DEPARTMENT OF ASSESSMENTS AND TAXATION

2009 RATIO REPORT

State of Maryland

DEPARTMENT OF ASSESSMENTS AND TAXATION

Office of the Director

MARTIN O'MALLEY
Governor

C. JOHN SULLIVAN, JR.
Director

June 1, 2010

The Honorable Martin O'Malley
and
The General Assembly of Maryland

As required by Section 2-202 of the Tax-Property Article of the Annotated Code of Maryland, I am pleased to submit the Department of Assessments and Taxation's 2009 Assessment Ratio Report. This report measures the quality of real property assessments in each of Maryland's 24 subdivisions.

Uniform and accurate assessments are the foundation of fair property taxation. Maryland's Constitution requires that all real property subject to property taxation be assessed uniformly. State law requires that assessments be based on the fair market value of the property. Therefore, uniformity and market value are the standards used to measure the quality of the assessment work performed by the Department.

This report measures assessment quality by looking at the most recent reassessment program and comparing the results of the effort to actual market conditions. Because state law requires that one-third of all real property be reassessed each year, the Department's program resulted in approximately 731,600 reassessment notices being issued in late December of 2008. These reassessments reflected our estimates of property values as of January 1, 2009. To provide an objective quality measure of that work, this report tests those reappraisal results against property sales for the 12 month period of July 1, 2008 to June 30, 2009.

The Department has adopted the national standards for measuring property assessment quality as outlined by the International Association of Assessing Officers. Those national standards, as well as our compliance with those standards, are discussed in the body of this report. Statewide, the Department has met the IAAO standard for coefficient of dispersion indicating an overall uniformity of assessments. The measures of central tendency are excellent.

I hope that you find this report useful and informative. Please feel free to share with me any suggestions that you may have to improve this report or the assessment process in Maryland.

Sincerely,

C. John Sullivan, Jr.
Director

2009 ASSESSMENT RATIO REPORT

SECTION I – OVERVIEW

The Department of Assessments and Taxation appraises real property for the purposes of property taxation. Properties are valued using the three approaches to value generally recognized by the appraisal profession: cost, sales comparison, and (when applicable) income.

In Maryland, all properties are required by law to be physically reviewed once every three years. During the review, the assessor will visit properties to verify property characteristics existing in our current assessment records. Residential property characteristics include type of structure, size, quality and type of construction, condition of structure, and any new improvements. In certain circumstances, neighborhood inspections may be made in place of individual property inspections. Commercial properties are reviewed for type of structure, size, type and quality of construction, condition of structure, current use of the property, any new improvements, types of tenants, and vacancy.

This year we valued over 731,600 properties, which require the use of mass appraisal techniques. While a fee appraiser is concerned with valuing one property at a time, an assessor is valuing whole neighborhoods. To accomplish this, special mass appraisal procedures are used. The assessor will review the data and calculate replacement costs for improvements much like a fee appraiser. The assessor will then review the sales from the area. In Maryland, the local assessment office, except in Baltimore City, receives a copy of all deeds and property sales prices as the deed transferring the property is recorded with the clerk of the court. In Baltimore City, the Department of Public Works does the data entry and provides the data to the Department. In the assessor's review and analysis of the sales, the assessor will develop land rates, depreciation tables, and sales analysis reports. After completing the analysis, the assessor applies the factors uniformly throughout the neighborhood to value all comparable properties in a uniform manner. Rental rates, vacancy and collection loss, expense ratios and capitalization rates are analyzed, and uniformly applied for comparable income producing properties.

The Department's work is reviewed by legislative auditors and is often scrutinized by individual property owners. We are continually striving for higher quality in assessment uniformity. Our quality control program begins with the individual assessor and the assessor's immediate supervisor. As work is completed, each assessor's supervisor reviews the analysis, makes recommendations, and approves the work. When the assessor completes the revaluation, the supervisor makes a random check using procedural and data editing checks. Following the completion of the revaluation, various computer edits are made to assure good valuation quality.

A measurement of quality is the assessed value/sale price ratio. A ratio is the relationship of two numbers, in this case assessed value and sale price. It measures how closely our values compare to the actual sales prices. The average assessed value/sale price ratio indicates a typical level of value. Because the marketplace is not perfect, there will always be properties that sell for more or less than can be anticipated due to factors such as sales between people unfamiliar with the market, buyers willing to pay extra for a unique property, or escalating values in a competitive seller's market.

In mass appraisal and assessment ratio studies, we are not only concerned with average assessed value/sale price levels (ratios) but also with the degree of spread (variation) from the typical ratio. The measurement of variation is called the coefficient of dispersion (COD). The lower the COD, the more uniform the assessment level.

In the balance of this report, Section II will give a more detailed explanation of the statistical terms as applied to assessment administration and quality control. Section III explains the International Association of Assessing Officer's Standard of Performance for ratio studies. Section IV gives an overview of statewide appraisal quality for the most recent valuation of triennial Group 3, performed in December 2008.

SECTION II – RATIO STATISTICS

The purpose of this ratio study is to test the quality of the assessment product. The quality of the assessment product is examined from both an assessment level and assessment uniformity standpoint. Assessment level examines the degree to which the assessments are performed based upon the statutory requirement of full market value. Assessment uniformity measures the degree to which different properties are assessed at equal percentages of their market values. From our most recent valuation, we perform many ratio studies examining neighborhoods, types of structures, age of structures, etc.

We use as a performance gauge several measures of central tendency. Each measure of central tendency is affected differently by outliers. A ratio of assessed value to sale price is calculated for each property. The average ratio is the total of all ratios divided by the number of sales. The average (mean) ratio has a natural upward bias. This would indicate a higher level of assessment than has actually occurred. The median is the midpoint of any data listed from lowest to highest. The median ratio is the point where half the ratios fall above and half ratios fall below. The median ratio counts each ratio equally. It is less biased by extreme ratios (outliers) or by individual property values. The weighted ratio is the total of all assessed values divided by the total of all sale prices. Since the weighted ratio counts each dollar equally, it is swayed by higher priced properties.

In addition to the general level of assessments, we are also concerned with the relative spread or variation that individual ratios fall from the typical. There are two measurements of variability: coefficient of dispersion and coefficient of variation. These statistics measure horizontal inequities, or the dispersion of ratios regardless of the value of the individual properties. The coefficient of dispersion is calculated by dividing the average absolute deviation by the median ratio. The average absolute deviation is calculated by subtracting the median ratio from each ratio, adding all the results but ignoring positive and negative signs, and dividing by the number of ratios. Acceptable coefficients of dispersion depend on property type but should typically be 20% or less. Coefficient of variation is calculated by dividing the standard deviation by the mean or average ratio and multiplying by 100. The variance is calculated by subtracting the mean from each ratio, squaring the differences, summing the squared differences, dividing by the total number of ratios less one. The standard deviation is calculated by taking the square root of the variance. The coefficient of dispersion is the preferable measure of variance unless a sample is normally distributed. In a normal distribution situation, coefficient of variation is the preferable measure of variance.

Another statistical measure used to gauge assessment uniformity is the Price Related Differential (PRD). The PRD tests to see if higher or lower valued properties are assessed at the same level. It is calculated by dividing the average ratio by the weighted ratio. This statistic measures vertical inequities. When low-value properties are valued at a higher percentage of their market value, the property taxes levied against these assessments would be considered regressive. Conversely, if high-value properties are valued at a higher percentage of their market value, property taxes levied against these assessments would be considered progressive. Typically, PRDs have an upward bias because higher priced properties are more unique. PRDs should range between 0.98 and 1.03, except for very small samples. For example, a PRD of 1.03 indicates under valuation of high priced properties, while a PRD of 0.98 shows an under valuation of low priced properties.

Other descriptive statistical methods that may be used to analyze the assessment product are histograms, frequency distributions, and scatter diagrams. Due to the scope of this report, we have not examined them here. For further information on statistics relating to assessments, please refer to the International Association of Assessing Officers' publication "Improving Real Property Assessment".

Table I is the Fiscal Year 2010 Real Property Base/Ratio by Subdivision with assessment ratios expressed relative to full value. Table II is a history of weighted assessment ratios converted to full value (100% levels) that allows for comparison between years by adjusting for statutory changes in the assessment level. Table III displays examples of the statistical calculations used in this report.

Tables IV and V show the residential and commercial 2009 Ratio Study data by subdivision at assessed full market value level for the area most recently assessed. Following the ratio study is Table VI of the report detailing issues of assessment and appraisal quality that are summarized in Section IV.

SECTION III – RATIO STUDY STANDARDS VALUES TO SALE PRICES

The International Association of Assessing Officers (IAAO) is a professional organization of assessing officials which provides educational programs, assessment administration standards, and research on appraisal and tax policy issues. IAAO has developed numerous standards and texts on appraisal and assessment administration. Additionally, the organization is a founding member of the national Appraisal Foundation which developed the Uniform Standards of Professional Appraisal Practice (USPAP).

IAAO's Standard on Ratio Studies was first published in September 1980 and was revised in January 2010. The Standard is advisory in nature. This Standard provides guidance to those performing ratio studies in the mass appraisal field regarding the design, statistics, performance measures and other issues related to such studies. The Maryland Department of Assessments and Taxation uses the fundamental ratio statistical measures of the Standard and has adopted IAAO's Assessment Ratio Performance Standard as the criteria to judge the performance of Maryland revaluations.

The IAAO Ratio Performance Standards are:

Ratio Study Uniformity Standards Indicating Acceptable General Quality*

General Property Class	Jurisdiction Size /Profile /Market Activity	Max COD
Residential improved (single family dwellings, condominiums, manuf. housing, 2-4 family units)	Very large jurisdictions / densely populated / newer properties / active markets	5.0 to 10.0
	Large to mid-sized jurisdictions / older & newer properties / less active markets	5.0 to 15.0
	Rural or small jurisdictions / older properties / depressed market areas	5.0 to 20.0
Income-producing properties (commercial, industrial, apartments,)	Very large jurisdictions / densely populated / newer properties / active markets	5.0 to 15.0
	Large to mid-sized jurisdictions / older & newer properties / less active markets	5.0 to 20.0
	Rural or small jurisdictions / older properties / depressed market areas	5.0 to 25.0
Residential vacant land	Very large jurisdictions / rapid development / active markets	5.0 to 15.0
	Large to mid-sized jurisdictions / slower development / less active markets	5.0 to 20.0
	Rural or small jurisdictions/ little development / depressed markets	5.0 to 25.0
Other (non-agricultural) vacant land	Very large jurisdictions / rapid development / active markets	5.0 to 20.0
	Large to mid-sized jurisdictions / slower development / less active markets	5.0 to 25.0
	Rural or small jurisdictions/ little development / depressed markets	5.0 to 30.0

These types of property are provided for general guidance only and may not represent jurisdictional requirements.

➢ *The COD performance recommendations are based upon representative and adequate sample sizes, with outliers trimmed and a 95% level of confidence.*

➢ *Appraisal level recommendation for each type of property shown should be between 0.90 and 1.10.*

➢ *PRD's for each type of property should be between 0.98 and 1.03 to demonstrate vertical equity. PRD standards are not absolute and may be less meaningful when samples are small or when wide variation in prices exist. In such cases, statistical tests of vertical equity hypotheses should be substituted.*

➢ *CODs lower than 5.0 may indicate sales chasing or non-representative samples.*

Source: <u>Standard on Ratio Studies</u>; International Association of Assessing Officers; Kansas City, MO; January 2010; pg 33.

Ratio studies may be performed for various reasons including appraisal accuracy and assessment equity studies, to judge the need for management of a reappraisal, to identify problems with appraisal procedures, to assist in market analysis, and to adjust appraised values. Many ratio study design issues must be considered depending on the purpose of the ratio study.

This study considers unadjusted sales price data six months prior to and six months after the date of finality (date of valuation, January 1st) for which assessments have become effective so that an unbiased estimate of assessment performance can be obtained. Sales that are arms-length transactions between willing and informed buyers and sellers are used in this study. Maryland's ratio performance is good and conforms to the IAAO Standard.

While several measures of central tendency are calculated (average, median, and weighted ratios), the median is less affected by extreme ratios. The IAAO observes in its Standard that the median is generally the preferred measure of central tendency for monitoring appraisal performance. For this reason, median ratios are used in this study to measure compliance with IAAO standards.

As a proxy for time adjustments, this report uses sales from six months before the date of finality to six months after the date of finality. Under normal circumstances, with steadily changing property values, these sales will balance. In unusual circumstances, when property values are rapidly changing, this will affect the ratio statistics. Sales of property and market value increased for several years, however beginning in the second half of 2006 the market began to slow and values softened. Despite this slowdown, measures of central tendency are still less than 100.0%.

Over the past three years, property values have experienced a mixed change in value with 50% decreasing or no change and 50% having some increase. The amount of increase/decrease is reflective of the area being reassessed and price ranges. On average, statewide residential values decreased by 3.4% and commercial property increased by 17.5%.

Property value changes varied by region in the state since the last triennial revaluation in January, 2006. The largest percentage of decrease in residential property was in Worcester, Montgomery, Frederick, and Charles Counties. Moderately priced homes in most regions retained their value since 2006. The largest percentage of increase in assessed value was in Baltimore City, Allegany and Prince George's Counties, and the central Eastern Shore area of Maryland. Approximately half of all residential property values decreased or remained constant since the last triennial revaluation.

Statewide, the Department met the IAAO standard for coefficient of dispersion indicating an overall uniformity of assessments. The measures of central tendency are excellent.

Commercial properties are generally less similar than residential properties. Many commercial properties are income producing and are valued using the income approach to value. Most commercial uses are cyclical in nature. Various segments of the commercial real estate market may be ascending in value as a class, while others may be declining in market popularity. Commercial property values have been less affected by the recent low interest rates for residential mortgages. Because of the uniqueness of commercial and industrial properties, measures of central tendency tend to vary more widely than with residential properties.

The number of commercial properties is small compared to the number of residential properties. In several jurisdictions, the number of commercial properties which have sold is so small that the statistical measures are prone to bias. Calvert, Caroline, Charles, Cecil, Dorchester, Frederick, Garrett, Harford, Kent, Queen Anne's, St. Mary's, Somerset, Talbot, Washington, and Worcester Counties all had fewer than 10 arms-length commercial transfers for Group 3. In those jurisdictions, individual statistical measures would be unreliable due to sample size.

Throughout the State, increasing rents since the last triennial revaluation in January, 2006, have contributed to continued increases in commercial property values. The major metropolitan counties continue to see some growth.

The number of commercial sales dramatically decreased from 465 statewide in the 2008 Ratio Report to 278 statewide in the 2009 Ratio Report.

One impediment to commercial valuation has been the increased use of the transferring of the controlling interest of the entity which controls the real estate instead of the use of deed recordation. This decreased the pool of commercial sales available during valuation. It also may create a downward trend in assessed values due to lack of market data. The Maryland General Assembly passed legislation in the 2007 Special Session to close this loophole.

SECTION IV – STATEWIDE COMPARISON OF DEPARTMENT'S VALUES TO SALE PRICE

Quality is the degree of excellence of a product or service; the extent to which it measures up to certain standards. In this case, a measure of quality is the ratio study measuring whether the assessor appraised properties uniformly at market value. The ratio study conducted in this report is based upon sales data occurring, for the most part, after the time period of sales used by the assessor in the group of properties being reassessed.

Assuming the assessor applied the mass appraisal model uniformly to all properties, this ratio study should show uniformity of assessment. This ratio study is a cross check by Department management to assure quality of the mass appraisal work product. The ratio statistics for each county in Table IV was conducted on 14,172 improved residential property sales from July 1, 2008 to June 30, 2009 and compares the Department's valuations to sale prices.

The frequency distribution in Table VI and statistics following present a statewide ratio analysis of improved residential property sales from July 1, 2008 to June 30, 2009 comparing the Department's values to sales prices. The measures of central tendency indicate that properties are valued at approximately 95% of sale price and that on average all other properties have very similar ratios as indicated by the 9.42 Coefficient of Dispersion. Additionally, higher valued properties are assessed at a similar level to lower valued properties as indicated by a Price Related Differential statistic of 1.01. A price related differential of 1.00 indicates vertical uniformity across all strata of property values.

The analysis from Table VI and the following descriptive statistics indicates that values determined by assessors for the most recent triennial Group 3 valuation attained a uniform and appropriate level of value. At the time of valuation, the assessments were close to the sale price.

In summary, the data shows that properties throughout the State are assessed uniformly as required by law.

Table I
Fiscal Year 2010 Real Property Tax Base/Ratio by Subdivision

This table shows assessed values and ratios of real property used for different purposes. Ratios shown are median ratios of arms-length sales of properties in Group 3 that were sold between July 1, 2008 and June 30, 2009, compared with the Department's January 1, 2009, assessed value. In jurisdictions with fewer than 10 commercial sales, the statewide ratio is used (see Table V). A ratio of 100% is used for property not assessed on market value.

	Number of Properties	Residential Base	Ratio	Commercial Base	Ratio	Agricultural Base	Ratio	Use Value Base	Ratio	Total Base	Weighted Ratio
Allegany	38,707	2,571,644,561	89.7%	782,621,598	89.2%	112,967,994	89.7%	0	100.0%	3,467,234,153	89.6%
Anne Arundel	199,479	69,195,270,827	95.0%	14,292,655,437	95.6%	555,502,909	95.0%	32,004,829	100.0%	84,075,434,002	95.1%
Baltimore City	219,257	25,684,753,956	91.4%	10,203,280,565	92.1%	0	91.4%	0	100.0%	35,888,034,521	91.6%
Baltimore	278,471	67,005,489,179	94.4%	17,744,477,309	96.6%	1,189,854,770	94.4%	37,138,564	100.0%	85,976,959,822	94.8%
Calvert	41,215	11,913,615,582	96.2%	1,215,313,959	94.4%	339,910,388	96.2%	1,710	100.0%	13,468,841,639	96.0%
Caroline	15,943	2,306,213,500	92.5%	348,385,240	94.4%	432,037,852	92.5%	4,557,895	100.0%	3,091,194,487	92.8%
Carroll	63,978	18,127,308,601	93.4%	2,267,915,146	99.3%	1,104,301,498	93.4%	11,431,033	100.0%	21,510,956,278	94.0%
Cecil	45,415	8,378,308,042	95.1%	1,808,137,513	94.4%	601,504,059	95.1%	9,890	100.0%	10,787,959,504	94.9%
Charles	60,202	15,638,467,877	93.2%	2,705,505,454	94.4%	487,204,945	93.2%	17,090,640	100.0%	18,848,268,916	93.4%
Dorchester	22,285	2,597,761,741	89.6%	442,109,936	94.4%	343,925,141	89.6%	17,045,477	100.0%	3,400,842,295	90.2%
Frederick	89,369	25,208,195,329	95.9%	4,830,635,678	94.4%	1,510,502,204	95.9%	31,737,599	100.0%	31,581,070,810	95.6%
Garrett	28,150	3,915,026,655	90.7%	445,059,764	94.4%	203,643,447	90.7%	0	100.0%	4,563,729,866	91.0%
Harford	93,670	22,494,330,418	92.5%	4,013,535,206	94.4%	897,273,865	92.5%	0	100.0%	27,405,139,489	92.8%
Howard	96,458	39,641,360,667	93.2%	8,304,469,893	92.8%	484,832,111	93.2%	0	100.0%	48,430,662,671	93.1%
Kent	12,878	2,383,822,581	90.6%	388,481,731	94.4%	401,247,673	90.6%	494,293	100.0%	3,174,046,278	91.0%
Montgomery	312,759	148,411,344,813	94.6%	33,575,080,372	99.1%	793,667,138	94.6%	104,080,425	100.0%	182,884,172,748	95.4%
Prince George's	271,004	74,738,181,502	96.0%	20,995,203,221	97.9%	28,007,585	96.0%	23,803,740	100.0%	95,785,196,048	96.4%
Queen Anne's	24,881	7,339,385,997	90.8%	778,821,454	94.4%	858,374,944	90.8%	1,690,555	100.0%	8,978,272,950	91.1%
St. Mary's	45,818	10,478,913,436	96.8%	1,403,220,560	94.4%	674,254,110	96.8%	13,512,792	100.0%	12,569,900,898	96.6%
Somerset	16,127	1,250,573,260	88.4%	255,976,143	94.4%	171,969,417	88.4%	1,133,424	100.0%	1,679,652,244	89.3%
Talbot	20,346	7,946,089,090	93.8%	1,000,031,527	94.4%	1,125,805,138	93.8%	4,428,570	100.0%	10,076,354,325	93.9%
Washington	55,850	10,354,994,409	91.0%	3,286,892,647	94.4%	680,582,315	91.0%	13,523,500	100.0%	14,335,992,871	91.8%
Wicomico	44,681	5,470,630,643	88.7%	1,416,524,010	89.5%	352,471,950	88.7%	4,576,425	100.0%	7,244,203,028	88.9%
Worcester	64,959	15,692,219,010	93.8%	2,975,120,626	94.4%	338,207,382	93.8%	130,660	100.0%	19,005,677,678	93.9%
Statewide	2,161,902	598,743,901,676	94.0%	135,479,454,989	94.4%	13,688,048,835	94.0%	318,392,021	100.0%	748,229,797,521	94.0%

State Department of Assessments and Taxation

May 1, 2010

TABLE II
Assessment Levels

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Allegany	89.5	92.1	95.3	95.0	96.8	92.6	95.6	96.4	98.5	93.4	99.9	95.2	95.0	93.0	89.6
Anne Arundel	95.0	94.2	93.9	96.1	93.0	90.9	90.6	89.8	87.4	84.4	84.5	85.6	96.0	95.2	95.1
Baltimore City	98.1	95.4	97.0	92.5	92.8	90.5	94.7	94.3	94.9	95.0	74.3	85.2	92.0	94.7	91.6
Baltimore	96.8	96.5	95.9	96.3	92.9	94.1	93.0	91.3	92.7	86.5	88.5	83.5	94.0	94.6	94.8
Calvert	96.0	92.9	94.2	94.7	94.2	93.6	92.4	90.4	87.3	82.1	82.3	85.6	95.0	95.4	96.0
Caroline	94.8	92.3	97.0	95.9	96.2	94.3	92.7	92.2	88.3	87.3	81.7	88.9	95.0	95.3	92.8
Carroll	94.0	95.8	95.9	96.7	95.3	94.0	92.1	92.0	89.5	86.6	85.9	89.7	96.0	97.1	94.0
Cecil	93.2	94.6	94.7	95.9	88.4	94.0	93.1	92.0	91.8	88.9	86.0	91.0	94.0	94.9	94.9
Charles	96.6	92.0	96.6	94.6	95.1	94.3	92.6	92.0	88.6	88.9	87.1	88.0	94.0	96.4	93.4
Dorchester	90.2	94.0	91.3	93.3	93.4	94.3	92.9	89.1	89.3	85.4	67.0	79.3	91.0	96.9	90.2
Frederick	95.6	96.8	96.2	93.6	95.0	92.8	89.0	90.2	87.4	88.9	83.7	90.9	96.0	98.2	95.6
Garrett	86.0	93.4	98.6	87.5	96.2	93.4	94.6	93.7	83.8	91.6	88.6	91.8	95.0	92.7	91.0
Harford	90.3	93.4	94.3	93.4	93.1	92.2	92.6	89.1	88.2	85.0	85.5	85.0	93.0	96.1	92.8
Howard	94.8	94.8	93.5	94.3	93.9	95.1	92.0	92.2	90.1	88.2	89.8	92.5	97.0	96.5	93.1
Kent	99.1	98.7	95.6	94.3	95.8	91.4	91.0	92.0	92.6	87.3	86.0	83.9	94.0	95.2	91.0
Montgomery	97.7	97.4	98.4	97.6	95.7	93.8	92.1	88.2	91.0	93.3	93.2	95.5	98.0	96.4	95.4
Prince George's	97.1	96.4	94.4	94.9	96.2	94.7	94.0	91.0	90.5	83.8	83.0	85.1	91.0	98.2	96.4
Queen Anne's	92.7	94.5	93.2	94.0	98.2	91.5	92.6	93.8	90.5	86.8	88.7	87.9	96.0	96.4	91.1
St. Mary's	96.0	94.6	96.8	95.0	96.1	95.3	93.7	93.1	89.5	83.8	80.4	88.2	95.0	97.9	96.6
Somerset	88.8	96.3	91.9	95.8	97.2	94.0	93.6	94.5	94.5	85.2	85.5	86.2	86.0	92.5	89.3
Talbot	96.1	93.7	93.0	96.3	92.2	93.1	89.7	84.4	87.4	89.6	83.3	88.7	96.0	98.0	93.9
Washington	95.3	96.0	96.0	95.3	95.8	90.9	93.7	92.6	89.1	91.1	87.4	90.0	97.0	97.2	91.8
Wicomico	92.2	93.4	93.9	94.3	94.3	93.4	91.8	91.8	89.8	90.6	84.0	82.9	89.0	90.3	88.9
Worcester	93.7	93.2	94.8	90.4	90.7	89.5	84.5	89.4	76.8	86.8	83.2	89.2	97.0	93.9	93.9
Statewide	96.1	95.9	96.0	95.5	94.4	93.3	92.1	90.5	90.0	88.2	86.0	89.7	96.0	95.7	94.0

TABLE III
Illustrated Ratio Study Statistics

(1.) Property Number	(2.) Sale Price	(3.) Assessed Value	(4.) Ratio A/S %	(5.) Absolute Deviation from Median
1	28,000	22,400	80%	20%
2	22,000	19,250	88%	12%
3	63,500	55,575	88%	12%
4	55,900	51,700	92%	7%
5	20,000	19,000	95%	5%
6	21,000	20,475	98%	2%
7	80,000	80,000	100%	0%
8	40,000	40,000	100%	0%
9	33,000	33,300	101%	1%
10	45,000	46,125	103%	3%
11	24,000	25,200	105%	5%
12	39,000	41,925	108%	8%
13	37,000	41,625	113%	13%
14	40,300	45,800	114%	14%
15	51,000	59,925	118%	18%
TOTAL	599,700	602,300	1500%	120%

Average Ratio	=	Total of Ratios (4.) 1500%	))	Number of Sales (1.) 15	=	100%
Weighted Ratio	=	Total of Assessed Values (3.) 602,300	))	Total of Sale Prices (2.) 599,700	=	100%
Average Deviation	=	Total Deviations (5.) 120%	))	Number of Sales (1.) 15	=	8%
Median Ratio	=	Middle Value of Data Array 100% (i.e. property #8)			=	100%
Coefficient of Dispersion	=	Average Deviation (5.) 8%	))	Median Ratio (4.) 100%	=	7.98
Price Related Differential	=	Average Ratio (4.) 100%	))	Weighted Ratio 100%	=	1.00

Table IV
2009 Residential Ratio Study

This table shows arms-length sales of improved residential and condominium properties in Group 3 from July 1, 2008, through June 30, 2009. Ratios compare the Department's January 1, 2009 value to the actual sale price.

	Number of Sales	Average Ratio	Median Ratio	Weighted Ratio	Average Deviation	Coefficient of Dispersion	Price Related Differential	Standard Deviation	Coefficient of Variation	Median Sale Price
Allegany	155	90.4%	89.7%	90.6%	0.07	7.73	1.00	0.10	11.55	$95,000
Anne Arundel	1,316	96.0%	95.0%	94.5%	0.09	9.99	1.02	0.13	13.52	$385,000
Baltimore City	1,410	94.9%	91.4%	92.5%	0.11	12.10	1.03	0.16	17.25	$210,000
Baltimore	2,449	97.7%	94.4%	96.1%	0.11	11.40	1.02	0.12	11.93	$218,000
Calvert	215	97.2%	96.2%	95.9%	0.09	9.31	1.01	0.13	13.23	$260,000
Caroline	31	95.3%	92.5%	94.5%	0.07	7.15	1.01	0.10	10.61	$172,800
Carroll	394	94.8%	93.4%	94.7%	0.08	8.50	1.00	0.11	11.85	$258,500
Cecil	322	96.1%	95.1%	94.9%	0.07	7.78	1.01	0.11	11.27	$264,450
Charles	272	93.8%	93.2%	93.1%	0.08	9.10	1.01	0.11	11.91	$350,000
Dorchester	26	88.5%	89.6%	88.8%	0.05	6.03	1.00	0.09	10.09	$233,500
Frederick	294	96.3%	95.9%	95.8%	0.07	7.39	1.01	0.09	9.78	$315,000
Garrett	81	91.1%	90.7%	94.1%	0.10	10.76	0.97	0.13	14.35	$260,000
Harford	1,024	93.5%	92.5%	93.0%	0.06	6.47	1.01	0.08	9.03	$235,250
Howard	1,095	94.2%	93.2%	93.5%	0.06	6.13	1.01	0.08	8.00	$340,000
Kent	39	90.8%	90.6%	86.6%	0.14	15.61	1.05	0.19	20.63	$265,000
Montgomery	2,670	96.5%	94.6%	95.3%	0.08	7.99	1.01	0.11	11.13	$370,000
Prince George's	830	98.6%	96.0%	98.0%	0.10	10.32	1.01	0.14	13.71	$250,000
Queen Anne's	106	92.8%	90.8%	91.7%	0.05	5.85	1.01	0.08	8.71	$377,779
St. Mary's	418	98.7%	96.8%	98.1%	0.07	7.68	1.01	0.10	10.14	$279,355
Somerset	47	89.5%	89.2%	92.3%	0.11	12.16	0.97	0.15	16.85	$160,000
Talbot	53	96.5%	93.8%	95.9%	0.09	10.02	1.01	0.12	12.39	$405,000
Washington	110	92.6%	91.0%	92.7%	0.09	9.50	1.00	0.11	12.08	$233,750
Wicomico	201	88.4%	88.7%	87.6%	0.07	8.36	1.01	0.10	11.59	$210,000
Worcester	614	95.2%	93.8%	94.2%	0.09	10.07	1.01	0.13	13.63	$319,950
Statewide	14,172	95.8%	94.0%	94.7%	0.09	9.42	1.01	0.13	13.10	$280,000

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Table V
Commercial Ratio Study 2009

The table below shows statistics on arms-length sales between July 1, 2008 and June 30, 2009 of commercial property in assessment Group 3. Ratios compare the Department's January 1, 2009, value to the actual sale price.

Ratio statistics are shown for all counties, even where the number of sales is so small that there is not a sufficient sample to provide accurate statistics. In cases where there are fewer than 10 sales, the ratio statistics are not used to calculate the base (Table I) or evaluate the performance (Table VII).

	Number of Sales	Total Assessed Values	Total Sales Prices	Weighted Ratio	Average Ratio	Median Ratio
Allegany	13	1,959,000	2,163,000	90.6%	91.1%	89.2%
Anne Arundel	24	58,005,300	64,353,878	90.1%	92.4%	95.6%
Baltimore City	29	13,617,700	15,369,327	88.6%	90.6%	92.1%
Baltimore County	23	28,800,300	30,645,946	94.0%	91.9%	96.6%
Calvert	1	353,700	389,000	90.9%	90.9%	90.9%
Caroline	2	796,500	839,000	94.9%	94.4%	94.4%
Carroll	16	5,995,500	7,368,760	81.4%	87.6%	99.3%
Cecil	4	1,235,600	1,322,500	93.4%	91.8%	94.6%
Charles	5	8,076,300	8,535,000	94.6%	95.2%	91.7%
Dorchester	2	2,735,100	3,350,000	81.6%	84.7%	84.7%
Frederick	7	7,792,400	9,845,000	79.2%	93.1%	98.1%
Garrett	3	635,300	899,550	70.6%	72.5%	63.5%
Harford	8	9,237,700	9,914,738	93.2%	95.7%	98.6%
Howard	25	61,861,700	70,547,141	87.7%	91.9%	92.8%
Kent	5	2,118,500	2,528,237	83.8%	81.8%	94.5%
Montgomery	38	207,878,500	223,905,580	92.8%	96.3%	99.1%
Prince George's	35	54,346,300	59,916,669	90.7%	94.0%	97.9%
Queen Anne's	8	1,831,400	1,983,000	92.4%	96.7%	90.3%
St. Mary's	7	3,495,100	3,991,300	87.6%	89.3%	86.4%
Somerset	2	1,154,700	1,274,000	90.6%	84.8%	84.8%
Talbot	0					
Washington	8	5,269,500	5,323,178	99.0%	93.0%	98.7%
Wicomico	11	13,819,700	15,182,339	91.0%	86.5%	89.5%
Worcester	2	1,654,300	1,675,000	98.8%	90.2%	90.2%
Statewide	278	$492,670,100	$541,322,143	91.0%	92.0%	94.4%

Table VI

Department's Values Compared to Property Sale Prices

The data in the chart below shows the distribution of 14,172 arms-length sales of improved residential and condominium properties in Group 3 with sales dates between July 1, 2008 and June 30, 2009. Ratios compare the Department's January 1, 2009, value to the actual sale price.