. Each division allocates appraisal staff that is responsible for maintaining property characteristics data and discovering and listing new construction annually and, valuation analysts whose responsibility it is to develop, calibrate, and apply the various mass appraisal models for their respective property types.

### Residential Property Division

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#### *Scope of Work*

The Residential Property Division is responsible for collecting and maintaining property characteristic data for all residential property, and developing equal and uniform market values for each parcel. There are approximately 1,038,176 residential improved parcels and over 122,058 vacant residential parcels within the appraisal district's jurisdiction.

Field data collection requires organization, planning and supervision of the field staff. Residential appraisers are assigned throughout Harris County to conduct field inspections and record information via a laptop device. Data items required to accurately describe and value property are keyed in the field.

Production standards are set and upheld for the various field activities. It is the supervising appraisers' responsibility to ensure that not only are production standards met, but that the quality of data is reliable. Since data is keyed live to the system, supervisors have the capability to check on appraisers' productivity at anytime during the day.

New appraisers are trained in the specifics of data collection set forth in the listing manual and receive hands-on training in the field. Experienced appraisers are routinely re-trained in listing procedures prior to each major project, such as new construction or field/office re-inspection. The county is segmented into geographic zones for work allocation. A supervising appraiser is designated to a zone, and it is his/her responsibility to coordinate work assignments among the appraisers and provide quality assurance through random field and office review of each

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appraiser's work. During various projects we combine rally points for two zones, thus insuring that at least one supervisor can meet with the group on a daily basis.

The appraisers collect data at each property and key changes directly to their laptop. They update characteristics such as land size and topography, and improvement data, such as square foot of living area, year built, quality of construction, and condition. The division uses training manuals that establish uniform procedures for listing real property. All properties are coded according to these manuals and the approaches to value are structured and calibrated based on this coding system. The field appraisers use these manuals during their initial training and during field inspections. Manufactured housing is listed as real property if a Statement of Ownership and Location is filed at the county in which the property is located, otherwise, the property receives a state classification of M3 and is listed as personal property.

### ***New Construction***

The field inspection of new construction permits and work file accounts began in January 2011 and was substantially completed by the middle of April 2011. Appraisers visit all property where changes to characteristics are identified through building permits and other sources. All changes in characteristics are recorded, including new homes, additions, remodels, pools and other yard improvements, demolitions, and disaster damage and repairs.

An appraiser also conducts an office review of each property and reviews the value based on the changes made to the parcel. Approximately 46,955 permitted or work file items were inspected for 2011. Included in this number were 10,482 new home starts added to the tax roll for 2011.

Fieldwork was generated via electronic workflow by geographic area and neighborhood. With the implementation of laptops, work is grouped and assigned electronically by the supervisor. Accounts are worked by the appraiser and routed to their supervisor upon completion. The supervisor then quality checks the accounts and pushes it on to be value reviewed in the office.

### ***Sales Verification***

For tax year 2011, we again had staff in the field to conduct sales verification. Appraisers visited properties with recent sales activity to verify the property characteristics and when able, to validate the sales information with the property owner. We verified data on 21,252 properties during this project.

### ***Re-inspection***

Both field and office re-inspection was conducted for tax year 2011. Appraisers are responsible for verifying the characteristics of each property visited. If changes are identified, they are keyed to the 2011 database. During the field effort, we also incorporated confirmation of sales data and verification of characteristics of sold property. During the office re-inspection properties are reviewed using aerial photos provided by our software vendor. Appraisers were able to verify external characteristics, measure walls, and identify economic influences. If the

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photos were not visible due to tree cover, or changes in the property are too substantial to fix from the office, a field visit is performed.

Our goal is to comply with generally recognized guidelines that recommend re-inspection of property every three years. For tax year 2011, we re-inspected 149,951 accounts in the manner described above, plus accounts reviewed during new construction and sales verification, which totaled 208,947 properties re-inspected.

### ***Split-out and Combination of Accounts***

At the property owner's request, the district is required to split out or combine accounts that are under the same ownership, but do not have separate mortgages, which requires the coordination of our customer service department and appraisal staff. During the 2010 calendar year, this activity entailed the processing of over 18,000 accounts, some of which are still pending completion. As of this report, we have 2,041 accounts pending split-out or combination. In many instances, the property owner's request involves not only current year, but also prior year corrections, which increases the workload.

### ***Jurisdiction Estimates of Value***

Each year the residential property division makes value estimations for taxing jurisdictions on newly developed areas. The purpose of the estimates is to give a total value for all parcels in question so that the taxing jurisdictions can estimate their total tax base as of a specified date. During 2010, we completed 120 estimates of value. A supervising appraiser takes an average of six hours to complete the field and office work associated with each estimate of value.

### ***New Subdivisions***

New subdivisions are reviewed and valued based on information gathered in the field and office. Analysts set up base lot sizes and rates for land and estimate the typical grade and characteristics for improvements. Appraisal staff drives the area of the new subdivision, lists the property characteristics and identifies the status of the property as of January 1. For tax year 2010, we processed 171 new subdivisions throughout the county. To date, we have received 169 new subdivisions to process for 2011.

### ***Sources of Data***

The sources of data collection and verification include, but are not limited to, building permits, data mailers, informal meetings and formal hearings, information collected in the field, newspapers, publications, and property owner correspondence by letter and via the Internet. Oblique imagery, which allows the appraiser to view a property from multiple angles, is also frequently used for data verification. The appraiser can verify exterior measurements with this software if the tree cover is not too thick. Street-level images are also attached to each account and can assist in the verification of data.

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Building permit data attained from the County, City of Houston, and surrounding cities, triggers field inspections on property experiencing significant characteristics changes due to new construction or remodeling. Property owners contact our web site to report data inaccuracies that initiate a field inspection or office correction of the data. The use of the Internet has enabled us to download mobile home information and upload the data directly to a file in our computer system, which generates a questionnaire that is mailed to the property owner.

### ***Data Maintenance***

The residential property support section is responsible for sorting, researching and keying accounts to our permit system, processing new subdivisions, researching and keying mobile home information, and scanning, filing, boxing and warehousing information. The division was also able to provide support to other divisions in need.

### ***Highest and Best Use Analysis***

The highest and best use of residential property is normally its existing use. This is due in part to the fact that residential communities through use of deed restrictions, and in some areas zoning, precludes other land uses. The division undertakes the analysis of highest and best use in transition areas and areas of mixed residential and commercial use. In transition areas with ongoing gentrification, the analyst reviews the existing residential property use and makes a determination regarding highest and best use. Once the conclusion is made that the highest and best use remains residential, further highest and best use analysis is done to decide the type of residential use on a neighborhood basis. For example, it may be determined in a transition area that older, non-remodeled homes are economically obsolete, which we refer to as “mis-improvements”, and the highest and best use of such property is the construction of new dwellings. In areas of mixed residential and commercial use, the analyst reviews properties in these areas on a periodic basis to determine if changes in the real estate market require reassessment of the highest and best use of a select population of properties.

The exception to this process is residential homestead property. Texas Property Tax Code 23.01(c) provides that a residence homestead’s market value for ad valorem tax purposes is determined solely on the basis of the property’s value as a residence homestead, regardless of highest and best use. In mixed-use areas, residential homesteads were valued differently than non-homestead property. We use a separate land use code for these properties, which allows us to value the homestead properties separately. Each year we will review the status of the exemptions in the mixed-use neighborhoods and change the land use code accordingly.

Typical residential neighborhoods are not affected by this tax code change because market value estimates are determined based on the residential uses and are not generally affected by the value of other property types.

***Model Specification***

***Area Analysis***

Data on regional economic forces such as demographic patterns, regional location factors, employment and income patterns, general trends in real property prices and rents, interest rates trends, availability of vacant land, and construction trends and costs are collected from private vendors and public sources. Information is gleaned from real estate publications and sources such as the Houston Business Journal, the Subdivision and Lot Price Survey by CDS Research, the Houston Metrostudy, UH Center for Public Policy and The Real Estate Center of Texas A&M. Continuing education courses, conference seminars from TAAD and IAAO, real estate seminars from the Urban Land Institute, and UH real estate symposiums, provide the valuation analysts a current economic outlook on Houston's real estate market.

***Neighborhood and Market Analysis***

Neighborhood analysis involves the examination of how physical, economic, governmental and social forces and other influences affect property values. The effects of these forces are also used to identify, classify, and stratify comparable properties into smaller, manageable subsets of the universe of properties known as neighborhoods. Valuation and neighborhood analysis is conducted on each of the political entities known as Independent School Districts (ISD).

The first step in neighborhood analysis is the identification of a group of properties that share certain common traits. A "neighborhood" for analysis purposes is defined as the largest geographic grouping of properties where the property's physical, economic, governmental and social forces are generally similar and uniform. Geographic stratification accommodates the local supply and demand factors that vary across a jurisdiction. Once a neighborhood has been identified, the next step is to define its boundaries. This process is known as "delineation". Some factors used in neighborhood delineation include location, sales price range, lot size, age of dwelling, quality of construction and condition of dwellings, square footage of living area, and story height. Delineation will be reflected in GIS maps for each neighborhood and it also involves statistical separation or stratification based on attribute analysis. Part of neighborhood analysis is the consideration of discernible patterns of growth that influence a neighborhood's individual market. Few neighborhoods are fixed in character. Each neighborhood may be characterized as being in a stage of growth, stability or decline. The growth period is a time of development and construction. As new neighborhoods in a community are developed, they compete with existing neighborhoods. An added supply of new homes tends to induce population shift from older homes to newer homes. In the period of stability, or equilibrium, the forces of supply and demand are about equal. Generally, in the stage of equilibrium, older neighborhoods can be more desirable due to their stability of residential character and proximity to the workplace and other community facilities. The period of decline reflects diminishing demand or desirability. During decline, general property use may change from residential to a mix of residential and commercial uses. Declining neighborhoods may also experience renewal, reorganization, rebuilding, or restoration, which promotes increased demand and economic desirability.

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Neighborhood identification and delineation is the cornerstone of the residential valuation system at the district. All the residential analysis work done in association with the residential valuation process is neighborhood specific. There are in excess of 7,352 residential valuation neighborhoods. Neighborhoods are reviewed in the field and delineated based on observable aspects of homogeneity. Neighborhood boundaries are periodically reviewed to determine if further neighborhood delineation is warranted or, if existing neighborhoods could now be combined because of similar markets. The combined neighborhoods provided a larger sales base for analysis. Whereas neighborhoods involve similar properties in the same location, a neighborhood group is simply defined as similar neighborhoods in similar locations. Each residential neighborhood is assigned to a neighborhood group based on observable aspects of homogeneity between neighborhoods. Neighborhood grouping is highly beneficial in cost-derived areas of limited or no sales, or use in direct sales comparison analysis. Neighborhood groups, or clustered neighborhoods, increase the available market data by linking comparable properties outside a given neighborhood. Sales ratio analysis, discussed later in the report, is performed on a neighborhood basis, and in soft sale areas on a neighborhood group basis.

### *Market Areas/Time Adjustments*

In addition to neighborhood analysis, market areas were analyzed to help in determining whether time of sale was a factor in establishing market value as of January 1, 2011. Market areas are clusters of neighborhoods with geographic similarities that exhibit parallel market conditions and trends. In our development of time adjustments, we applied the Sales Ratio Trend Analysis method using the monthly median generated from an industry recognized statistical software package. The Sales Ratio Trend Analysis method of deriving time-adjustment factors from market data is the most efficient method, not requiring the analysis of paired sales and related adjustments for differences in physical characteristics. The median measure of central tendency is less affected by extreme ratios than other measures of central tendency. The monthly median weights each month equally, instead of giving greater weight to the months with historically more sales. In areas with a statistically significant result, monthly time adjustments were developed for use in the valuation models and in the hearing process.

### *Model Calibration*

#### *Cost Schedules*

All residential parcels in the district are valued from cost schedules using a comparative unit method. The district's residential cost schedules are calibrated to produce replacement cost new in comparison to nationally recognized cost estimator, Marshall & Swift, as well as locally collected cost and sales information. The cost schedules are reviewed every two years and were previously updated in 2010.

Tax Year 2011 is a reappraisal year, but not typically the year that cost updates are performed. To ensure that our cost program is current, a comparison was made between the September 2009

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and the September 2010 Marshall & Swift replacement costs. The year-over-year difference indicated about a 3% change in costs. It was our opinion that with the current market conditions an update to the cost program was not necessary for 2011.

### ***Depreciation Analysis***

Depreciation analysis begins by extracting residential sales from two timeframes for comparison. For each sale, the residual building value (RBV) is subtracted from the replacement cost new (RCN), then divided by the RCN for a calculation of market-derived depreciation, or

$$\% \text{ Depreciation} = (\text{RCN} - \text{RBV}) / \text{RCN}$$

Percent good is also calculated by taking 1 minus the market-derived depreciation (sales price (S) minus the total of the land value (LV) and other features value (OV) divided by the RCN, or

$$\% \text{ Good} = S - (\text{LV} + \text{OV}) / \text{RCN}$$

This was last performed in Tax Year 2010 and will be done again for Tax Year 2012.

### ***Sales Information***

Residential improved and vacant sales are collected from a variety of sources; including district questionnaires sent to the grantee, and the grantor when available, field discovery, protest hearings, various vendors, builders, and realtors. A sales coding system is maintained to define salient facts related to a property's purchase or transfer.

In accordance with Texas Property Tax Code Sec. 552.148, the appraisal district must make confidential any information about properties that an appraisal district obtains from private sources. We cannot publicly disclose (or display on our website) property sales information we obtain from private sources. Sales information is not available for public inspection in the Information & Assistance division or on the HCAD website.

Sales that we used or considered in arriving at a particular value are available to property owners who timely file a value protest, and are included as part of the iFile™ evidence material. This law in no way prohibits the district's use of confidential sales in the valuation process. A property owner or agent who receives confidential sales information from HCAD in conjunction with the protest evidence is required by Sec. 552.148 of the Tax Code to hold that information in confidence. Failure to do so is a criminal violation of the Texas Public Information Act.

### ***Land Analysis***

The analysts conduct residential land analysis each year for their respective valuation zones. The analysts develop a base lot, primary rate, and assign each unique neighborhood to one of six square foot land tables. The square foot land table is designed to systematically value the primary and residual land based on a specified percentage of the primary rate. Land information

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required to consistently value individual parcels within neighborhoods is stored in a computerized land table. Specific land influences are used, where necessary, to adjust parcels outside the neighborhood norm for such factors as view, shape, size, and topography, among others. The preferred method for appraising land is the sales comparison approach. If a sufficient number of sales are not available, the analysts use abstraction or allocation methods to ensure that the land values best reflect the contributory market value of the land to the overall property value.

### *Statistical Analysis*

The division performs statistical analysis annually to evaluate whether values are equitable and consistent with the market. Ratio studies are conducted on each of the approximately 7,352 residential valuation neighborhoods in the district to judge the two primary aspects of mass appraisal accuracy--level and uniformity of value. Appraisal statistics of central tendency and dispersion generated from sales ratios are available for each stratified neighborhood within a school district and 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 analysts a tool by which to determine both the level and uniformity of appraised value on a stratified neighborhood basis. The level of appraised values can be determined by the weighted mean for individual properties within a neighborhood, and a comparison of neighborhood-weighted means can reflect the general level of appraised value between comparable neighborhoods. Review of the standard deviation, coefficient of variation, and coefficient of dispersion can discern appraisal uniformity within and between stratified neighborhoods. Our CAMA system provides the analyst with an analysis tool that can run statistics and output results.

The analyst, through the sales ratio analysis process reviews every neighborhood annually. The first phase involves neighborhood ratio studies that compare the recent sales prices of neighborhood properties to the market values previously set by the analyst. The ratio study affords the analyst an excellent means of judging the present level of appraised value and uniformity of the sales. The analyst, based on the sales ratio statistics and designated parameters for valuation update, makes a preliminary decision as to whether the value level in a neighborhood needs to be updated in an upcoming reappraisal, or whether the level of market value in a neighborhood is at an acceptable level.

At the time the appraisal records were turned over to the ARB in mid-May, over 87,605 residential properties had their market values increased from the prior year, over 207,460 residential properties had their market values decreased, and 857,115 residential properties remained unchanged. Due to protest hearings, the number of properties decreased from the prior year will change significantly by certification in late August.



***Final Models: Market Adjustment and Time Consideration***

Neighborhood or market adjustment factors are developed from appraisal statistics provided from ratio studies and are used to ensure that estimated values are consistent with the market. The district's primary approach to the valuation of residential properties uses a market trended cost approach. This type of approach accounts for neighborhood market influences not specified in the cost model.

The following equation denotes the model used:

$$MV = MA [RCN - D] + LV$$

The market value (MV) equals the market adjustment factor (MA) multiplied by the replacement cost new less depreciation (RCNLD), plus the land value (LV). As the cost approach separately estimates both land and building values and uses depreciated replacement costs, which reflect only the supply side of the market, it is expected that adjustments to the cost values are needed to bring the level of appraisal to an acceptable standard. Market or location adjustments are applied uniformly within neighborhoods to account for location variances between market areas or across a jurisdiction.

If a neighborhood is to be updated, the analyst runs a ratio study that compares recent sales prices of properties appropriately adjusted for the effects of time within a delineated neighborhood with the properties' previously trended cost values. The calculated ratio derived from the sum of the sold properties' trended cost value divided by the sum of the sales prices indicates the neighborhood level of value based on the previous cost value for the sold properties. This trended cost-to-sale ratio is compared to the appraisal-to-sale ratio to determine the current market adjustment factor for each neighborhood. This market adjustment factor is needed to trend the values obtained through the trended cost approach closer to the actual market evidenced by recent sales prices within a given neighborhood. The sales used to determine the market adjustment factor will reflect the market influences and conditions only for the specified neighborhood, thus producing more representative and supportable values. The market adjustment factor calculated for each update neighborhood is applied uniformly to all properties within a neighborhood. Once the market-trend factors are applied, a second run of the ratio study is generated that compares recent sale prices with the proposed market values for these sold properties. From this set of ratio studies, the analyst judges the appraisal level and uniformity in both update and non-update neighborhoods, and finally, for the school district as a whole.

***How Estimates are reviewed***

***Field Review***

The analyst identifies individual properties in critical need of field review through sales ratio analysis. Sold properties with a high variance in sales ratios are field reviewed on a monthly basis to check for accuracy of data characteristics. If data inaccuracies are found in a large percentage of the sold properties, the entire neighborhood is flagged for field review. As the district's parcel count has increased through new home construction, and the homes constructed in the boom years of the late 70's and early 80's experience remodeling, the analysts are required to perform the field activity associated with transitioning and high demand neighborhoods.

The varied sales activity in the Houston Metropolitan area has also resulted in a more substantial field effort on the part of the analysts to review and resolve sales outliers. Additionally, the analyst frequently performs field review on subjective data items such as quality of construction, condition, and physical, functional and economic obsolescence, factors that contribute significantly to the market value of the property. After preliminary estimates of value have been determined in targeted areas, the analyst takes valuation documents to the field to test the computer-assisted values against his or her own appraisal judgment. During this review, the analyst is able to physically inspect both sold properties and unsold properties for comparability and consistency of values.

***Office Review***

Homogeneous properties consisting of tract housing, with a low variance in sales ratios, and other properties having a recent field inspection date are value reviewed in the office. Valuation reports comparing previous values against proposed and final values are generated for all residential improved and vacant properties. The dollar amount and percentage of value difference are noted for each property within a delineated neighborhood allowing the analyst to identify, research, and resolve value anomalies before final appraised values are released.

Once the analyst is satisfied with the level and uniformity of value for each neighborhood within his or her area of responsibility, queries are run based on predetermined tolerances to identify accounts that have increased or decreased by a certain percent or dollar amount. Parcels that fail the tolerances are programmatically placed on hold to keep them from noticing until the analyst or appraiser can resolve the problem.

Once the proposed value estimates are finalized, the analyst reviews the sales ratios by neighborhood and presents pertinent valuation data, such as, history of hearing protest, sale-to-parcel ratio, and level of appraisal to the Director of Appraisal Administration for final review and approval. The primary objective of this review is to ensure that the proposed values have met acceptable tolerance ranges based on the individual neighborhood's profile.

***Appraisal Performance tests used and performance measures attained***

***Sales Ratio Study***

The primary analytical tool used by the analysts to measure and improve performance is the ratio study. The division ensures that the appraised values that it produces meet the standards of accuracy in several ways. Overall sales ratios are generated for each school district by quarter to allow the analyst to review general market trends within their area of responsibility and, to provide an indication of market appreciation over a specified period of time. Several sets of neighborhood sales ratios on each of the approximately 7,352 delineated residential neighborhoods are produced prior to the setting of preliminary values and after finalization of appraised values. The neighborhood descriptive statistics are reviewed for each neighborhood being updated for the current tax year.

The intended purpose of the district’s independent school district (ISD) ratio study is to estimate the general level and uniformity of appraisal. The ratio of a property is calculated in order to evaluate the relationship between appraisals and sale prices as of the January 1 assessment date. The district’s ratio studies were designed and prepared, to the maximum extent possible, under the guidelines set forth in the International Association of Assessing Officers (IAAO) current *Standard on Ratio Studies* (January 2010) .

A ratio study was produced for each school district using the sale period from January 2010 through February 2011. The sample size for each school district was derived through random sampling. There are many types of sampling; systematic sampling, stratified sampling, convenience sampling, judgment sampling, random sampling, quota sampling, snow ball sampling. For this analysis we used random sampling, which is the purest form of probability sampling. Each observation of the population has an equal and known chance of being selected. Through the use of statistical software and the select cases function, the methodology of random sample cases is provided. In order to use this technique a sample size is required. We used the following formula to determine sample size for each school district:

$$n = \frac{(K^2 * p * q * N)}{(e^2 (N-1)) + (K^2 * p * q)}$$

N= the total population of each ISD

K = constant given by the level of confidence which in this case is 95% so the constant is 1.96

K	1.15	1.28	1.44	1.65	1.96	2	2.58
Level of confidence	75%	80%	85%	90%	95%	95.5%	99%

e= it is the sampling error

p = the proportion

q= the proportion (1-P)

## Harris County Appraisal District 2011 Mass Appraisal Report

In a few school districts where no sales were available, the median ratio for geographically and economically similar market areas was applied. The sample data is assumed to be normally distributed and to represent the population of properties within each school district.

Texas does not have mandatory sales disclosure; therefore, the district does not have access to all property transactions, which limits the study sample to only those sales acquired by the district through a commercial vendor or submitted voluntarily by the property owner. Available sales were screened to ensure, to the extent possible, that only valid indicators of market value were included. Sales that were identified as invalid transactions due to atypical financing, sales between relatives or corporate affiliates, estate sales, or sales of convenience were excluded from the study. It is common to expect some foreclosure sales in the overall marketplace; however, for the third consecutive year, there were specific areas where foreclosures dominated the market. In these neighborhoods, foreclosures were analyzed and considered in the valuation. Also excluded from the study was partially complete new construction from our Permit system and sales that were not noticed at the time the study was conducted. It must be noted that district values reported for individual sales were current on or about April 4, 2011 and are subject to change prior to certification.

The median ratio determined for each school district is an indicator of the level of appraisal in the population of single-family properties. The median is the preferred measure of central tendency because it gives equal weight to each ratio and is less affected by extreme ratios than the other measures. The coefficient of dispersion (COD) is a measure of variability, which relates to the distribution of the ratios, and generally, the smaller the measure of variability the better the uniformity. According to the current *Standard on Ratio Studies*, the ratio study performance standards for single-family residential property are between 5.0 and 10.0 for newer, more homogeneous areas and between 5.0 and 15.0 for older, more heterogeneous areas. With the higher volume of foreclosure transactions in Harris County, this measure has more variability than is found in a typically healthy market.

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The median ratio and COD, along with other relevant data for each school district ratio study are reported in the table below.

ISD/Area	Median Ratio	COD	Sample Size	Population
Aldine ISD	0.96	0.140	245	678
Alief ISD	0.98	0.099	267	877
Channelview ISD	0.98	0.113	102	139
Clear Creek ISD	0.96	0.073	272	933
Crosby ISD	0.96	0.070	87	112
Cy-Fair ISD	0.97	0.067	347	3,642
Deer Park ISD	0.95	0.067	151	249
Galena Park ISD	0.94	0.095	117	168
Goose Creek ISD	0.98	0.103	163	282
Houston ISD/Sec. 1A	0.97	0.062	260	801
Houston ISD/Sec. 1B	0.98	0.098	307	1,531
Houston ISD/Sec. 1C	0.96	0.117	197	404
Houston ISD/Sec. 1D	0.98	0.108	136	210
Houston ISD/Sec. 1E	0.99	0.135	122	179
Houston ISD/Sec. 1F	0.97	0.086	317	1,813
Houston ISD/Sec. 1G	0.97	0.102	112	157
Houston ISD/Sec. 1H	0.98	0.104	276	978
Huffman ISD	0.96	0.062	57	67
Humble ISD	0.96	0.064	308	1,546
Katy ISD	0.95	0.071	302	1,418
Klein ISD	0.95	0.074	313	1,694
La Porte ISD	0.94	0.069	131	199
New Caney ISD	0.96	0.064	308	1,546
North Forest ISD	0.98	0.155	51	59
Pasadena ISD	0.94	0.086	245	671
Pearland ISD	0.96	0.073	272	933
Sheldon ISD	0.98	0.092	97	130
Spring ISD	0.96	0.101	277	990
Spring Branch ISD	0.96	0.067	271	921
Stafford ISD	0.98	0.098	307	1,531
Tomball ISD	0.97	0.068	226	545
Waller ISD	0.97	0.068	226	545

# Harris County Appraisal District 2011 Mass Appraisal Report

## RESIDENTIAL STAFF PROVIDING SIGNIFICANT MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE OF ASSISTANCE
Jason Cunningham	Division Director	68135	Plans and directs field and valuation activities
Con McCleester	Res Valuation Manager	65560	Manages valuation group
Sherri Potts	Res Valuation Supervisor	68566	Supervises valuation activities
Joseph Olear	Residential Analyst III	69790	Valuation Activities in ISD 09, 19
James Aprea	Residential Analyst III	71167	Valuation Activities in HISD 1C, 1D, 1E
Michael Cortez	Residential Analyst III	71787	Valuation Activities in ISD 04
Melissa Soto	Residential Analyst III	69310	Valuation Activities in ISD 03, 17, 26
Ed Wolff	Residential Analyst III	70753	Valuation Activities in HISD 1A
Cynthia Gray	Residential Analyst IV	63854	Valuation Activities in ISD 09, 24
Tuan Hoang	Residential Analyst IV	64431	Valuation Activities in HISD Sec 1B, 31
Justin Birmingham	Residential Analyst III	71058	Valuation Activities in ISD 20, 21, 27, 29
Emily Rose	Residential Analyst III	71998	Valuation Activities in ISD 05, 07, 12, 18, 28, 30
Roy Beery	Residential Analyst III	72351	Valuation Activities in ISD 02, 06, 15, 16, 23
Shelly Summers	Residential Analyst III	69684	Valuation Activities in HISD Sec 1H, 1F (N of 610)
Patrick Brogan	Residential Analyst IV	69419	Valuation Activities in ISD 25, & River Oaks
Judy Wood	Residential Analyst IV	67718	Valuation Activities in HISD Sec 1F (S of 610 Loop)
Jose Garza	Supervising Appr I	61136	Supervises Corrections Section
Yvonne DeCesare	Supervising Appr I	68629	Supervises Spilt Outs & Combinations
Steve Atchison	Res Field Manager	68136	Manages field group
Pat Day	Res Field Supervisor	68795	Supervises field activities
Spencer Pollard	Supervising Appr I	70963	Supervises residential data collection for Zone 1
Zdravko Sakic	Supervising Appr I	70923	Supervises residential data collection for Zone 2
Brenda Budd	Supervising Appr I	70897	Supervises residential data collection for Zone 3
Tai Dinh	Supervising Appr I	69403	Supervises residential data collection for Zone 4 & 5
Cynthia Burns	Supervising Appr I	70919	Supervises residential date collection for Zone 4 & 5
Adam Bogard	Supervising Appr I	71162	Supervises residential data collection for Zone 6
Byron Stanley	Supervising Appr I	71494	Supervises residential data collection for Zone 7
Sherene Blake	Supervising Appr I	69898	Supervises residential data collection for Zone 8
James Trevino	Supervising Appr I	70620	Supervises residential data collection for Zone 9
Khari Small	Supervising Appr I	71665	Supervises residential data collection for Zone 10
Scott Christenson	Supervising Appr I	72232	Supervises residential field checks

## Commercial Property Division

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### *Scope of Work*

The scope of this mass appraisal includes all of the commercial real property, which falls under the responsibility of the commercial property division (CPD) that is located within the boundaries of the Harris County taxing jurisdiction. All three approaches to value are considered in estimating market value for each property, the most applicable of which is given primary emphasis.

The Cost Approach to Value is applied to all real property. This methodology involves using national cost data reporting services as well as actual cost information on comparable properties whenever possible. Cost models are developed based on the Marshall & Swift cost information, and are modified based on local factors. This approach also employs alternate valuation procedures to value the underlying land value.

The Income Approach to Value was applied to those real properties that are typically viewed by market participants as “income producing” and for which the income methodology is considered a leading value indicator.

The Sales Comparison (market) Approach was used for estimating land value and in comparing sales of similarly improved properties to each parcel on the appraisal roll. Other recognized appraisal methods and techniques are used in the valuation of properties where sales information is not available or is insufficient to produce credible results.

The division appraises the fee simple interest of properties according to statute. However, the affect of easements, restrictions, encumbrances, leases, contracts or special assessments are considered on an individual basis, as is the appraisalment of any non exempt taxable fractional interests in real property (i.e. certain multi-family housing projects). Fractional interests or partial holdings of real property are appraised in fee simple for the whole property and divided programmatically based on their pro-rata interests.

The function of this mass appraisal is to provide an equitable and efficient market valuation of all property in this appraisal district for ad valorem tax purposes in accordance with law.

### *Procedure for Collecting and Validating Data*

The property characteristic data of every property subject to taxation by a jurisdiction within HCAD’s area of responsibility is incorporated into a computer-assisted mass appraisal (CAMA) system. The commercial appraisers perform maintenance of this inventory of special purpose properties. Building permits trigger field inspections, which capture any alterations to the properties for the pertinent tax year. Appraisers conduct field inspections and collect or update property characteristics via field laptops. This information serves as the basis for the valuation

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of property. Also, if any discrepancies are discovered during the hearings process or at any other time, field personnel are sent for a field check prior to the next tax season, and in some cases, during the current tax season.

A new project was started in 2010 to transfer improvement sketches that were previously completed on graph paper to the CAMA system. This project will enhance the valuation process for both cost and income properties by allowing for perimeter adjustments along with identification of building sections by use.

The quality of data used is of paramount importance to accurate valuation of taxable property. While production standards are established and upheld for the various field activities, quality of data is emphasized as the goal and responsibility of each appraiser. New appraisers are trained in the specifics of data collection set forth in the listing manual as “rules” to follow. Experienced appraisers are routinely re-trained in listing procedures prior to major field projects such as new construction, sales validation or data review.

The primary manual pertinent to data collection and documentation is the Commercial Lister’s Manual. This manual is continually updated, providing a uniform system of itemizing the components comprising improved properties. All properties located in HCAD’s inventory are coded according to this manual and the approaches to value are structured and calibrated based on this coding system. The most recent revision of the listing manual is 2011.

### ***Sources of Data***

A vendor provides the district a copy of the deeds recorded in Harris County that convey commercially classed properties. For those properties involved in a transfer of commercial ownership, a sale file is produced which begins the research and verification process. The initial step in sales verification involves a questionnaire, which is mailed to both parties in the transaction (Grantor and Grantee). If a questionnaire is not returned within thirty days, a second questionnaire is mailed. If a questionnaire is answered and returned, the documented responses are recorded in the sales database system. If no information is provided, verification is then attempted via phone calls to both parties. If the sales information is still not obtained, other sources are contacted such as the brokers involved in the sale, property managers or commercial vendors. In other instances, sales verification is obtained from local appraisers. Finally, closing statements are often provided during the hearings process. The actual closing statement is the most reliable and preferred method of sales verification. After the sales data has been keyed into the database, the data is reviewed to maintain quality control. Additionally, a nationally recognized vendor of market data provides online access to commercial sales information. Other sources of sales data include fee appraisal acquired through the hearings process and local, regional and national real estate and financial publications.

The data used for commercial valuation 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 CPD includes actual income and expense data (typically obtained through the hearings process), actual



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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 are also reviewed to provide additional support for market trends (such as Apartment Data Service or ADS for market data on apartments, REVAC for retail or warehouse, CoStar Group for office data and sales information, State Comptroller Hotel/Motel Report, etc.). Other publications, such as Korpacz and IREM, are used for capitalization rates, typical holding periods for real estate investments, interest rates and other pertinent real estate criteria. A variety of real estate data is also available via the Internet that is helpful in the establishment of market values. This information is often incorporated into market analysis and includes market trends, labor statistics, sales information, development areas, economic indicators, and financial data to name a few.

Annually, prior to hearings and after the sales have been researched, verified, keyed into the database, and quality control has been completed, the sales data is summarized and produced into book form. The sales manuals, known as the Vacant Land Sales and Commercial Improved Sales Books, categorize the sales by property use type, location and chronological order. These books are available to the public for use during hearings and are also used by the HCAD appraisers during the hearings process.

### ***Data Maintenance***

Information on building permits is collected from various cities within Harris County, and from unincorporated areas of the county. These permits are matched to the district's existing property records. Accounts that have building permits are placed into "virtual" work packs electronically. The work packs are sorted by school district and map facet order and are electronically assigned to appraiser work queues. The field appraisers list new construction, note demolition, and record any changes in physical characteristics for properties within their specific work queues. When the packs are completed, they are routed to the supervisor for quality improvement checks. Once the results of the field visit are in the system, the parcels are available to be valued and later noticed.

### ***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 assessment date.. The highest and best use of any given property must be physically possible, legally permissible, financially feasible, and maximally productive. For improved properties, highest and best use is evaluated as improved and as if the site were still vacant. This assists in determining if the existing improvements have a transitional use, interim use, non-conforming use, multiple uses, speculative use, excess land, or a different optimum use if the site were vacant. For vacant tracts, the highest and best use is considered speculative based on the surrounding land uses. Improved properties reflect a wide variety of highest and best uses which include, but are not limited to, office, retail, apartment, warehouse,

## Harris County Appraisal District 2011 Mass Appraisal Report

light industrial, special purpose, or interim uses. In many instances, the property's current use is the same as its highest and best use. This analysis insures that an accurate estimate of market value (sometimes referred to as value in exchange) is derived.

Conversely, value in use represents the value of a property to a specific user for a specific purpose. This is significantly different than market value, which approximates market price under the following assumptions: (i) no coercion of undue influence over the buyer or seller in an attempt to force the purchase or sale, (ii) well-informed buyers and sellers acting in their own best interests, (iii) a reasonable time for the transaction to take place, and (iv) payment in cash or its equivalent.

### ***Model Specification***

#### ***Area Analysis***

A market analysis relates directly to market forces affecting supply and demand. This study involves the relationships between social, economic, environmental, governmental, and site conditions. Current market activity including sales of commercial properties, new construction, new leases, lease rates, absorption rates, vacancies, allowable expenses (inclusive of replacement reserves), expense ratio trends, capitalization rate studies are analyzed. Local publications are also reviewed to lend detailed support to the various assumptions utilized in the valuation of real estate.

#### ***Neighborhood Analysis***

Published market studies such as *Apartment Data Service* (ADS) for apartments, *REVAC* for retail, and *CoStar Group* for office and warehouse properties provide current market data by property segment. The neighborhood is comprised of the land area and commercially-classed properties located within the boundaries of this taxing jurisdiction. Neighborhood analysis involves the examination of how physical, economic, governmental and social forces and other influences affect property values.

The effect of these forces is also used to identify, classify, and organize comparable properties into smaller, manageable subsets of the universe of properties known as neighborhoods. In the mass appraisal of commercial properties these subsets are generally referred to as market areas or economic areas.

Economic areas are defined by each of the improved property use types (apartment, office, retail, warehouse and special use) based upon an analysis of similar economic or market forces. These include, but are not limited to, similarities of rental rates, classification of projects (known as building class by area commercial market experts), date of construction, overall market activity or other pertinent influences. Apartments, offices, retail and warehouses have thirty-six, thirty, twenty-four and sixteen delineated economic (market) areas, respectively. Economic area

## Harris County Appraisal District 2011 Mass Appraisal Report

identification and delineation by each major property use type is the benchmark of the commercial valuation system. All income model valuation is economic area specific. Economic areas are periodically reviewed to determine if re-delineation is required. The geographic boundaries, as well as income, occupancy, expense levels, and capitalization rates by age within each economic area for all commercial use types and its corresponding income model may be found in the Commercial Valuation Manual.

### ***Model Calibration***

Model calibration involves the process of periodically adjusting the mass appraisal formulas, tables and schedules to reflect current local market conditions. Once the models have undergone the specification process, adjustments can be made to reflect new construction procedures, materials and/or costs, and rental concessions, which can vary from year to year.

The basic structure of a mass appraisal model can be valid over an extended period of time, with trending factors utilized for updating the data to the current market conditions. However, at some point, if the adjustment process becomes too involved, the model calibration technique can mandate new model specifications or a revised model structure.

### ***Cost Approach***

The cost approach to value is applied to all improved real property utilizing the comparative unit method. This methodology involves the utilization of national cost data reporting services, as well as actual cost information on comparable properties whenever possible. Cost models include the derivation of replacement cost new (RCN) of all improvements. These include comparative base rates, per unit adjustments and lump sum adjustments. This approach also employs other appraisal methods, including the sales comparison approach in the valuation of the underlying land value. Time and location modifiers are necessary to adjust cost data to reflect conditions in a specific market and changes in costs over a period of time. Our base models are developed utilizing actual cost data from the American Institute of Architects' (AIA) documents acquired during the hearings process, and with a location modifier applied as necessary. The national cost services provide these modifiers.

Depreciation schedules are developed based on what is typical for each property type at that specific age. Depreciation schedules have been implemented for what is typical of each major class of commercial property by economic life categories. Schedules have been developed for improvements with 15, 20, 25, 30, 35, 40, 45, 50, 55, and 60 year expected life. These schedules are then tested to ensure they are reflective of current market conditions. For tax year 2011, an analysis was performed based on the guidelines set forth in the IAAO *Assessment and Administration Handbook*, which helps to determine the appropriate age-life for each property segment. The actual and effective ages of improvements are noted in our mass appraisal system. The effective age estimates are based on the utility of the improvement relative to where the improvement lies on the scale of its total economic life and its competitive position in the

## Harris County Appraisal District 2011 Mass Appraisal Report

marketplace. Effective age estimates are based on three levels of renovation and are described in the *Commercial Lister's Manual*. Market adjustment factors such as external and functional obsolescence can be applied if warranted.

A depreciation calculation override can be applied if the condition or effective age of a property varies from the norm by appropriately noting the physical condition and functional utility ratings on the property data characteristics. These adjustments are typically applied to a specific property type or location and can be developed via ratio studies or other market analyses. Accuracy in the development of the cost schedules, condition ratings and depreciation schedules will usually minimize the necessity of this type of an adjustment factor.

### ***Income Approach***

The income approach to value was applied to real properties that are typically viewed by market participants as “income producing” and for which the income methodology is considered a leading value indicator.

The first step in the income approach pertains to the estimation of market rent on a per unit basis. This is derived primarily from actual rent data furnished by property owners and from local market study publications. This per unit rental rate multiplied by the number of units results in the estimate of potential gross rent.

A vacancy and collection loss allowance is the next item to consider in the income approach. The projected vacancy and collection loss allowance is established from actual data furnished by property owners and on local market publications. This allowance accounts for periodic fluctuations in occupancy, both above and below an estimated stabilized level. The market derived stabilized vacancy and collection loss allowance is subtracted from the potential gross rent estimate to yield an effective gross rent.

Next, a secondary income or service income is calculated as a percentage of stabilized effective gross rent. Secondary income represents parking income, escalations, reimbursements, and other miscellaneous income generated by the operations of real property. The secondary income estimate is derived from actual data collected and available market information and is applied in the model over what is typical for that type of property. The secondary income estimate is added to the effective gross rent to arrive at an effective gross income.

Allowable expenses and expense ratio estimates are based on a study of the local market, with the assumption of prudent management. An allowance for non-recoverable expenses, such as leasing costs and tenant improvements, are included in the expenses. A non-recoverable expense represents costs that the owner pays to lease rental space. Different expense ratios are developed for different types of commercial property based on use. For instance, retail properties are most frequently leased on a triple-net basis, whereby the tenant is responsible for a pro-rata share of taxes, insurance and common area maintenance. In comparison, a general office building is most often leased on a base year expense stop. This lease type stipulates that the owner is responsible for all expenses incurred during the first year of the lease. However, any amount in excess of the

## Harris County Appraisal District 2011 Mass Appraisal Report

total per unit expenditure in the first year is the responsibility of the tenant. For example, if the total operating expense in year one (1) equates to \$8.00 per square foot, any increase in expense over \$8.00 per square foot throughout the remainder of the lease term would be the responsibility of the tenant. As a result, expense ratios are implemented based on the type of commercial property being appraised.

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

Subtracting the allowable expenses (inclusive of non-recoverable expenses and replacement reserves) from the effective gross income yields an estimate of net operating income. Rates and multipliers are used to convert income into an estimate of market value. These include income multipliers, overall capitalization rates, and discount rates. Each of these is used in specific applications. Rates and multipliers also vary between property types, location, quality, condition, design, age, and other variables. Application of the various rates and multipliers must be based on a thorough analysis of the market. These procedures are documented in the *Commercial Valuation Manual*, which is presently being updated for the current tax year.

Capitalization analysis is used in the income approach models. This methodology involves the capitalization of net operating income as an indication of market value for a specific property. Capitalization rates, both overall (going-in) cap rates for the direct capitalization method and terminal cap rates for discounted cash flow analyses, can be derived from the market. Sales of improved properties from which actual income and expense data are obtained provide a very good indication of what a specific market participant is requiring from an investment at a specific point in time. In addition, overall capitalization rates can be derived from the built-up method (band-of-investment). This method relates to satisfying the market return requirements of both the debt and equity positions of a real estate investment. This information is obtained from real estate and financial publications.

Rent loss concessions are made on specific properties with vacancy problems. A rent loss concession accounts for the impact of lost rental income while the building is moving toward stabilized occupancy. The rent loss is calculated by multiplying the rental rate by the percent difference of the property's stabilized occupancy and its actual occupancy. Build out allowances (for first generation space or retrofit/second generation space, as appropriate) and leasing expenses are added to the rent loss estimate. The total adjusted loss from these real property operations is discounted using an acceptable risk rate. The discounted value, inclusive of rent loss due to extraordinary vacancy, build out allowances and leasing commissions, becomes the rent loss concession and is deducted from the value indication of the property at stabilized occupancy. A variation of this technique allows that for every year that the property's actual occupancy is less than stabilized occupancy a rent loss deduction may be estimated.

# Harris County Appraisal District 2011 Mass Appraisal Report

## ***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 not only for estimating land value, but also in comparing sales of similarly improved properties to each parcel on the appraisal roll. As previously discussed in the Data Collection/Validation section of this report, pertinent data from actual sales of properties, both vacant and improved, is sought throughout the year in order to obtain relevant information, which can be used in all aspects of valuation.

Sales of similarly improved properties can 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 analyst an excellent means of judging the present level and uniformity of the appraised values.

## ***How Estimates are reviewed***

### ***Field Review***

The date of last inspection, extent of that inspection, and the HCAD appraiser/analyst responsible are listed on the Appraisal Dates tab of CAMA. If a property owner disputes the district's records concerning this data in a protest hearing, the property record may be altered based on the credibility of the evidence provided. Typically, a field check is requested to verify this evidence for next year's reappraisal. In addition, if a building permit is filed for a property indicating a change in characteristics, the property is added to a work file. Although every property cannot be inspected each year, each appraiser designates certain segments of their area of responsibility to conduct field checks. A re-inspection program is in effect where each commercial account will be inspected every three years. The appraiser will inspect the condition of the structures, and add or remove any structures, where applicable.

Due to time constraints, commercial analysts must prioritize their field review by specific use type. An effort is made to field review economic areas experiencing large numbers of remodels, renovations, or retrofits, changes in occupancy levels or rental rates, new leasing activity, new construction, or areas experiencing wide variations in sale prices. Additionally, the analyst frequently field reviews subjective data items such as building class, quality of construction, condition, and physical, functional and economic obsolescence factors contributing significantly to the market value of the property. In some cases, field reviews are warranted when sharp changes in occupancy or rental rate levels occur between building classes or between economic areas. Once preliminary estimates of value have been generated in these targeted areas, the analyst tests these estimates against their own appraisal judgment. While in the field, the analyst physically inspects sold and unsold properties for comparability and consistency of values.

# Harris County Appraisal District 2011 Mass Appraisal Report

## ***Office Review***

Office reviews are completed on properties not subject to field inspections and are performed in compliance with the guidelines contained in the *Commercial Valuation Manual*. This manual outlines the application of the three approaches to value (including Discounted Cash Flow) and Section 4 of the manual details the derivation of final value estimates by property use type. This manual is rigorously maintained and was last updated in 2010.

Office reviews are typically limited by the data presented in Comparison Value Reports (CVR). CVR's summarize the pertinent data of each property as well as comparing the previous values (two year value history) to the proposed value conclusions of the various approaches to value. These reports show proposed percentage value changes, income model attributes or overrides, economic factor (cost overrides) and special factors affecting the property valuation such as permit status, prior year litigation and a three years sales history (USPAP property history requirement for non-residential property). The analyst may review methodology for appropriateness to ascertain that it was completed in accordance with USPAP or more stringent statutory and district policies. This review is performed after preliminary ratio statistics have been applied. If the ratio statistics are generally acceptable overall, the review process is focused primarily on locating skewed results on an individual basis. Previous values resulting from protest hearings are individually reviewed to determine if the value remains appropriate for the current year based on market conditions. Each analyst's review is limited to properties in their area of responsibility by improved property type or geographic area (commercial vacant land).

Once the analyst is satisfied with the level and uniformity of value for each property within their area of responsibility, the estimates of value are designated as ready for noticing. A critical element of the noticing process is what is referred to as "auto hold" flags, or low and high value edits set for each use type by division management. Each parcel is subjected to the value parameters appropriate for its use. If the parcel's total value exceeds the tolerance parameters, it "fails the value edits". In this case, the parcel is not available for noticing, but is placed on an "auto hold". The Valuation "Holds" Report is categorized by the hold type that details the failure to notice status allowing the analyst to review and resolve the value. Therefore, although the value estimates are determined in a computerized mass appraisal environment, value edits and "auto hold" flags enable an individual parcel review of value anomalies before the estimate of value is released for noticing.

## ***Statistical and Capitalization Analysis***

Statistical analysis of final values is an essential component of quality assurance. This technique represents a comparison of the final value against the standard and provides a concise measurement of the appraisal performance. Statistical comparisons of many different standards are used, including sales of similar properties, the previous year's appraised value, audit trails, value change analysis and sales ratio analysis. Measures of central tendency and dispersion generated from sales ratios are available for each property type by land use code (LUC).

These summary statistics, including but not limited to, the weighted mean, standard deviation

## Harris County Appraisal District 2011 Mass Appraisal Report

and coefficient of variation, provide the analysts an analytical tool by which to determine both the level and uniformity of appraised value of a particular property type. The level of appraised values can be determined by the weighted mean for individual properties within a specific type, and a comparison of weighted means can reflect the general level of appraised value. Review of the standard deviation and the coefficient of variation can discern appraisal uniformity within a specific property type.

An analyst reviews all commercial property types on an annual basis according to land use code and utilizing the sales ratio analysis tool. The first phase involves ratio studies, which compare the recent sales prices of properties to the appraised values of the sold properties. This set of ratio studies affords the analyst an excellent means of judging the present level of appraised value and uniformity of the appraised values. The analyst, based on the sales ratio statistics and designated parameters for valuation update, makes a preliminary decision as to whether the value level of a particular property type needs to be updated in an upcoming reappraisal, or whether the level of market value is acceptable.

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 utilizing frequency distribution methods or other statistical procedures or measures. Income model conclusions are compared to actual information obtained on individual commercial properties during the hearings process as well as information from published sources and area vendors.

### ***Comparative Appraisal Analysis***

As stated previously, the State Comptroller's Property Tax Division (PTAD) utilizes comparative appraisal analysis to some degree in its property value study. The commercial division also performs an average unit value comparison in addition to a traditional ratio study. These studies are performed on commercially-classed properties by property use type (such as apartment, office, retail and warehouse usage or special use). The objective of this evaluation is to determine appraisal performance of sold and unsold properties. The division examines average unit prices of sales and average unit appraised values of the same parcels and the comparison of average value changes of sold and unsold properties. These studies are conducted on substrata such as building class and on properties located within various economic areas. In this way, overall appraisal performance is evaluated geographically, by specific LUC to discern whether sold parcels have been selectively appraised. When sold parcels and unsold parcels are appraised equally, the average unit values are similar. These horizontal equity studies are performed prior to annual noticing.

### ***Appraisal Performance tests used and performance measures attained***

Sales ratio studies are an integral part of establishing equitable and accurate market value estimates, and ultimately, assessments for this appraisal jurisdiction. The primary uses of sales



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ratio studies include the determination of a need for general reappraisal; prioritizing selected groups of property types for reappraisal; identification of potential problems with appraisal procedures; assist in market analyses; and, to calibrate models used to derive appraised values during valuation or reappraisal cycles. However, these studies cannot be used to judge the accuracy of an individual property appraised value. Individual property values may be adjusted in the appeals or protest hearing process by the Harris County Appraisal Review Board (ARB) based on unequal appraisal protest evidence submitted to it on a case-by-case basis.

Overall sales ratios are generated by LUC in the mass appraisal system semi-annually (or more often in specific areas) to allow analysts to review general market trends in their area of responsibility. The analysts utilize desktop applications such as Microsoft Access and Excel programs to evaluate subsets of data by LUC, economic area or other specific and unique data items. On the desktop, this may be customized and performed by building class and age basis. In many cases, field checks may be conducted to ensure that the appraised values utilized are based on accurate property data characteristics. These ratio studies aid the analyst by providing an indication of market activity by economic area or changing market conditions (appreciation or depreciation).

According to Chapter 5 of the Texas Property Tax Code and Section 403.302 of the Texas Government Code, the PTAD conducts a biennial Property Value Study (PVS) of each Texas school district and each appraisal district. As part of this biennial study, the code requires the PTAD to use sales and generally accepted auditing and sampling techniques, test the validity of school district taxable values in each appraisal district as regards the predicted 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 (real property) and appraisals of non-realty 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), and price-related differential (PRD) for properties overall and by state category. Commercially tested categories include multi-family (category B), vacant land (categories C and D), and commercial improved property (category F1).

In the non-study year, the PTAD conducts a Methods and Assistance Program (MAP) review of the appraisal district's appraisal methods, standards and procedures to determine whether the district used generally accepted standards and practices in developing the mass appraisal estimates of value.

The district's *2011 Commercial ISD Ratio Study* is intended to measure the general level and uniformity of appraisals. In order to determine the relationship between appraisals and sales prices a sales ratio was calculated using the guidelines set forth in the International Association of Assessing Officers current *Standard on Ratio Studies* (January 2010). Properties within a school district are considered to be "similarly situated" for the purposes of Sec. 41.43(b)(2), Texas Property Tax Code.

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A ratio study was developed for each school district using the sales period from January 1, 2008 and January 1, 2011. Due to Texas being a non disclosure state, the district does not have access to all property transactions, which limits the study sample to only those sales acquired by the district through a commercial vendor or submitted voluntarily by the property owner. A time adjustment factor was applied to all office and apartment properties based on the effect of price changes reflected in the market between the date of sale and the January 1 assessment. To the extent possible, data errors, tieback accounts, characteristic changes, and other factors that might produce an erroneous sales ratio were identified and corrected. Available sales were selected without regard to ownership, account number, address, sale price or value, except when sale price was reported as zero. Additionally, the following transactions were excluded from the ratio study: 1) sales identified as invalid transactions (atypical financing, sales between relatives, corporate affiliates, and estate sales) and, 2) sales with partially complete new construction. Identified foreclosures were analyzed and considered in the study. The data was assumed to be normally distributed and to represent the distribution of properties within each school district.

The commercial median ratio determined the level of appraisal for each school district. Additional categories, including vacant land (state category "C/D"), multi-family (state category "B"), and commercial improved (state category "F") were also analyzed for each school district to determine assessment levels and uniformity among major groups for each ISD. The median is the preferred measure of central tendency, since it gives equal weight to all ratios and is less affected by extreme outlier ratios. The coefficient of dispersion (COD), a measure of variability that relates to the distribution of the ratios, was also calculated for each ISD and individual property group. The COD provides direct comparisons between property groups independent of the level of appraisal.

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2011 Mass Appraisal Report

2011 Commercial Sales Ratio Summary

Jurisdiction	Sample Size	Median Ratio
040 Harris CAD	1,738	0.9594
001 Houston ISD	665	0.9733
002 Deer Park ISD	15	0.9677
003 Waller ISD	22	0.9352
004 Cypress-Fairbanks ISD	161	0.9036
005 Crosby ISD	21	0.9594
006 Channelview ISD	14	1.0087
008 Alief ISD	81	0.9764
009 Aldine ISD	156	0.9931
012 North Forest ISD	23	0.9910
015 Galena Park ISD	17	0.9077
016 Goose Creek ISD	47	0.9671
017 Klein ISD	81	0.9895
018 Humble ISD	31	0.9516
019 Katy ISD	75	0.9650
020 La Porte ISD	24	0.8453
021 Pasadena ISD	92	0.8925
023 Sheldon ISD	17	0.9296
024 Spring ISD	61	1.0257
025 Spring Branch ISD	47	0.9261
026 Tomball ISD	43	0.9170
027 Clear Creek ISD	32	0.9034
030 Huffman ISD	13	0.9826

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COMMERCIAL PROPERTY STAFF PROVIDING  
SIGNIFICANT MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Bobby Larry	Division Director	62156	Supervises the Commercial Division. Maintains and updates income models and final valuation
Lucio Mendez	Manager, Commercial Property	60150	Supervises commercial property valuation
Nick Lammayot	Manager, Complex Property	69686	Supervises complex commercial valuation
Lonnie Dale	Comm. Valuation Analyst V	63746	Lead analyst for apartment valuation
Tracy Lensey	Comm. Land Valuation Analyst V	69255	Supervises valuation of vacant land
Neil Zimmerman	Comm. Valuation Analyst IV	63535	Lead analyst for valuation of retail property
Christopher Doss	Comm. Valuation Analyst IV	70288	Supervises valuation of warehouses
Sam Philipose	Comm. Field Supervisor	70090	Supervises field appraisal staff
Doug Starustka	Comm. Valuation Analyst III	67019	Supervises valuation of hotels, motels, malls & golf courses
Gene Kotlyar	Comm. Valuation Analyst III	68628	Maintains and updates income models
Erika Nettles	Comm. Valuation Analyst V	68795	Supervises valuation of office and medical properties

## Agricultural Appraisal Section

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### *Definition of Agricultural Value*

Net to land values is the average annual net income that a class of land would be likely to have generated over a five-year period.

### *Scope of Work*

The mass appraisal of agricultural (Ag) property includes all property classified as 1-d-1 and 1-d agricultural uses, which are appraised on the land's ability to produce income from agriculture or timber production. The mass appraisal of agricultural property involves applying similar values within the same agricultural categories and classes. In Harris County, this involves approximately 7,600 accounts. The agricultural appraisal section staff includes a manager, three appraisers and one clerical position.

The section appraises agricultural property according to the Texas Property Tax Code guidelines. Appraisal values are calculated using the cash lease method. A cash lease (cash rent) is an agreement between landowner and tenant to lease property at a fixed cash payment. Fractional interest (UDI) or partial holdings of real property are appraised for the entire tract and value prorated based on eligibility and prorated interest. The section maintains and qualifies nominal value and special value accounts.

### *Procedure for collecting and validating data*

Approximately one-third of the 1-d-1 agricultural properties are required to reapply each year. Lease data is collected each year and used to calculate productivity values. A modified income approach to valuation is used in calculating these values.

### *How applications and values are reviewed*

The 2011 agricultural appraisal process began on September 1, 2010. Field review of all agricultural accounts required to reapply in 2011 were conducted. Applications were evaluated for approval or denial using field review information.

### *Appraisal Performance tests used and performance measures attained*

The Property Tax Assistance Division of the State Comptroller's Office regularly reviews all values and procedures used in the calculation of the agricultural values. Staff also routinely

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evaluates its own valuation procedures. Additionally, the Harris County Agricultural Advisory Board reviews our values and appraisal process.

AGRICULTURE APPRAISAL STAFF PROVIDING  
SIGNIFICANT MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Gary Underwood	Manager, Ag Appraisal	68628	Supervises special valuation
Ron Stewart	Appraiser IV	62054	Verifies, maintains and conducts hearings on Ag Valuation
Melissa Brodie	Appraiser III	70640	Verifies, maintains and conducts hearings on Ag Valuation
Brian White	Appraiser II	60460	Verifies, maintains and conducts hearings on Ag Valuation

**Business/Industrial Property Division**  
**Industrial Valuation Section**

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***Scope of Work***

The Industrial Valuation Section (IVS) is responsible for developing fair and uniform market values for improved industrial properties and industrial vacant land. The division is also responsible for the valuation of all tangible general industrial personal property in Harris County. There are approximately 6,253 parcels of industrial real property, not including minerals, in Harris County, of which, 1,733 are improved parcels and 4,520 are vacant properties. The IVS appraises approximately 22,873 parcels of tangible personal property.

***Procedure for Collecting and Validating Data***

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

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

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

The City of Houston Tax Office and the Harris County Tax Office supplied the initial real and personal property data used by H-CAD. Since that time, the IVS and contract appraisal personnel have updated the information based on field review. As new facilities are built, the appraisal personnel collect all the real and personal property data necessary to value the property initially, and thereafter, update the information when the property is again visited. Building permit information is received from the cities and from the county when a facility is being built outside an incorporated city. Other sources of data include publications such as the Texas Register regarding waste control permits; legal notices published in newspapers, and various refining and chemical industry magazines regarding new construction.

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Appraisal personnel periodically visit assigned plants. The frequency of the visit is determined by the nature of the business conducted at each facility. For example, refineries and chemical plants are continually changing or adding to processes to extract greater efficiencies or make new products, but machine shops may not add or remove equipment over a period of two or more years.

When conducting a field visit, the appraisers take with them the historical data on the buildings and site improvements and the previous listing of personal property at the facility. Changes to the existing structures and personal property are noted and that information is used for value estimation purposes. If cost information for the real or personal property is supplied later, the field data can be compared to that information to judge the accuracy of the information.

District staff is not assigned any one geographical area of the county. The nature of the business, and whether or not the IVS has the staff resources available, determines which properties are valued by contract firms and which properties are valued by district staff. New appraisers receive on-the-job training by accompanying appraisers who have performed field visits and appraisal functions for a number of years. Each appraiser is responsible for the completeness and correctness of their valuation work, but a new appraiser is encouraged to seek the advice of experienced appraisal staff regarding their value estimates.

### ***Highest and Best Use Analysis***

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

### ***Model Specification***

#### ***Area Analysis***

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



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## *Neighborhood Analysis*

Neighborhood analysis is not performed due to the non-homogeneous nature of the property type. Industrial properties do not have the type of generic “sameness” that is appropriate for neighborhood models.

## *Market Analysis*

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

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

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

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

<h2><i>Model Calibration</i></h2>
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The schedules used are an integration of Marshall & Swift/Boeckh Commercial Building Valuation System for real property improvements. The real property valuation schedules are

## Harris County Appraisal District 2011 Mass Appraisal Report

updated periodically through data supplied by Marshall & Swift/Boeckh. The valuation schedule incorporated into the IVS Industrial Plant Database is updated annually using a calculated index factor compiled from data in Chemical Engineering Magazine.

HCAD develops schedules based on indexed Marshall & Swift depreciation factors for use in the valuation of all business and industrial personal property. These schedules are updated annually by the appraisal staff. The contract appraisal firms use similar schedules and methodology based on their experience in valuing real and personal property.

### ***How Estimates are reviewed***

#### ***Field Review***

The appraisal staff periodically review their assigned real and personal property accounts where there is evidence of change, and when there is not, these accounts are revisited on a two to three-year cycle. Certain properties are reviewed annually because past experience shows that changes are occurring continually in the real or personal property at that facility. Properties assigned to contract appraisal firms are reviewed annually because changes also occur regularly at these facilities.

The results of prior year hearings and the existence of building permits frequently trigger a field visit. Evidence is frequently presented during a protest hearing that supports a value adjustment. The issues presented in the hearing must be field checked subsequent to the hearing to determine if the influences will be on-going and warrant permanent value adjustment or are transitory and permanent adjustment is not warranted. This information needs to be recorded so the appraiser will be better able to estimate the property value. Building permits must be field checked to see what effect these have on existing structures. Any new construction is noted and the information necessary to value the structure is recorded. Additionally, any structure demolition is noted so the improvement value can be adjusted accordingly. Part of the field review includes noting any land characteristics that would affect the land value. The district appraisal staff values all land for the properties over which it has responsibility, including those properties assigned to contract appraisal firms. The contract appraisal firms must advise the IVS of any characteristics that would affect the value of the land associated with that assigned facility. The land values used for industrial properties are coordinated with the Commercial Valuation Division to maintain continuity of per acre or per square foot values in the same economic areas of the county.

#### ***Results of 2011 Field Review***

Field review of real and personal property is generally conducted on a two to three year cycle. The accounts assigned to contract appraisal firms are field reviewed annually. The district and contract appraisal staff planned to field visit 1,881 real property accounts and actually field visited 1,837 accounts, or 97 percent of what was planned. The accounts inspected were those with building permits, tax abatements, and issues raised during 2010 hearings. Tax abatement-

## Harris County Appraisal District 2011 Mass Appraisal Report

related accounts have a yearly field visit requirement even if there is no new construction at the facility. Mineral and utility properties are not field reviewed because it is not practical or feasible to physically visit every electric substation or mineral lease, or follow every pipeline through the county. These properties are office reviewed as stated in office review results below. Field review also included the inspection of personal property, which occurs when visiting the real property accounts, or as independent visits when the real property is not valued by the Industrial section, such as a warehouse or pipe yard. The district and contract appraisal staff planned to field visit 4,632 personal property accounts and actually field visited 6,788 accounts, or 146 percent of what was planned.

### ***Office Review***

All properties not subject to field review are reviewed in the office by the appraisers assigned to specific real or personal properties. The office review relies on historical information in the real or personal property file as the basis for estimating the value to be placed on the property for the current tax year.

When valuing real property, the characteristics of the property being reviewed were the driving force in value estimation. Experience in valuing other real property, such as a similar building elsewhere, helps the appraiser decide the estimated value to be placed on the subject improvements.

When valuing personal property, the type of furniture, equipment, and computers will be used along with any cost data provided by the property owner to estimate the value. Experience in valuing similar property at other facilities helps the appraiser estimate the value of the subject facility. Individual characteristics of the property, such as usage and maintenance will have a bearing on the value calculated by use of district schedules.

### ***Results of 2011 Office Review***

The district and contract appraisal staff conducted office review on both field-inspected and non-field-inspected real property, which consisted of 6,259 real property accounts. There were 3,213 industrial accounts, 1,197 railroad corridor accounts, and 1,849 utility property accounts. The office review consisted of determination of the proper value for any new construction and the depreciation to apply to non-field visited accounts using age of construction, building condition or facility usage.

All land values were reviewed, which consisted of 3,213 industrial accounts, or 51 percent of the total, and the remaining 3,046 accounts were railroad and utility related, or 49 percent of the total. There are 5,062 real property accounts that were office reviewed and this includes both field visited and non-field visited accounts.

Personal property accounts were also office reviewed, regardless of whether field inspections were conducted. As of the date of this report, there were 172,508 personal property accounts in state categories L1 and L2 that will be reviewed by both district and contract appraisal staff.

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These accounts include general business properties, vessels, commercial and business aircraft, leased and multi-location properties, warehouse inventories, tank farm inventories, pipeyard inventories, billboards, vehicles, industrial facilities, and communication properties. The review consists of determining if an account should remain active for the current tax year and estimating the value to place on the account using field collected information and information from the property owner.

There are an additional 29,156 mineral (state category G) and utility (state category J) accounts that were reviewed by contract appraisal staff to determine which accounts should remain active, and also, to estimate the value of the properties using information from the property owner and state agencies for mineral and utility properties.

### ***Appraisal Performance tests used and performance measures attained***

#### ***Sales Ratio Studies***

Typically, there are not enough sales of industrial properties to show representativeness of that class of property in a ratio study. Ratio studies of industrial properties usually have to rely on independent appraisals as an indicator of market values.

#### ***Comparative Appraisal Analysis***

This type of analysis is usually not done on industrial properties due to the unique nature of the property, and also, because of time and budget constraints regarding available appraisal staff. A jurisdiction challenge filed with the Appraisal Review Board is generally the only reason for an analysis of this nature. If a jurisdiction challenge is received on a category of property, the appraisers assigned to those accounts will research the appraisal roll to see what other similar properties exist. The real property values can be compared on an average value per square foot of structure basis, but the differences from one facility to another must be carefully compared because it is unlikely that two different facilities are going to build like improvements and use them in similar ways. Similarly, the personal property values can be compared per category, such as furniture and fixtures, machinery and equipment, but the same comparison of the type of and use of the property must be examined to ensure property comparability.

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INDUSTRIAL STAFF PROVIDING  
SIGNIFICANT MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Charles E. Stone, Jr.	Director	64530	Managing and coordinating appraisals in the IVS
Harry Higgins	Manager IVS	15729	Manager of IVS appraisals
Randy Hudson	Supervising Appraiser II	65632	Assist in mineral and utility appraisals & commercial aircraft
Hal Long	Projects Specialist	67823	Research and development
Hartley Chevalier	Engineer IV	68785	Appraises industrial plants and personal property
Bill Kaufman	Engineer IV	67621	Appraises communications equipment
Paul Wright	Ind. Valuation Specialist	69925	Appraises industrial plants and personal property
Mike Smith	Ind. Valuation Specialist	16580	Appraises industrial plants and land
Ron Short	Ind. Valuation Specialist	69579	Appraises industrial plants and personal property
Mary Jo Kieschnick	Ind. Valuation Specialist	70602	Appraises industrial plants and personal property
Robbie Moore	Appraiser III	72815	Appraises pipe stock, vessels, and other personal property
Vu Tran	Ind. Valuation Specialist	63896	Appraises aircraft, vessels, and other personal property
Iqbal Dadabhoy	Ind. Valuation Specialist	71781	Appraises communication equipment
Denise McGuire	Appraiser III	72529	Appraises industrial plants and equipment.
Diane Malone	Part-Time Employee	66175	Administer Tax Abatements / COH Industrial District Accts

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INDUSTRIAL CONTRACTORS PROVIDING  
SIGNIFICANT MASS APPRAISAL ASSISTANCE

NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Shannon Stary	Pritchard & Abbott, Houston District Mgr.	68599	Appraises industrial plants & personal property
Jason S. Driskell	Pritchard & Abbott, Asst. District Mgr.	70598	Appraises industrial plants & personal property
Brandon Grier	Prichard & Abbot, Appraiser	71632	Appraises industrial, utility & personal property
Jerry Hanus	Pritchard & Abbott, Appraiser	70123	Appraises industrial plants & personal property
Patrick Horak	Pritchard & Abbott, Appraiser	72275	Industrial, Utility and Personal Property Appraiser
Joe Pruitt	Pritchard & Abbott, Appraiser	72827	Industrial, Utility and Personal Property Appraiser
Joe Hoffman	Pritchard & Abbott, Appraiser	73453	Industrial, Utility and Personal Property Appraiser
Daniel Kuper	Pritchard & Abbott, Appraiser	73447	Industrial, Utility and Personal Property Appraiser
Missy Barton	Pritchard & Abbott, Appraiser	68235	Mineral Appraiser
Cindy Fox	Pritchard & Abbott, Appraiser	65426	Mineral Appraiser
Jon Neely	Capitol Appraisal, President	16216	Appraises all property types
Gregg Davis	Capitol Appraisal, Appraiser	71552	Appraises industrial properties
Michael Ohlendorf	Capitol Appraisal, Appraiser	66029	Information Systems support
Dave Popelar	Capitol Appraisal, Appraiser	71614	Appraises refineries & chemical plants
Noel Wilcoxson	Capitol Appraisal, Appraiser	71581	Appraises refineries & chemical plants
Eric Williams	Capitol Appraisal, Appraiser	70501	Appraises industrial properties
Kenneth Hitt	Capitol Appraisal, Appraiser	71452	Appraises underground storage properties

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NAME	TITLE	TDLR NO.	TYPE of ASSISTANCE
Hugh L. Landrum, Jr.	Landrum & Associates, President	67041	Appraises chemical plants & personal property
Doug Warren	Landrum & Associates, Appraiser	66961	Appraises industrial plants & personal property
Shelby Mathew	Landrum & Associates, Appraiser	71348	Appraises industrial plants & personal property
Tracey Foster	Landrum & Associates, Vice President/General Counsel	68689	Appraises mineral properties

## Business Personal Property Section

### *Scope of Work*

The Personal Property Section (PPS) is responsible for developing fair and uniform market values for business personal property located within the district. The five different property groups appraised by the section are as follows.

Property Name	Property Group	Units
Business Personal Property	PPT-A	119,081
Vehicles	PPT-T	39,059 (501,545 items)
Leased Assets	PPT-I	810
Multi-location	PPT-Z	165
Billboards	PPT-S	24

Leased assets and multi-location items combined have 173,225 distinct locations or, 748,705 line items in Harris County.

### *Procedure for Collecting and Validating Data*

A common set of data characteristics for each personal property account in Harris County is collected in the field and data entered to the HCAD tangible computer system. The property characteristic data drives the computer-assisted personal property appraisal (CAPP) system. The field staff, consisting of fifteen appraisers and a supervising appraiser, collects the field data.

Personal property data collection procedures are published and distributed to all appraisers involved in the appraisal and valuation of personal property. The appraisal procedures are reviewed and revised to meet the changing requirements of field data collection. The most recent revision of the personal property data collection procedures was in 2010.

### *Sources of Data*

#### *Business Personal Property*

In addition to data collected and verified by the field appraisers, state sales tax listings and the assumed names database from the county clerk's office are also researched to discover personal property. Tax assessors, city and local newspapers, business journals, and the public often provide the district information regarding new personal property and other relevant facts related to property valuation.



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## ***Vehicles and Leased and Multi-Location Assets***

An outside vendor provides HCAD with a listing of business vehicles within Harris County. The vendor develops this listing from the Texas Department of Transportation (DOT) Title and Registration Division records. HCAD also uses national and regional publications to research vehicle value benchmarks. Other sources of data include property owner renditions and field inspections. The primary source of leased and multi-location assets is property owner renditions of property. Data may also be provided in reports of field inspections.

## ***Highest and Best Use Analysis***

The highest and best use of property is the reasonable and probable use that supports the highest present value as of the date of the appraisal. The highest and best use must be physically possible, legal, financially feasible, and productive to its maximum. The highest and best use of personal property is normally its current use.

## ***Model Specification***

### ***SIC Code Analysis***

Four digit numeric codes, called Standard Industrial Classification (SIC) codes, were developed by the federal government to identify business entities having common attributes. These classifications are used by HCAD as a way to delineate personal property by business type. HCAD has further stratified these codes by adding alpha suffixes to SIC codes in order to group business types that have similar personal property characteristics.

SIC code identification and delineation is the cornerstone of the personal property valuation system at the district. All of the personal property analysis work done in association with the personal property valuation process is SIC code specific. There are 1,069 personal property SIC codes. SIC codes are delineated based on observable aspects of homogeneity and are periodically reviewed to determine if further stratification is warranted.

## ***Model Calibration***

### ***Cost Schedules***

The analysts build cost schedules based on SIC codes. Cost data from property owner renditions, hearings, state schedules, and published cost guides are utilized to develop the cost schedules. The cost schedules are reviewed as necessary to conform to changing market conditions. The schedules are typically in a price per square foot format, but some SIC codes are in a price per unit format, such as per room for hotels.

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## ***Statistical Analysis***

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

## ***Final Models: Depreciation Schedule and Trending Factors***

### ***Business Personal Property***

The primary approach to the valuation of business personal property is the cost approach. The replacement cost new (RCN) is either developed from property owner reported historical cost or from existing valuation models. The trending factors used to develop RCN are based on the national average for equipment as published in the October report of the *Marshall Valuation Service* by Marshall & Swift, L. P. The percent good depreciation factors are based on the depreciation schedules for furniture, fixtures, and equipment as published in the *Marshall Valuation Service* for October of each year. RCN is calculated as follows:

$$\text{RCN} = \text{HISTORICAL COST} \times \text{INDEX FACTOR}$$

RCN and percent good depreciation factors are used to develop value estimates as follows:

$$\text{MARKET VALUE ESTIMATE} = \text{RCN} \times \text{PERCENT GOOD FACTOR}$$

This mass appraisal percent good depreciation schedule is used to ensure that estimated values are uniform and consistent within the market.

### ***Computer Assisted Personal Property Appraisal (CAPPA)***

The CAPPA valuation process has two main objectives: 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 RCN per square foot for a specific category of assets. The RCN per square foot is depreciated by the estimated age using factors that have been averaged and trended from the fixtures and equipment depreciation tables of the *Marshall Valuation Service*.

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; and 3) field checking the selected samples. The models are built and adjusted using internally developed software. The models are then tested against the previous year's data. The typical RCN per square foot (or applicable unit) is determined by a statistical analysis of the available data.

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The CAPP environment includes 278 models for business groups identified by most common SIC codes in the business population. This year 95 SIC code business classifications were reviewed for refinement. One new SIC code was modeled. The SIC code is 5541A – Service Station Fuel Station Only (No Convenience Store). A total of 45 codes were refined, 2 were analyzed, and 1 SIC code was changed from model to manual. The changed SIC code is 1711 Contractor – Electrical. There were 4 new SIC codes created: 5541A Service Station Fuel Station Only (No Convenience Store), 8412A Art Gallery, 8412B Artists, 8412C Consigned Art Inventory. There were 36 SIC codes that were deleted due to the SIC code no longer being used, or they were repetitive.

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

### ***Vehicles and Leased and Multi-Location Assets***

Value estimates for vehicles are provided by an outside vendor and are based on data furnished by National Market Reports. Vehicles are valued by an appraiser when the vendor does not provide a value estimate. The appraiser may use depreciated cost, NADA published book values, or Hunter McLean published book values to develop the estimate of current market value.

Leased and multi-location assets are valued using the index factor and percent good depreciation schedules mentioned above. If the asset to be valued in this category is a vehicle, then published book values or similar values provided by a vehicle data vendor are adjusted according to current economic criteria. An appraiser using Indexed Percent Good schedules, NADA publications, or Hunter McLean market guides may value assets.

### ***How Estimates are reviewed***

#### ***Business Personal Property***

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

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appraised values to prior year and model values. Analysts individually review accounts that fail the tolerance parameters.

### ***Vehicles and Leased and Multi-Location Assets***

A vehicle master file is received on a disk from an outside vendor and vehicles in the HCAD system from the prior year are programmatically matched to current DOT records. The vehicles remaining after the matching process are sorted by owner name and then prioritized by the number of vehicles owned. These vehicles are then matched to existing accounts and new accounts are created as needed. For those vehicles not matched to an existing account, we develop a “No Numbered” rendition and send this information to the owners of the unmatched vehicles. As property owners respond to the “No Numbered” renditions, accounts are created as needed.

Leasing and multi-location accounts that have a high volume of vehicles or other assets are loaded programmatically, if reported by the property owner electronically. Accounts that render by hard copy are either keyed by HCAD or outsourced to a vendor. After matching and data entry, reports are generated and reviewed by an appraiser. If necessary, corrections are made and the account is noticed after supervisor approval.

### ***Field Review***

The appraisal staff reviews personal property accounts cyclically in an effort to review all accounts within a three-year cycle. In addition to the annual field review, field checks are conducted on accounts identified as a result of discovery through hearings, business publications, and various correspondence.

### ***Results of 2011 Field Review***

The district and appraisal staff planned to field visit 50,000 personal property accounts and actually field visited 38,371 accounts, or 77 percent of what was planned. In addition, over 5,844 new accounts were set up from the field effort with preliminary field values placed on these accounts. This is mostly attributed to concentrating the field effort in 2011 on more densely populated areas of the county.

### ***Appraisal Performance tests used and performance measures attained***

The Harris County Appraisal District (HCAD) Personal Property Ratio Study was conducted to determine the overall level of appraisal for this category of property in 2011. The ratio of a property is calculated in order to evaluate the relationship between the district’s appraisals and market value of a property as of the January 1 assessment date. In a ratio study, the district’s appraised value is divided by an independent indicator of market value, which may be either a sale or an independent appraisal of the property.

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Since sales of personal property are scarce and may not be representative of the universe of properties within the category, the district used independent appraisals generated by application of a nationally recognized depreciation schedule from Marshall & Swift. This methodology complies with guidelines set forth in the International Association of Assessing Officers Standard on Ratio Studies (January 2010).

### ***Total Population***

The study reflects the results of accounts that rendered cost data. A total of 22,299 personal property accounts were used in the study. The HCAD 2011 depreciated value for the account was divided by the independent appraisal to calculate the ratio. Ratios were arrayed and the median appraisal ratio was determined.

The 2011 median appraisal ratio for personal property is 1.00, with an average of 1.05 and standard deviation of 0.6692.

It is necessary to point out a ratio of 1.00 represents a perfect symmetry between the district's appraised value and independent indicator of market value. The mode for the study is 1.00, which is the value that repeats most frequently and determines the perfect symmetry between these two variables.

The difference between the mean and median is small. This is further indication there are not extreme outliers or atypical observations affecting the average value. Additionally, the confidence interval, which is a measure of reliability, shows a lower bound of 1.044 and an upper bound of 1.061, with a 95% confidence interval from the mean. The weighted mean is 1.052. The distribution of the ratio is normal according with the Kolmogorov Smirnov test.

### ***Sample Data***

Even though there are some outliers, the data indicates that there are no extreme outliers. The second part of the study excludes outliers with 3 standard deviations from the median. From the 22,299 total population, 130 observations or 0.58% were excluded from the total population. This resulted in a total sample number of  $n = 22,169$  personal property accounts.

The 2011 median appraisal ratio for personal property is 1.000, with an average of 1.006, a standard deviation of 0.2334 and mode of 1.000.

Both median and mean are close to 1.00, which allows us to conclude that the district's appraised values and independent indicators of market are similar. In addition, the standard deviation of 0.2334 is small, which reflects that values are not far from the mean. Moreover, after eliminating some of the outliers the study did not present any extreme changes from the first outcome. The mean, median, and mode support the proximity of these two variables. Also, the standard deviation reduced from 0.6692 to 0.2334; this results in a decrease of dispersion from the median and creates a smaller range within which a given percentage of properties are appraised relative to market value.

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The coefficient of dispersion (COD) measures the average percentage deviation from the median value. A COD of between 5.0 and 15.0 is considered an acceptable level of uniformity. The COD from the sample  $n = 22,169$  is 14.3. In addition, the 95% confidence interval from the mean reflects a lower bound of 1.003 and upper bound of 1.009. The weighted mean is 1.006 and the distribution of the ratio is normal, according with the Kolmogorov Smirnov test at  $\alpha = 0.05$  level of significance.

### ***Personal Property Ratio Study - Glossary of Terms***

#### **Definitions**

Definitions are from the International Association of Assessing Officers *Property Appraisal and Assessment Administration*.

Mean or average is the result of adding all the values of a variable and dividing by the number of values. Also called arithmetic mean. (Eckert, p 651)

Median is the midpoint or middle value when a set of values is ranked in order of magnitude; if the number of values is even, then it is the midpoint or average of the two middle values. (Eckert, p 651)

Mode is the value most often assumed by a variable. By extension for grouped data, the class in which a plurality of the observations fall. (Eckert, p 652)

Standard deviation is the statistic calculated from a set of numbers by subtracting the mean from each value and squaring the remainders, adding together these squares, dividing by the size of the sample less one, and taking the square root of the results. (Eckert, p 662)

Variance is a measure of dispersion equal to the standard deviation squared. (Eckert, p 667)

Outlier is an observation that has an unusual value, that is, differs markedly from a measure of central tendency. (International Association of Assessing Officers, Standard on Ratio Studies, 2010)

Kolmogorov Smirnov is a statistical test to determine the probable distributions of a sample, or to compare two samples.

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PERSONAL PROPERTY STAFF AND CONTRACTOR PROVIDING  
SIGNIFICANT MASS APPRAISAL ASSISTANCE

Name	Title	TDLR No.	Type of Assistance
Charles E. Stone, Jr.	Director	64530	Managing and coordinating appraisals in the personal property section
Susanne Alaman	Section Manager	65922	Manager of Personal Property Valuation
Hal Long	Special Projects	67823	Research and development
Pauline Yu	CAPPA Analyst	72833	Develop and refine models, update depreciation schedules and accounts
Ashley Foster	CAPPA Analyst	73104	Develop and refine models, update depreciation schedules, and value accounts
Lisa Freund	CAPPA Analyst	69729	Develop and refine models, update depreciation schedules, and value accounts
Owen Mauzy	CAPPA Analyst	71439	Develop and refine models, update depreciation schedules, and value accounts
Elizabeth Elkins	CAPPA Analyst	72639	Develop and refine models, update depreciation schedules, and value accounts
Kimberly Franklin	CAPPA Analyst	72501	Develop and refine models, update depreciation schedules, and value accounts
Seborn Greer	CAPPA Analyst	72022	Develop and refine models, update depreciation schedules, and value accounts
Ray Reid	CAPPA Analyst	71437	Develop and refine models, update depreciation schedules, and value accounts
Juan Silva	Supv. Appraiser II	69392	Supervised CAPPA Analyst Group
Debra Powers	Supv. Appraiser	68675	Supervised multi-location valuation and vehicle valuation
Claudia Mendoza	Field Supervisor	72499	Supervised field discovery group
Stephen McDowell	Contractor	N/A	Provided current vehicle valuation data

# Addendum



2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4108	Commercial Mobile Home	M		L45	L35	L30	L25	L25	L25
4201	Residential Structure	C		L40	L60	L60	L50	L50	L50
4201	Residential Structure	D		L60	L55	L55	L45	L45	L45
4209	Apartment Struct. 4-20 Units	C		L60	L55	L55	L50	L50	L50
4209	Apartment Struct. 4-20 Units	D		L55	L50	L50	L45	L45	L45
4209	Apartment Struct. 4-20 Units	S		L55	L50	L50	L45	L45	L45
4211	Apartment Garden (1 to 3 Stories	C		L60	L55	L55	L50	L50	L50
4211	Apartment Garden (1 to 3 Stories	D		L55	L50	L50	L45	L45	L45
4211	Apartment Garden (1 to 3 Stories	S		L55	L50	L50	L45	L45	L45
4212	Apartment High Rise (4+ Stories)	A		L60	L60	L55	L55	L55	L55
4212	Apartment High Rise (4+ Stories)	B		L60	L60	L55	L55	L55	L55
4212	Apartment High Rise (4+ Stories)	C		L55	L55	L50	L50	L50	L50
4212	Apartment High Rise (4+ Stories)	D		L50	L50	L45	L45	L45	L45
4212	Apartment High Rise (4+ Stories)	S		L50	L50	L45	L45	L45	L45
4213	Mobile Home Park	C				L30	L30	L30	L30
4213	Mobile Home Park	D				L30	L30	L30	L30
4213	Mobile Home Park	M					L30	L25	
4213	Mobile Home Park	S				L30	L30	L30	L30
4221	Subsidized Housing	C			L55	L50	L50		
4221	Subsidized Housing	D			L55	L50	L50		
4222	Apartment - Tax Credit	C		L40	L40	L40	L40	L40	L40
4222	Apartment - Tax Credit	D		L40	L40	L40	L40	L40	L40
4299	Apartment Structure	A		L60	L60	L55	L55	L55	L55
4299	Apartment Structure	B		L60	L60	L55	L55	L55	L55
4299	Apartment Structure	C		L55	L55	L50	L50	L50	L50
4299	Apartment Structure	D		L50	L50	L45	L45	L45	L45
4299	Apartment Structure	S		L50	L50	L45	L45	L45	L45
4301	Res. Struct. Or Conversion	A					L40		
4301	Res. Struct. Or Conversion	C		L40	L60	L60	L50	L50	L50
4301	Res. Struct. Or Conversion	D		L60	L55	L55	L45	L45	L45
4313	Dormitory	A		L60	L60	L50	L50	L50	L50
4313	Dormitory	B		L60	L60	L50	L50	L50	L50
4313	Dormitory	C		L55	L55	L45	L45	L45	L45
4313	Dormitory	D		L50	L50	L40	L40	L40	L40
4313	Dormitory	S		L50	L50	L40	L40	L40	L40
4314	Hotel/Motel, Hi-Rise 4+ Stories	A		L60	L60	L55	L50	L50	L50
4314	Hotel/Motel, Hi-Rise 4+ Stories	B		L60	L60	L55	L50	L50	L50

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4314	Hotel/Motel, Hi-Rise 4+ Stories	C		L50	L50	L50	L45	L45	L45
4314	Hotel/Motel, Hi-Rise 4+ Stories	D		L45	L45	L45	L40	L40	L40
4315	Hotel/Motel, Low-Rise 1 to 3 Stories	C		L45	L45	L40	L35	L35	L35
4315	Hotel/Motel, Low-Rise 1 to 3 Stories	D		L40	L40	L35	L30	L30	L30
4315	Hotel/Motel, Low-Rise 1 to 3 Stories	S		L40	L40	L35	L30	L30	L30
4316	Nursing Home	A		L50	L50	L45	L45	L45	L45
4316	Nursing Home	B		L50	L50	L45	L45	L45	L45
4316	Nursing Home	C		L45	L45	L40	L40	L40	L40
4316	Nursing Home	D		L40	L40	L35	L35	L35	L35
4316	Nursing Home	S		L40	L40	L35	L35	L35	L35
4317	Retirement Home	A		L60	L60	L50	L50	L50	L50
4317	Retirement Home	B		L60	L60	L50	L50	L50	L50
4317	Retirement Home	C		L50	L50	L45	L45	L45	L45
4317	Retirement Home	D		L45	L45	L40	L40	L40	L40
4317	Retirement Home	S		L45	L45	L40	L40	L40	
4318	Boarding & Rooming House	C		L55	L55	L50	L45	L45	
4318	Boarding & Rooming House	D		L50	L50	L45	L40	L40	
4319	Commercial Bldg. - Mixed Res.	C		L50	L50	L45	L45	L45	
4319	Commercial Bldg. - Mixed Res.	D		L45	L45	L40	L40	L40	
4319	Commercial Bldg. - Mixed Res.	S				L40	L40	L40	
4320	Extended Stay Hotels/Motels	C				L45			
4320	Extended Stay Hotels/Motels	D		L45	L45	L45	L40		
4321	Restaurant	A		L45	L40	L40	L35	L35	
4321	Restaurant	B		L45	L40	L40	L35	L35	
4321	Restaurant	C		L40	L35	L35	L30	L30	
4321	Restaurant	D		L40	L35	L35	L30	L30	
4321	Restaurant	S		L40	L35	L35	L30	L30	
4323	Food Stand (Below Restr. Constr.)	C		L35	L35	L30	L25	L25	
4323	Food Stand (Below Restr. Constr.)	D		L35	L30	L25	L20	L20	
4323	Food Stand (Below Restr. Constr.)	S		L35	L30	L25	L20	L20	
4324	Conv. Mart w/Gas Pump	C		L40	L40	L35	L35	L35	
4324	Conv. Mart w/Gas Pump	D		L35	L35	L30	L30	L30	
4324	Conv. Mart w/Gas Pump	S		L30	L30	L25	L25	L25	
4325	Fast Food	A		L40	L35	L35	L35	L35	
4325	Fast Food	B		L40	L35	L35	L35	L35	
4325	Fast Food	C		L35	L30	L30	L30	L30	
4325	Fast Food	D		L35	L30	L30	L30	L30	

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Cls	Depreciation Table for Building Quality							
			X	A	B	C	D	E	F	
4325	Fast Food	S		L35	L30	L30	L30	L30		
4326	Ice House	A		L50	L45	L45	L40	L40		
4326	Ice House	B		L50	L45	L45	L40	L40		
4326	Ice House	C		L45	L45	L40	L40	L40		
4326	Ice House	D		L45	L40	L40	L35	L35		
4326	Ice House	S		L45	L40	L40	L35	L35		
4327	Bar/Lounge	A		L50	L45	L45	L40	L40		
4327	Bar/Lounge	B		L50	L45	L45	L40	L40		
4327	Bar/Lounge	C		L45	L45	L40	L40	L40		
4327	Bar/Lounge	D		L45	L40	L40	L35	L35		
4327	Bar/Lounge	S		L45	L40	L40	L35	L35		
4328	Night Club/Dinner Theater	A		L45	L45	L40	L40	L40		
4328	Night Club/Dinner Theater	B		L45	L45	L40	L40	L40		
4328	Night Club/Dinner Theater	C		L40	L40	L40	L35	L35		
4328	Night Club/Dinner Theater	D		L40	L40	L35	L35	L35		
4328	Night Club/Dinner Theater	S		L40	L40	L35	L35	L35		
4329	Used Car Lot	C		L30	L30	L30	L30	L30		
4329	Used Car Lot	D		L30	L30	L30	L30	L30		
4329	Used Car Lot	S		L30	L30	L30	L30	L30		
4330	Specialized Auto Use	C			L50	L45	L45			
4330	Specialized Auto Use	S				L35	L35			
4331	Auto Dealer Full Service	A		L50	L50	L45	L40	L40		
4331	Auto Dealer Full Service	B		L50	L50	L45	L40	L40		
4331	Auto Dealer Full Service	C		L45	L45	L40	L35	L35		
4331	Auto Dealer Full Service	D		L40	L40	L35	L30	L30		
4331	Auto Dealer Full Service	S		L40	L40	L35	L30	L30		
4332	Auto Service Garage	A					L40			
4332	Auto Service Garage	C		L45	L45	L40	L35	L35		
4332	Auto Service Garage	D		L40	L40	L35	L30	L30	L30	
4332	Auto Service Garage	S		L40	L40	L35	L30	L30	L30	
4333	Service Station (Full)	C		L25	L25	L20	L20	L20	L20	
4333	Service Station (Full)	D		L25	L20	L20	L15	L15	L15	
4333	Service Station (Full)	S		L25	L20	L20	L15	L15	L15	
4334	Service Station (Self)	C		L40	L40	L35	L35	L35	L35	
4334	Service Station (Self)	D		L35	L35	L30	L30	L30	L30	
4334	Service Station (Self)	S		L30	L30	L25	L25	L25	L25	
4335	Truck Stop	C		L35	L35	L30	L30	L30	L30	

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Depreciation Table for Building Quality							
		Cls	X	A	B	C	D	E	F
4335	Truck Stop	D		L35	L35	L30	L30	L30	L30
4335	Truck Stop	S		L35	L35	L30	L30	L30	L30
4336	Car Wash (Manual)	C		L30	L30	L25	L20	L20	L20
4336	Car Wash (Manual)	D		L30	L25	L20	L15	L15	L15
4336	Car Wash (Manual)	S		L30	L30	L25	L20	L20	L20
4337	Car Wash (Automatic)	C		L30	L30	L25	L20	L20	L20
4337	Car Wash (Automatic)	D		L30	L25	L20	L20	L20	L20
4337	Car Wash (Automatic)	S		L30	L30	L25	L20	L20	L20
4338	Parking Garage	A		L45	L45	L40	L40	L40	L40
4338	Parking Garage	B		L45	L45	L40	L40	L40	L40
4338	Parking Garage	S		L40	L40	L35	L35	L35	L35
4340	Retail Power Center	C		L50	L50	L45	L40	L40	L40
4340	Retail Power Center	D		L45	L45	L40	L35	L35	L35
4340	Retail Power Center	S		L45	L45	L40	L35	L35	L35
4341	Regional Shopping Mall	A		L55	L55	L50	L50	L50	L50
4341	Regional Shopping Mall	B		L55	L55	L50	L50	L50	L50
4341	Regional Shopping Mall	C		L55	L55	L50	L50	L50	L50
4341	Regional Shopping Mall	D		L50	L50	L45	L45	L45	L45
4341	Regional Shopping Mall	S		L50	L50	L45	L45	L45	L45
4342	Community Shopping Center	C		L50	L50	L45	L40	L40	L40
4342	Community Shopping Center	D		L45	L45	L40	L35	L35	L35
4342	Community Shopping Center	S		L45	L45	L40	L35	L35	L35
4343	Neighborhood Shopping Center	C		L45	L45	L40	L35	L35	L35
4343	Neighborhood Shopping Center	D		L40	L40	L35	L30	L30	L30
4343	Neighborhood Shopping Center	S		L40	L40	L35	L30	L30	L30
4344	Strip Shopping Center	C		L45	L45	L40	L35	L35	L35
4344	Strip Shopping Center	D		L40	L40	L35	L30	L30	L30
4344	Strip Shopping Center	S		L40	L40	L35	L30	L30	L30
4345	Discount Department	C		L35	L35	L30	L30	L30	L30
4345	Discount Department	D		L30	L30	L30	L30	L30	L30
4345	Discount Department	S		L30	L30	L30	L30	L30	L30
4346	Department Store	A		L55	L50	L50	L45	L45	L45
4346	Department Store	B		L55	L50	L50	L45	L45	L45
4346	Department Store	C		L50	L45	L45	L40	L40	L40
4346	Department Store	D		L45	L40	L40	L35	L35	L35
4346	Department Store	S		L45	L40	L40	L35	L35	L35
4347	Supermarket	A		L45	L40	L40	L35	L35	L35

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Bldg Type	Description	Depreciation Table for Building Quality							
		Cls	X	A	B	C	D	E	F
4347	Supermarket	B		L45	L40	L40	L35	L35	L35
4347	Supermarket	C		L45	L40	L40	L35	L35	L35
4347	Supermarket	D		L40	L35	L35	L30	L30	L30
4347	Supermarket	S		L40	L35	L35	L30	L30	L30
4348	Convenience Food Market	A		L50	L45	L45	L40	L40	L40
4348	Convenience Food Market	B		L50	L45	L45	L40	L40	L40
4348	Convenience Food Market	C		L45	L40	L40	L35	L35	L35
4348	Convenience Food Market	D		L40	L35	L35	L30	L30	L30
4348	Convenience Food Market	S		L40	L35	L35	L30	L30	L30
4349	Medical Office	A		L50	L50	L45	L45	L45	L45
4349	Medical Office	B		L50	L50	L45	L45	L45	L45
4349	Medical Office	C		L45	L45	L40	L40	L40	L40
4349	Medical Office	D		L40	L40	L35	L35	L35	L35
4349	Medical Office	S		L40	L40	L35	L35	L35	L35
4350	Drive Through Bank	A		L55	L55	L50	L50	L50	L50
4350	Drive Through Bank	B		L55	L55	L50	L50	L50	L50
4350	Drive Through Bank	C		L50	L50	L45	L45	L45	L45
4350	Drive Through Bank	D		L45	L45	L40	L40	L40	L40
4350	Drive Through Bank	S		L45	L45	L40	L40	L40	L40
4351	Bank	A		L60	L60	L55	L50	L50	L50
4351	Bank	B		L60	L60	L55	L50	L50	L50
4351	Bank	C		L55	L55	L50	L45	L45	L45
4351	Bank	D		L50	L50	L45	L40	L40	L40
4351	Bank	S		L50	L50	L45	L40	L40	L40
4352	Surgery Center	A		L60	L60	L55	L50	L50	L50
4352	Surgery Center	B		L60	L60	L55	L50	L50	L50
4352	Surgery Center	C		L55	L55	L50	L45	L45	L45
4352	Surgery Center	D		L50	L50	L45	L40	L40	L40
4352	Surgery Center	S		L50	L50	L45	L40	L40	L40
4353	Office Bldgs. Low-Rise (1 to 4 Stories)	A		L60	L60	L55	L50	L50	L50
4353	Office Bldgs. Low-Rise (1 to 4 Stories)	B		L60	L60	L55	L50	L50	L50
4353	Office Bldgs. Low-Rise (1 to 4 Stories)	C		L55	L55	L50	L45	L45	L45
4353	Office Bldgs. Low-Rise (1 to 4 Stories)	D		L50	L50	L45	L40	L40	L40
4353	Office Bldgs. Low-Rise (1 to 4 Stories)	S		L50	L50	L45	L40	L40	L40
4354	Office Bldgs. Hi-Rise (5+ Stories)	A	L60	L60	L60	L55	L50	L50	L50
4354	Office Bldgs. Hi-Rise (5+ Stories)	B		L60	L60	L55	L50	L50	L50
4354	Office Bldgs. Hi-Rise (5+ Stories)	C		L55	L55	L50	L45	L45	L45

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4354	Office Bldgs. Hi-Rise (5+ Stories)	D		L50	L50	L45	L40	L40	L40
4354	Office Bldgs. Hi-Rise (5+ Stories)	S		L50	L50	L45	L40	L40	L40
4355	Office Condominiums	A		L60	L60	L55	L50	L50	L50
4355	Office Condominiums	B		L60	L60	L55	L50	L50	L50
4355	Office Condominiums	C		L55	L55	L50	L45	L45	L45
4355	Office Condominiums	D		L50	L50	L45	L40	L40	L40
4355	Office Condominiums	S		L50	L50	L45	L40	L40	L40
4356	Retail Condominium	B		L50					
4356	Retail Condominium	C		L45	L45	L40	L35	L35	L35
4356	Retail Condominium	D		L40	L40	L35	L30	L30	L30
4356	Retail Condominium	S		L40	L40	L35	L30	L30	L30
4357	Medical Condominium	A	L60	L60	L60	L60	L60		
4357	Medical Condominium	B		L60	L50	L50	L50		
4357	Medical Condominium	C		L60	L60	L50			
4357	Medical Condominium	D		L50	L50	L40			
4358	Warehouse Condominium	C			L50	L40			
4358	Warehouse Condominium	S		L50	L50	L40	L40	L40	
4359	Office - Flex Building	A		L60	L60	L55	L50	L50	L50
4359	Office - Flex Building	B		L60	L60	L55	L50	L50	L50
4359	Office - Flex Building	C		L55	L55	L50	L45	L45	L45
4359	Office - Flex Building	D		L50	L50	L45	L40	L40	L40
4359	Office - Flex Building	S		L50	L50	L45	L40	L40	L40
4361	Funeral Home	A		L55	L50	L50	L45	L45	L45
4361	Funeral Home	B		L55	L50	L50	L45	L45	L45
4361	Funeral Home	C		L50	L45	L45	L40	L40	L40
4361	Funeral Home	D		L50	L45	L45	L35	L35	L35
4361	Funeral Home	S		L50	L45	L45	L35	L35	L35
4362	Veterinary Clinic	A		L50	L45	L45	L40	L40	L40
4362	Veterinary Clinic	B		L50	L45	L45	L40	L40	L40
4362	Veterinary Clinic	C		L45	L40	L40	L35	L35	L35
4362	Veterinary Clinic	D		L40	L35	L35	L30	L30	L30
4362	Veterinary Clinic	S		L40	L35	L35	L30	L30	L30
4363	Legitimate Theater	A		L50	L50	L45	L40	L40	L40
4363	Legitimate Theater	B		L50	L50	L45	L40	L40	L40
4363	Legitimate Theater	C		L45	L45	L45	L40	L40	L40
4363	Legitimate Theater	D		L40	L40	L40	L35	L35	L35
4363	Legitimate Theater	S		L40	L40	L40	L35	L35	L35

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4364	Motion Picture Theater (Widescreen)	A		L50	L50	L45	L40	L40	L40
4364	Motion Picture Theater (Widescreen)	B		L50	L50	L45	L40	L40	L40
4364	Motion Picture Theater (Widescreen)	C		L45	L40	L40	L35	L35	L35
4364	Motion Picture Theater (Widescreen)	D		L40	L35	L35	L30	L30	L30
4364	Motion Picture Theater (Widescreen)	S		L40	L35	L35	L30	L30	L30
4365	Cinema/Theater (Multi-Screen)	A		L50	L50	L45	L40	L40	L40
4365	Cinema/Theater (Multi-Screen)	B		L50	L50	L45	L40	L40	L40
4365	Cinema/Theater (Multi-Screen)	C		L45	L40	L40	L35	L35	L35
4365	Cinema/Theater (Multi-Screen)	D		L40	L35	L35	L30	L30	L30
4365	Cinema/Theater (Multi-Screen)	S		L40	L35	L35	L30	L30	L30
4366	Radio, TV, or Motion Picture Studio	A		L55	L55	L50	L45	L45	L45
4366	Radio, TV, or Motion Picture Studio	B		L55	L55	L50	L45	L45	L45
4366	Radio, TV, or Motion Picture Studio	C		L50	L50	L45	L40	L40	L40
4366	Radio, TV, or Motion Picture Studio	D		L45	L45	L40	L35	L35	L35
4366	Radio, TV, or Motion Picture Studio	S		L45	L45	L40	L35	L35	L35
4367	Social/Fraternal Hall	A		L55	L50	L45	L40	L40	L40
4367	Social/Fraternal Hall	B		L55	L50	L45	L40	L40	L40
4367	Social/Fraternal Hall	C		L50	L45	L40	L35	L35	L35
4367	Social/Fraternal Hall	D		L45	L40	L35	L30	L30	L30
4367	Social/Fraternal Hall	S		L45	L40	L35	L30	L30	L30
4368	Hangar	C		L45	L40	L40	L35	L35	L35
4368	Hangar	D		L40	L40	L35	L30	L30	L30
4368	Hangar	S		L40	L40	L35	L30	L30	L30
4369	Day Care Center	A		L50	L50	L45	L45	L45	L45
4369	Day Care Center	B		L50	L50	L45	L45	L45	L45
4369	Day Care Center	C		L45	L45	L40	L40	L40	L40
4369	Day Care Center	D		L40	L40	L35	L35	L35	L35
4369	Day Care Center	S		L40	L40	L35	L35	L35	L35
4370	Greenhouse/Florist	A		L55	L50	L50	L45	L45	L45
4370	Greenhouse/Florist	B		L55	L50	L50	L45	L45	L45
4370	Greenhouse/Florist	C		L45	L40	L40	L35	L35	L35
4370	Greenhouse/Florist	D		L40	L35	L35	L30	L30	L30
4370	Greenhouse/Florist	S		L40	L35	L35	L30	L30	L30
4371	Downtown Row	C		L50	L50	L45	L45	L45	L45
4371	Downtown Row	D		L45	L45	L40	L40	L40	L40
4373	Retail Single-Occupancy	A		L55	L55	L50	L45	L45	L45
4373	Retail Single-Occupancy	B		L55	L55	L50	L45	L45	L45

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Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4373	Retail Single-Occupancy	C	L50	L50	L45	L40	L40	L40	
4373	Retail Single-Occupancy	D	L45	L45	L40	L40	L40	L40	
4373	Retail Single-Occupancy	S	L45	L45	L40	L40	L40	L40	
4374	Retail Multi-Occupancy	C	L45	L45	L40	L35	L35	L35	
4374	Retail Multi-Occupancy	D	L40	L40	L35	L30	L30	L30	
4374	Retail Multi-Occupancy	S	L40	L40	L35	L30	L30	L30	
4375	Retail Miscellaneous	C	L40	L40	L40	L40	L40	L40	
4375	Retail Miscellaneous	D	L40	L40	L40	L40	L40	L40	
4375	Retail Miscellaneous	S	L40	L40	L40	L40	L40	L40	
4376	Drugstore (Freestanding)	A	L55	L55	L50	L45	L45	L45	
4376	Drugstore (Freestanding)	B	L55	L55	L50	L45	L45	L45	
4376	Drugstore (Freestanding)	C	L50	L50	L45	L40	L40	L40	
4376	Drugstore (Freestanding)	D	L45	L45	L40	L40	L40	L40	
4376	Drugstore (Freestanding)	S	L45	L45	L40	L40	L40	L40	
4377	Boat & RV Storage	C	L30	L30	L30	L30	L30	L30	
4377	Boat & RV Storage	D	L30	L30	L30	L30	L30	L30	
4377	Boat & RV Storage	S	L30	L30	L30	L30	L30	L30	
4381	Bowling Alley	C	L40	L40	L35	L35	L35	L35	
4381	Bowling Alley	D	L35	L35	L30	L30	L30	L30	
4381	Bowling Alley	S	L35	L35	L30	L30	L30	L30	
4382	Skating Rink	C	L45	L45	L40	L35	L35	L35	
4382	Skating Rink	D	L40	L40	L35	L30	L30	L30	
4382	Skating Rink	S	L40	L40	L35	L30	L30	L30	
4383	Health Spa	C	L45	L45	L40	L40	L40	L40	
4383	Health Spa	D	L40	L40	L35	L35	L35	L35	
4383	Health Spa	S	L40	L40	L35	L35	L35	L35	
4384	Swimming - Indoor Pool	C	L45	L45	L40	L35	L35	L35	
4384	Swimming - Indoor Pool	D	L40	L40	L35	L25	L25	L25	
4384	Swimming - Indoor Pool	S	L40	L40	L35	L20	L20	L20	
4385	Tennis Club - Indoor	C	L45	L45	L40	L35	L35	L35	
4385	Tennis Club - Indoor	D	L40	L40	L35	L30	L30	L30	
4385	Tennis Club - Indoor	S	L40	L40	L35	L30	L30	L30	
4386	Racket Club - Indoor	C	L45	L45	L40	L40	L40	L40	
4386	Racket Club - Indoor	D	L40	L40	L35	L35	L35	L35	
4386	Racket Club - Indoor	S	L40	L40	L35	L35	L35	L35	
4387	Country Club ( w/o Golf Course)	C	L50	L50	L45	L45	L45	L45	
4387	Country Club ( w/o Golf Course)	D	L45	L45	L40	L40	L40	L40	



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Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4387	Country Club ( w/o Golf Course)	S		L45	L45	L40	L40	L40	L40
4388	Club House	C		L45	L45	L40	L40	L40	L40
4388	Club House	D		L40	L40	L35	L35	L35	L35
4388	Club House	S		L40	L40	L35	L35	L35	L35
4389	Country Club ( w/Golf Course)	C		L50	L50	L45	L45	L45	L45
4389	Country Club ( w/Golf Course)	D		L45	L45	L40	L40	L40	L40
4389	Country Club ( w/Golf Course)	S		L45	L45	L40	L40	L40	L40
4391	Cold Storage Facility	A		N55	N50	N50	N45	N45	N45
4391	Cold Storage Facility	B		N55	N50	N50	N45	N45	N45
4391	Cold Storage Facility	C		N50	N45	N45	N40	N40	N40
4391	Cold Storage Facility	D		N45	N40	N40	N35	N35	N35
4391	Cold Storage Facility	S		N45	N40	N40	N35	N35	N35
4392	Lumber Storage	C		N25	N25	N25	N25	N25	N25
4392	Lumber Storage	D		N25	N25	N15	N15	N15	N15
4392	Lumber Storage	S		N20	N20	N15	N15	N15	N15
4394	Service Center Warehouse	C		N55	N50	N50	N40	N40	N40
4394	Service Center Warehouse	D		N45	N40	N40	N35	N35	N35
4394	Service Center Warehouse	S		N45	N40	N40	N35	N35	N35
4395	Truck Terminal	C		N50	N45	N45	N40	N40	N40
4395	Truck Terminal	D		N45	N40	N40	N35	N35	N35
4395	Truck Terminal	S		N45	N40	N40	N35	N35	N35
4396	Mini-Warehouse	C		N45	N45	N40	N35	N35	N35
4396	Mini-Warehouse	D		N40	N40	N35	N30	N30	N30
4396	Mini-Warehouse	S		N40	N40	N35	N30	N30	N30
4397	Office - Warehouse	C		N55	N50	N50	N40	N40	N40
4397	Office - Warehouse	D		N45	N40	N40	N35	N35	N35
4397	Office - Warehouse	S		N45	N40	N40	N35	N35	N35
4398	Warehouse	A		N55	N50	N50	N45	N45	N45
4398	Warehouse	B		N55	N50	N50	N45	N45	N45
4398	Warehouse	C		N50	N45	N45	N40	N40	N40
4398	Warehouse	D		N45	N40	N40	N35	N35	N35
4398	Warehouse	S		N45	N40	N40	N35	N35	N35
4399	Warehouse-Metallic	C		N40	N40	N40	N40	N40	N40
4399	Warehouse-Metallic	D		N40	N40	N40	N40	N40	N40
4399	Warehouse-Metallic	S		N40	N40	N40	N40	N40	N40
4401	Manufacturing/Processing	A		L55	L50	L50	L45	L45	L45
4401	Manufacturing/Processing	B		L55	L50	L50	L45	L45	L45

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Bldg Type	Description	Cls	Depreciation Table for Building Quality						
			X	A	B	C	D	E	F
4401	Manufacturing/Processing	C		L50	L45	L40	L40	L40	L40
4401	Manufacturing/Processing	D		L45	L40	L35	L35	L35	L35
4401	Manufacturing/Processing	S		L45	L40	L35	L35	L35	L35
4402	Auto Salvage Yard	C		N40	N40	N40	N40	N40	N40
4402	Auto Salvage Yard	D		N40	N40	N40	N40	N40	N40
4402	Auto Salvage Yard	M					N20		
4402	Auto Salvage Yard	S		N40	N40	N40	N40	N40	N40
4405	Research and Development	A		L55	L55	L50	L50	L50	L50
4405	Research and Development	B		L55	L55	L50	L50	L50	L50
4405	Research and Development	C		L50	L50	L45	L40	L40	L40
4405	Research and Development	D		L45	L45	L40	L35	L35	L35
4405	Research and Development	S		L45	L45	L40	L35	L35	L35
4411	Food & Kindred Products	C				L55			
4411	Food & Kindred Products	S				L55	L45		
4416	Chemical and Allied Products	S				L40	L40	L40	
4420	Primary Metal Industry	C				L50	L50		
4420	Primary Metal Industry	S					L45		
4421	Metal Fabricating	A				L50	L50	L50	L50
4421	Metal Fabricating	S				L40	L40	L40	L40
4424	Miscellaneous Manufacturing	C			L50				
4424	Miscellaneous Manufacturing	S				L50			
4610	Recreational/Health	A		L50	L45	L45	L40	L40	L40
4610	Recreational/Health	B		L50	L45	L45	L40	L40	L40
4610	Recreational/Health	C		L45	L40	L40	L35	L35	L35
4610	Recreational/Health	D		L40	L35	L35	L30	L30	L30
4610	Recreational/Health	S		L40	L35	L35	L30	L30	L30
4611	Library	A		L60	L60	L55	L50	L50	L50
4611	Library	B		L60	L60	L55	L50	L50	L50
4611	Library	C		L55	L55	L50	L45	L45	L45
4611	Library	D		L50	L50	L45	L40	L40	L40
4611	Library	S		L50	L50	L45	L40	L40	L40
4612	School	A		L50	L45	L45	L40	L40	L40
4612	School	B		L50	L45	L45	L40	L40	L40
4612	School	C		L45	L40	L40	L35	L35	L35
4612	School	D		L40	L35	L35	L30	L30	L30
4612	School	S		L40	L35	L35	L30	L30	L30
4613	Colleges & Universities	A		L60	L60	L50	L45	L45	L45

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Bldg Type	Description	Depreciation Table for Building Quality							
		Cls	X	A	B	C	D	E	F
4613	Colleges & Universities	B		L60	L60	L50	L45	L45	L45
4613	Colleges & Universities	C		L55	L50	L45	L40	L40	L40
4613	Colleges & Universities	D		L50	L45	L40	L35	L35	L35
4613	Colleges & Universities	S		L50	L45	L40	L35	L35	L35
4614	Post Office	A		L60	L60	L55	L55	L55	L55
4614	Post Office	B		L60	L60	L55	L55	L55	L55
4614	Post Office	C		L55	L55	L50	L50	L50	L50
4614	Post Office	D		L50	L50	L45	L45	L45	L45
4614	Post Office	S		L50	L50	L45	L45	L45	L45
4620	Religious	A		L60	L60	L50	L45	L45	L45
4620	Religious	B		L60	L60	L50	L45	L45	L45
4620	Religious	C		L60	L50	L45	L40	L40	L40
4620	Religious	D		L50	L45	L40	L35	L35	L35
4620	Religious	S		L50	L45	L40	L35	L35	L35
4630	Auditorium	A		L55	L50	L50	L45	L45	L45
4630	Auditorium	B		L55	L50	L50	L45	L45	L45
4630	Auditorium	C		L50	L45	L45	L40	L40	L40
4630	Auditorium	D		L45	L40	L40	L35	L35	L35
4630	Auditorium	S		L45	L40	L40	L35	L35	L35
4640	Hospitals	A		L50	L50	L45	L45	L45	L45
4640	Hospitals	B		L50	L50	L45	L45	L45	L45
4640	Hospitals	C		L45	L45	L40	L40	L40	L40
4640	Hospitals	D		L40	L40	L35	L35	L35	L35
4640	Hospitals	S		L40	L40	L35	L35	L35	L35
4660	Police or Fire Station	A		L50	L50	L45	L45	L45	L45
4660	Police or Fire Station	B		L50	L50	L45	L45	L45	L45
4660	Police or Fire Station	C		L45	L45	L40	L40	L40	L40
4660	Police or Fire Station	D		L40	L40	L35	L35	L35	L35
4660	Police or Fire Station	S		L40	L40	L35	L35	L35	L35
4670	Correctional	A		L55	L55	L50	L50	L50	L50
4670	Correctional	B		L55	L55	L50	L50	L50	L50
4670	Correctional	C		L45	L45	L40	L40	L40	L40
4670	Correctional	D		L40	L40	L35	L35	L35	L35
4670	Correctional	S		L40	L40	L35	L35	L35	L35
4680	Cultural Facility	A		L60	L60	L55	L50	L50	L50
4680	Cultural Facility	B		L60	L60	L55	L50	L50	L50
4680	Cultural Facility	C		L55	L55	L50	L40	L40	L40

2011 Commercial Depreciation Schedule by LUC/Class

Bldg Type	Description	Depreciation Table for Building Quality							
		Cls	X	A	B	C	D	E	F
4680	Cultural Facility	D		L50	L50	L45	L35	L35	L35
4680	Cultural Facility	S		L50	L50	L45	L35	L35	L35
4685	Miscellaneous Government Building	A		L60	L60	L55	L55	L55	L55
4685	Miscellaneous Government Building	B		L60	L60	L55	L55	L55	L55
4685	Miscellaneous Government Building	C		L55	L55	L50	L50	L50	L50
4685	Miscellaneous Government Building	D		L50	L50	L40	L40	L40	L40
4685	Miscellaneous Government Building	S		L50	L50	L40	L40	L40	L40
4690	Rail/Bus/Air Terminal	A		L60	L55	L55	L50	L50	L50
4690	Rail/Bus/Air Terminal	B		L60	L55	L55	L50	L50	L50
4690	Rail/Bus/Air Terminal	C		L55	L50	L45	L40	L40	L40
4690	Rail/Bus/Air Terminal	D		L50	L45	L40	L35	L35	L35
4690	Rail/Bus/Air Terminal	S		L50	L45	L40	L35	L35	L35
4710	Telephone Equipment	C	L50	L50	L35	L30	L25	L25	L25
4710	Telephone Equipment	D		L30	L30	L25	L20	L20	L20
4710	Telephone Equipment	S		L30	L30	L25	L20	L20	L20
4715	Telephone Work Center	C		L45	L45	L40	L35	L35	L35
4715	Telephone Work Center	D		L40	L40	L35	L30	L30	L30
4715	Telephone Work Center	S		L40	L40	L35	L30	L30	L30
4720	Radio/TV Transmitter	A		L55	L55	L50	L45	L45	L45
4720	Radio/TV Transmitter	A		L55	L55	L50	L45	L45	L45
4720	Radio/TV Transmitter	B		L55	L55	L50	L45	L45	L45
4720	Radio/TV Transmitter	C		L50	L50	L45	L40	L40	L40
4720	Radio/TV Transmitter	D		L45	L45	L40	L35	L35	L35
4720	Radio/TV Transmitter	S		L45	L45	L40	L35	L35	L35

2011 Commercial Depreciation Schedule for Buildings - AGE

Age	L15	L20	L25	L30	L35	L40	L45	L50	L55	L60	M50	N15	N20	N25	N30	N35	N40	N45	N50	N55	N60	XSM
1	6	5	4	3	3	32	2	2	2	2	2	6	5	4	3	3	2	2	2	2	2	10
2	12	9	8	6	5	5	4	4	4	3	4	12	9	7	6	5	5	4	4	4	3	20
3	17	13	11	9	8	7	6	6	5	5	6	17	13	11	9	8	7	6	6	5	5	30
4	22	17	14	12	10	9	8	8	7	6	8	21	17	14	12	10	9	8	7	7	6	35
5	26	21	17	15	13	11	10	9	8	8	10	25	20	17	14	13	11	10	9	8	8	40
6	30	24	20	17	15	13	12	11	10	9	11	29	23	19	17	15	13	12	11	10	9	42
7	34	27	23	20	17	15	14	13	12	11	13	32	26	22	19	17	15	13	12	11	10	44
8	37	30	26	22	19	17	16	14	13	12	15	35	29	24	21	19	17	15	14	13	12	46
9	40	33	28	24	21	19	17	16	14	13	16	38	31	26	23	20	18	17	15	14	13	48
10	43	36	30	26	23	21	19	17	16	15	18	40	33	29	25	22	20	18	17	15	14	50
11	46	38	33	28	25	23	20	19	17	16	20	42	35	31	27	24	22	20	18	17	15	52
12	49	40	35	30	27	24	22	20	19	17	21	44	38	32	29	26	23	21	19	18	17	54
13	51	43	37	32	29	26	24	22	20	19	23	46	39	34	30	27	25	22	21	19	18	56
14	53	45	39	34	30	27	25	23	21	20	24	48	41	36	32	29	26	24	22	20	19	58
15	55	47	40	36	32	29	26	24	22	21	26	50	43	38	33	30	27	25	23	21	20	60
16	55	49	42	37	33	30	28	26	24	22	27	50	44	39	35	31	29	26	24	23	21	62
17	55	50	44	39	35	32	29	27	25	23	28	50	46	40	36	33	30	27	25	24	22	64
18	55	52	46	40	36	33	30	28	26	24	30	50	47	42	38	34	31	29	26	25	23	66
19	55	54	47	42	38	34	32	29	27	25	31	50	49	43	39	35	32	30	28	26	24	68
20	55	55	49	43	39	36	33	30	28	26	32	50	50	44	40	36	33	31	29	27	25	70
21	55	55	50	45	40	37	34	31	29	27	34	50	50	46	41	38	34	32	30	28	26	72
22	55	55	51	46	42	38	35	33	30	28	35	50	50	47	42	39	35	33	31	29	27	74
23	55	55	53	47	43	39	36	34	31	29	36	50	50	48	43	40	37	34	32	29	28	76
24	55	55	54	49	44	40	37	35	32	30	37	50	50	49	44	41	38	35	32	30	29	78
25	55	55	55	50	45	42	38	36	33	31	38	50	50	50	45	42	38	36	33	31	29	80
26	55	55	55	51	46	43	39	37	34	32	40	50	50	50	46	43	39	37	34	32	30	80
27	55	55	55	52	47	44	40	38	35	33	41	50	50	50	47	44	40	38	35	33	31	80
28	55	55	55	53	49	45	41	39	36	34	42	50	50	50	48	44	41	38	36	34	32	80
29	55	55	55	54	50	46	42	40	37	35	43	50	50	50	49	45	42	39	37	35	33	80
30	55	55	55	55	51	47	43	40	38	36	44	50	50	50	50	46	43	40	38	35	33	80
31	55	55	55	55	51	48	44	41	39	37	45	50	50	50	50	47	44	41	38	36	34	80
32	55	55	55	55	52	49	45	42	40	37	46	50	50	50	50	48	44	42	39	37	35	80
33	55	55	55	55	53	49	46	43	40	38	47	50	50	50	50	49	45	42	40	38	35	80
34	55	55	55	55	54	50	47	44	41	39	48	50	50	50	50	49	46	43	40	38	36	80
35	55	55	55	55	55	51	48	45	42	40	49	50	50	50	50	50	47	44	41	39	37	80
36	55	55	55	55	55	52	49	46	43	40	49	50	50	50	50	50	47	44	42	40	38	80
37	55	55	55	55	55	53	49	46	44	41	50	50	50	50	50	50	48	45	43	40	38	80
38	55	55	55	55	55	54	50	47	44	42	51	50	50	50	50	50	49	46	43	41	39	80
39	55	55	55	55	55	54	51	48	45	43	52	50	50	50	50	50	49	46	44	41	39	80
40	55	55	55	55	55	55	52	49	46	43	53	50	50	50	50	50	50	47	44	42	40	80
41	55	55	55	55	55	55	52	49	46	44	54	50	50	50	50	50	50	48	45	43	41	80
42	55	55	55	55	55	55	53	50	47	45	54	50	50	50	50	50	50	48	46	43	41	80
43	55	55	55	55	55	55	54	51	48	45	55	50	50	50	50	50	50	49	46	44	42	80

2011 Commercial Depreciation Schedule for Buildings - AGE

Age	L15	L20	L25	L30	L35	L40	L45	L50	L55	L60	M50	N15	N20	N25	N30	N35	N40	N45	N50	N55	N60	XSM
44	55	55	55	55	55	55	54	51	49	46	56	50	50	50	50	50	50	49	47	44	42	80
45	55	55	55	55	55	55	55	52	49	47	57	50	50	50	50	50	50	50	47	45	43	80
46	55	55	55	55	55	55	55	53	50	47	57	50	50	50	50	50	50	50	48	46	43	80
47	55	55	55	55	55	55	55	53	50	48	58	50	50	50	50	50	50	50	48	46	44	80
48	55	55	55	55	55	55	55	54	51	49	59	50	50	50	50	50	50	50	49	47	44	80
49	55	55	55	55	55	55	55	54	52	49	59	50	50	50	50	50	50	50	49	47	45	80
50	55	55	55	55	55	55	55	55	52	50	60	50	50	50	50	50	50	50	50	48	45	80
51	55	55	55	55	55	55	55	55	53	50	60	50	50	50	50	50	50	50	50	48	46	80
52	55	55	55	55	55	55	55	55	53	51	60	50	50	50	50	50	50	50	50	49	46	80
53	55	55	55	55	55	55	55	55	54	51	60	50	50	50	50	50	50	50	50	49	47	80
54	55	55	55	55	55	55	55	55	54	52	60	50	50	50	50	50	50	50	50	50	47	80
55	55	55	55	55	55	55	55	55	55	52	60	50	50	50	50	50	50	50	50	50	48	80
56	55	55	55	55	55	55	55	55	55	53	60	50	50	50	50	50	50	50	50	50	48	80
57	55	55	55	55	55	55	55	55	55	54	60	50	50	50	50	50	50	50	50	50	49	80
58	55	55	55	55	55	55	55	55	55	54	60	50	50	50	50	50	50	50	50	50	49	80
59	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
60	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
61	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
62	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
63	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
64	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
65	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
66	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80
.....	55	55	55	55	55	55	55	55	55	55	60	50	50	50	50	50	50	50	50	50	50	80

2011 Commercial Depreciation Schedule for Extra Features – AGE and Condition

Age	...E	...G	...A	...F	...P	...U
1	10	10	10	10	15	50
2	10	10	10	10	15	50
3	10	10	10	10	15	50
4	10	10	10	10	15	50
5	10	10	10	10	15	50
6	15	15	20	20	25	65
7	15	15	20	20	25	65
8	15	15	20	20	25	65
9	15	15	20	20	25	65
10	15	15	20	20	25	65
11	20	25	25	30	35	75
12	20	25	25	30	35	75
13	20	25	25	30	35	75
14	20	25	25	30	35	75
15	20	25	25	30	35	75
16	25	30	35	40	45	75
17	25	30	35	40	45	75
18	25	30	35	40	45	75
19	25	30	35	40	45	75
20	25	30	35	40	45	75
21	30	35	40	45	55	85
22	30	35	40	45	55	85
23	30	35	40	45	55	85
24	30	35	40	45	55	85
25	30	35	40	45	55	85
26	35	40	50	50	65	90
27	35	40	50	50	65	90
28	35	40	50	50	65	90
29	35	40	50	50	65	90
30	35	40	50	50	65	90
31	40	45	55	60	70	90
32	40	45	55	60	70	90
33	40	45	55	60	70	90
34	40	45	55	60	70	90
35	40	45	55	60	70	90
36	40	50	55	60	75	90
37	40	50	55	60	75	90
38	40	50	55	60	75	90
39	40	50	55	60	75	90
40	40	50	55	60	75	90
41	45	50	60	65	75	95
42	45	50	60	65	75	95
43	45	50	60	65	75	95

2011 Commercial Depreciation Schedule for Extra Features – AGE and Condition

Age	...E	...G	...A	...F	...P	...U
44	45	50	60	65	75	95
45	45	50	60	65	75	95
46	45	55	60	65	80	95
47	45	55	60	65	80	95
48	45	55	60	65	80	95
49	45	55	60	65	80	95
50	45	55	60	65	80	95
51	45	55	60	65	80	95
52	45	55	60	65	80	95
53	45	55	60	65	80	95
54	45	55	60	65	80	95
55	45	55	60	65	80	95
56	45	55	60	65	80	95
57	45	55	60	65	80	95
58	45	55	60	65	80	95
59	45	55	60	65	80	95
60	45	55	60	65	80	95
61	45	55	60	65	80	95
62	45	55	60	65	80	95
63	45	55	60	65	80	95
64	45	55	60	65	80	95
65	45	55	60	65	80	95
66	45	55	60	65	80	95
.....	45	55	60	65	80	95



2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CAC1 Central Air Conditioner	SF	\$13.03	\$8.08	\$6.56	\$5.21	\$4.06	\$2.61	X3
CAC2 Unit Air Conditioner	SF	\$4.50	\$2.79	\$2.27	\$1.80	\$1.40	\$0.90	X3
CAC3 Mini-Whse HVAC	SF	\$10.03	\$6.22	\$5.05	\$4.01	\$3.13	\$2.01	X3
CAP1 Fence, Chain Link	LF	\$24.38	\$15.11	\$12.29	\$9.75	\$7.61	\$4.88	X3
CAP2 Fence, Picket	LF	\$37.48	\$23.23	\$18.89	\$14.99	\$11.69	\$7.50	X3
CAP3 Fence, Stockade	LF	\$58.05	\$35.99	\$29.26	\$23.22	\$18.11	\$11.61	X3
CAP4 Fence, Post & Rail	LF	\$19.28	\$11.95	\$9.71	\$7.71	\$6.01	\$3.86	X3
CAP5 Fence, Basket-Weave	LF	\$50.60	\$31.37	\$25.50	\$20.24	\$15.79	\$10.12	X3
CAP6 Fence, Brick & Stone	LF	\$131.25	\$81.38	\$66.15	\$52.50	\$40.95	\$26.25	X3
CAT1 ATRIUM/VESTIBULE	SF	\$300.63	\$186.39	\$151.52	\$120.25	\$93.80	\$60.13	X3
CAW1 Aerial Walkway	SF	\$1,206.53	\$748.05	\$608.09	\$482.61	\$376.44	\$241.31	X3
CBB1 Bank Auxillary Office Area	SF	\$250.73	\$155.45	\$126.37	\$100.29	\$78.23	\$50.15	X3
CBC1 Bank Canopy -Drive Thru	SF	\$100.23	\$62.14	\$50.51	\$40.09	\$31.27	\$20.05	X3
CBD1 Wood Boat Dock	SF	\$31.05	\$19.25	\$15.65	\$12.42	\$9.69	\$6.21	X3
CBK1 Bulk Head	LF	\$57.13	\$35.42	\$28.79	\$22.85	\$17.82	\$11.43	X3
CBS1 Basement,Commercial Stg Non Fire Proofed	SF	\$75.15	\$46.59	\$37.88	\$30.06	\$23.45	\$15.03	X3
CBS2 Basement,Commercial Storage Fire Proofed	SF	\$112.75	\$69.91	\$56.83	\$45.10	\$35.18	\$22.55	X3
CBS3 Basement, Residential Storage	SF	\$40.10	\$24.86	\$20.21	\$16.04	\$12.51	\$8.02	X3
CBS4 Basement,Parking Non Fireproofed	SF	\$67.65	\$41.94	\$34.10	\$27.06	\$21.11	\$13.53	X3
CBS5 Basement,Parking Fireproofed	SF	\$100.23	\$62.14	\$50.51	\$40.09	\$31.27	\$20.05	X3
CBS6 Basement, Apt Living Units Non Fireproof	SF	\$165.33	\$102.50	\$83.32	\$66.13	\$51.58	\$33.07	X3
CBS7 Basement, Apt Living Units Fireproofed	SF	\$210.45	\$130.48	\$106.07	\$84.18	\$65.66	\$42.09	X3
CBS8 Basement, Retail Non Fireproofed	SF	\$120.28	\$74.57	\$60.62	\$48.11	\$37.53	\$24.06	X3
CBS9 Basement, Retail Fireproofed	SF	\$187.93	\$116.51	\$94.71	\$75.17	\$58.63	\$37.59	X3
CBSA Basement, Office/Med/Bnk Non Fireproofed	SF	\$162.85	\$100.97	\$82.08	\$65.14	\$50.81	\$32.57	X3
CBSB Basement, Office/Med/Bnk Fireproofed	SF	\$238.00	\$147.56	\$119.95	\$95.20	\$74.26	\$47.60	X3
CBSC Basement, Hospital Non Fireproofed	SF	\$238.00	\$147.56	\$119.95	\$95.20	\$74.26	\$47.60	X3
CBSD Basement, Hospital Fireproofed	SF	\$325.68	\$201.92	\$164.14	\$130.27	\$101.61	\$65.14	X3
CCP4 CANOPY CARWASH ONLY	SF	\$52.60	\$32.61	\$26.51	\$21.04	\$16.41	\$10.52	X3
CCP5 CANOPY ONLY	SF	\$22.30	\$13.83	\$11.24	\$8.92	\$6.96	\$4.46	X3
CCP6 CANOPY ROOF AND SLAB	SF	\$26.05	\$16.15	\$13.13	\$10.42	\$8.13	\$5.21	X3
CCP7 CANOPY ROOF SERV STN ECON	SF	\$36.23	\$22.46	\$18.26	\$14.49	\$11.30	\$7.25	X3
CCP8 CANOPY ROOF SERV STN AVG	SF	\$46.48	\$28.81	\$23.42	\$18.59	\$14.50	\$9.30	X3
CCP9 CANOPY ROOF SERV STN GOOD	SF	\$56.63	\$35.11	\$28.54	\$22.65	\$17.67	\$11.33	X3
CDL1 Dock Level Floor	SF	\$5.18	\$3.21	\$2.61	\$2.07	\$1.61	\$1.04	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CEN0 Enclosed Entry	SF	\$125.28	\$77.67	\$63.14	\$50.11	\$39.09	\$25.06	X3
CEN1 Retail Finish	SF	\$87.70	\$54.37	\$44.20	\$35.08	\$27.36	\$17.54	X3
CEN2 Office Finish	SF	\$125.28	\$77.67	\$63.14	\$50.11	\$39.09	\$25.06	X3
CEN3 Restaurant,Lounge Finish	SF	\$162.85	\$100.97	\$82.08	\$65.14	\$50.81	\$32.57	X3
CEN4 Enclosure, Storage	SF	\$37.60	\$23.31	\$18.95	\$15.04	\$11.73	\$7.52	X3
CEN5 Enclosure, Retail	SF	\$70.18	\$43.51	\$35.37	\$28.07	\$21.89	\$14.04	X3
CEN6 Enclosure, Office	SF	\$100.23	\$62.14	\$50.51	\$40.09	\$31.27	\$20.05	X3
CEN7 Enclosure, Living Area	SF	\$75.15	\$46.59	\$37.88	\$30.06	\$23.45	\$15.03	X3
CEN8 Enclosure, Cold Storage	SF	\$67.65	\$41.94	\$34.10	\$27.06	\$21.11	\$13.53	X3
CGH1 GREENHOUSE ECONOMY	SF	\$25.18	\$15.61	\$12.69	\$10.07	\$7.85	\$5.04	X3
CGH2 GREENHOUSE AVERAGE	SF	\$38.88	\$24.10	\$19.59	\$15.55	\$12.13	\$7.78	X3
CGH3 GREENHOUSE GOOD	SF	\$56.60	\$35.09	\$28.53	\$22.64	\$17.66	\$11.32	X3
CGS3 Gas Station Attn.-Bth Stl/Gls on Masonr	SF	\$293.25	\$181.82	\$147.80	\$117.30	\$91.49	\$58.65	X3
CGS4 Gas Station Attn.-Bth Stucco/Gls on Frm	SF	\$241.60	\$149.79	\$121.77	\$96.64	\$75.38	\$48.32	X3
CLD1 Load Dock, Stone or Concrete	SF	\$46.85	\$29.05	\$23.61	\$18.74	\$14.62	\$9.37	X3
CLD2 Loading Dock, Wood	SF	\$23.00	\$14.26	\$11.59	\$9.20	\$7.18	\$4.60	X3
CLD3 Loading Dock, Interior	SF	\$56.88	\$35.26	\$28.67	\$22.75	\$17.75	\$11.38	X3
CLD4 Truck - Train Wells	SF	\$46.95	\$29.11	\$23.66	\$18.78	\$14.65	\$9.39	X3
CLD5 Dock Leveler	UT	\$8,928.73	\$5,535.81	\$4,500.08	\$3,571.49	\$2,785.76	\$1,785.75	X3
CLD6 Loading Ramp, Concrete	SF	\$37.70	\$23.37	\$19.00	\$15.08	\$11.76	\$7.54	X3
CLT1 Mercury Light Wheel Mounted	UT	\$1,348.70	\$836.19	\$679.74	\$539.48	\$420.79	\$269.74	X3
CLT2 Light,Incandescent Wheel-Mounted Flood	UT	\$638.90	\$396.12	\$322.01	\$255.56	\$199.34	\$127.78	X3
CLT3 Light,Florescent Pole & Breaker	UT	\$4,498.75	\$2,789.23	\$2,267.37	\$1,799.50	\$1,403.61	\$899.75	X3
CLT4 Light,Incandescent Pole & Breaker	UT	\$3,655.80	\$2,266.60	\$1,842.52	\$1,462.32	\$1,140.61	\$731.16	X3
CLT5 Mercury Light Pole Mounted w/breaker	UT	\$4,951.30	\$3,069.81	\$2,495.46	\$1,980.52	\$1,544.81	\$990.26	X3
CMP1 Mobile Home Space Very Cheap	UT	\$2,698.35	\$1,672.98	\$1,359.97	\$1,079.34	\$841.89	\$539.67	X3
CMP2 Mobile Home Space Cheap	UT	\$3,225.63	\$1,999.89	\$1,625.72	\$1,290.25	\$1,006.40	\$645.13	X3
CMP3 Mobile Home Space Good Cheap	UT	\$4,838.43	\$2,999.82	\$2,438.57	\$1,935.37	\$1,509.59	\$967.69	X3
CMP4 Mobile Home Space Very Low Cost	UT	\$6,513.30	\$4,038.25	\$3,282.70	\$2,605.32	\$2,032.15	\$1,302.66	X3
CMP5 Mobile Home Space Low Cost	UT	\$8,002.03	\$4,961.26	\$4,033.02	\$3,200.81	\$2,496.63	\$1,600.41	X3
CMP6 Mobile Home Space Average	UT	\$11,847.95	\$7,345.73	\$5,971.37	\$4,739.18	\$3,696.56	\$2,369.59	X3
CMP7 Mobile Home Space Above Average	UT	\$12,902.48	\$7,999.53	\$6,502.85	\$5,160.99	\$4,025.57	\$2,580.50	X3
CMP8 Mobile Home Space Good	UT	\$17,709.90	\$10,980.14	\$8,925.79	\$7,083.96	\$5,525.49	\$3,541.98	X3
CMP9 Mobile Home Space Excellent	UT	\$23,850.98	\$14,787.60	\$12,020.89	\$9,540.39	\$7,441.50	\$4,770.20	X3
CMS1 Miscellaneous - Flat Value	UT	\$4.50	\$2.79	\$2.27	\$1.80	\$1.40	\$0.90	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
COGV Commercial Other Gross Value	UT	\$2,463.35	\$1,527.28	\$1,241.53	\$985.34	\$768.57	\$492.67	X3
COM1 Portable/Modular Office - Eco (P/P only)	SF	\$56.18	\$34.83	\$28.31	\$22.47	\$17.53	\$11.24	X3
COM2 Portable/Modular Office - Average	SF	\$73.83	\$45.77	\$37.21	\$29.53	\$23.03	\$14.77	X3
COM3 Portable/Modular Office - Good	SF	\$98.53	\$61.09	\$49.66	\$39.41	\$30.74	\$19.71	X3
CPA1 Paving -Asphalt	SF	\$3.80	\$2.36	\$1.92	\$1.52	\$1.19	\$0.76	X3
CPA2 Paving -Asphalt & Concrete Service Stat	SF	\$5.45	\$3.38	\$2.75	\$2.18	\$1.70	\$1.09	X3
CPB1 Plumbing Fixtures	UT	\$3,460.58	\$2,145.56	\$1,744.13	\$1,384.23	\$1,079.70	\$692.12	X3
CPC1 Paving -Light Concrete	SF	\$5.75	\$3.57	\$2.90	\$2.30	\$1.79	\$1.15	X3
CPC2 Paving -Heavy Concrete	SF	\$7.20	\$4.46	\$3.63	\$2.88	\$2.25	\$1.44	X3
CPC3 Paving -Mat/Slab	SF	\$7.13	\$4.42	\$3.59	\$2.85	\$2.22	\$1.43	X3
CPH1 Penthouse, Mechanical Low Cost	SF	\$75.15	\$46.59	\$37.88	\$30.06	\$23.45	\$15.03	X3
CPH2 Penthouse, Mechanical Average	SF	\$100.23	\$62.14	\$50.51	\$40.09	\$31.27	\$20.05	X3
CPH3 Penthouse, Mechanical Good	SF	\$150.33	\$93.20	\$75.76	\$60.13	\$46.90	\$30.07	X3
CPH4 Penthouse, Apartment Low Cost	SF	\$150.33	\$93.20	\$75.76	\$60.13	\$46.90	\$30.07	X3
CPH5 Penthouse, Apartment Average	SF	\$175.38	\$108.73	\$88.39	\$70.15	\$54.72	\$35.08	X3
CPH6 Penthouse, Apartment Good	SF	\$225.45	\$139.78	\$113.63	\$90.18	\$70.34	\$45.09	X3
CPL1 Parking Levels Low Quality (C,D,S Class)	SF	\$75.15	\$46.59	\$37.88	\$30.06	\$23.45	\$15.03	X3
CPL2 Parking Levels Low Quality (A,B Class)	SF	\$87.70	\$54.37	\$44.20	\$35.08	\$27.36	\$17.54	X3
CPL3 Parking Levels Avg Quality (C,D,S Class)	SF	\$100.23	\$62.14	\$50.51	\$40.09	\$31.27	\$20.05	X3
CPL4 Parking Levels Avg Quality (A,B Class)	SF	\$125.28	\$77.67	\$63.14	\$50.11	\$39.09	\$25.06	X3
CPL5 Parking Levels Good Quality (C,D,S Class)	SF	\$125.28	\$77.67	\$63.14	\$50.11	\$39.09	\$25.06	X3
CPL6 Parking Levels Good Quality (A,B Class)	SF	\$150.33	\$93.20	\$75.76	\$60.13	\$46.90	\$30.07	X3
CPL7 Parking Levels Excellent Quality (A,B,C,D,S Class)	SF	\$187.93	\$116.51	\$94.71	\$75.17	\$58.63	\$37.59	X3
CPL8 Parking Deck(A,B,C,D)	SF	\$28.05	\$17.39	\$14.14	\$11.22	\$8.75	\$5.61	X3
CRC1 Carport -Commercial	SF	\$34.33	\$21.28	\$17.30	\$13.73	\$10.71	\$6.87	X3
CRG1 Attached Frame Garage	SF	\$47.50	\$29.45	\$23.94	\$19.00	\$14.82	\$9.50	X3
CRG2 Attached Masonary Garage	SF	\$62.65	\$38.84	\$31.58	\$25.06	\$19.55	\$12.53	X3
CRG3 Attached Apartment Garage	SF	\$75.15	\$46.59	\$37.88	\$30.06	\$23.45	\$15.03	X3
CRG4 Detached Frame Garage	SF	\$47.50	\$29.45	\$23.94	\$19.00	\$14.82	\$9.50	X3
CRG5 Detached Masonry Garage	SF	\$62.65	\$38.84	\$31.58	\$25.06	\$19.55	\$12.53	X3
CRP1 Porch, Open	SF	\$26.28	\$16.29	\$13.24	\$10.51	\$8.20	\$5.26	X3
CRP2 Porch, Enclosed	SF	\$83.75	\$51.93	\$42.21	\$33.50	\$26.13	\$16.75	X3
CRP3 Porch,Open Upper	SF	\$26.28	\$16.29	\$13.24	\$10.51	\$8.20	\$5.26	X3
CRP4 Porch,Enclosed Upper	SF	\$67.18	\$41.65	\$33.86	\$26.87	\$20.96	\$13.44	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CRR1 Railroad Spur	LF	\$226.00	\$140.12	\$113.90	\$90.40	\$70.51	\$45.20	X3
CRS1 UTILITY BLDG - FRAME	SF	\$52.70	\$32.67	\$26.56	\$21.08	\$16.44	\$10.54	X3
CRS2 UTILITY BLDG -METAL	SF	\$54.18	\$33.59	\$27.30	\$21.67	\$16.90	\$10.84	X3
CRS3 UTILITY BLDG - BRICK/STONE	SF	\$55.60	\$34.47	\$28.02	\$22.24	\$17.35	\$11.12	X3
CSC1 Swimming Pool	SF	\$112.48	\$69.73	\$56.69	\$44.99	\$35.09	\$22.50	X3
CSG1 Stabilized Gravel Paving	SF	\$2.80	\$1.74	\$1.41	\$1.12	\$0.87	\$0.56	X3
CPH3 Penthouse, Mechanical Good	SF	\$150.33	\$93.20	\$75.76	\$60.13	\$46.90	\$30.07	X3
CSH1 Shed, Farm Machinery	SF	\$25.08	\$15.55	\$12.64	\$10.03	\$7.82	\$5.02	X3
CSH2 Shed, Aluminum	SF	\$26.75	\$16.59	\$13.48	\$10.70	\$8.35	\$5.35	X3
CSH3 Shed, Finished Metal	SF	\$33.45	\$20.74	\$16.86	\$13.38	\$10.44	\$6.69	X3
CSH4 Shed, Quonset	SF	\$41.70	\$25.85	\$21.02	\$16.68	\$13.01	\$8.34	X3
CSH5 Lumber Shed 2 Sides Open	SF	\$33.40	\$20.71	\$16.83	\$13.36	\$10.42	\$6.68	X3
CSH6 Lumber Shed 4 Sides Open	SF	\$30.83	\$19.11	\$15.54	\$12.33	\$9.62	\$6.17	X3
CSM2 Wood/Metal and Glass Addition Enc Porch	SF	\$58.93	\$36.53	\$29.70	\$23.57	\$18.38	\$11.79	XSM
CSM3 Covered Patio or Carport	SF	\$19.63	\$12.17	\$9.89	\$7.85	\$6.12	\$3.93	XSM
CSM4 Skirting	LF	\$19.63	\$12.17	\$9.89	\$7.85	\$6.12	\$3.93	XSM
CSM5 Wood Deck	SF	\$30.85	\$19.13	\$15.55	\$12.34	\$9.63	\$6.17	XSM
CSM6 Attached 1s Frame	SF	\$103.80	\$64.36	\$52.32	\$41.52	\$32.39	\$20.76	XSM
CSM7 Open Frame Porch	SF	\$47.68	\$29.56	\$24.03	\$19.07	\$14.87	\$9.54	XSM
CSS1 Wet Sprinkler	SF	\$4.30	\$2.67	\$2.17	\$1.72	\$1.34	\$0.86	X3
CSS2 Dry Sprinkler	SF	\$4.93	\$3.05	\$2.48	\$1.97	\$1.54	\$0.99	X3
CTC1 Asphalt Tennis Court -Com	UT	\$103.82	\$64.37	\$52.32	\$41.53	\$32.39	\$20.76	X3
CTC2 Concrete Tennis Court - Com	UT	\$111,802.38	\$69,317.47	\$56,348.40	\$44,720.95	\$34,882.34	\$22,360.48	X3
CTC3 Clay Tennis Court -Com	UT	\$99,024.08	\$61,394.93	\$49,908.13	\$39,609.63	\$30,895.51	\$19,804.82	X3
CTR1 Restroom Strct - Frame or Conc. Block	SF	\$207.15	\$128.43	\$104.40	\$82.86	\$64.63	\$41.43	X3
CTR2 Restroom Strct -Brick or Stone	SF	\$223.70	\$138.69	\$112.74	\$89.48	\$69.79	\$44.74	X3
CTU1 Pedestrial Tunnel System	SF	\$1,002.10	\$621.30	\$505.06	\$400.84	\$312.66	\$200.42	X3
CWS1 Water System	UT	\$1,402.93	\$869.81	\$707.07	\$561.17	\$437.71	\$280.59	X3
CWS2 Sewer System	UT	\$1,402.93	\$869.81	\$707.07	\$561.17	\$437.71	\$280.59	X3
CWS3 Water & Sewer System	UT	\$2,505.23	\$1,553.24	\$1,262.63	\$1,002.09	\$781.63	\$501.05	X3
CZA1 Mechanical Dispenser	UT	\$10,020.90	\$6,212.96	\$5,050.53	\$4,008.36	\$3,126.52	\$2,004.18	X3
CZA2 Electronic Dispenser	UT	\$35,073.18	\$21,745.37	\$17,676.88	\$14,029.27	\$10,942.83	\$7,014.64	X3
CZC0 Petroleum Stg Tank - Coated S -Sgl Wall -300 Gal	UT	\$10,028.30	\$6,217.55	\$5,054.26	\$4,011.32	\$3,128.83	\$2,005.66	X3
CZC1 Petroleum Stg Tank - Coated S -Sgl Wall -550 Gal	UT	\$13,425.25	\$8,323.66	\$6,766.33	\$5,370.10	\$4,188.68	\$2,685.05	X3
CZC2 Petroleum Stg Tank - Coated S -Sgl Wall -1000 Gal	UT	\$16,356.65	\$10,141.12	\$8,243.75	\$6,542.66	\$5,103.27	\$3,271.33	X3
CZC3 Petroleum Stg Tank - Coated S -Sgl Wall -2000 Gal	UT	\$20,692.15	\$12,829.13	\$10,428.84	\$8,276.86	\$6,455.95	\$4,138.43	X3
CZC4 Petroleum Stg Tank - Coated S -Sgl Wall -3000 Gal	UT	\$23,500.35	\$14,570.22	\$11,844.18	\$9,400.14	\$7,332.11	\$4,700.07	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CZC5 Petroleum Stg Tank - Coated S -Sgl Wall -4000 Gal	UT	\$20,987.75	\$13,012.41	\$10,577.83	\$8,395.10	\$6,548.18	\$4,197.55	X3
CZC6 Petroleum Stg Tank - Coated S-Sgl Wall -5000 Gal	UT	\$30,052.88	\$18,632.78	\$15,146.65	\$12,021.15	\$9,376.50	\$6,010.58	X3
CZC7 Petroleum Stg Tank - Coated S -Sgl Wall -6000 Gal	UT	\$34,733.23	\$21,534.60	\$17,505.55	\$13,893.29	\$10,836.77	\$6,946.65	X3
CZC8 Petroleum Stg Tank - Coated S-Sgl Wall -8000 Gal	UT	\$38,822.40	\$24,069.89	\$19,566.49	\$15,528.96	\$12,112.59	\$7,764.48	X3
CZC9 Petroleum Stg Tank - Coated S-Sgl Wall -10,000 Gal	UT	\$46,557.33	\$28,865.54	\$23,464.89	\$18,622.93	\$14,525.89	\$9,311.47	X3
CZCA Petroleum Stg Tank - Coated S -Sgl Wall -12,000 Gal	UT	\$53,503.95	\$33,172.45	\$26,965.99	\$21,401.58	\$16,693.23	\$10,700.79	X3
CZCB Petroleum Stg Tank - Coated S -Sgl Wall -15,000 Gal	UT	\$65,771.45	\$40,778.30	\$33,148.81	\$26,308.58	\$20,520.69	\$13,154.29	X3
CZCC Petroleum Stg Tank - Coated S -Sgl Wall -20,000 Gal	UT	\$84,246.58	\$52,232.88	\$42,460.27	\$33,698.63	\$26,284.93	\$16,849.32	X3
CZCD Petroleum Stg Tank - Coated S-Sgl Wall -25,000 Gal	UT	\$104,692.38	\$64,909.27	\$52,764.96	\$41,876.95	\$32,664.02	\$20,938.48	X3
CZCE Petroleum Stg Tank - Coated S -Sgl Wall -30,000 Gal	UT	\$118,979.80	\$73,767.48	\$59,965.82	\$47,591.92	\$37,121.70	\$23,795.96	X3
CZCF Petroleum Stg Tank - Coated S -Sgl Wall -40,000 Gal	UT	\$158,639.75	\$98,356.65	\$79,954.43	\$63,455.90	\$49,495.60	\$31,727.95	X3
CZCH Petroleum Stg Tank - Coated S -Dbl Wall -550 Gal	UT	\$13,452.35	\$8,340.46	\$6,779.98	\$5,380.94	\$4,197.13	\$2,690.47	X3
CZCI Petroleum Stg Tank - Coated S -DblWall -1000 Gal	UT	\$15,051.08	\$9,331.67	\$7,585.74	\$6,020.43	\$4,695.94	\$3,010.22	X3
CZCJ Petroleum Stg Tank - Coated S -DblWall -2000 Gal	UT	\$30,102.13	\$18,663.32	\$15,171.47	\$12,040.85	\$9,391.86	\$6,020.43	X3
CZCK Petroleum Stg Tank - Coated S -Dbl Wall -3000 Gal	UT	\$37,245.85	\$23,092.43	\$18,771.91	\$14,898.34	\$11,620.71	\$7,449.17	X3
CZCL Petroleum Stg Tank - Coated S -Dbl Wall -4000 Gal	UT	\$39,512.13	\$24,497.52	\$19,914.11	\$15,804.85	\$12,327.78	\$7,902.43	X3
CZCM Petroleum Stg Tank - Coated S -Dbl Wall -5000 Gal	UT	\$48,035.33	\$29,781.90	\$24,209.80	\$19,214.13	\$14,987.02	\$9,607.07	X3
CZCN Petroleum Stg Tank - Coated S -Dbl Wall -6000 Gal	UT	\$54,390.78	\$33,722.28	\$27,412.95	\$21,756.31	\$16,969.92	\$10,878.16	X3
CZCO Petroleum Stg Tank - Coated S-Dbl Wall -8000 Gal	UT	\$61,288.15	\$37,998.65	\$30,889.23	\$24,515.26	\$19,121.90	\$12,257.63	X3
CZCP Petroleum Stg Tank - Coated S-Dbl Wall -10,000 Gal	UT	\$75,132.18	\$46,581.95	\$37,866.62	\$30,052.87	\$23,441.24	\$15,026.44	X3
CZCQ Petroleum Stg Tank - Coated S-Dbl Wall -12,000 Gal	UT	\$85,724.58	\$53,149.24	\$43,205.19	\$34,289.83	\$26,746.07	\$17,144.92	X3
CZCR Petroleum Stg Tank - Coated S-Dbl Wall -15,000 Gal	UT	\$104,569.20	\$64,832.90	\$52,702.88	\$41,827.68	\$32,625.59	\$20,913.84	X3
CZCS Petroleum Stg Tank - Coated S-DblWall -20,000 Gal	UT	\$127,108.85	\$78,807.49	\$64,062.86	\$50,843.54	\$39,657.96	\$25,421.77	X3
CZCT Petroleum Stg Tank - Coated S-Dbl Wall -25,000 Gal	UT	\$153,959.38	\$95,454.81	\$77,595.53	\$61,583.75	\$48,035.33	\$30,791.88	X3
CZCU Petroleum Stg Tank - Coated S-Dbl Wall -30,000 Gal	UT	\$180,317.23	\$111,796.68	\$90,879.88	\$72,126.89	\$56,258.97	\$36,063.45	X3
CZCV Petroleum Stg Tank - Coated S-Dbl Wall -50,000 Gal	UT	\$277,126.88	\$171,818.66	\$139,671.95	\$110,850.75	\$86,463.59	\$55,425.38	X3
CZF1 Petroleum Stg Tank - F-glass -Sgl Wall -550 Gal	UT	\$13,954.88	\$8,652.02	\$7,033.26	\$5,581.95	\$4,353.92	\$2,790.98	X3
CZF2 Petroleum Stg Tank - F-glass -Sgl Wall -1000 Gal	UT	\$17,218.83	\$10,675.67	\$8,678.29	\$6,887.53	\$5,372.27	\$3,443.77	X3
CZF3 Petroleum Stg Tank - F-glass -Sgl Wall -2000 Gal	UT	\$21,825.28	\$13,531.67	\$10,999.94	\$8,730.11	\$6,809.49	\$4,365.06	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CZF4 Petroleum Stg Tank - F-glass -Sgl Wall -3000 Gal	UT	\$24,608.88	\$15,257.50	\$12,402.87	\$9,843.55	\$7,677.97	\$4,921.78	X3
CZF5 Petroleum Stg Tank - F-glass -Sgl Wall -4000 Gal	UT	\$27,589.53	\$17,105.51	\$13,905.12	\$11,035.81	\$8,607.93	\$5,517.91	X3
CZF6 Petroleum Stg Tank - F-glass -Sgl Wall -5000 Gal	UT	\$31,407.73	\$19,472.79	\$15,829.49	\$12,563.09	\$9,799.21	\$6,281.55	X3
CZF7 Petroleum Stg Tank - F-glass -Sgl Wall -6000 Gal	UT	\$36,359.05	\$22,542.61	\$18,324.96	\$14,543.62	\$11,344.02	\$7,271.81	X3
CZF8 Petroleum Stg Tank - F-glass -Sgl Wall -8000 Gal	UT	\$37,442.93	\$23,214.61	\$18,871.23	\$14,977.17	\$11,682.19	\$7,488.59	X3
CZF9 Petroleum Stg Tank - F-glass -Sgl Wall -10,000 Gal	UT	\$48,035.33	\$29,781.90	\$24,209.80	\$19,214.13	\$14,987.02	\$9,607.07	X3
CZFA Petroleum Stg Tank - F-glass -Sgl Wall -12,000 Gal	UT	\$54,095.18	\$33,539.01	\$27,263.97	\$21,638.07	\$16,877.69	\$10,819.04	X3
CZFB Petroleum Stg Tank - F-glass -Sgl Wall -15,000 Gal	UT	\$66,137.05	\$41,004.97	\$33,333.07	\$26,454.82	\$20,634.76	\$13,227.41	X3
CZFC Petroleum Stg Tank - F-glass -Sgl Wall -20,000 Gal	UT	\$86,217.25	\$53,454.70	\$43,453.49	\$34,486.90	\$26,899.78	\$17,243.45	X3
CZFD Petroleum Stg Tank - F-glass -Sgl Wall -25,000 Gal	UT	\$106,536.00	\$66,052.32	\$53,694.14	\$42,614.40	\$33,239.23	\$21,307.20	X3
CZFE Petroleum Stg Tank - F-glass -Sgl Wall -30,000 Gal	UT	\$127,108.85	\$78,807.49	\$64,062.86	\$50,843.54	\$39,657.96	\$25,421.77	X3
CZFF Petroleum Stg Tank - F-glass -Sgl Wall -50,000 Gal	UT	\$210,616.43	\$130,582.18	\$106,150.68	\$84,246.57	\$65,712.32	\$42,123.29	X3
CZFG Petroleum Stg Tank - F-glass -Sgl Wall -40,000 Gal	UT	\$169,478.48	\$105,076.65	\$85,417.15	\$67,791.39	\$52,877.28	\$33,895.70	X3
CZFH Petroleum Stg Tank - F-glass -Dbl Wall -550 Gal	UT	\$30,879.43	\$19,145.24	\$15,563.23	\$12,351.77	\$9,634.38	\$6,175.89	X3
CZFI Petroleum Stg Tank - F-glass -Dbl Wall -1000 Gal	UT	\$31,629.43	\$19,610.24	\$15,941.23	\$12,651.77	\$9,868.38	\$6,325.89	X3
CZFJ Petroleum Stg Tank - F-glass -Dbl Wall -2000 Gal	UT	\$39,413.60	\$24,436.43	\$19,864.45	\$15,765.44	\$12,297.04	\$7,882.72	X3
CZFK Petroleum Stg Tank - F-glass -Dbl Wall -3000 Gal	UT	\$44,118.60	\$27,353.53	\$22,235.77	\$17,647.44	\$13,765.00	\$8,823.72	X3
CZFL Petroleum Stg Tank - F-glass -Dbl Wall -4000 Gal	UT	\$50,942.08	\$31,584.09	\$25,674.81	\$20,376.83	\$15,893.93	\$10,188.42	X3
CZFM Petroleum Stg Tank - F-glass -Dbl Wall -5000 Gal	UT	\$54,932.70	\$34,058.27	\$27,686.08	\$21,973.08	\$17,139.00	\$10,986.54	X3
CZFN Petroleum Stg Tank - F-glass -Dbl Wall -6000 Gal	UT	\$64,145.63	\$39,770.29	\$32,329.40	\$25,658.25	\$20,013.44	\$12,829.13	X3
CZFO Petroleum Stg Tank - F-glass -Dbl Wall -8000 Gal	UT	\$67,791.40	\$42,030.67	\$34,166.87	\$27,116.56	\$21,150.92	\$13,558.28	X3
CZFP Petroleum Stg Tank - F-glass -Dbl Wall -10,000 Gal	UT	\$76,117.53	\$47,192.87	\$38,363.23	\$30,447.01	\$23,748.67	\$15,223.51	X3
CZFQ Petroleum Stg Tank - F-glass -Dbl Wall -12,000 Gal	UT	\$86,315.78	\$53,515.78	\$43,503.15	\$34,526.31	\$26,930.52	\$17,263.16	X3
CZFR Petroleum Stg Tank - F-glass -Dbl Wall -15,000 Gal	UT	\$104,569.20	\$64,832.90	\$52,702.88	\$41,827.68	\$32,625.59	\$20,913.84	X3
CZFS Petroleum Stg Tank - F-glass -Dbl Wall -20,000 Gal	UT	\$130,557.55	\$80,945.68	\$65,801.01	\$52,223.02	\$40,733.96	\$26,111.51	X3
CZFT Petroleum Stg Tank - F-glass -Dbl Wall -25,000 Gal	UT	\$158,886.08	\$98,509.37	\$80,078.58	\$63,554.43	\$49,572.46	\$31,777.22	X3
CZFU Petroleum Stg Tank - F-glass -Dbl Wall -30,000 Gal	UT	\$185,490.25	\$115,003.96	\$93,487.09	\$74,196.10	\$57,872.96	\$37,098.05	X3
CZFV Petroleum Stg Tank - F-glass -Dbl Wall -50,000 Gal	UT	\$293,138.65	\$181,745.96	\$147,741.88	\$117,255.46	\$91,459.26	\$58,627.73	X3
CZS0 Petroleum Stg Tank -Steel -Sgl Wall -300 Gal	UT	\$9,023.25	\$5,594.42	\$4,547.72	\$3,609.30	\$2,815.25	\$1,804.65	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CZS1 Petroleum Stg Tank -Steel -Sgl Wall -550 Gal	UT	\$10,419.98	\$6,460.38	\$5,251.67	\$4,167.99	\$3,251.03	\$2,084.00	X3
CZS2 Petroleum Stg Tank -Steel -Sgl Wall -1000 Gal	UT	\$13,573.05	\$8,415.29	\$6,840.82	\$5,429.22	\$4,234.79	\$2,714.61	X3
CZS3 Petroleum Stg Tank -Steel -Sgl Wall -2000 Gal	UT	\$17,686.85	\$10,965.85	\$8,914.17	\$7,074.74	\$5,518.30	\$3,537.37	X3
CZS4 Petroleum Stg Tank -Steel -Sgl Wall -3000 Gal	UT	\$20,027.03	\$12,416.76	\$10,093.62	\$8,010.81	\$6,248.43	\$4,005.41	X3
CZS5 Petroleum Stg Tank -Steel -Sgl Wall -4000 Gal	UT	\$23,352.55	\$14,478.58	\$11,769.69	\$9,341.02	\$7,286.00	\$4,670.51	X3
CZS6 Petroleum Stg Tank -Steel -Sgl Wall -5000 Gal	UT	\$26,604.18	\$16,494.59	\$13,408.50	\$10,641.67	\$8,300.50	\$5,320.84	X3
CZS7 Petroleum Stg Tank -Steel -Sgl Wall -6000 Gal	UT	\$31,481.63	\$19,518.61	\$15,866.74	\$12,592.65	\$9,822.27	\$6,296.33	X3
CZS8 Petroleum Stg Tank -Steel -Sgl Wall -8000 Gal	UT	\$35,275.18	\$21,870.61	\$17,778.69	\$14,110.07	\$11,005.85	\$7,055.04	X3
CZS9 Petroleum Stg Tank -Steel -Sgl Wall -10,000 Gal	UT	\$43,108.63	\$26,727.35	\$21,726.75	\$17,243.45	\$13,449.89	\$8,621.73	X3
CZSA Petroleum Stg Tank -Steel -Sgl Wall -12,000 Gal	UT	\$48,478.73	\$30,056.81	\$24,433.28	\$19,391.49	\$15,125.36	\$9,695.75	X3
CZSB Petroleum Stg Tank -Steel -Sgl Wall -15,000 Gal	UT	\$59,120.40	\$36,654.65	\$29,796.68	\$23,648.16	\$18,445.56	\$11,824.08	X3
CZSC Petroleum Stg Tank -Steel -Sgl Wall -20,000 Gal	UT	\$76,856.53	\$47,651.05	\$38,735.69	\$30,742.61	\$23,979.24	\$15,371.31	X3
CZSD Petroleum Stg Tank -Steel -Sgl Wall -25,000 Gal	UT	\$96,070.65	\$59,563.80	\$48,419.61	\$38,428.26	\$29,974.04	\$19,214.13	X3
CZSE Petroleum Stg Tank -Steel -Sgl Wall -30,000 Gal	UT	\$113,067.78	\$70,102.02	\$56,986.16	\$45,227.11	\$35,277.15	\$22,613.56	X3
CZSF Petroleum Stg Tank -Steel -Sgl Wall -50,000 Gal	UT	\$177,361.20	\$109,963.94	\$89,390.04	\$70,944.48	\$55,336.69	\$35,472.24	X3
CZSG Petroleum Stg Tank -Steel -Dbl Wall - 300 Gal	UT	\$13,420.33	\$8,320.60	\$6,763.84	\$5,368.13	\$4,187.14	\$2,684.07	X3
CZSH Petroleum Stg Tank -Steel -Dbl Wall - 550 Gal	UT	\$15,430.43	\$9,566.86	\$7,776.93	\$6,172.17	\$4,814.29	\$3,086.09	X3
CZSI Petroleum Stg Tank -Steel -Dbl Wall -1,000 Gal	UT	\$23,155.50	\$14,356.41	\$11,670.37	\$9,262.20	\$7,224.52	\$4,631.10	X3
CZSJ Petroleum Stg Tank -Steel -Dbl Wall - 2,000 Gal	UT	\$27,737.33	\$17,197.14	\$13,979.61	\$11,094.93	\$8,654.05	\$5,547.47	X3
CZSK Petroleum Stg Tank -Steel -Dbl Wall -3,000 Gal	UT	\$32,590.13	\$20,205.88	\$16,425.42	\$13,036.05	\$10,168.12	\$6,518.03	X3
CZSL Petroleum Stg Tank -Steel -Dbl Wall - 2,000 Gal	UT	\$36,359.05	\$22,542.61	\$18,324.96	\$14,543.62	\$11,344.02	\$7,271.81	X3
CZSM Petroleum Stg Tank -Steel -Dbl Wall -5,000 Gal	UT	\$45,325.65	\$28,101.90	\$22,844.13	\$18,130.26	\$14,141.60	\$9,065.13	X3
CZSN Petroleum Stg Tank -Steel -Dbl Wall -6,000 Gal	UT	\$51,582.55	\$31,981.18	\$25,997.61	\$20,633.02	\$16,093.76	\$10,316.51	X3
CZSO Petroleum Stg Tank -Steel -Dbl Wall -8,000 Gal	UT	\$57,938.00	\$35,921.56	\$29,200.75	\$23,175.20	\$18,076.66	\$11,587.60	X3
7ZSP Petroleum Stg Tank -Steel -Dbl Wall -10,000 Gal	UT	\$70,944.48	\$43,985.57	\$35,756.02	\$28,377.79	\$22,134.68	\$14,188.90	X3
CZSQ Petroleum Stg Tank -Steel -Dbl Wall -12,000 Gal	UT	\$76,856.53	\$47,651.05	\$38,735.69	\$30,742.61	\$23,979.24	\$15,371.31	X3
CZSR Petroleum Stg Tank -Steel -Dbl Wall -15,000 Gal	UT	\$103,091.20	\$63,916.54	\$51,957.96	\$41,236.48	\$32,164.45	\$20,618.24	X3
CZSS Petroleum Stg Tank -Steel -Dbl Wall -20,000 Gal	UT	\$118,733.48	\$73,614.75	\$59,841.67	\$47,493.39	\$37,044.84	\$23,746.70	X3
CZST Petroleum Stg Tank -Steel -Dbl Wall -25,000 Gal	UT	\$147,185.18	\$91,254.81	\$74,181.33	\$58,874.07	\$45,921.77	\$29,437.04	X3

2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
CZSU Petroleum Stg Tank -Steel -Dbl Wall -30,000 Gal	UT	\$177,361.20	\$109,963.94	\$89,390.04	\$70,944.48	\$55,336.69	\$35,472.24	X3
CZSV Petroleum Stg Tank -Steel -Dbl Wall -50,000 Gal	UT	\$275,895.20	\$171,055.02	\$139,051.18	\$110,358.08	\$86,079.30	\$55,179.04	X3
MZ11 Apartment	SF	\$71.50	\$44.33	\$36.04	\$28.60	\$22.31	\$14.30	X3
MZ12 Hotel	SF	\$113.45	\$70.34	\$57.18	\$45.38	\$35.40	\$22.69	X3
MZ25 Dwelling Conversion, Office/Sales	SF	\$65.23	\$40.44	\$32.87	\$26.09	\$20.35	\$13.05	X3
MZ27 Residential	SF	\$66.50	\$41.23	\$33.52	\$26.60	\$20.75	\$13.30	X3
MZ31 Restaurant	SF	\$57.98	\$35.94	\$29.22	\$23.19	\$18.09	\$11.60	X3
MZ33 Discount Store/ Display Mezzanine	SF	\$65.23	\$40.44	\$32.87	\$26.09	\$20.35	\$13.05	X3
MZ34 Retail Store / Display Mezzanine	SF	\$65.23	\$40.44	\$32.87	\$26.09	\$20.35	\$13.05	X3
MZ35 Tavern/Bar	SF	\$57.98	\$35.94	\$29.22	\$23.19	\$18.09	\$11.60	X3
MZ36 Bar/Lounge	SF	\$57.98	\$35.94	\$29.22	\$23.19	\$18.09	\$11.60	X3
MZ37 Cafeteria	SF	\$57.98	\$35.94	\$29.22	\$23.19	\$18.09	\$11.60	X3
MZ39 Mall Shop	SF	\$73.55	\$45.60	\$37.07	\$29.42	\$22.95	\$14.71	X3
MZ41 Mini-Warehouse	SF	\$56.08	\$34.77	\$28.26	\$22.43	\$17.50	\$11.22	X3
MZ43 Manufacturing	SF	\$41.88	\$25.96	\$21.11	\$16.75	\$13.07	\$8.38	X3
MZ44 Light Manufacturing	SF	\$41.88	\$25.96	\$21.11	\$16.75	\$13.07	\$8.38	X3
MZ45 Warehouse	SF	\$41.08	\$25.47	\$20.70	\$16.43	\$12.82	\$8.22	X3
MZ46 Auto Showroom/Office	SF	\$99.05	\$61.41	\$49.92	\$39.62	\$30.90	\$19.81	X3
MZ47 Auto Parts/Service	SF	\$41.88	\$25.96	\$21.11	\$16.75	\$13.07	\$8.38	X3
MZ48 Tennis Club	SF	\$48.30	\$29.95	\$24.34	\$19.32	\$15.07	\$9.66	X3
MZ49 Racquet Ball Court	SF	\$48.30	\$29.95	\$24.34	\$19.32	\$15.07	\$9.66	X3
MZ51 Bank/Savings Institution	SF	\$132.95	\$82.43	\$67.01	\$53.18	\$41.48	\$26.59	X3
MZ52 Medical/Medical and Dental Center	SF	\$120.78	\$74.88	\$60.87	\$48.31	\$37.68	\$24.16	X3
MZ53 Office	SF	\$120.78	\$74.88	\$60.87	\$48.31	\$37.68	\$24.16	X3
MZ55 School	SF	\$93.80	\$58.16	\$47.28	\$37.52	\$29.27	\$18.76	X3
MZ57 Library	SF	\$121.28	\$75.19	\$61.12	\$48.51	\$37.84	\$24.26	X3
MZ61 Auditorium/Theater / Open Mezzanine	SF	\$72.45	\$44.92	\$36.51	\$28.98	\$22.60	\$14.49	X3
MZ62 Cinema Balcony	SF	\$96.63	\$59.91	\$48.70	\$38.65	\$30.15	\$19.33	X3
MZ63 Religious Institution	SF	\$91.80	\$56.92	\$46.27	\$36.72	\$28.64	\$18.36	X3
MZ64 Social/Fraternal Hall	SF	\$54.33	\$33.68	\$27.38	\$21.73	\$16.95	\$10.87	X3
MZ65 Office Lobby . Open Mezzanine	SF	\$74.95	\$46.47	\$37.77	\$29.98	\$23.38	\$14.99	X3
MZ81 Multi-Use, Living Area	SF	\$74.00	\$45.88	\$37.30	\$29.60	\$23.09	\$14.80	X3
MZ82 Multi-Use, Office	SF	\$96.63	\$59.91	\$48.70	\$38.65	\$30.15	\$19.33	X3
MZ83 Multi-Use, Sales	SF	\$72.45	\$44.92	\$36.51	\$28.98	\$22.60	\$14.49	X3
MZ84 Multi-Use, Storage Low Cost	SF	\$31.40	\$19.47	\$15.83	\$12.56	\$9.80	\$6.28	X3
MZ85 Enclosure (Economic Rent Not Generated)	SF	\$43.38	\$26.89	\$21.86	\$17.35	\$13.53	\$8.68	X3
MZ86 Support Area	SF	\$56.08	\$34.77	\$28.26	\$22.43	\$17.50	\$11.22	X3
MZ87 Support Area w/ Rent (Not In Use)	SF	\$74.95	\$46.47	\$37.77	\$29.98	\$23.38	\$14.99	X3



2011 Commercial Extra Features Dollar per Unit – Quality Grade

Use Code – Desc	Units	Quality Grade						Depr. Table
		Excellent	Very Good	Good	Average	Fair	Poor	
MZ88 Restroom/Locker Facility	SF	\$60.40	\$37.45	\$30.44	\$24.16	\$18.84	\$12.08	X3
MZ89 Health Club	SF	\$60.40	\$37.45	\$30.44	\$24.16	\$18.84	\$12.08	X3
MZ90 Parking Garage	SF	\$46.13	\$28.60	\$23.25	\$18.45	\$14.39	\$9.23	X3
MZ91 Low Cost Utility Storage Area	SF	\$41.88	\$25.96	\$21.11	\$16.75	\$13.07	\$8.38	X3
MZ96 Fast Food	SF	\$42.43	\$26.30	\$21.38	\$16.97	\$13.24	\$8.49	X3
MZ97 Restaurant	SF	\$42.43	\$26.30	\$21.38	\$16.97	\$13.24	\$8.49	X3
MZ96 Fast Food	SF	\$42.43	\$26.30	\$21.38	\$16.97	\$13.24	\$8.49	M50
MZ97 Restaurant	SF	\$42.43	\$26.30	\$21.38	\$16.97	\$13.24	\$8.49	M50

2011 Commercial Cap Rate Study

LUC	Eco Area	Bldg Class	Sales Date	Sales Price	NOI PSF	Cap Rate
<b>4394</b>	16	D	Sep-09	\$1,775,000	\$207,538	8.86%
4394	23	D	Oct-09	\$9,700,000	\$1,221,611	10.07%
<b>Warehouses</b>		<b>Class D</b>			<b>Average / Median</b>	<b>9.47%</b>
<b>4396</b>	11	A	Jul-10	\$3,800,000	\$326,519	6.34%
<b>Warehouses</b>		<b>Class A</b>			<b>Average / Median</b>	<b>6.34%</b>
4396	11	B	May-10	\$4,600,000	\$503,363	8.69%
4396	26	B	Jun-10	\$2,100,000	\$294,729	11.79%
<b>Warehouses</b>		<b>Class B</b>			<b>Average / Median</b>	<b>10.24%</b>
4396	12	C	Jul-09	\$875,000	\$83,596	7.03%
4396	22	C	Feb-10	\$550,000	\$74,235	10.97%
<b>Warehouses</b>		<b>Class C</b>			<b>Average / Median</b>	<b>9.00%</b>
4396	14	D	Apr-09	\$1,025,000	\$123,889	9.62%
4396	15	D	Mar-09	\$900,000	\$131,479	12.31%
<b>Warehouses</b>		<b>Class D</b>			<b>Average / Median</b>	<b>10.97%</b>
<b>4397</b>	11	A	Jul-09	\$1,750,000	\$129,596	4.57%
4397	17	A	Jul-09	\$2,300,000	\$213,857	6.53%
<b>Warehouses</b>		<b>Class A</b>			<b>Average / Median</b>	<b>5.55%</b>
4397	17	B	May-10	\$951,000	\$87,233	6.40%
<b>Warehouses</b>		<b>Class B</b>			<b>Average / Median</b>	<b>6.40%</b>
4397	5	C	Jul-09	\$1,075,000	\$108,121	7.47%
<b>Warehouses</b>		<b>Class C</b>			<b>Average / Median</b>	<b>7.47%</b>
<b>4398</b>	17	A	Jul-10	\$14,700,000	\$1,049,740	4.50%
4398	7	A	Mar-09	\$1,950,000	\$188,456	6.77%
4398	2	A	Oct-10	\$875,000	\$86,171	7.32%
4398	15	A	May-09	\$1,400,000	\$145,066	8.07%
<b>Warehouses</b>		<b>Class A</b>			<b>Average / Median</b>	<b>6.66%</b>
4398	12	B	Oct-10	\$2,150,000	\$160,701	4.95%
4398	2	B	Mar-09	\$485,000	\$43,258	6.25%
4398	23	B	May-10	\$1,800,000	\$166,237	6.47%
4398	18	B	Oct-10	\$864,000	\$82,297	6.72%
4398	17	B	Oct-10	\$2,051,768 *	\$212,767	7.25%
4398	2	B	Dec-09	\$1,850,000	\$198,032	8.18%
4398	22	B	Dec-09	\$632,500	\$72,562	8.95%
4398	23	B	Nov-09	\$950,000	\$124,255	10.31%

2011 Commercial Cap Rate Study

LUC	Eco Area	Bldg Class	Sales Date	Sales Price	NOI PSF	Cap Rate
<b>Warehouses</b>		<b>Class B</b>			<b>Average / Median</b>	<b>7.38%</b>
4398	22	C	Apr-10	\$9,600,000	\$830,289	6.12%
<b>Warehouses</b>		<b>Class C</b>			<b>Average / Median</b>	<b>6.12%</b>
<b>4354</b>	15	A	Feb-11	\$80,500,000	\$4,974,784	6.18%
4354	29	A	Jan-11	\$31,000,000	\$1,543,349	4.98%
4354	30	A	Jan-11	\$45,000,000	\$2,886,580	6.41%
4354	1	A	Dec-10	\$325,000,000	\$12,168,895	3.74%
4354	1	A	Oct-10	\$57,000,000	\$6,202,508	10.88%
7600	3	A	Oct-10	\$33,000,000	\$2,127,772	6.45%
4354	15	A	Jun-10	\$94,000,000	\$4,019,285	4.28%
7600	12	A	Aug-10	\$63,000,000	\$4,977,997	7.90%
4324	29	A	Feb-10	\$29,700,000	\$2,438,123	8.21%
7600	15	A	May-09	\$14,700,000	\$1,016,305	6.91%
<b>Office Buildings</b>		<b>Class A</b>			<b>Average / Median</b>	<b>6.43%</b> <b>6.59%</b>
4353	4	B	Oct-10	\$12,200,000	\$574,388	4.71%
4354	5	B	Oct-10	\$47,500,000	\$2,335,867	4.92%
4353	17	B	Aug-10	\$5,800,000	\$716,780	12.36%
4354	17	B	Jul-10	\$7,000,000	\$803,908	11.48%
4353	30	B	Jun-10	\$14,900,000	\$973,533	6.53%
4354	30	B	Apr-10	\$15,700,000	\$1,383,978	8.82%
4354	10	B	Mar-10	\$10,750,000	\$774,139	7.20%
4354	24	B	Mar-10	\$3,325,000	\$232,234	6.98%
4353	15	B	Jan-10	\$9,955,000	\$885,742	8.90%
4354	23	B	Oct-09	\$4,400,000	\$478,062	10.87%
4354	1	B	Sep-09	\$52,873,000	\$4,658,944	8.81%
4353	20	B	Aug-09	\$3,400,000	\$277,200	8.15%
7600	3	B	Jul-09	\$5,100,000	\$308,170	6.04%
4354	4	B	Jun-09	\$8,700,000	\$803,166	9.23%
4353	28	B	Apr-09	\$8,000,000	\$721,339	9.02%
4354	25	B	Feb-09	\$9,450,000	\$815,565	8.63%
<b>Office Buildings</b>		<b>Class B</b>			<b>Average / Median</b>	<b>8.72%</b> <b>8.29%</b>
4353	17	C	Mar-09	\$630,000	\$69,793	11.08%
4353	28	C	Mar-09	\$975,000	98,799	10.13%
4353	17	C	Aug-09	\$795,000	82,371	10.36%
4353	19	C	Dec-09	\$525,000	68,666	13.08%
4353	27	C	Jun-10	\$450,000	\$79,349	17.63%
4353	13	C	May-10	\$1,600,000	\$208,734	13.05%

2011 Commercial Cap Rate Study

LUC	Eco Area	Bldg Class	Sales Date	Sales Price	NOI PSF	Cap Rate
<b>Office Buildings</b>		<b>Class C</b>		<b>Average / Median</b>		<b>12.06%</b> <b>12.56%</b>
4349	22	A	Jun-10	\$38,100,000	\$2,335,987	6.13%
4349	11	A	May-10	\$8,450,000	\$479,930	5.68%
4349	20	A	Dec-08	\$27,823,529	\$1,594,477	5.73%
<b>Medical Office Buildings</b>		<b>Class A</b>		<b>Average / Median</b>		<b>5.73%</b> <b>5.85%</b>
4300	11	B	Feb-09	\$6,900,000	\$554,388	8.03%
4349	9	B	Dec-08	\$2,500,000	\$191,422	7.66%
4349	15	B	Mar-08	\$5,400,000	\$272,931	5.05%
4349	8	B	Jan-08	\$2,725,000	\$215,125	7.89%
<b>Medical Office Buildings</b>		<b>Class B</b>		<b>Average / Median</b>		<b>7.78%</b> <b>7.16%</b>
4349	9	C	Jun-10	\$4,300,000	\$317,833	7.39%
4349	9	C	Dec-09	\$925,000	\$87,112	9.42%
<b>Medical Office Buildings</b>		<b>Class C</b>		<b>Average / Median</b>		<b>8.40%</b> <b>8.40%</b>
4349	4	D	May-09	\$400,000	\$42,351	10.59%
<b>Medical Office Buildings</b>		<b>Class D</b>		<b>Average / Median</b>		<b>10.59%</b> <b>10.59%</b>
7500	11	A	Jun-10	\$56,500,000	\$3,298,404	5.84%
4340	11	A	Jun-10	\$2,516,700	\$198,392	7.86%
4340	11	A	Mar-10	\$43,125,000	\$3,734,774	8.66%
4343	11	A	Oct-10	\$9,850,000	\$792,224	<b>8.04%</b>
<b>Retail</b>		<b>Class A</b>		<b>Average / Median</b>		<b>7.96%</b> <b>7.61%</b>
4343	10	A	May-10	\$7,100,000	\$371,283	5.23%
4374	23	A	Jan-10	\$3,000,000	\$159,948	5.33%
4374	13	A	Jul-09	\$1,600,000	\$99,568	6.22%
4344	24	A	Jul-09	\$3,600,000	\$291,890	8.11%
<b>Retail</b>		<b>Class A</b>		<b>Average / Median</b>		<b>5.78%</b> <b>6.22%</b>
4374	8	B	Jan-10	\$750,000	\$54,091	7.21%
4344	15	B	Jul-09	\$710,000	\$63,388	8.93%

2011 Commercial Cap Rate Study

LUC	Eco Area	Bldg Class	Sales Date	Sales Price	NOI PSF	Cap Rate
<b>Retail</b>		<b>Class B</b>		<b>Average / Median</b>		<b>8.07%</b>
						<b>8.07%</b>
4344	13	C	Jun-10	\$1,283,750	\$135,085	10.52%
7500	19	C	Mar-10	\$2,000,000	\$215,017	10.75%
4344	15	C	Jul-09	\$1,200,000	\$175,294	14.61%
<b>Retail</b>		<b>Class C</b>		<b>Average / Median</b>		<b>10.75%</b>
						<b>11.96%</b>
4211	24	A	Sep-09	\$14,946,525	\$1,078,943	7.20%
4211	10	A	Nov-09	\$11,225,000	\$885,758	7.90%
4211	32	A	Feb-10	\$15,950,000	\$1,747,766	10.90%
4211	27	A	Jul-10	\$24,499,000	\$2,072,596	8.40%
4211	24	A	Sep-09	\$13,523,475	\$1,763,700	13.00%
4211	10	A	Nov-09	\$21,250,000	\$1,581,215	7.40%
4211	10	A	Nov-09	\$8,025,000	\$640,260	7.90%
4211	29	A	Oct-09	\$23,200,000	\$1,604,151	6.90%
4211	4	A	Feb-09	\$8,900,000	\$602,885	6.70%
4211	25	A	Apr-10	\$23,100,000	\$1,427,684	6.20%
<b>Apartments</b>		<b>Class A</b>		<b>Average / Median</b>		<b>7.65%</b>
4211	36	B	Jun-09	\$2,850,000	\$330,216	11.50%
4211	18	B	Mar-10	\$2,900,000	\$300,567	10.30%
4211	5	B	Mar-10	\$10,575,000	\$599,480	5.70%
4211	20	B	Mar-10	\$850,000	\$70,502	8.20%
4211	12	B	Mar-10	\$8,250,000	\$978,772	11.80%
4211	4	B	Aug-09	\$12,600,000	\$808,430	6.40%
4211	13	B	Oct-09	\$9,100,000	\$496,237	5.40%
4211	29	B	Aug-09	\$8,077,000	\$753,474	9.30%
4211	6	B	Jun-09	\$28,700,000	\$1,782,918	6.20%
4211	12	B	Jul-10	\$27,000,000	\$2,173,740	8.00%
4211	21	B	Jul-09	\$3,700,000	\$662,139	17.80%
4211	24	B	Dec-10	\$3,300,000	\$369,255	11.20%
4211	33	B	Oct-10	\$5,270,000	\$433,642	8.70%
4211	31	B	Dec-10	\$3,750,000	\$352,800	9.40%
4211	4	B	Jul-09	\$2,675,000	\$163,632	6.10%
<b>Apartments</b>		<b>Class B</b>		<b>Average / Median</b>		<b>8.45%</b>
4211	30	C	Dec-10	\$1,150,000	\$107,693	9.40%
4211	26	C	Apr-09	\$5,000,000	\$521,160	10.40%
4211	7	C	Feb-09	\$4,953,000	\$435,686	8.80%
4211	16	C	May-09	\$1,450,000	\$114,739	7.90%
4211	12	C	Nov-09	\$5,400,000	\$354,585	6.60%
4211	30	C	Nov-09	\$1,790,000	\$121,354	6.80%

2011 Commercial Cap Rate Study

LUC	Eco Area	Bldg Class	Sales Date	Sales Price	NOI PSF	Cap Rate
4211	31	C	Jun-09	\$7,400,000	\$564,784	7.60%
4211	26	C	Oct-10	\$995,000	\$127,299	12.80%
4211	24	C	Mar-09	\$3,570,000	\$525,314	14.70%
4211	16	C	Sep-10	\$660,000	\$111,793	16.90%
4211	12	C	May-10	\$600,000	\$84,108	11.50%
4211	14	C	Dec-09	\$3,800,000	\$420,519	8.30%
4211	30	C	Mar-09	\$3,275,000	\$529,540	13.60%
4211	16	C	May-10	\$1,650,000	\$216,326	10.10%
4211	9	C	Aug-09	\$4,999,000	\$555,798	8.60%
<b>Apartments</b>		<b>Class B</b>	<b>Average / Median</b>		<b>9.40%</b>	
4212	10	A	Jun-09	\$28,200,000	\$2,348,288	8.30%
4212	4	A	Aug-10	\$65,500,000	\$4,673,859	7.10%
4212	3	A	Jul-10	\$36,400,000	\$2,146,274	5.90%
4212	6	A	May-10	\$38,200,000	\$3,025,440	7.90%
<b>Apartments</b>		<b>Class A</b>	<b>Average / Median</b>		<b>7.50%</b>	

Harris County Appraisal District  
 Business and Industrial Property  
 Value Calculation Guidelines  
 Tax Year 2011

Asset Category	Schedule
A. Inventory	100% Original Cost
B. Supplies	100% Original Cost
C. Raw Materials	100% Original Cost
D. Work in Process	100% Original Cost
E. Furniture & Fixtures	8-Yr Original Cost x Index Factor x %GD Schedule
F. Machinery & Equipment	
1. General Office Equipment	6-Yr Original Cost x Index Factor x %GD Schedule
2. Specific Equipment Includes Mobile Radio Equipment, Telephone Systems (PBX), Cellular Telephones, & FAX Machines	Specific Equipment Schedule
3. All other Machinery & Equipment	Original Cost x Index Factor x %GD Schedule Based on the Type of M&E:(Refer to SIC Code List)
G. Computer Equipment	
1. P.C. Computer Equipment / Servers Note: Includes Input/output devices or peripherals. Examples; CPU, keyboard, mouse display, HP printers, and servers.	P.C. Schedule
2. Mainframe Examples of Mainframe types; IBM System z10, historically IBM System/360, Systemz9, Systemz10 servers, logical partitions (LPARs, via the PR/SM facility), virtual machines (via the z/VM operating system), (operating systems z/OS), Linux, OpenSolaris and Java, high speed production printers.	Mainframe Schedule
H. Leasehold Improvements	6-Yr Original Cost x Index Factor x %GD Schedule
I. Vehicles Note: The new age mix (NAM) schedule does not apply to vehicles. Vehicles will be carried on a separate account for 2010. Equipment mounted on vehicles must be listed on the main account with all other M&E	NADA
J. Miscellaneous Assets	Original Cost x Index Factor x %GD Schedule Based on the Type of M&E: (Refer to SIC Code List)

The cost indexed is obtained by Marshall & Swift's national average cost information for equipment as published in October each year. The reported cost will be cost indexed using Marshall & Swift national average cost information for equipment as published in October 2010 to arrive at the replacement cost new then multiplied by the percent good factor (%GD). The Present Value Factors (PVFs), used for the calculation of the Book Value to Market Value Conversion method, will be cost indexed using Marshall & Swift national average cost information for equipment as published in October 2010.

Note: These value calculation guidelines normally apply to items appraised by the Personal Property Division. Appraisers may apply an obsolescence factor to newer assets if the overall asset age mix is out of balance. These schedules may also be used for the appraisal of Industrial Personal Property by the Industrial Valuation Group. However, industrial properties may be subject to different maintenance regimens and may have longer useful lives. A combination of a longer schedules and factors representing condition may be used for such property. In any event, these schedules are guidelines and may be overridden based on the documentation presented in a hearing and the judgment of the appraiser.

2011 Personal Property Depreciation Schedules  
for Year of Acquisition Method

YEAR ACQUIRED	INDEX FACTOR	See Note 1 Below									
		3 %GD	4 %GD	5 %GD	6 %GD	8 %GD	10 %GD	12 %GD			
2010	1.000	65	75	85	87	90	92	94			
2009	0.992	39	56	69	73	79	84	87			
2008	1.021	26	42	52	57	67	76	80			
2007	1.061	13	27	34	41	54	67	73			
2006	1.119		13	23	30	43	58	66			
2005	1.171			18	23	33	49	58			
2004	1.259			13	19	26	39	50			
2003	1.303				13	22	30	43			
2002	1.325					20	24	36			
2001	1.333					13	21	29			
2000	1.344						20	24			
1999	1.368						13	22			
1998	1.373							20			
1997	1.384							13			

**Note 1:**

Appraisers may apply an obsolescence factor to newer assets if the overall asset age mix is out of balance.

**Note 2:**

Schedules for items with 15 year or greater lives normally apply only to certain types of industrial machinery and equipment. Generally, items of this type are maintained in a manner resulting in low effective ages. Industrial appraisers adjust for lesser degrees of maintenance through application of service factors.



2011 Personal Property Depreciation Schedules  
for Year of Acquisition Method

YEAR ACQUIRED	INDEX FACTOR	See Note 2 Below			
		15 %GD	20 %GD	25 %GD	30 %GD
2010	1.000	95	97	98	98
2009	0.992	90	93	95	97
2008	1.021	85	90	93	95
2007	1.061	79	86	90	93
2006	1.119	73	82	87	91
2005	1.171	68	78	84	89
2004	1.259	62	74	81	86
2003	1.303	55	70	78	84
2002	1.325	49	65	75	82
2001	1.333	43	60	71	79
2000	1.344	37	55	68	76
1999	1.368	31	50	64	74
1998	1.373	26	45	60	71
1997	1.384	23	40	56	68
1996	1.407	21	35	52	65
1995	1.428	20	31	48	61
1994	1.480		27	44	58
1993	1.521		24	39	54
1992	1.551		22	34	51
1991	1.570		21	30	47
1990	1.601		21	28	43
1989	1.644		20	26	40
1988	1.732			24	37
1987	1.806			23	34
1986	1.832			22	31
1985	1.850			21	28
1984	1.877				25
1983	1.928				23
1982	1.963				22
1981	2.055				21
1980	2.267				21
1979	2.494				20
1978	2.726				
1977	2.932				
1976	3.087				
1975	3.280				
1974	3.658				
1973	4.235				
1972	4.388				
1971	4.536				
1970	4.805				
1969	5.112				
1968	5.334				

## **YEAR OF ACQUISITION**

The percent good factor (%GD) schedules for the YEAR OF ACQUISITION METHOD are to be used when original cost is known by year of acquisition. Refer to the property category, such as Furniture & Fixtures, to determine the appropriate useful life %GD schedule. The original cost is multiplied by the Index Factor, which equals the replacement cost then multiplies by the %GD for the acquisition year to arrive at a calculated rendered value for that category.

## **BOOK VALUE TO MARKET VALUE CONVERSION**

If the original cost by year of acquisition is not known, but the original cost and depreciation are known by category, the tables for BOOK VALUE / MARKET VALUE CONVERSION are to be used. First, divide the accumulated depreciation by the original cost to determine the percentage of book depreciation. The percentage of book depreciation is used to determine which present value factor (PVF) to apply. The original cost is multiplied by the PVF factor to arrive at a calculated rendered value for that category.

## **NET BOOK VALUE**

Original cost less accumulated depreciation equals NET BOOK VALUE. The net book value is calculated and compared to the BOOK VALUE / MARKET VALUE CONVERSION METHOD of valuation. If the net book value is greater than the book value / market value method, then the net book value is used to arrive at a calculated rendered value for that category. The NET BOOK VALUE is **not** used to override the YEAR OF ACQUISITION METHOD of valuation.

## **NEW ASSET MIX (NAM)**

The New Asset Mix (NAM) is an obsolescence factor that is applied when most of the assets in a category are newer, therefore compensating for the age mix being out of balance. Each year life, the computer schedules, and the specific equipment schedule have separate NAM factors. Please note the new asset mix schedule does not apply to vehicles.

Harris County Appraisal District  
 2011 Percent Good & Present Value Factor Tables  
 Specific Equipment and Computer Equipment

	Specific Equipment: Includes Mobile Radio Equipment, Telephone Systems (PBX), Cellular Telephones, Fax Machines	P.C. Computer Equipment
Year	Percent Good	Percent Good
2010	65	65
2009	39	39
2008	26	26
2007	10	10
Prior	5	5

	Main Frame Computer Equipment
Year	Percent Good
2010	75
2009	55
2008	40
2007	25
2006	10
Prior	05

Harris County Appraisal District  
 Personal Property Book Value To Market Value Conversion Tables  
 Tax Year 2011

Book Depreciation	PVF Furniture & fixtures	PVF Leasehold Imps	PVF M&E (6-year Life)	PVF M&E (8-year Life)	PVF M&E (10-year Life)	PVF M&E (12-year Life)	PVF M&E (15-year Life)
00 - 20%	90	87	87	90	92	94	95
21 - 40%	78	72	72	78	83	86	89
41 - 60%	68	58	58	68	78	82	87
61 - 80%	57	44	44	57	71	77	84
81 - 99%	48	34	34	48	65	74	82
100%	39	27	27	39	57	68	80

Book Depreciation	PVF Computer Equipment	Book Depreciation	PVF M&E (3-year Life)	Book Depreciation	PVF M&E (4-year Life)	Book Depreciation	PVF M&E (5-year Life)
00 - 20%	75	00 - 50%	65	00 - 33%	75	00 - 25%	85
21 - 40%	55	51 - 99%	39	34 - 67%	56	26 - 50%	68
41 - 60%	40	100%	27	68 - 99%	43	51 - 75%	53
61 - 80%	25			100%	29	76 - 99%	36
81 - 100%	10					100%	26