DEPARTMENT OF ASSESSMENTS AND TAXATION

2012 Ratio Report

State of Maryland

DEPARTMENT OF ASSESSMENTS AND TAXATION

Office of the Director

MARTIN O'MALLEY
Governor

ROBERT E. YOUNG
Director

August 9, 2013

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 2012 Assessment Ratio Report. This report measures the quality of real property assessments in each of Maryland's 24 jurisdictions.

Uniform and accurate assessments are the foundation of fair property taxation. Maryland's Constitution requires that the General Assembly shall provide by uniform rules for the separate assessment, classification, and sub-classification of land and improvements on land. 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 737,423 reassessment notices being issued in late December of 2011. These reassessments reflected our estimates of property values as of January 1, 2012. 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, 2011 to June 30, 2012.

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.

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,

Robert E. Young
Director

300 West Preston Street – Room 605 – Baltimore, Maryland 21201
Phone: (410) 767-4881 – FAX: (410) 333-5873 – TTY users call Maryland Relay 1-800-735-2258
Toll Free: 1-888-246-5941 – Website: //www.dat.state.md.us

2012 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.

Residential property characteristics include type of structure, size, quality and type of construction, condition of structure, and any new improvements. 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 737,423 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 buyers willing to pay extra for a unique property or declining values in a buyer'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 Officers' 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 2011.

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 .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 2013 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 2012 Ratio Study data by jurisdiction 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: Standard on Ratio Studies; 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.

On average, the residential values in this group have decreased by 17% while commercial property values showed a decrease in 18 of the 24 subdivisions, with an overall average increase of 1% statewide.

Property value changes varied by region in the state since the last triennial revaluation in January, 2009. The largest percentage of decrease in residential property was in Caroline, Frederick, Prince George's, Somerset and Wicomico Counties.

Statewide, the Department met the IAAO standard for coefficient of dispersion indicating an overall uniformity of assessments.

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. 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. Allegany, Calvert, Caroline, Cecil, Charles Dorchester, Garrett, Kent, St. Mary's, Somerset, Talbot, Washington, Wicomico 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.

The number of commercial sales increased from 303 statewide in the 2011 Ratio Report to 360 statewide in the 2012 Ratio Report.

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 12,864, improved residential property sales from July 1, 2011 to June 30, 2012 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, 2011 to June 30, 2012 comparing the Department's values to sales prices. The measures of central tendency indicate that properties are valued at approximately 93% of sale price and that on average all other properties have very similar ratios as indicated by the 10.27 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 1.03. 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 2013 Real Property Tax Base/Ratio by Jurisdiction

This table shows the taxable assessable base 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, 2011 and June 30, 2012, compared with the Department's January 1, 2012 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	38,671	2,640,804,230	91.8%	842,134,357	91.9%	127,331,723	91.8%	1,828,100	100.0%	3,612,098,410	91.8%
Anne Arundel	202,319	58,177,594,644	91.7%	14,971,155,138	84.9%	473,873,691	91.7%	17,862,034	100.0%	73,640,485,507	90.2%
Baltimore City	218,600	24,778,596,412	94.8%	12,785,292,025	97.6%	0	94.8%	0	100.0%	37,563,888,437	95.8%
Baltimore	280,208	57,754,344,871	90.8%	20,220,145,058	100.0%	1,044,878,039	90.8%	34,592,433	100.0%	79,053,960,401	93.0%
Calvert	41,493	10,116,425,227	90.5%	1,305,029,942	91.9%	292,750,184	90.5%	1,855,867	100.0%	11,716,061,220	90.6%
Caroline	16,009	1,934,326,569	99.2%	390,409,495	91.9%	383,723,937	99.2%	516,100	100.0%	2,708,976,101	98.1%
Carroll	64,395	15,013,214,760	89.9%	2,232,724,301	95.1%	991,619,563	89.9%	10,608,367	100.0%	18,248,166,991	90.5%
Cecil	45,762	7,183,574,528	91.1%	1,904,424,331	91.9%	528,946,520	91.1%	9,800	100.0%	9,616,955,179	91.2%
Charles	61,607	12,433,992,129	92.2%	2,885,576,164	91.9%	425,534,360	92.2%	17,120,200	100.0%	15,762,222,853	92.2%
Dorchester	22,153	2,236,884,993	90.6%	559,619,769	91.9%	314,550,797	90.6%	494,800	100.0%	3,111,550,359	90.8%
Frederick	90,578	19,405,715,975	87.7%	4,938,376,081	95.9%	1,238,046,534	87.7%	26,291,767	100.0%	25,608,430,357	89.2%
Garrett	28,293	3,953,814,257	90.4%	453,935,224	91.9%	225,362,223	90.4%	0	100.0%	4,633,111,704	90.6%
Harford	95,774	20,561,293,622	94.0%	4,486,394,881	95.1%	816,170,170	94.0%	0	100.0%	25,863,858,673	94.2%
Howard	98,879	33,349,863,511	92.0%	8,694,881,603	88.5%	409,881,990	92.0%	0	100.0%	42,454,627,104	91.3%
Kent	12,923	2,229,469,461	99.5%	403,648,599	91.9%	396,520,586	99.5%	477,700	100.0%	3,030,116,346	98.5%
Montgomery	315,972	125,871,205,399	91.3%	33,089,019,968	99.7%	652,156,927	91.3%	106,156,100	100.0%	159,718,538,394	92.9%
Prince George's	273,728	53,707,786,283	91.1%	22,551,343,001	97.3%	33,322,963	91.1%	30,267,544	100.0%	76,322,719,791	92.9%
Queen Anne's	25,010	6,248,508,707	91.8%	936,943,592	95.1%	792,262,966	91.8%	834,300	100.0%	7,978,549,565	92.2%
St. Mary's	46,646	9,712,789,229	94.9%	1,557,908,802	91.9%	632,048,122	94.9%	10,650,270	100.0%	11,913,396,423	94.5%
Somerset	16,105	1,047,911,616	87.1%	252,668,302	91.9%	149,951,200	87.1%	1,302,960	100.0%	1,451,834,078	87.9%
Talbot	20,544	7,186,754,613	97.4%	1,048,397,602	91.9%	1,041,139,166	97.4%	6,457,200	100.0%	9,282,748,581	96.8%
Washington	56,138	8,344,373,859	90.2%	3,339,301,962	91.9%	589,025,757	90.2%	11,840,300	100.0%	12,284,541,878	90.7%
Wicomico	44,807	4,474,197,624	88.7%	1,400,000,446	91.9%	294,750,842	88.7%	3,215,400	100.0%	6,172,164,312	89.4%
Worcester	65,005	12,672,835,085	91.2%	2,510,745,775	91.9%	304,244,959	91.2%	110,000	100.0%	15,487,935,819	91.4%
Statewide	2,181,619	501,036,277,604	91.7%	143,760,076,418	91.9%	12,158,093,219	91.7%	282,491,242	100.0%	657,236,938,483	91.7%

TABLE II

Assessment Levels

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Allegany	95.0	96.8	92.6	95.6	96.4	98.5	93.4	99.9	95.2	95.0	93.0	89.6	90.1	90.0	91.8
Anne Arundel	96.1	93.0	90.9	90.6	89.8	87.4	84.4	84.5	85.6	96.0	95.2	95.1	90.3	89.7	90.2
Baltimore City	92.5	92.8	90.5	94.7	94.3	94.9	95.0	74.3	85.2	92.0	94.7	91.6	91.4	91.3	95.8
Baltimore	96.3	92.9	94.1	93.0	91.3	92.7	86.5	88.5	83.5	94.0	94.6	94.8	91.5	93.6	93.0
Calvert	94.7	94.2	93.6	92.4	90.4	87.3	82.1	82.3	85.6	95.0	95.4	96.0	94.0	91.7	90.6
Caroline	95.9	96.2	94.3	92.7	92.2	88.3	87.3	81.7	88.9	95.0	95.3	92.8	95.7	97.2	98.1
Carroll	96.7	95.3	94.0	92.1	92.0	89.5	86.6	85.9	89.7	96.0	97.1	94.0	89.5	93.2	90.5
Cecil	95.9	88.4	94.0	93.1	92.0	91.8	88.9	86.0	91.0	94.0	94.9	94.9	91.6	87.2	91.2
Charles	94.6	95.1	94.3	92.6	92.0	88.6	88.9	87.1	88.0	94.0	96.4	93.4	92.1	92.2	92.2
Dorchester	93.3	93.4	94.3	92.9	89.1	89.3	85.4	67.0	79.3	91.0	96.9	90.2	95.3	91.2	90.8
Frederick	93.6	95.0	92.8	89.0	90.2	87.4	88.9	83.7	90.9	96.0	98.2	95.6	89.2	93.0	89.2
Garrett	87.5	96.2	93.4	94.6	93.7	83.8	91.6	88.6	91.8	95.0	92.7	91.0	89.9	98.1	90.6
Harford	93.4	93.1	92.2	92.6	89.1	88.2	85.0	85.5	85.0	93.0	96.1	92.8	91.6	91.2	94.2
Howard	94.3	93.9	95.1	92.0	92.2	90.1	88.2	89.8	92.5	97.0	96.5	93.1	88.2	89.6	91.3
Kent	94.3	95.8	91.4	91.0	92.0	92.6	87.3	86.0	83.9	94.0	95.2	91.0	90.8	94.8	98.5
Montgomery	97.6	95.7	93.8	92.1	88.2	91.0	93.3	93.2	95.5	98.0	96.4	95.4	88.4	92.9	92.9
Prince George's	94.9	96.2	94.7	94.0	91.0	90.5	83.8	83.0	85.1	91.0	98.2	96.4	95.3	92.8	92.9
Queen Anne's	94.0	98.2	91.5	92.6	93.8	90.5	86.8	88.7	87.9	96.0	96.4	91.1	90.6	93.6	92.2
St. Mary's	95.0	96.1	95.3	93.7	93.1	89.5	83.8	80.4	88.2	95.0	97.9	96.6	93.3	94.5	94.5
Somerset	95.8	97.2	94.0	93.6	94.5	94.5	85.2	85.5	86.2	86.0	92.5	89.3	85.0	91.5	87.9
Talbot	96.3	92.2	93.1	89.7	84.4	87.4	89.6	83.3	88.7	96.0	98.0	93.9	93.8	97.7	96.8
Washington	95.3	95.8	90.9	93.7	92.6	89.1	91.1	87.4	90.0	97.0	97.2	91.8	92.9	95.4	90.7
Wicomico	94.3	94.3	93.4	91.8	91.8	89.8	90.6	84.0	82.9	89.0	90.3	88.9	89.1	90.6	89.4
Worcester	90.4	90.7	89.5	84.5	89.4	76.8	86.8	83.2	89.2	97.0	93.9	93.9	92.2	89.5	91.4
Statewide	95.5	94.4	93.3	92.1	90.5	90.0	88.2	86.0	89.7	96.0	95.7	94.0	91.0	92.0	91.7

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

Table IV

2012 Residential Ratio Study

This table shows arms-length sales of improved residential and condominium properties in Group 3 from July 1, 2011 through June 30, 2012. Ratios compare the Department's January 1, 2012 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	115	91.8%	91.8%	91.1%	4.8%	5.28	1.01	0.06	6.81	$80,000
Anne Arundel	1,544	93.1%	91.7%	90.1%	10.6%	11.54	1.03	0.15	15.75	$379,800
Baltimore City	998	94.1%	94.8%	89.4%	15.1%	15.88	1.05	0.21	21.88	$228,875
Baltimore	1,447	92.9%	90.8%	90.5%	9.1%	10.05	1.03	0.13	14.12	$192,000
Calvert	194	91.0%	90.5%	90.1%	8.1%	9.00	1.01	0.12	12.78	$260,000
Caroline	11	99.3%	97.0%	98.7%	13.7%	14.16	1.01	0.20	20.28	$162,000
Carroll	319	90.7%	89.9%	89.8%	6.7%	7.43	1.01	0.09	9.58	$238,000
Cecil	236	92.9%	91.1%	91.1%	8.9%	9.77	1.02	0.14	14.88	$269,450
Charles	354	93.7%	92.2%	91.4%	8.9%	9.62	1.03	0.12	12.96	$299,000
Dorchester	13	93.0%	90.6%	88.6%	11.7%	12.90	1.05	0.15	16.49	$350,000
Frederick	349	88.8%	87.7%	87.9%	8.4%	9.57	1.01	0.12	13.74	$292,500
Garrett	82	90.2%	90.4%	91.5%	8.8%	9.76	0.98	0.13	14.38	$262,500
Harford	785	94.7%	94.0%	93.5%	7.0%	7.40	1.01	0.09	9.43	$227,000
Howard	986	94.2%	92.0%	93.2%	5.9%	6.40	1.01	0.09	10.02	$324,950
Kent	21	95.6%	99.5%	93.3%	13.1%	13.11	1.02	0.18	18.70	$225,000
Montgomery	2,847	92.2%	91.3%	90.0%	8.6%	9.40	1.02	0.13	13.56	$345,000
Prince George's	888	95.3%	91.1%	92.5%	11.4%	12.56	1.03	0.17	17.62	$180,000
Queen Anne's	193	93.8%	91.8%	91.8%	9.2%	9.98	1.02	0.12	12.61	$326,000
St. Mary's	352	96.4%	94.9%	95.1%	7.5%	7.91	1.01	0.11	11.30	$255,500
Somerset	34	88.0%	87.1%	88.7%	14.4%	16.53	0.99	0.18	20.33	$159,000
Talbot	62	97.2%	97.4%	94.1%	8.6%	8.84	1.03	0.12	12.69	$445,000
Washington	129	90.8%	90.2%	89.2%	9.0%	9.97	1.02	0.12	13.30	$194,500
Wicomico	155	90.6%	88.7%	87.0%	11.7%	13.19	1.04	0.16	17.39	$162,000
Worcester	750	93.2%	91.2%	91.8%	8.6%	9.38	1.01	0.12	12.87	$245,000
Statewide	12,864	93.1%	91.7%	90.8%	9.4%	10.27	1.03	0.14	14.88	$270,000

TABLE IV-B

Statewide Residential Ratio Study Frequency Statistics

Average Ratio

Total of Ratios / Number of Sales	=	11981.08 / 12,864	=	93.14%

Weighted Ratio

Total Assessed Values / Total Sales Prices	=	3,705,208,000 / 4,078,393,928	=	90.85%

Average Deviation

Total Deviations / Number of Sales	=	1,211 / 12,864	=	9.41%

Coefficient of Dispersion

Average Absolute Deviation / Median Ratio / 100	=	0.0941 / 92%	=	10.27

Price Related Differential

Average Ratio / Weighted Ratio	=	93.14% / 90.85%	=	1.03

Table V

Commercial Ratio Study 2012

The table below shows statistics on arms-length sales between July 1, 2011 and June 30, 2012 of commercial property in assessment Group 3. Ratios compare the Department's January 1, 2012, value to the actual sale price.

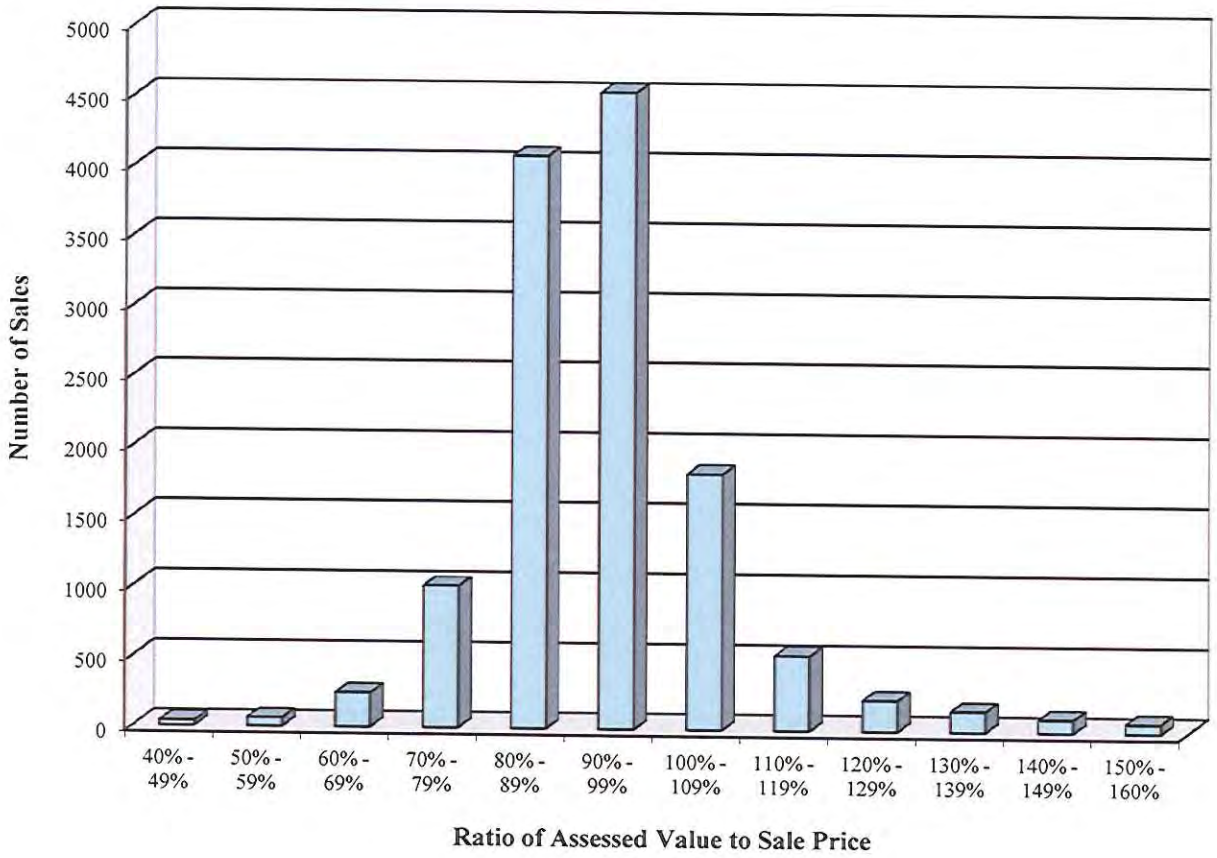
Ratio statistics are shown for all jurisdictions, even where the number of sales is so small that there is not a sufficient sample to provide accurate statistics. In cases where there are fewer than 10 sales, the ratio statistics are not used to calculate the base (Table I).

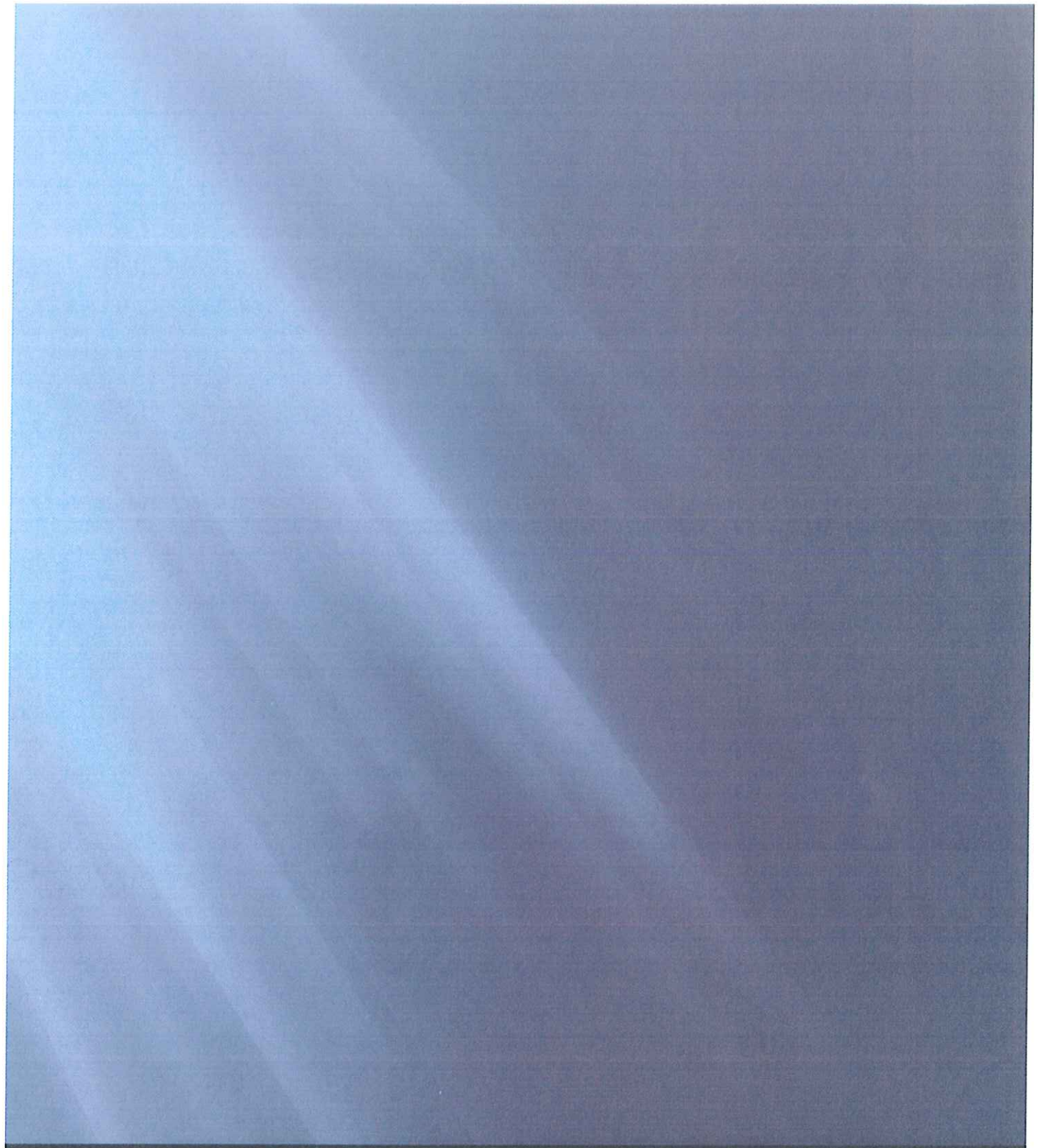
	Number of Sales	Total Assessed Values	Total Sales Price	Weighted Ratio	Average Ratio	Median Ratio
Allegany	8	1,050,000	1,096,000	95.8%	95.0%	95.5%
Anne Arundel	32	80,216,900	100,500,307	79.8%	99.5%	100.3%
Baltimore City	57	42,840,000	55,348,900	77.4%	83.3%	81.7%
Baltimore County	31	25,617,200	26,486,750	96.7%	102.5%	99.7%
Calvert	1	9,970,000	11,500,000	86.7%	86.7%	86.7%
Caroline	0	N/A	N/A	N/A	N/A	N/A
Carroll	17	9,230,800	9,645,231	95.7%	92.9%	95.6%
Cecil	5	2,720,100	3,314,554	82.1%	86.4%	87.7%
Charles	9	3,631,600	4,210,000	86.3%	89.2%	84.4%
Dorchester	3	2,102,800	2,840,000	74.0%	86.6%	80.8%
Frederick	14	16,172,800	21,499,000	75.2%	83.3%	85.5%
Garrett	2	66,200	85,000	77.9%	76.8%	76.8%
Harford	13	57,093,700	82,489,311	69.2%	89.7%	86.0%
Howard	28	134,633,400	184,362,260	73.0%	92.4%	89.6%
Kent	3	2,225,000	2,200,000	101.1%	104.8%	98.9%
Montgomery	63	269,354,600	325,259,067	82.8%	89.9%	89.7%
Prince George's	40	107,230,900	119,724,645	89.6%	96.6%	96.7%
Queen Anne's	10	3,631,900	3,283,500	110.6%	109.5%	108.8%
St. Mary's	5	21,128,700	1,100,000	76.4%	75.8%	84.5%
Somerset	1	9,664,400	8,400,000	115.1%	115.1%	115.1%
Talbot	2	1,025,400	1,287,792	79.6%	84.0%	84.0%
Washington	8	27,555,700	30,585,020	90.1%	107.8%	100.2%
Wicomico	7	4,053,300	5,382,000	75.3%	74.0%	76.9%
Worcester	1	308,400	310,000	99.5%	99.5%	99.5%
Statewide	**360**	**$831,523,800**	**$1,027,456,592**	**80.9%**	**92.2%**	**91.9%**

Table VI

Number of Residential Sales Sorted by Ratio

The chart below compares the number of improved residential sales for July 1, 2011 to June 30, 2012 to their ratio of assessed value to sale price.





Maryland Department of Assessments and Taxation
301 West Preston Street
Baltimore, MD 21201
www.dat.state.md.us