



Government of the District of Columbia

Mayor Muriel E. Bowser

Office of the Chief Financial Officer

Mr. Jeffrey S. DeWitt

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Office of Tax and Revenue

Real Property Tax Administration

FY 2021 Assessment

Ratio Report

Real Property Tax Administration
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March 8, 2021



**Government of the District of Columbia
Office of the Chief Financial Officer
Office of Tax and Revenue**

March 8, 2021

The Honorable Muriel E. Bowser
Mayor of the District of Columbia

and

The Honorable Phil Mendelson
Chairman of the Council of the District of Columbia

Dear Mayor Bowser and Chairman Mendelson:

In accordance with D.C. Code § 47-823(c), I am pleased to submit the Office of Tax and Revenue's (OTR) Fiscal Year 2021 Assessment Ratio Report. This report measures the quality of real property assessments within the District of Columbia.

Uniform and accurate assessments for similar properties are the foundation of fair property taxation. District law and the Federal Constitution require that all real property subject to property taxation be assessed uniformly. District law also requires that assessments be based on the estimated market value (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 Real Property Tax Administration.

This report measures assessment quality by looking at the most recent reassessment program and comparing the results of that effort to actual market conditions. District law requires that all real property be assessed annually, and this annual reassessment resulted in approximately 208,800 properties being assessed. Annual assessment notices are mailed to all except government-owned properties. This resulted in approximately 203,500 reassessment notices being issued in February 2020 effective for Fiscal Year 2021. These reassessments reflected OTR's estimate of property values as of January 1, 2020. To provide an objective performance measure of that work, this report tests those reassessment results against actual property sales for the 12 months in calendar year 2019.

OTR is guided by national standards for measuring property assessment quality, as promulgated by the International Association of Assessing Officers. Those national standards and our compliance therewith are discussed in this report. The data shows that the District has acceptable levels and uniformity of assessments.

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

Sincerely,

Keith J. Richardson
Deputy Chief Financial Officer
Office of Tax and Revenue

FY 2021 ASSESSMENT RATIO REPORT

Overview

The Office of Tax and Revenue's (OTR) Real Property Tax Administration (RPTA) assesses real property for purposes of property taxation. A portion of all properties will be physically reviewed each year. During the review, RPTA appraisers will visit properties to verify property characteristics existing in our current assessment records. The characteristics include property type, size, quality of construction, condition of structure and any new improvements.

For Fiscal Year (FY) 2021, the District assessed approximately 208,800 properties. The magnitude of the reassessment requires the use of mass appraisal techniques. In using the mass appraisal technique, an RPTA appraiser values all properties in an entire neighborhood at a time with standardized appraisal method(s) and statistical testing. This is in contrast with the practice of a fee appraiser, who is concerned with valuing one property at a time.

When real property is transferred, the deed and transfer documents are filed with the Recorder of Deeds of the District of Columbia. These documents are imaged, used as a record to change ownership on the assessment roll, and used to capture sales information. RPTA's Assessment Division reviews all deeds and property sales prices after the deed transferring the property is recorded. In the appraiser's review and analysis of the sales, the appraiser will develop land rates, depreciation tables, and sales analysis and/or market analysis reports. After completing the analysis, the appraiser applies the factors uniformly throughout the neighborhood to value all comparable properties.

Supervisory personnel carefully review each RPTA appraiser's work, and the RPTA appraiser's work is also scrutinized by individual property owners. We are continually striving for higher quality in assessment uniformity. Our quality control program begins with the individual appraiser and the appraiser's immediate supervisor. As work is completed, each supervisor reviews the analysis, making revisions or approving the work. When the appraiser completes the revaluation, the supervisor makes a random check using procedural and data editing reports. Following the completion of the revaluation, various computer edits are made to ensure good valuation quality.

A measurement of quality is the assessed value/sale price ratio. A ratio is the relationship between two numbers; in this case it is the relationship between the assessed value and sale price. The ratio measures how closely our values compare to the actual sales prices. The average assessed value/sale price ratio indicates the typical level of assessment. Real estate market is an imperfect market; there will always be properties that sell for more or less than what can be anticipated due to factors such as sales between people unfamiliar with the market or buyers willing to pay extra for a unique property, among other reasons.

In mass appraisal and assessment ratio studies, we are not only concerned with the typical level of assessment as indicated by the average assessed value/sale price levels

(ratios), but also the degree of spread, or variation, from the typical ratio. One such statistical measurement of variation is called the coefficient of dispersion (COD). The lower the COD, the more uniform the assessments.

Subsequent portion of this report provides detailed explanation of the statistical terms as applied to assessment administration and quality control, and explain the International Association of Assessing Officers' (IAAO) Standard of Performance for ratio studies.

RATIO STATISTICS

The purpose of this ratio study is to test the quality of the assessment product of the properties most recently valued. From our most recent valuation, we have performed many ratio studies examining neighborhoods, types of structures, age of structures, etc. We use ratio studies as a performance gauge that includes several measures of central tendency. A measure of central tendency indicates the typical level of assessments to actual selling prices of real estate. These may be the average of the assessed value/sale price ratios, the weighted average of the assessed value/sale price ratios or the median of the assessed value/sale price ratios. The average assessed value/sale price ratio is simply the average of all the ratios in the sample. The weighted assessed value/sale price ratio is the result of dividing the total of the assessments by the total of the sale prices. The median assessed value/sale price ratio is the midpoint ratio of all ratios after the ratios are arrayed from highest to lowest.

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

In addition to the general level of assessments, we are also concerned with the relative spread or variation that individual ratios depart from the typical ratio. This is measured by the coefficient of dispersion. The coefficient of dispersion is calculated by dividing the average absolute deviation by the median ratio. To calculate the average absolute deviation, subtract the median ratio from the individual ratios and add all the results, ignoring positive or negative signs, and then divide the sum by the number of ratios. The acceptable level for the coefficient of dispersion depends upon the type of properties being reviewed. According to IAAO, coefficients of dispersion should typically be 20% or less, depending on the types of properties being valued.

Another statistical measure used to gauge assessment uniformity is the Price-Related Differential (PRD). The PRD tests to see if higher and lower valued properties are assessed at the same level. PRD is calculated by dividing the mean ratio by the weighted mean ratio. PRDs should range between 0.98 and 1.03, except for very small samples. For example, a PRD greater than 1.03 indicates an under-valuation of high-priced properties, while a PRD less than 0.98 shows an under-valuation of low-priced properties.

The central tendency statistics discussed above (mean, median, weighted-mean) are called “point estimates” because they are single numbers used to estimate values for all properties in the District. To ensure that the sample values accurately represent the population an additional test can be performed - the confidence interval.

The confidence interval can be defined as “a range of values that are believed with a particular probability to contain the true or actual average population value.” If the range of values determined by the confidence interval overlaps into the IAAO standard established for the statistic (0.90 to 1.10) we cannot reject the hypothesis that the median ratio complies with IAAO standards. If, on the other hand, the confidence interval does not overlap the desired range, we can conclude with 95% probability that assessments fail to meet the IAAO standard.

The confidence intervals measure the degree of precision of assessment levels derived from measuring the mean, median and weighted mean of statistical samples.

Other descriptive statistical methods that may be used to analyze the assessment product are frequency distributions, scatter diagrams and coefficients of variation. Due to the scope of this report, we have not fully examined these methods here. For further information on statistics relating to assessments, IAAO’s publication, "Property Assessment Valuation," is recommended.

Table 1 of this report illustrates a sample computation of these statistics.

Table 1
Illustration of Ratio Study Statistics

Rank	Parcel #	Appraised value	Sale price*	Ratio	Statistic	Result
1	9	\$87,200	\$138,720	0.629	Number (n)	17
2	10	\$38,240	\$59,700	0.641	Total appraised value	\$1,455,330
3	11	\$96,320	\$146,400	0.658	Total sale price	\$1,718,220
4	12	\$68,610	\$99,000	0.693	Average appraised value	\$85,608
5	13	\$32,960	\$47,400	0.695	Average sale price	\$101,072
6	14	\$50,560	\$70,500	0.717		
7	15	\$61,360	\$78,000	0.787	Mean ratio	0.827
8	16	\$47,360	\$60,000	0.789	Median ratio	0.820
9	17	\$56,580	\$69,000	0.820	Weighted mean ratio	0.847
10	18	\$47,040	\$55,500	0.848		
11	19	\$136,000	\$154,500	0.880	Coefficient of dispersion	14.5
12	20	\$98,000	\$109,500	0.895	Price-related differential	0.98
13	21	\$56,000	\$60,000	0.933	95% conf. int. median (two-tailed)	0.695 to 0.933
14	22	\$159,100	\$168,000	0.947		
15	23	\$128,000	\$124,500	1.028		
16	24	\$132,000	\$127,500	1.035		
17	25	\$160,000	\$150,000	1.067		

* No outlier trimming or adjusted sale price

RATIO STUDY STANDARDS - VALUES TO SALE PRICES

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

The IAAO's Standard on Ratio Studies was first published in September 1990 and was revised in April 2013. The IAAO standards are advisory in nature and provide guidance to those performing ratio studies in the mass appraisal field regarding design, statistics, performance measures and related issues in conducting ratio studies. The RPTA uses the fundamental ratio statistical measures of IAAO standards, and is guided by the criteria of IAAO's Assessment Ratio Performance Standards, to judge the performance of the District's reassessments. See Table 2 below.

Table 2

IAAO's Ratio Study Performance Standards

General Property Class	Jurisdiction Size/Profile/Market Activity	COD Range
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. However, 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; April 2013; p 34.

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

This study considers unadjusted sales price data during calendar year 2019 before the valuation date of January 1, 2020, that is the valuation date for the FY 2021 assessments. Generally, only sales that are verified as arms-length transactions are included in the study. Sales between related parties, to or from financial institutions or government agencies, or sales with extreme ratios (which indicate abnormal transactions) are not used in this study. An attempt was made to contact the property owner and physically inspect all sales. Where property owners were not at home or failed to respond to the “Sales Verification Questionnaire” mailed to them, an exterior inspection was performed. Thus, some of these transactions may have had conditions that could have warranted their exclusion from the study; but the transactions were included notwithstanding. Generally, RPTA’s ratio performance is good and conforms to IAAO standards.

In circumstances where property values are rapidly changing, ratio statistics will be adversely affected. Where real estate prices have been increasing (decreasing), ratio statistics will indicate a lower (higher) assessed value/sale price ratio. However, one should review the average deviation, coefficient of dispersion, and standard deviation to ensure that assessments are uniform.

COMPARISON OF RPTA’s VALUES TO SALE PRICES

Quality is the degree of excellence of a product or service. Also, quality is the extent to which a product measures up to certain standards. In this case, a measure of quality is the ratio study measuring whether the RPTA appraiser assessed properties uniformly and at estimated market value. Assuming the appraiser applied the mass appraisal model uniformly to all properties, this ratio study should show uniformity of assessment. The ratio study is a cross-check by the RPTA management to ensure quality of the mass appraisal. The ratio study was conducted on 7,447 sales of improved residential property and 269 sales of improved commercial property from January 1, 2019 to December 31, 2019, and it compares such sales to the administration’s valuations on the tax roll for FY 2021.

Table 3 summarizes the FY 2021 Real Property Assessment/Sale Ratio by neighborhood within the District of Columbia for residential properties. Table 4 displays similar information for commercial properties. Table 5 illustrates the frequency of assessment sale ratios, in the form of a histogram, for residential properties; the sales used in this study were calendar year 2019 real estate sales. Table 6 provides a summary of the compliance with standards, by property type, for the FY 2021 assessment program.

The histogram in Table 5 graphically represents the frequency distribution of individual residential ratios in the study. The general shape of the graph helps to illustrate the amount of dispersion existing in the data. A tall, narrow shape usually indicates less dispersion from the measure of central tendency, whereas a more flat and broad shape illustrates more dispersion and less desirable uniformity. The histogram of RPTA’s results illustrates both good central tendency and reasonable dispersion. The measures of central tendency indicate that properties, on average, have been valued for FY 2021 at approximately 97.5% of their respective sale prices and that on average all other properties have very similar ratios as indicated by the 6% coefficient of dispersion.

The analysis from Table 6 and the following descriptive statistics indicate that values determined by appraisers for the most recent valuation attained a uniform and appropriate level of value. Table 6 shows that of the fifty-seven residential neighborhoods that were valued for FY 2020, fifty-three had a sufficient number of sales to be statistically relevant and all fifty-three of these residential neighborhoods met all applicable IAAO standards for assessment performance.

In the case of commercial property, more weight is given to the income approach to valuation; additionally, there are fewer sales thereby impeding a more thorough investigation.

The summary data presented in Table 7 indicate that District-wide, for the category of all property types, the sales ratio statistics are in full compliance with IAAO's standards.

TABLE 3**FY 2021*****Residential Real Property Assessment Ratio by Neighborhood***

This table shows the real property assessment ratio data for residential properties. The ratios concern arms-length sales of properties. The sales used were sold between January 1, 2019 and December 31, 2019, and such sales are compared with RPTA's FY 2021 reassessment effective January 1, 2020. In neighborhoods with fewer than 20 sales, the statistics may not represent actual market conditions due to the small sample size.

Type of Property: Residential

Number	Neighborhood Name	Number of Sales	Average Sale Price	Median Sale Price	Median Ratio	Mean Ratio	Weighted Mean Ratio	Coefficient of Dispersion	Price-Related Differential
1	AMERICAN UNIVERSITY	85	1,066,982	1,075,000	97.6	97.8	97.9	3	1.00
2	ANACOSTIA	52	429,889	433,750	98.8	99.1	98.9	7	1.00
3	BARRY FARMS	22	397,386	385,000	98.9	95.8	95.9	5	1.00
4	BERKELEY	30	1,513,200	1,612,500	98.7	98.2	97.7	3	1.01
5	BRENTWOOD	49	447,290	450,000	96.8	95.4	94.9	5	1.01
6	BRIGHTWOOD	168	618,007	625,000	95.8	95.5	95.9	4	1.00
7	BROOKLAND	317	616,538	611,000	96.7	96.5	96.2	6	1.00
8	BURLEITH	32	1,233,906	995,000	98.1	97.8	96.9	5	1.01
9	CAPITOL HILL	163	1,054,920	999,495	97.4	97.8	97.0	7	1.01
10	CENTRAL	376	710,614	565,000	100.0	100.0	100.0	4	1.00
11	CHEVY CHASE	226	1,135,530	1,077,500	98.3	98.0	97.7	5	1.00
12	CHILLUM	40	614,859	648,000	96.2	97.8	96.9	6	1.01
13	CLEVELAND PARK	123	858,260	500,000	98.7	98.6	99.3	6	0.99
14	COLONIAL VILLAGE	22	1,058,218	1,050,500	99.0	99.5	99.7	4	1.00
15	COLUMBIA HEIGHTS	569	611,826	575,000	98.2	97.6	97.7	6	1.00
16	CONGRESS HEIGHTS	165	354,627	362,000	97.9	96.7	96.4	6	1.00
17	CRESTWOOD	37	1,170,926	1,115,000	98.7	99.1	99.0	5	1.00
18	DEANWOOD	218	372,178	384,000	97.2	97.1	97.2	5	1.00
19	ECKINGTON	112	710,223	707,764	97.0	96.4	95.8	5	1.01
20	FOGGY BOTTOM	67	424,558	319,900	99.4	98.9	99.2	6	1.00
21	FOREST HILLS	66	696,526	394,500	99.2	98.5	98.0	5	1.00
22	FORT DUPONT PARK	128	370,934	379,450	97.1	95.9	95.8	7	1.00
23	FOXHALL	23	1,090,745	1,000,000	98.0	99.3	98.8	4	1.00
24	GARFIELD	51	755,488	435,000	99.3	100.0	100.7	5	0.99

Number	Neighborhood Name	Number of Sales	Average Sale Price	Median Sale Price	Median Ratio	Mean Ratio	Weighted Mean Ratio	Coefficient of Dispersion	Price-Related Differential
25	GEORGETOWN	157	1,656,217	1,250,000	99.1	99.2	98.0	4	1.01
26	GLOVER PARK	79	712,654	810,000	98.4	97.7	98.4	4	0.99
27	HAWTHORNE	12	1,089,379	1,080,523	97.9	98.0	97.8	4	1.00
28	HILLCREST	103	391,523	429,000	97.4	94.9	95.3	10	1.00
29	KALORAMA	140	856,992	559,000	100.0	98.8	99.2	5	1.00
30	KENT	24	1,935,509	1,547,500	98.3	98.1	96.8	6	1.01
31	LEDROIT PARK	91	907,185	894,800	98.5	97.7	96.8	7	1.01
32	LILY PONDS	70	409,249	407,500	96.8	95.5	95.8	6	1.00
33	MARSHALL HEIGHTS	65	361,126	380,000	95.9	94.5	94.9	9	1.00
34	MASS. AVE. HEIGHTS	5	2,195,040	2,205,200	100.0	100.0	101.3	3	0.99
35	MICHIGAN PARK	27	675,648	650,000	98.8	99.6	99.3	3	1.00
36	MOUNT PLEASANT	198	754,902	674,500	97.8	97.3	97.4	6	1.00
37	N. CLEVELAND PARK	44	1,170,212	1,175,000	98.5	99.1	98.6	5	1.01
38	OBSERVATORY CIRCLE	60	722,564	582,000	95.9	95.7	96.5	8	0.99
39	OLD CITY #1	795	810,128	774,120	96.9	96.4	96.1	6	1.00
40	OLD CITY #2	889	698,290	585,000	97.8	98.4	98.2	5	1.00
41	PALISADES	54	1,149,364	1,015,000	98.3	98.5	98.4	4	1.00
42	PETWORTH	367	654,050	677,000	97.8	97.2	96.7	7	1.00
43	RANDLE HEIGHTS	120	339,484	355,000	98.0	97.9	97.8	7	1.00
44	NOMA	0	0	0	0.0	0.0	0.0	0	0.00
46	SW WATERFRONT	110	553,335	413,250	94.9	95.3	92.8	8	1.03
47	RIGGS PARK	95	532,983	550,000	98.3	97.8	97.8	3	1.00
48	SHEPHERD PARK	43	726,172	790,000	98.8	98.6	98.3	2	1.00
49	16TH STREET HEIGHTS	87	828,809	890,000	98.3	97.3	97.4	5	1.00
50	SPRING VALLEY	38	1,920,895	1,762,500	97.9	99.1	98.8	4	1.00
51	TAKOMA PARK	25	584,018	570,000	96.4	97.8	97.5	4	1.00
52	TRINIDAD	196	550,512	535,000	96.1	96.0	95.1	7	1.01
53	WAKEFIELD	28	674,354	464,000	99.6	99.5	98.9	5	1.01
54	WESLEY HEIGHTS	65	903,419	689,000	100.0	100.0	100.1	7	1.00
55	WOODLEY	10	1,692,600	1,625,000	96.9	97.7	97.4	3	1.00
56	WOODRIDGE	95	627,620	640,000	97.2	96.2	96.1	8	1.00
66	FORT LINCOLN	92	571,704	590,000	98.5	97.3	97.8	5	1.00
73	NAVY YARD	122	655802	567400	96.8	96.0	95.8	1	1.00

TABLE 4**FY 2021****Commercial Real Property Assessment Ratio by Neighborhood**

This table shows the real property assessment ratio data for commercial properties. The ratios concern arms-length sales of properties. The sales used were sold between January 1, 2019 and December 31, 2019, and such sales are compared with RPTA's FY 20201 reassessment effective January 1, 2020. In neighborhoods with fewer than 20 sales, the statistics may not represent actual market conditions due to the small sample size.

Type of Property: Commercial

Number	Neighborhood Name	Number of Sales	Average Sale Price	Median Sale Price	Median Ratio	Mean Ratio	Weighted Mean Ratio	Coefficient of Dispersion	Price-Related Differential
1	AMERICAN UNIVERSITY	2	14,575,000	14,575,000	101.7	102.0	101.9	2	1.00
2	ANACOSTIA	6	1,796,333	1,433,000	81.1	84.4	82.5	9	1.02
5	BRENTWOOD	3	3,933,000	1,999,000	83.0	84.1	84.2	6	1.00
6	BRIGHTWOOD	6	3,184,500	1,075,000	85.7	82.9	87.7	12	0.95
7	BROOKLAND	6	1,817,100	1,450,000	93.8	93.8	93.5	3	1.00
9	CAPITOL HILL	4	2,571,250	1,850,000	88.4	87.4	82.0	8	1.07
10	CENTRAL	34	63,063,313	27,562,500	98.5	97.3	97.4	6	1.00
11	CHEVY CHASE	1	2,375,000	2,375,000	81.7	81.7	81.7	0	1.00
12	CHILLUM	5	3,366,000	1,300,000	93.6	85.2	92.9	17	0.92
13	CLEVELAND PARK	2	3,976,400	3,976,400	97.4	97.4	97.8	2	1.00
15	COLUMBIA HEIGHTS	17	1,308,341	1,194,500	85.7	86.4	85.6	13	1.01
16	CONGRESS HEIGHTS	12	5,944,500	730,000	83.2	88.2	80.3	13	1.10
18	DEANWOOD	17	2,151,235	950,000	87.7	89.8	89.8	11	1.00
19	ECKINGTON	6	3,255,917	1,205,250	95.3	90.8	94.9	9	0.96
20	FOGGY BOTTOM	3	84,766,667	101,200,000	91.4	94.2	97.3	6	0.97
21	FOREST HILLS	1	7,500,000	7,500,000	71.6	71.6	71.6	0	1.00
22	FORT DUPONT PARK	1	1,200,000	1,200,000	93.7	93.7	93.7	0	1.00
24	GARFIELD	6	2,540,000	2,537,500	99.4	103.0	93.9	16	1.10
25	GEORGETOWN	14	7,623,214	3,412,500	94.5	95.4	96.4	9	0.99
26	GLOVER PARK	2	2,537,500	2,537,500	93.8	93.8	88.7	11	1.06
28	HILLCREST	5	1,241,720	950,000	88.1	95.0	94.0	9	1.01
29	KALORAMA	4	7,822,500	4,125,000	89.1	98.5	92.8	14	1.06
31	LEDROIT PARK	1	1,975,000	1,975,000	83.4	83.4	83.4	0	1.00

Number	Neighborhood Name	Number of Sales	Average Sale Price	Median Sale Price	Median Ratio	Mean Ratio	Weighted Mean Ratio	Coefficient of Dispersion	Price-Related Differential
32	LILY PONDS	2	2,425,000	2,425,000	97.1	97.1	86.4	13	1.12
33	MARSHALL HEIGHTS	5	5,649,000	4,320,000	89.0	86.3	80.9	10	1.07
34	MASS. AVE. HEIGHTS	1	23,000,000	23,000,000	83.3	83.3	83.3	0	1.00
36	MOUNT PLEASANT	8	3,359,375	2,322,500	93.2	88.9	80.8	15	1.10
39	OLD CITY #1	21	11,134,657	1,650,000	95.4	92.5	97.3	8	0.95
40	OLD CITY #2	28	6,596,104	2,325,000	87.0	84.7	90.1	18	0.94
41	PALISADES	1	970,000	970,000	89.3	89.3	89.3	0	1.00
42	PETWORTH	7	3,052,286	1,250,000	76.5	76.7	82.4	12	0.93
43	RANDLE HEIGHTS	8	8,306,333	2,420,000	78.3	79.3	79.1	11	1.00
44	NOMA	2	158,335,992	158,335,992	100.0	100.0	100.0	0	1.00
46	SW WATERFRONT	2	137,299,000	137,299,000	100.5	100.0	100.4	0	1.00
49	16TH STREET HEIGHTS	10	3,087,500	1,487,500	86.5	82.8	80.9	16	1.02
51	TAKOMA PARK	5	1,820,400	1,890,000	98.2	92.8	88.1	11	1.05
52	TRINIDAD	2	5,946,250	5,946,250	92.3	92.3	94.5	3	0.98
53	WAKEFIELD	1	2,650,000	2,650,000	95.4	95.4	95.4	0	1.00
56	WOODRIDGE	6	6,350,000	4,000,000	89.1	84.3	87.2	22	0.97
73	NAVY YARD	2	5,646,921	5,646,921	81.7	81.7	75.2	31	1.09

TABLE 5

FY 2021 HISTOGRAM OF RESIDENTIAL SALES RATIOS

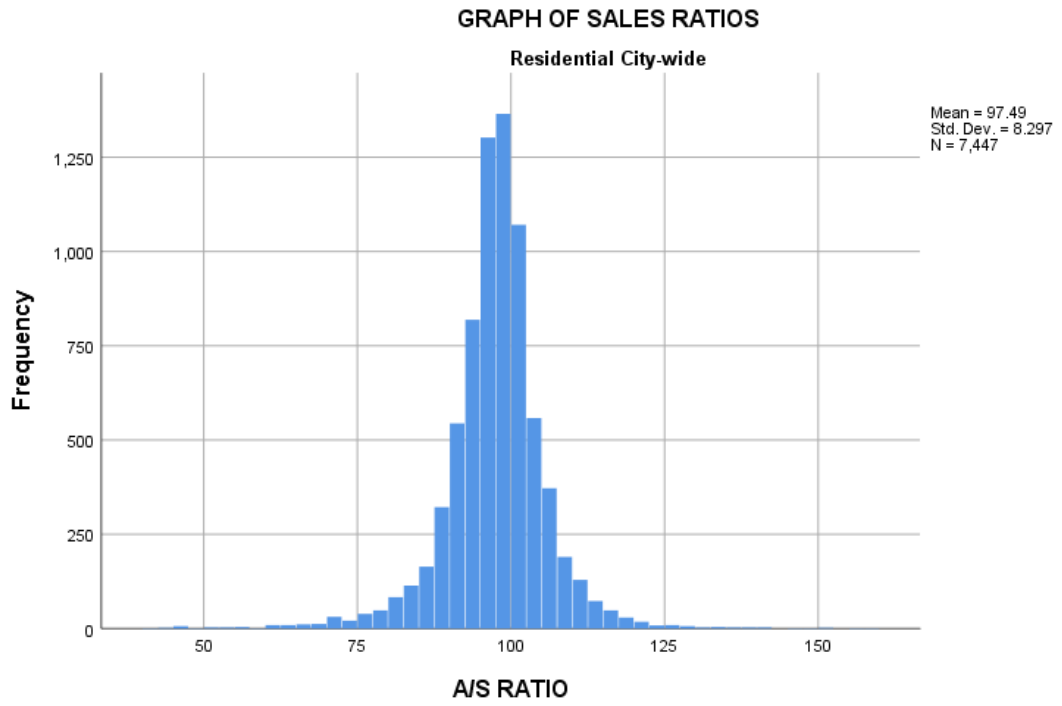


TABLE 6**Compliance with IAAO Ratio Study Performance Standards for FY 2021 Assessments**

The IAAO sets advisory standards for assessment statistics. These standards are depicted in Table 2. In this table, a “+” indicates compliance with the standards.

FY 2021	Residential Median Ratio	Residential Coefficient of Dispersion	Residential Price-Related Differential	Commercial Median Ratio
AMERICAN UNIVERSITY	+	+	+	Ø
ANACOSTIA	+	+	+	Ø
BARRY FARMS	+	+	+	Ø
BERKELEY	+	+	+	Ø
BRENTWOOD	+	+	+	Ø
BRIGHTWOOD	+	+	+	Ø
BROOKLAND	+	+	+	Ø
BURLEITH	+	+	+	Ø
CAPITOL HILL	+	+	+	Ø
CENTRAL	+	+	+	+
CHEVY CHASE	+	+	+	Ø
CHILLUM	+	+	+	Ø
CLEVELAND PARK	+	+	+	Ø
COLONIAL VILLAGE	+	+	+	Ø
COLUMBIA HEIGHTS	+	+	+	Ø
CONGRESS HEIGHTS	+	+	+	Ø
CRESTWOOD	+	+	+	Ø
DEANWOOD	+	+	+	Ø
ECKINGTON	+	+	+	Ø
FOGGY BOTTOM	+	+	+	Ø
FOREST HILLS	+	+	+	Ø
FORT DUPONT PARK	+	+	+	Ø
FOXHALL	+	+	+	Ø
GARFIELD	+	+	+	Ø
GEORGETOWN	+	+	+	Ø
GLOVER PARK	+	+	+	Ø
HAWTHORNE	Ø	Ø	Ø	Ø
HILLCREST	+	+	+	Ø

FY 2021	Residential Median Ratio	Residential Coefficient of Dispersion	Residential Price-Related Differential	Commercial Median Ratio
KALORAMA	+	+	+	Ø
KENT	+	+	+	Ø
LEDROIT PARK	+	+	+	Ø
LILY PONDS	+	+	+	Ø
MARSHALL HEIGHTS	+	+	+	Ø
MASS. AVE. HEIGHTS	Ø	Ø	Ø	Ø
MICHIGAN PARK	+	+	+	Ø
MOUNT PLEASANT	+	+	+	Ø
N. CLEVELAND PARK	+	+	+	Ø
OBSERVATORY CIRCLE	+	+	+	Ø
OLD CITY #1	+	+	+	+
OLD CITY #2	+	+	+	x
PALISADES	+	+	+	Ø
PETWORTH	+	+	+	Ø
RANDLE HEIGHTS	+	+	+	Ø
NOMA	Ø	Ø	Ø	Ø
SW WATERFRONT	+	+	+	Ø
RIGGS PARK	+	+	+	Ø
SHEPHERD PARK	+	+	+	Ø
16TH STREET HEIGHTS	+	+	+	Ø
SPRING VALLEY	+	+	+	Ø
TAKOMA PARK	+	+	+	Ø
TRINIDAD	+	+	+	Ø
WAKEFIELD	+	+	+	Ø
WESLEY HEIGHTS	+	+	+	Ø
WOODLEY	Ø	Ø	Ø	Ø
WOODRIDGE	+	+	+	Ø
FORT LINCOLN	+	+	+	Ø
NAVY YARD	+	+	+	Ø

+ = Meets IAAO Standard

x = Does not meet IAAO Standard

Ø = Insufficient data

TABLE 7**SUMMARY OF SALES RATIO STATISTICS FY 2021**

Sales Ratio By Property Type: City Wide									
Property Type	# of Sales	Average Sale Price	Median Sale Price	Median Ratio	Mean Ratio	Weighted Mean Ratio	COD	PRD	95% Confidence Interval
All	7,716	1,237,731	619,000	97.7	97.2	96.7	6	1.01	0.976 – 0.979
Residential	7,447	728,125	605,000	97.8	97.5	97.4	6	1.00	0.976 – 0.980
Commercial	269	15,345,675	2,235,000	92.3	89.8	95.7	12	0.94	0.895 – 0.943