

Audit of the City of Philadelphia

Office of Property Assessment

Certified 2019 Assessments

Assessment Performance

Statutory Compliance

First Level Review

for the

Council of the City of Philadelphia

Philadelphia, Pennsylvania

December 3, 2018

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Letter of Transmittal

December 3, 2018

Office of the City Council of Philadelphia
Council President's Office
Room 495 City Hall
Philadelphia, PA 19102

Dear Council Members:

J.F. Ryan Associates, Inc. was retained by the Council of the City of Philadelphia to complete an audit of the City's Office of Property Assessment (OPA). This audit was commissioned pursuant to the Philadelphia Code, subsection 2-305(2)(s) which mandates an audit of the OPA at least once every three years by an independent entity. Section 2-305(2)(s) provides in part that the firm selected to conduct the audit "will complete a statistical analysis of the performance of the appraisers and the accuracy of the property assessment in order to ensure a uniform and accurate system of property taxation." Further, the audit is to review OPA's performance in terms of compliance with best practices in its assessment activities. The audit also includes recommendations where the OPA is considered non-compliant with these best practices.

In April 2018, the City Council issued a Request for Proposals with a submission deadline of May 17, 2018. After a competitive review process including four vendors, J.F. Ryan Associates, Inc. was selected on June 5, 2018 to complete this audit. An introductory meeting with City Council members was held on June 20. Initial contact with OPA was made on June 22 with preliminary information requests to OPA staff.

We appreciate the cooperation and overall guidance provided by City Council's Technical staff in particular Herbert Wetzel on project technical matters and Chris Goy dealing with contract issues and related details. We also recognize and appreciate the staff assistance provided by the Office of Property Assessment (OPA) under the direction of Michael Piper, Chief Assessment Officer (CAO). In particular we appreciate the effort and work of Joseph Brach who responded to our numerous data requests as we came to better understand the challenges of working with a multitude of data systems and programs.

Respectfully submitted,



John F. Ryan, CAE, Audit Project Manager
State Certified General Real Estate Appraiser #1234
Effective through November 13, 2019

Report Synopsis

Overall, property assessments in the City do not meet industry standards for accuracy.

- Assessments on vacant land do not meet industry standards.
- Assessments on one to four family homes do not meet industry standards.
- Assessments on condominiums do meet industry standards.
- Assessments on commercial and industrial parcels do not meet industry standards.

There are other major issues as well including the following:

- Significant land value differences exist for otherwise similar parcels of property.
- The City's existing property assessment data is deficient in numerous areas.
- Documentation is missing for many procedures.
- Assessed values on recently sold properties are not consistent with assessed values on properties that have not been sold.

Of the eighteen requirements set forth in the City Code for the Chief Assessing Officer to meet, our review indicates compliance with seven and non-compliance with eleven.

Among the requirements that are not met:

- Assessment standards are not published on the City's web site.
- Methods for property valuation are not published on the City's web site.
- Annual sales ratio studies are not published on the City's web site.
- Supporting documentation for property assessments is not published on the City's web site.

As of mid-September, the Office of Property Assessment had completed action on only 36 percent of requests for First Level of Review filed in May of 2018. 13,000 requests had not been acted on. The deadline for processing first level reviews was October 1. There was no documentation for assessment reductions for over 50% of the commercial parcels sampled where reductions were granted.

Executive Summary

Our audit of the City of Philadelphia's Office of Property Assessment (OPA) generated several findings and recommendations. As is detailed in this report, accurate and equitable property assessments are only achieved efficiently by adopting and employing industry standard mass appraisal practices.

Findings

- **In our professional opinion: on an overall basis, the collective assessments in the City do not meet industry standards.**
- **Residential: As a class, assessments do not meet industry standards.**
- **Condominiums: As a class, assessments meet industry standards.**
- **Non-Residential: As a class, assessments do not meet industry standards.**

While the City's assessments have obvious deficiencies, it is not sufficient to only direct or order the department to "just get the values right". Unfortunately, it simply is not anywhere near that straightforward.

Throughout our examination of City practices, we found deficiencies in numerous areas.

There are literally dozens of activities associated with reassessment. Each activity has (or should have) specific goals concerning; technical and methodological considerations; procedures; time, personnel and budgetary requirements; performance evaluation; communication, transparency, and responsiveness to the public.

By no means do we want to imply that none of the above exist. Yet it is our opinion, there is a substantial lack of definition, integration, execution, oversight, and performance evaluation related to virtually every required reassessment activity.

As best we can tell, **there are many activities performed either in an ad hoc manner or in disconnected ways that preclude either addressing or solving the problems.**

To illustrate the required integration of activities for reassessment, one can simply ask and think through a series of questions related to various issues. Only after the City has answered these and many other questions will it fully prepared to produce a project plan which is both technically feasible and within a realistic time schedule for fully completing all project goals.

The topical areas where there are deficiencies and therefore ample opportunity for improvement are set forth in the following questions. As stated succinctly in our summary findings above, the underlying premise of these questions is that the City property assessments do not meet professional standards for accuracy and uniformity. Furthermore, as detailed in the report, there is clear evidence of disparate treatment of property assessments between sold and unsold properties. While we fully understand the City's desire to just "fix" the assessments, recognition of the magnitude of the problem is a fundamental prerequisite before identifying new areas of time and attention for tasks that are either in whole or in part, not currently implemented. In summary, before addressing the following questions, the City must accept the fact that there are serious problems with the current assessments. Otherwise, any subsequent actions will not correct existing property assessment problems.

- **Data:** Without belaboring the point, the City's property assessment reassessment data is deficient in many ways and impacts many activities. Completeness and accuracy of data significantly affect not just the accuracy and uniformity of values but virtually all operational issues. In our opinion, the City has ignored addressing data issues for far too long.

Questions:

1. *Does the City currently have the correct inventory of data to facilitate accurate and uniform values?*
 2. *If not, how will the department determine what is the optimal data definition?*
- **Procedures:** there are more than a few activities for which procedural documentation simply does not exist. Unfortunately, in some cases it is the lack of the actual procedures more than the lack of documentation that is the problem.
- Questions:**
1. *Is there a process in place to periodically examine the adequacy of procedures?*
 2. *If not, why?*
 3. *Are procedural definitions in place for handling building permits and updating data files to keep current?*
- **The sale validation process** is deficient.

Questions:

1. *How must the process change to recognize the critical nature of sales validation to the entire reassessment process as well as integration to other tasks?*
2. *Is the right person or persons in charge of determining actual procedures, procedural definition and adherence to procedures?*

- **Methodologies:** The City utilizes residential modeling approach which requires a high level of expertise and experience. The modeling technique approach employed is not commonly employed in the mass appraisal industry and in particular in any jurisdiction which we are aware that is even remotely comparable to the City of Philadelphia.

Question: *Is OPA confident that currently used analysis and valuation methodologies are the most appropriate, in terms of difficulty, timeliness, staff skills, and overall performance?*

- **Systems:** The City has contracted for the implementation of a modern CAMA system.

Questions:

1. *Should an explicit effort be underway already to contemplate and recognize the wide-ranging impact such a new system will have on the entire assessment process?*
2. *Is effort underway to integrate the new CAMA system and the City's data, beyond storage capability, as it affects current methods and procedures?*
3. *Does the new CAMA system support all of the department's activities and if not, how will the CAMA system integrate existing data and activities?*
4. *Going forward, should the City implement valuation methodologies recommended by the CAMA contractor?*

- Feedback loop: The City currently uses a linear process of valuation. Residential valuation models are developed, which calculate value, which the Evaluators review and the valuation process ends.

Questions:

1. *Should the City redefine their processes to perform in an iterative manner? In other words, subsequent to value review, should there be a post valuation performance evaluation, in order to identify data problems, modeling inadequacies, procedural deficiencies etc.?*
 2. *Lacking an iterative valuation strategy, where in the current processes, is any explicit effort to identify and improve any or all aspects of the valuation process?*
- Planning, integration and management: The key to success is the presence, involvement, and commitment of sufficient expertise, ensuring both broad and technical skills are available so that awareness to, anticipation of and reconciliation of issues/problems are satisfied in a timely and effective manner.

Questions:

 1. *Is it time for the City to comprehensively examine the staff organization and structure?*
 2. *Is it realistic to expect the City's human resource systems, now or in the foreseeable future, to be able to provide sufficient, competent personnel to comply with the requirement to annually assess all property uniformly at market value?*
 - Compliance with Statutory City Code: As the audit sets forth, there is little compliance with City Codes with respect to property assessment and valuation. Adherence to assessment calendar deadlines such as completing the assessment roll, mailing timely notices, completing the FLR process is less than complete.

Question: *Even without compliance with annual reassessment, does the City have any plan to comply with their administrative responsibilities to meet even basic time deadlines for completing the assessment roll and acting on FLR applications?*

Conclusions and Recommendations

In our final analysis, we conclude that substantive deficiencies exist throughout the City's property assessment process, leading to a lack of effectiveness not only with assessment accuracy and uniformity, but operationally as well as reflected in questions set forth above.

Going forward, the City needs to address the deficiencies set forth in this report either internally with its own staff or by contracting with a mass appraisal firm to provide assistance to the Office of Property Assessment staff in addressing some or all these deficiencies. The optimal solution for addressing these deficiencies is beyond the scope of our audit. Regardless of the selected solution, the City must first, fully and systematically complete each of following tasks in order to provide a foundation for meaningful improvements:

1. Systematically research Executive Summary Questions.
2. Examine and determine, within reassessment framework, the inadequacies (existing and potential) of staffing, competencies, methodologies, procedures, budgets and execution timing requirements.
3. Work with existing OPA employees to complete an analysis of **ALL** OPA tasks covering all areas of responsibility including on-going administrative and assessment/valuation functions. (See *Assessment Practices Self-Evaluation Guide Fourth Edition*¹ as an example of the number and range of tasks requiring discrete analysis).
4. Establish clear and unambiguous list of goals and priorities.
5. Set forth alternative execution strategies to achieve goals.
6. Interact with all stakeholders to educate and identify consensus of singular approach.
7. Oversee and approve creation of project plan with all tasks required to meet goals identified with associated timeframes.
8. Identify staffing and budget requirements to reflect consensus project plan
9. Execute Project Plan

¹ *Assessment Practices Self-Evaluation Guide, 4th Edition*, (Kansas City, MO, International Association of Assessing Officers, 2013)

Scope of Assignment

The following activities were completed to fulfill audit requirements:

1. Conduct detailed statistical analysis in evaluating the certified 2019 property assessments.
2. Referencing industry best practices, review compliance with City Codes with respect to property assessment processes including primarily the mass appraisal of real property.
3. Conduct an audit of the First Level Review Program (FLR).
4. Provide a written report of our findings and recommendations.

Audit work was conducted by J.F. Ryan Associates beginning in June 2018 and ending in September 2018. John Ryan was the Project Manager overseeing all audit tasks as well as completing major sections of the Compliance Review and all of the First Level Review audit tasks. Edgar Hayes, Senior Consulting Associate of the firm completed the Performance Review portion of the audit. Technical staff from the subcontracting firm for J.F. Ryan Associates, Inc., 4x3, LLC, provided input for information systems/web site portions of the Compliance Review.

For industry best practices, we reviewed all current IAAO Standards, the Uniform Standards of Professional Appraisal Practice (USPAP), and the District of Columbia's 2019 Tax year publications related to their 2019 Assessment Roll. During our work we interviewed Mr. Michael Piper, Chief Assessment Officer, (CAO) as well as several other management and technical staff members of the OPA staff. We obtained data files electronically via email, private cloud storage services, and on-site visits. On-site visits were conducted throughout July, August and September by Mr. Ryan and Mr. Hayes. We reviewed all documents and materials provided by the OPA

Performance Standards

The International Association of Assessing Officers (IAAO) is a professional membership organization of primarily county/municipal level government assessment officials and others interested in the administration of the property tax. IAAO publishes standards of performance for the mass appraisal industry and specifically for governmental assessment jurisdictions around the world. These standards are utilized as guidelines for industry valuation and assessment practices. Our audit work and findings are informed with reference to the standards below:

Standard on Ratio Studies (approved April 2013) Part 2, Equalization and Performance Monitoring

Standard on Verification and Adjustment of Sales (approved Nov. 2010)

Standard on Mass Appraisal of Real Property (approved July. 2017)

Standard on Public Relations (approved July 2011)

Standard on Assessment Appeal (approved July 2016)

We also referenced *2018-2019 Uniform Standards of Profession Appraisal Practice (USPAP)* and *Advisory Opinions* published by the Appraisal Standards Board of The Appraisal Foundation. Finally, as specified in the City Code, we referenced the District of Columbia's, Real Property Assessment Division's Tax Year 2019 publications: *Appraisers Reference Materials*, *Pertinent Data Book* and *Market Analytics*.²

²*Appraisers Reference Materials, Pertinent Data Book and Market Analytics*, Real Property Assessment Division, 2019 General Reassessment Program. Washington, DC, February 2018.

Certified 2019 Property Assessment Performance

Introduction to the Sales Ratio Study

The guidance provided by the 2013 IAAO *Standard on Ratio Studies*, hereinafter referred to as *Ratio Standard* is relied upon in this audit.

The scope of this assignment is to perform the ratio study based solely from the data provided by the City that were represented as accurate by the OPA. Independent confirmation of the data was not part of the scope of work and therefore the data are assumed correct and relied upon without independent confirmation. Population data provided by OPA allowed us to decide whether the sample of sales is representative of the population of properties. Given our conclusions relative to the sample of sales, we proceeded to conduct tests for selective reappraisal by major property class.

Sales Ratio Study Context

Conceptually, a single-property real estate appraisal is relatively simple and straightforward. One gathers a few recent sales that are similar to the subject property, make market-oriented adjustments for differences between the comparable sales and the subject property and draw an inferred conclusion, i.e. the appraised value. The appraised value usually represents market value and is determined when the appraisal is made, whether it is January, June or December of a given year. There is little concern for what the specific value is of properties nearby or several blocks away.

Reassessment of properties City-wide i.e. mass appraisal is an entirely different matter, especially in a large city with more than a half a million properties. One not only has to value all properties at a single point in time, but the goal is to establish equitable values for all properties across both the horizontal and vertical spectrum of values.

What is meant by horizontal and vertical equity?

Horizontal equity means that all properties should be valued at the same level of assessment. In other words, if the goal is 100% market value, then all properties should be at 100%. It is understood that it is impossible to simultaneously and perfectly value a half million properties. Some will be too high, say 115% of value and others may be too low, say 80% of value. When examining **large numbers of properties** data sets to determine horizontal equity the starting point is to determine the median ratio of assessment divided by selling price, for all (or a sample) of the properties that have sold. Using this test half of the properties will have a ratio higher than the median and half will have a lower ratio. If the median ratio is at or very near one's goal (say 100%) – it is obviously a good thing.

However, it is not enough that the median ratio percentage is near one's goal. As stated above there are errors for many individual properties. Error can be defined as the difference between the overall average value or ratio and the value or ratio for a given subject property. Expressing what the average error is across a large number of properties is the statistic called COD (coefficient of dispersion). Thus, if a COD is 20%, it is expressing that collectively across a data set the average absolute error of all assessments is simply that, 20%. To illustrate, assume a City with three parcels that all sold for \$100,000. If the respective assessments are \$130,000, \$100,000 and \$70,000, the COD is 20%.

The IAAO Standard for the COD for residential properties is generally around 10%. IAAO's *Standard on Ratio Studies* defines what is an acceptable range for different circumstances. In a large city such as Philadelphia, which contains a very wide spectrum of differing housing stock, the Standard recognizes a COD as high as 15% is acceptable – in recognition of the diverse and wide spectrum of housing stock (say \$10,000 to \$5,000,000).

While horizontal equity suggests all property classes or groups of properties are at the same level of assessment (assessment/sale price ratio), vertical equity is simply another way in which to examine variation up and down the sale price scale. High value properties and low value properties should be valued at similar levels of assessment. For example, if million-dollar properties are typically valued at 80% of value and \$100,000 properties are typically valued at 120% of value there is clearly a problem.

Having described that error exists in all reassessment circumstances, what have we learned from our review and ratio study analysis?

There are many factors impacting the conclusions drawn from a sales ratio study. To illuminate a single point, there are many circumstances and motivations that drive property transfers and affect selling prices. The good news is that in any given year there are tens of thousands of property transfers. The bad news (i.e. difficulty) is that when the property transfer deed is filed there is little to no information specifically defining if the sale is valid (i.e. if the transfer represents market value) or invalid (does not represent market value). The determination of validity is the assessor's job, presumably done as part of a defined process that assures all assessors (OPA Evaluators) are performing the process consistently and accurately. Thus, with a completely accurate sales file one can examine if adequate assessment is being performed.

The files provided us by OPA are not completely accurate. Therefore, we (the analysts) were required to use our experience to make some decisions in our analysis to yield better insight as to what is happening in terms of assessment performance.

Data Provided and Assumptions

OPA provided numerous electronic files containing sales and population data. Each record contained several property characteristics including the sales price, the certified assessed values for fiscal years 2018 and 2019, various market model value estimates, land use category, and other property characteristics. The files typically contained tables providing descriptions of the variables in the file.

The goal in any assessment performance evaluation using sales is to select a time period as short as possible to provide a sufficient sample for drawing conclusions concerning the larger population. Given an assessment jurisdiction the size of Philadelphia during a period with a robust real estate market, it is conceivable for an appropriate sample sizes in some residential neighborhoods to come from a period as little as one to three months.

For example, residential mortgage underwriting guidelines typically suggest appraisers use the most recent comparable sales available. This minimizes the need to address changes in market conditions with documented and well-supported time adjustment factors.

While changes in market conditions over time are always a consideration, we used unadjusted sale prices as proxies for market value over a one-year period, a time period most often used in sale ratio studies. We set the sales period six months prior to the January 1, 2018 valuation date and six months after the January 1 date of value. Any changes in market value due to market conditions over this one-year test period are mitigated by using a time period where the midpoint of the test period is the date of value.

Ratio Study Standards

The IAAO *Standard on Ratio Studies* includes recommended CODs based on general property types and specific property types. Although the standard depicts ranges based on property type, the overall range for cities similar to Philadelphia is from 0.05 to 0.15 (5.0% to 15.0%). The recommended level of appraisal (assessment) as expressed by the median ratio is .90 to 1.10 (90% to 110%).

The *Standard on Ratio Studies* on page 34 summarized these performance measures.

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.*

**Alternatively, assessing officials can rely on the PRB, which is less sensitive to atypical prices and ratios. PRB coefficients should generally fall between $-.05$ and $.05$. PRBs that are statistically significant and less than $-.10$ or greater than 0.10 indicate unacceptable vertical inequities.*

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

Residential Sales Ratio Study

The City uses areas defined as GMA's within major Zones for valuing residential property. For the residential sales ratio study, the City was stratified by Zone in order to provide insight into assessment performance in discreet areas throughout the City.

The city map on the following page includes zone boundaries. With the exception of areas in Zone Z, all other zones are cover geographic areas in the City. Zone Z covers several unique areas, primarily parkland and the NE Philadelphia Airport with a few privately-owned parcels. Zone boundaries are illustrated with the dark black lines.

Zone Map



Sample Representativeness

Making conclusions regarding assessment performance, requires an analysis of assessment performance for all properties. With market value as the objective for each property's assessment, actual, verified, arms-length sales on or near the statutory date of value (January 1) are the best indicators of market value. Within any given timeframe, there are a limited number of sales, compared with the much larger number of properties (population) that have not sold. Therefore, we must rely on sampling to provide us with the basis for making conclusions about assessment performance on the much larger number of unsold as well as sold properties. In essence, sampling consists of examining a small portion (valid sales) of the larger population (all parcel assessments) to draw conclusions about that population. With proper sampling we can estimate the accuracy and equity of property assessments for any given year.

Ideally, a sample is selected at random and such a sample is “representative” of the larger population. A sample is considered random if each observation (property assessment) has the same chance of being included in the sample group. While sales over any given time period do not necessarily occur randomly, in jurisdictions where one can make a reasonable assumption that a sample of a certain size is representative of the larger population, informed conclusions about the population (assessment level and uniformity) are routine.

To ensure a sales sample is representative of the population, the sample should be comprised of a minimum number (sample size) of properties similar in characteristics to the population. Minimum sample size depends on the variance of the population, the desired confidence level and the tolerance for error. For example, using a confidence level of 95% with a 5% tolerance for error, a sample size of 138 is sufficient where the estimated population variation as measured by the coefficient of variation is 30%. Sample size is rarely an issue in larger assessment jurisdictions even in economic downturns. Testing for assessment performance in such jurisdictions using sales over a 12-month period generally provides sample sizes sufficient for the most rigorous reliability tests.

Since there is no statistical test to determine if a sample is representative of the population, the exercise of informed judgement allows us to make this assumption. The chart below provides good evidence that the sales sample of residential property over the period July 1, 2017 to June 30, 2018 we used in our analysis is, in fact, sufficiently representative to draw meaningful conclusions regarding the population of assessments.

City of Philadelphia Assessment Population Data -- Residential Properties Only					Valid Residential/Land Sold Properties Sample (untrimmed) July 1, 2017 thru June 30, 2018						
A	B	C	D	E	F	G	H	I	J	K	L
Parcel Groups based on 2019 Total Cert Value	Parcel Count	Pct of Interval Parcels to Total Parcels	Total Assessed Value (AV)	Ratio of Class AV to Total Class AV	Parcel Count	Pct of # of Sold Parcels in each interval to # of Total Sales File Parcels in each Grouping	Total 2019 Assessed Value (AV)	Ratio of Class AV to Total Class AV	Mean AV/SP	Median AV/SP	Aggregate AV/SP
0 - \$100,000	167,102	39.9%	\$10,178,182,820	15.7%	6,014	36.2%	\$319,397,526	11.0%	1.25	0.87	0.56
\$100,001 - \$200,000	162,264	38.8%	\$23,748,472,248	36.6%	5,977	36.0%	\$885,922,894	30.4%	0.97	0.91	0.76
\$200,001 - \$300,000	52,295	12.5%	\$12,420,428,565	19.1%	2,431	14.6%	\$580,612,747	20.0%	0.98	0.92	0.89
\$300,001 - \$400,000	16,967	4.1%	\$5,818,035,201	9.0%	922	5.6%	\$319,613,144	11.0%	0.96	0.94	0.86
\$400,001 - \$500,000	8,308	2.0%	\$3,701,238,924	5.7%	511	3.1%	\$228,266,766	7.8%	0.98	0.98	0.93
\$500,001 - \$1,000,000	10,029	2.4%	\$6,547,803,723	10.1%	643	3.9%	\$420,233,293	14.4%	1.02	0.99	0.97
> \$1,000,000	1,734	0.4%	\$2,448,394,128	3.8%	107	0.6%	\$156,194,748	5.4%	1.05	0.92	0.89
Totals	418,699	100.0%	\$64,862,555,609	100.0%	16,605	100.0%	\$2,910,241,118	100.0%	1.07	0.92	0.80
Compare Columns C and G											
Compare Columns E and I											

Sales Ratio Studies

The charts below evaluate improved residential property sales data from OPA sales files using sales coded as valid for the time period of July 1, 2017 through June 30, 2018.

The chart headings are defined as follows:

Zone – unique geographic area of the City

Count – number of sales in the sample for the Zone from the test period July 2017 – June 2018

Median – the middle ratio when assessment/sale price ratios are arrayed from high to low ratio. There are an equal number of ratios above and below the median. For example, assume a City with three properties. One has a ratio (assessment divided by sale price) of 120%. A second has a ratio of 95%. A third has a ratio of 80%. The median is 95%, the middle property in the group of three properties.

Mean – sum of the individual ratios divided by the count. It is the arithmetic mean or average of all the ratios.

WMean – weighted mean; is the sum of the assessed values divided by the sum of the sale prices. Weighted mean weights each ratio according to its sale price so compared with the mean, more emphasis given to parcels with higher sale prices.

PRD – Price-related Differential – mean assessment/sale price ratio divided by the weighted mean assessment/sale price ratio. It is a test of vertical equity; PRD greater than 1.0 indicates regressive assessments i.e. higher value properties have lower assessment/sale price ratios compared with lower value properties which have higher assessment/sale price ratios.

COD – Coefficient of Dispersion – average absolute deviation from median assessment/sale price ratio divided by the median assessment/sale price ratio. It is a measure of relative dispersion showing the average percentage of error in assessments in the jurisdiction. A COD of 20% indicates the individual ratios are, on average, 20% different than the median ratio.

COV – Coefficient of Variation – standard deviation divided by the mean assessment/sale price ratio, a measure of assessment variation or uniformity conceptually similar to the COD.

Chart 1: Improved Residential Properties Sold between 7/1/2017 – 6/30/2018 (UNTRIMMED)

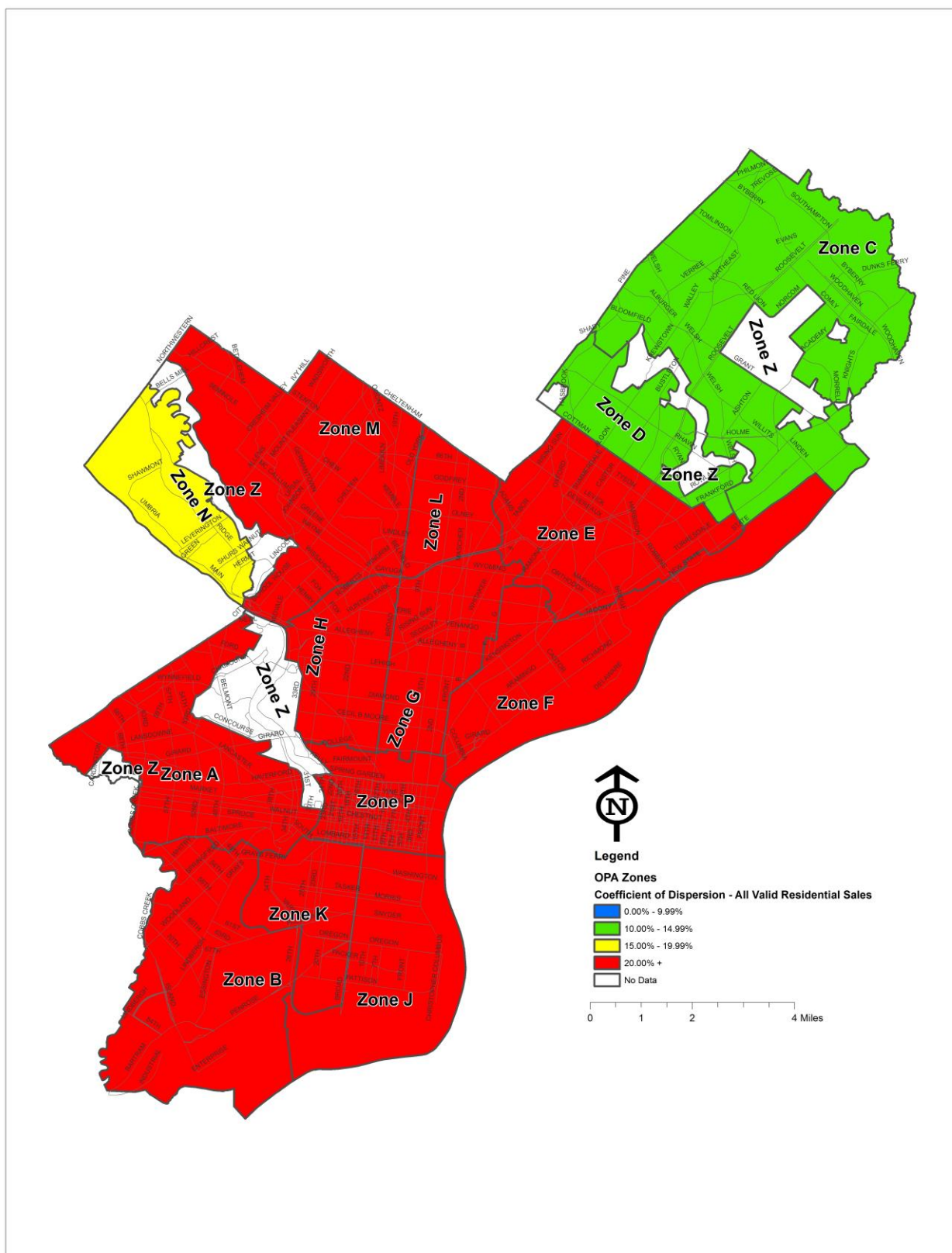
Zone	Count	Median	Mean	WMean	PRD	COD	COV
A	1,513	0.93	1.26	0.78	1.61	65.97	180.85
B	563	0.98	1.31	0.84	1.57	66.46	99.02
C	1,278	0.93	0.96	0.92	1.04	11.74	33.39
D	809	0.96	0.99	0.96	1.03	12.09	19.24
E	2,014	0.94	1.02	0.94	1.09	22.04	43.56
F	1,186	0.85	0.97	0.82	1.19	37.13	167.30
G	748	1.00	1.28	0.93	1.37	53.32	86.99
H	1,078	1.00	1.51	0.90	1.68	82.16	241.99
J	1,130	0.89	0.89	0.86	1.04	20.01	28.03
K	1,521	0.83	0.98	0.80	1.23	48.16	564.17
L	466	0.95	1.41	0.92	1.54	72.55	436.95
M	1,523	0.96	1.13	0.94	1.20	38.93	78.86
N	677	0.95	0.99	0.94	1.05	16.25	50.60
P	625	0.94	0.96	0.89	1.08	20.23	41.52
<u>Z*</u>	<u>1</u>	<u>0.95</u>	<u>0.95</u>	<u>0.95</u>	<u>1.00</u>	<u>0.00</u>	<u>0.00</u>
Total	15,132	0.93	1.10	0.88	1.24	39.69	226.89

** Zone Z – Primarily parkland and the NE Philadelphia Airport with a few privately-owned parcels.*

Reviewing these statistics leads to only one conclusion – some, if not many, of the sales as identified as valid by the City are not truly valid. This makes it impossible to continue the analysis without considering further action to yield a clearer insight regarding assessment accuracy.

To further illustrate the problems with assessment uniformity, the COD data in the chart above is illustrated on the City-wide map below.

City-wide Map - Residential COD – Untrimmed Sales (all valid sales)



Given the magnitude of the problem indicated by the COD statistics, we were required to consider the issue of *trimming*, i.e. removing sold properties from the sample. Ideally, only valid sold properties are included in the sales sample. Not only is verifying validity for 15,000+ sales outside of the scope of this audit, but the time requirements to complete such a task precludes completing *any* study in a timely fashion. Thus, the need to “trim” the sales – somewhat arbitrarily based partly on our decades of experience in this industry, delete parcels with assessment/sale price ratios so overwhelmingly distant from 1.0 that one can conclude either the sale price is not valid, the assessment does not reflect current market conditions or the property data underlying the assessment is far from accurate.

For the chart below, we have trimmed approximately 10% of the 15,000 sales included in the previous chart. As discussed in more detail below trimming outliers allows for meaningful analysis. The IAAO Standard states it is appropriate to set maximum trimming limits of no more than 10% (20% in extreme circumstances with small samples). After trimming, the statistics provide a more logical and meaningful basis to come to some informed conclusions.

Chart 2: Improved Residential Properties Sold between 7/1/2017 – 6/30/2018 (Trimmed)

Zone	Count	Median	Mean	WMean	PRD	COD	COV
A	1,194	0.92	1.00	0.88	1.13	28.83	34.44
B	440	0.96	1.02	0.89	1.15	30.09	35.40
C	1,269	0.93	0.95	0.93	1.02	10.04	14.17
D	801	0.96	0.98	0.96	1.02	11.04	15.70
E	1,946	0.93	0.97	0.93	1.04	16.93	23.90
F	1,094	0.86	0.89	0.85	1.05	22.07	28.51
G	618	0.98	1.01	0.94	1.08	23.92	31.25
H	828	0.98	1.02	0.95	1.07	27.27	33.75
J	1,096	0.89	0.90	0.88	1.02	18.11	23.70
K	1,276	0.88	0.89	0.89	1.00	20.39	26.43
L	402	0.93	0.99	0.92	1.08	24.92	31.77
M	1,379	0.94	1.00	0.93	1.07	24.54	31.14
N	668	0.94	0.96	0.94	1.02	12.99	18.41
P	605	0.94	0.96	0.92	1.04	16.94	22.37
Z	1	0.95	0.95	0.95	1.00	0.00	0.00
Total	13,617	0.93	0.96	0.91	1.05	20.20	27.39

The difference between Charts 1 and 2, is obvious: the statistics are much better in Chart 2. The means and medians are much closer together, indicating that the extreme errors in the initial untrimmed sales have been eliminated and the statistics in Chart 2 are noticeably less distorted by the errors present in the untrimmed sales included in Chart 1.

The COD data in Chart 2 is illustrated in the City-wide map on page 15.

The overall level of assessment (the total line) is in the low to mid 90% range. The medians and the means vary across Zones by approximately ten percentage points. The COD (average error) is approximately 20% in Chart 2 contrasted with around 40% in Chart 1. The PRD (price related differential) after trimming has dropped substantially from 1.24 to 1.05, which again suggests the extreme bad ratios at the low and high ends of the dollar scale substantially impact meaningful insight.

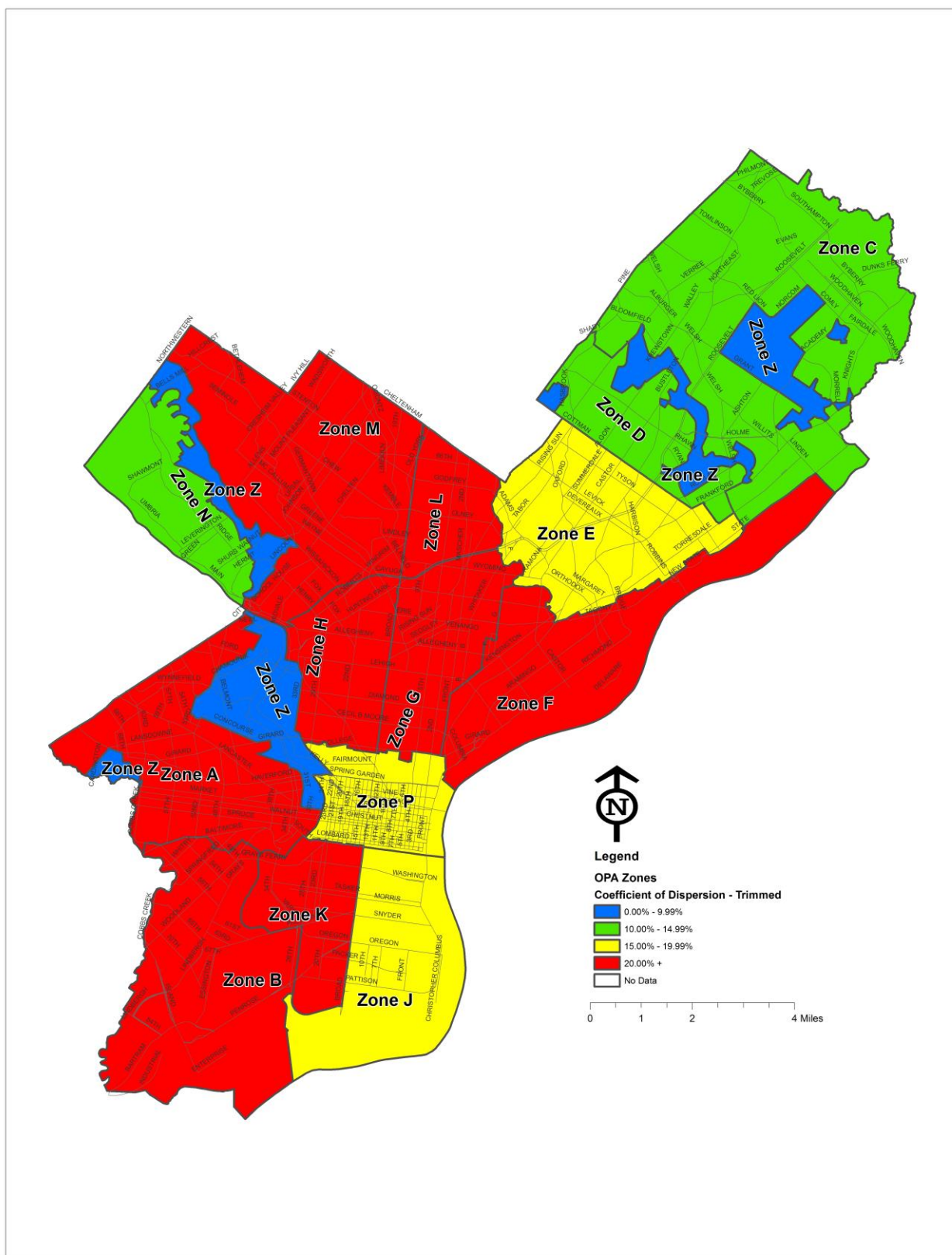
Two questions surface whenever discussing trimming (eliminating) sales from the analysis. The first question is: Is 10% the right amount of the sales to trim? While it is based largely on informed experience, the direct answer remains: it is an arbitrary number. There is no absolutely correct number of occurrences to eliminate. The IAAO Standard allows for trimming but two things are known. When trimming occurs, a fundamental issue is that one is losing valuable information about actual property sale prices. The more sales data available the better we are able to understand assessment performance across the entire population of property assessments. Simply arbitrarily eliminating bad ratios from the study reduces the credibility of the results. However, to avoid trimming entirely, as stated previously, is to preclude the completion of any meaningful analysis within an acceptable time frame.

Which brings us to the second question:

If trimming 10% of the sales improves insight, would trimming 20% of the sales provide even more insight? The answer is NO. The answer is no, not because 10% is the perfect number, but simply trimming the occurrences in the sales set by an increasingly larger percentage, one can make the numbers say anything you want them to say. A simple extreme example: if one eliminated 50% of the sales (25% of both the high and low ends), the statistics would no doubt look incredibly better – maybe even implying fantastic performance. However, to do so, would not be credible, because the truth of the matter is that the resulting statistics would not reflect actual overall performance but rather simply imply the performance of the middle 50% of the overall properties.

We have trimmed the 10% based upon a combination of our experience and the compromise concerning timeliness available to complete the task and our recognition that the validity coding is deficient in a substantial number of cases. The 10% trimming is the maximum amount of trimming we feel comfortable to execute – again, without resources and effort far beyond the scope of this audit.

City-wide Map - Residential COD – Trimmed Sales



Residential Vacant Land Sales Ratio Study

All property should be assessed at market value. This is true for vacant land parcels as with improved parcels. Analyzing residential land sales between July 1, 2017 and June 30, 2018 generates the following results. Note only the trimmed sales sample is displayed. Given the serious problems indicated with the trimmed sales sample, the statistics generated from the untrimmed sales sample are so far worse they are essentially useless and hence not displayed.

Chart 3: Residential Land Sales (Trimmed) (7/1/2017 – 6/30/2018) Ratio Statistics

Zone	Count	Median	Mean	WMean	PRD	COD	COV
A	136	0.85	1.10	0.53	2.05	72.83	81.04
B	19	1.18	1.77	0.46	3.86	104.80	81.47
C	25	0.19	0.30	0.22	1.37	61.81	85.13
D	4	0.42	0.43	0.33	1.30	34.83	40.90
E	8	2.49	2.52	1.65	1.52	54.20	61.04
F	122	0.39	0.65	0.21	3.05	121.55	115.65
G	213	0.44	0.91	0.31	2.91	153.81	108.15
H	278	0.49	0.83	0.27	3.11	123.57	106.81
J	53	0.18	0.30	0.18	1.72	108.79	92.47
K	215	0.17	0.30	0.16	1.91	121.70	96.51
L	1	1.65	1.65	1.65	1.00	0.00	0.00
M	52	1.86	2.02	0.55	3.71	51.96	58.11
N	37	0.14	0.41	0.18	2.21	216.08	175.26
P	48	0.23	0.44	0.31	1.41	124.95	90.26
Total	1,211	0.41	0.78	0.24	3.28	140.65	116.83

The statistics suggest there is substantial inequity. Examining the sales at a low level, one finds there are only 13% of the sales within a range of -plus or minus 25% error. 67% of the ratios have errors greater than 25% on the low side (undervalued); while 20% of the ratios have errors greater than 25% on the high side (overvalued). The median suggests land is substantially undervalued for the middle of the distribution of sales. The mean is nearly double that suggesting there are some land parcels substantially overvalued, as well as some very high ratios distorting the figures.

Residential Condominium Sales Ratio Study

Of all the classes (groups) of properties we examined, as one would expect, condominium assessments exhibit the best performance. Condominiums by their very nature, are more homogenous than other major property types with ample market sales available for review.

While mostly focusing on the trimmed sales sets throughout all the ratio studies in this report, a good example of why trimming is necessary is illustrated when comparing the following untrimmed data, Chart 4 and trimmed data, Chart 5.

Chart 4: Condominium Sales (UNTRIMMED) (7/1/2017 – 6/30/2018) Ratio Statistics

Zone	Count	Median	Mean	WMean	PRD	COD	COV
A	52	0.88	1.03	0.97	1.06	26.24	67.73
C	234	0.91	0.91	0.90	1.01	10.48	14.47
D	4	0.87	7.84	3.25	2.41	803.73	178.27
F	60	0.89	0.87	0.83	1.05	19.16	28.84
G	46	0.90	0.89	0.88	1.01	7.97	12.78
H	26	0.90	0.86	0.86	1.00	5.35	7.73
J	92	0.86	0.87	0.86	1.01	9.62	12.40
K	97	0.86	0.84	0.83	1.01	10.91	15.99
M	39	0.87	1.66	3.83	0.43	99.63	288.43
N	158	0.90	1.03	0.87	1.19	22.35	134.48
P	1,032	0.91	0.93	0.90	1.03	12.93	57.40
<u>Z</u>	<u>4</u>	<u>0.95</u>	<u>1.13</u>	<u>1.02</u>	<u>1.10</u>	<u>20.08</u>	<u>32.38</u>
Total	1,844	0.90	0.96	0.92	1.04	17.05	116.96

City-wide Map – Condominium COD – Untrimmed Sales (all valid sales)

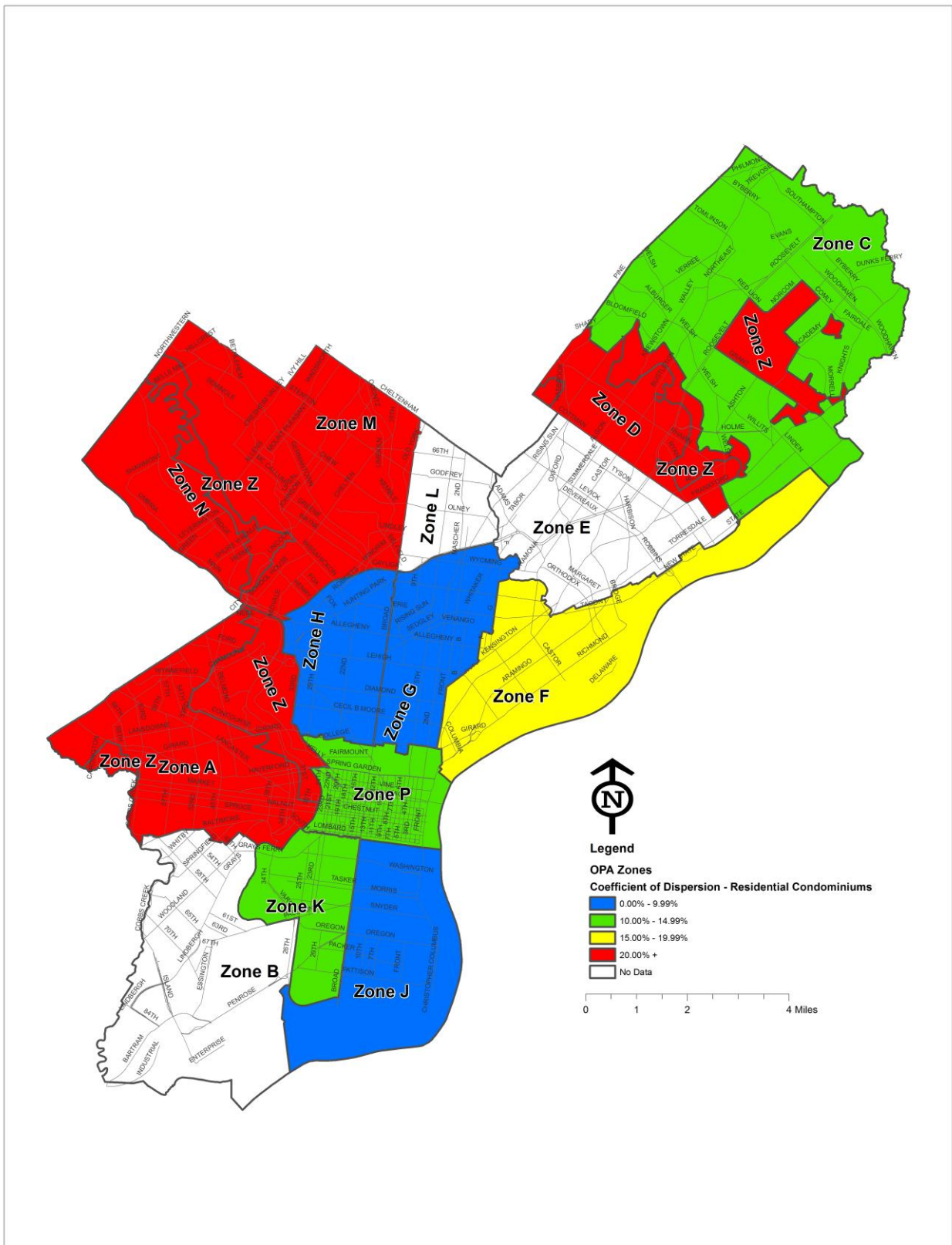


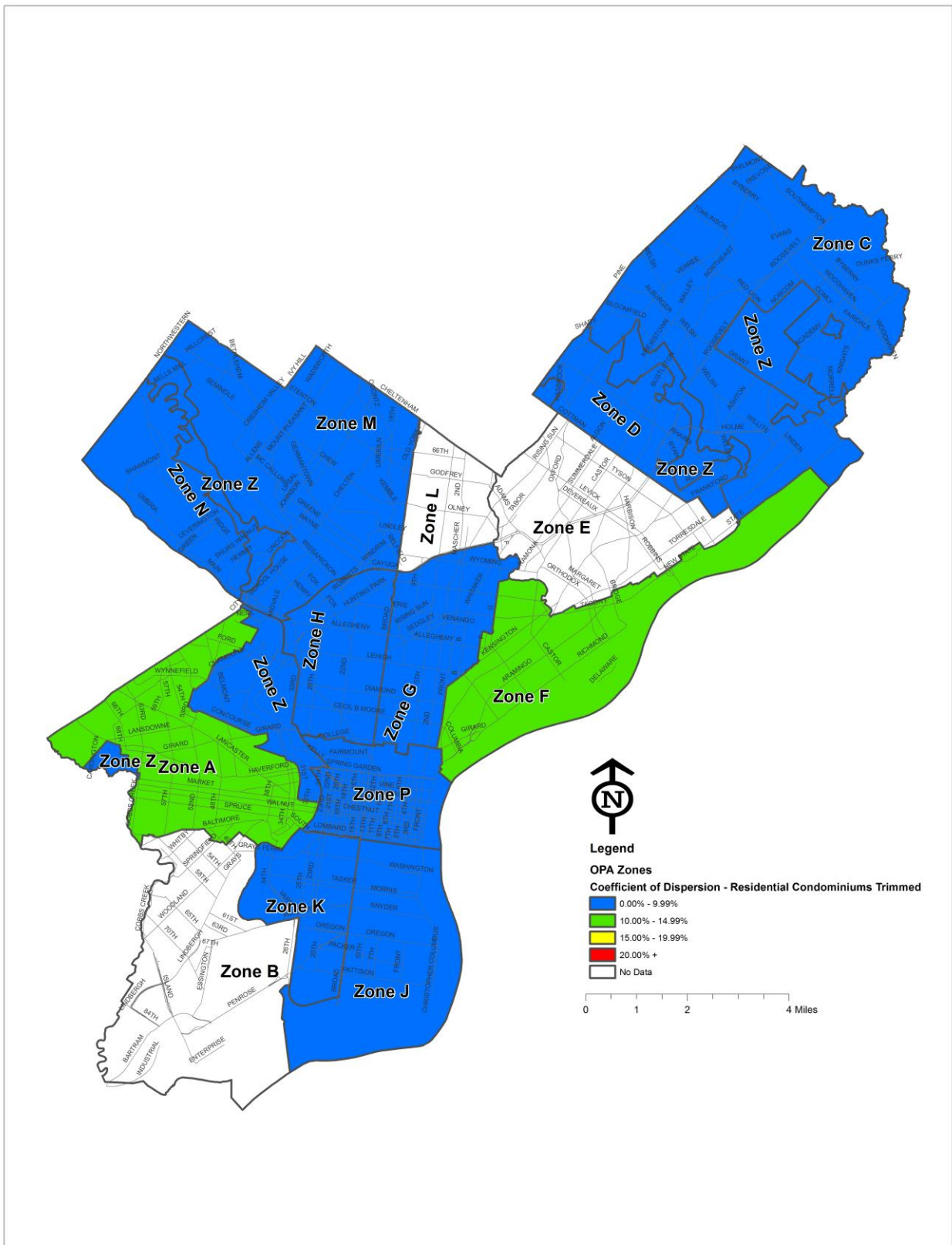
Chart 5: Condominium Sales (Trimmed) (7/1/2017 – 6/30/2018) Ratio Statistics

Note: given better data, level and consistency of values, 2.5% were trimmed from the high and low ends of the ratio distribution.

Zone	Count	Median	Mean	WMean	PRD	COD	COV
A	45	0.87	0.87	0.87	1.00	10.15	12.82
C	227	0.91	0.91	0.90	1.00	9.36	11.94
D	3	0.86	0.85	0.85	1.00	2.85	4.33
F	49	0.90	0.91	0.90	1.01	10.95	13.94
G	45	0.90	0.90	0.89	1.01	7.10	10.71
H	26	0.90	0.86	0.86	1.00	5.35	7.73
J	91	0.86	0.87	0.87	1.01	9.36	11.89
K	91	0.87	0.86	0.85	1.01	8.78	11.09
M	37	0.87	0.87	0.87	1.01	9.72	12.06
N	145	0.90	0.92	0.91	1.01	5.32	7.36
P	990	0.91	0.91	0.90	1.01	9.79	12.28
<u>Z</u>	<u>3</u>	<u>0.95</u>	<u>0.94</u>	<u>0.94</u>	<u>1.00</u>	<u>1.39</u>	<u>2.09</u>
Total	1,752	0.90	0.90	0.90	1.01	9.28	11.86

Notwithstanding the overall 90% assessment level is less than the goal (100%), it is within acceptable industry standards.

City-wide Map – Condominium COD – Trimmed



Commercial and Industrial Sales Ratio Study

Commercial/industrial property includes a multitude of unique property types and real estate markets for many of these uses are beyond city boundaries. While not as significant in a jurisdiction as large as Philadelphia, both sample size and sample representativeness are underlying issues in evaluating the results of non-residential sales ratio studies.

Non-residential property assessments for the Certified 2019 assessments were increased approximately three percent over their Certified 2018 assessments. The objective of this increase was to recognize overall change in values from the prior year when a complete revaluation was implemented. The income approach to value, supported by comparable sales when available, is the primary method for valuing these properties. The cost approach is used primarily for special purpose properties.

Given that the non-residential land sale category represents 30% of all commercial industrial sales and in light of our previous findings that land ratios are inaccurate, we removed Commercial/Industrial land sales from the non-residential sales file and examined them separately assuming the emergence of more clarity for the improved commercials. As illustrated in Chart 6 below, the land statistics alone, as with the residential land sales, are poor and yield no evidence of even minimal levels of acceptable assessment performance.

Chart 6: Land Sales Only – (Commercial / Industrial) Sales Ratio Statistics

Category	Count	Median	Mean	WMean	PRD	COD	COV
Non-Res Land	482	0.28	1.16	0.29	4.01	374.98	363.54

A median of .28, a mean of 1.16 and a COD of 375 suggests the data is sufficiently either inaccurate or incomplete to have any confidence in the accuracy of the land values. Therefore, it is necessary to return to the improved commercial sales to ascertain if any insight is provided by taking the land sales out of the overall commercial examination.

Chart 7: Apt / Commercial / Industrial Sales (Untrimmed) Ratio Statistics (With Land Sales Deleted) Sales for 7/1/2017 – 6/30/2018

Category	Count	Median	Mean	WMean	PRD	COD	COV
Apartments	153	0.80	4.94	0.85	5.78	549.49	859.77
Commercial	670	0.89	1.40	0.86	1.63	90.27	305.57
Garage	3	0.37	0.67	1.25	0.54	122.91	107.68
Health	13	0.93	1.21	1.65	0.73	95.59	113.84
Hotel	5	0.55	0.89	0.70	1.27	72.11	83.24
Industrial	204	0.85	1.43	0.63	2.26	115.50	221.61
Office	34	1.03	1.31	1.10	1.19	41.30	54.54
Religious	35	1.13	2.32	1.06	2.18	151.45	140.38
Utility	7	0.81	5.54	0.65	8.49	644.77	201.45
Total	1,124	0.89	1.93	0.90	2.15	155.31	834.28

The ratio statistics remain seriously inadequate and therefore trimming is clearly warranted as set forth in the Chart 8 on the following page.

Chart 8: Apt / Commercial / Industrial Sales (TRIMMED) Ratio Statistics
(With Land Sales Deleted) Sales for 7/1/2017 – 6/30/2018

Category	Count	Median	Mean	WMean	PRD	COD	COV
Apartments	139	0.80	0.87	0.85	1.03	39.96	50.92
Commercial	621	0.88	1.02	0.88	1.15	45.33	57.22
Garage	2	0.93	0.93	1.30	0.72	60.82	86.01
Health	9	0.98	1.15	1.26	0.92	58.22	71.38
Hotel	5	0.55	0.89	0.70	1.27	72.11	83.24
Industrial	173	0.89	0.94	0.64	1.46	43.96	56.51
Office	33	1.03	1.24	1.09	1.13	34.60	46.51
Religious	27	0.92	1.30	0.98	1.34	75.49	74.35
Utility	3	0.81	0.99	0.61	1.64	55.22	69.59
Total	1,012	0.88	1.00	0.88	1.13	45.29	57.84

While the median and means are much better (still not adequate) the key statistic here is the COD. It is more than double what industry standard suggest. The only conclusion is that while *on average* the assessments appear significantly better, the COD informs us that there is little, if any, consistency among the ratios and assessments. Within every category the values are oscillating, high and low, relative to market value. Therefore, the only conclusion is the assessments are considerably inequitable.

Ratio Study Conclusion

The conclusion overall to the study is many properties are valued reasonably well, such as the condominium class as a whole and the total assessed value of a majority of the improved residential properties as indicated by the overall median assessment to sale price ratio of 93%. However, the property assessments for many residential properties and geographic areas, land parcels and land allocation of improved properties, commercial, industrial and other non-residential properties are inaccurate – with respect to both the level of assessment (median ASR across Zones) and the consistency of parcel values within and across property classes (COD's across Zones and property classes)

Considering the median of the assessment ratios for improved property classes, there is a range from .88 - .93 (not counting land sales). While this suggests that the overall level (say .90) may be acceptable, it by no means suggests the assessments are uniformly acceptable.

The COD (coefficient of dispersion) expresses the uniformity or consistency of the values. Industry best practices is a COD of 5 -15%, for residential (with some exceptions). Even after trimming the residential sales, the COD for residential property is near 20%. While residential condominiums, after trimming, has a COD less than 10%, it is important to recognize that without trimming the COD is above 17%. For the other property classes the COD ranges from 45% to over 100% for land parcels.

When one discusses uniformity, it is important to understand that the goal is for all properties to have the individual assessments near a common level. Reviewing Chart 2, the residential properties located in Zones C and D have a COD of about 10%. However, in Zones A and B, the COD is near 30%. In the case of Zones C&D assessment uniformity is consistent with industry best practices. In Zones A&B assessment uniformity is seriously deficient and therefore assessment performance is far from even minimally acceptable industry standards.

As noted previously, residential condominium performance is generally considered good assuming the 92 sales reported as valid but removed from the study are actually invalid sales. There are inaccuracies in some condominium complexes that were brought to our attention; however, for the overwhelming number of residential condominiums, again assuming the 92 sales removed from the study are not valid market transactions, condominium assessments are acceptable.

The assessments for non-residential properties (apartments, commercial & industrial etc.) vary widely. There is little to no uniformity as illustrated by the COD of 45%. A COD of 45 does not mean that every property is wrong by 45% - rather that is the average error with respect to the median assessment/sale price ratio. However, it does mean that for every property valued at 100% of market value and that has an error of 0%, there is another property with either a 100% error or perhaps 2 other properties with 75% errors. While it is expected that the COD will be higher for non-residential properties, the lack of uniformity is at least double what one would expect with even average assessment performance.

Our final conclusion after examining the sales ratios is that the overall performance is deficient and has significant room for improvement. The general solutions required to achieve such improvements are feasible. As noted throughout the report, such solutions must be examined further in order to turn these general recommendations into precise actions concerning data, procedures, methodologies, systems and management. This will require further investigation and research on the part of the City.

Unsold Property Test

If sold properties are selectively reappraised, intentionally or otherwise, based on their sale prices and unsold properties are not reappraised in a similar fashion using valuation models that produce the same overall percentage of market value (appraisal level), uniformity inferences are likely either misleading or simply inaccurate. Likewise, measures of assessment level are also not supportable.

The term *Unsold* means properties that were not transferred during the sales time period and properties that did transfer between July 1, 2017 to June 30, 2018 but are not considered arms-length market transfers.

Unsold Property Test provides an overall ratio comparing the ratio of the market value of sold properties to the ratio of the market value of unsold properties. The ratio of the market value of sold properties (valid sales) is the total market value of all sold properties after revaluation (2019 Certified Assessments) to the total market value of all sold properties before revaluation (2018 Certified Assessments), and the ratio of the market value of unsold properties is the total market value of all unsold properties after revaluation (2019) to the total market value of all unsold properties before revaluation (2018). This test is best illustrated in the Table below.

	Sold Properties	Residential (trimmmed)	Res Condos (trimmed)	Non-Residential (trimmed)
A	2019 Total Cert Value of Sold Properties	\$2,751,960,100	\$713,517,600	\$1,426,235,100
B	2018 Total Cert Value of Sold Properties	\$2,149,130,947	\$532,927,242	\$1,415,680,960
C	A divided by B (% increase in sold property value)	1.28	1.34	1.01
	Unsold Properties	Residential	Res. Condos	Non-Residential
D	2019 Total Cert Value of Sold Properties	\$64,179,160,352	\$9,655,631,750	82,675,255,550
E	2018 Total Cert Value of Sold Properties	\$56,539,135,864	\$8,641,379,650	78,757,451,252
F	D divided by E (% increase in unsold property value)	1.14	1.12	1.05
	% Increase in sold property value (C) divided by % increase in unsold property value (F) equals Unsold Property Test	1.13	1.20	0.96

The sale and assessment data used in the table above, employs the same data analyzed in the residential sales ratio studies in the previous section. Sales are from the time period July 1, 2017 and June 30, 2018. The assessment data includes a distinct set of property assessment data for both Certified 2019 and Certified 2018 assessments.

Generally, an Unsold Property Test Ratio between .95 and 1.05 is considered good evidence both sold and unsold properties are valued similarly. The statistics above provide significant evidence of sold properties being appraised differently than unsold properties. In the case of non-residential property, given the fact that the revaluation was completed for the 2018 Certified Assessment Roll and the 2019 Certified assessments reflect a uniform increase of 3%, it is difficult to make any significant conclusion regarding the Unsold Property Test solely for this property class.

The unsold test for residential condominiums, 1.20 indicates significant disparate treatment of sold versus unsold properties. One reason is about 12% of the sold properties are missing 2018 certified values. Rather than simply deleting these parcels from the analysis, we increased the actual 2018 Certified Value (\$473,292,400) total by the percentage of properties with missing values (12.6%) yielding the number displayed. The missing values are most likely because of new construction in the last year.

While the additional research and analyses required to fully document such a conclusion is beyond the scope of this audit, evidence indicates there is a high probability of differential treatment of sold properties compared with unsold properties.

Statutory Compliance

Legal and Standards Framework

Article VIII, Section 1 of the Commonwealth of Pennsylvania Constitution states: “All taxes shall be uniform, upon the same class of subjects, within the territorial limits of an authority levying the tax...”. Pennsylvania Statutes further provide under Title 72, Section 5341.13 for the following:

- (a) “All property within the county now or hereafter made taxable by law, shall be valued by the assessors and assessed by the board at the actual value thereof. In arriving at actual value the county may utilize the current market value or it may adopt a base year market value.”
- (b) “The board shall assess real property at a value based upon an established predetermined ratio which may not exceed one hundred percent of actual value. Such ratio shall be established and determined by the governing body after proper notice has been given.”
- (c) “In arriving at actual value, the price at which any property may actually have been sold, either in the base year or in the current taxable year, shall be considered but shall not be controlling. In arriving at the actual value, all three methods: namely cost (reproduction or replacement, as applicable, less depreciation and all forms of obsolescence), comparable sales and income approaches, must be considered in conjunction with one another.”
- (d) “The board shall apply the established predetermined ratio to the actual value of all real property to formulate the assessment roll.”

The following additional provisions were enacted in 2012 and codified at Title 53 Pa.C.S.A. Section 8565. If there is a conflict between these provisions and those in Title 72 above, these newer provisions control. They provide in part:

(b) Certification of values. --Notwithstanding any other provision of law:

- (1) For tax year 2013, the assessment office shall certify assessed values at the assessed values certified for tax year 2011, adjusted for subsequent improvements, demolition and destruction. The assessed values certified for tax year 2013 under this paragraph shall apply to all taxes on or measured by assessed values levied by a city or a school district for tax year 2013 notwithstanding any contrary enactment of a city or a school district or any contrary certification by a city, city agency or school district.
- (2) For tax years after tax year 2013, the assessment office shall certify market values at actual market value. In arriving at actual market value, the price at which any property may actually have been sold shall be considered but shall not be controlling. In arriving at the actual market value:
 - (i) All three of the following valuation methods shall be considered in conjunction with one another:
 - (A) Reproduction or replacement cost, as applicable, minus:
 - (I) depreciation; and
 - (II) all forms of obsolescence.

(B) Comparable sales.

(C) Income.

(ii) The valuation process may employ systems, methodologies and technologies that meet nationally recognized assessment standards.

(c) Timing of certification. -- Notwithstanding any other provision of law, for tax years after tax year 2013, the assessment office shall certify assessed values by March 31 of the preceding year.

(d) Application of established predetermined ratio. --Notwithstanding any other provision of law, in any assessment appeal under Act 1939-404 for tax year 2013, the board and any applicable court of competent jurisdiction shall apply the established predetermined ratio applicable to a city for tax year 2011.

(e) Conflicts. --If there is a conflict between a provision of Act 1939-404 and a provision of this section, the provision of this section shall apply.

Philadelphia Code Section 2-305(2)

As of 2011, the City Code prescribes in extensive detail the duties and authority of the CAO all in accordance with *law, ordinance, and industry standards*. We reviewed compliance with the following directives in the code and our compliance opinion is noted after each item in bold italics. Subsequent sections in this Report provide more in-depth explanation of our concerns underlying our compliance conclusions particularly with respect to valuation issues.

City code directs the CAO to:

- Promulgate and make available on the City's official website Assessment Standards and Practices Regulations with respect to assessments made in calendar year 2011 and thereafter: ***Non-compliant***.
- Set forth a methodology for the valuation of properties for taxation purposes. The methodology employed shall be made available to the public, including an explanation of the extent to which the methodology employed conforms to nationally recognized assessment standards such as those approved by the International Association of Assessing Officers (IAAO) for mass appraisals of real property. ***Non-compliant***.
- The Government of the District of Columbia's document "Appraiser's Reference Materials," shall serve as a point of reference. ***Non-compliant – as noted, there is no public disclosure of the current valuation methodology employed by OPA.***

The City Code further requires the setting of standards for property assessments that shall include, at a minimum:

- An acceptable limit on the deviation of the Common Level Ratio from the Predetermined Ratio ***Compliant***.
- An acceptable limit on the Coefficient of Dispersion ***Non-compliant***.
- An acceptable range for the Price-Related Differential. ***Non-compliant***.

The code states the measurements against the standards shall be calculated following nationally recognized practices. Further requirements are set forth in the Code as follows;

- Require an annual reassessment through a professionally developed and maintained Computer Assisted Mass Appraisal (CAMA) system. **Non-compliant.**
- Require that the annual reassessment be applied to all properties, including tax exempt properties, public utility property, and residential trailers. **Non-compliant.**
- Establish standards for recommending tax exemption for properties. **Substantially compliant.**
- Establish procedures for changing values on an administrative basis (for example, in the event of catastrophic loss or errors in data). **Substantial compliance for catastrophic loss. The valuation appeal process is generally available for value change, typically reduction, due to data changes.**
- Publish annually by May 1st on the City's official website in a format substantially similar to the document issued by the Government of the District of Columbia the results of assessment-sales ratio studies for different types of real property for the entire City, and for different types of real property within each of the geographic areas utilized in making assessments. **Non-compliant.**

Additional Code requirements consistent with assessment industry standards include the following:

- Ensure access to public records regarding assessments in accordance with applicable law and see to it that such records are made available on the City's official website. **Substantially non-compliant.**
- Serve as the City's contact for information and complaints, other than appeals, about assessment policies and practices. **Compliant.**
- Ensure that annual revisions and equalizations are done in accordance with law, ordinance, and industry standards. **Non-compliant.**
- Ensure the establishment and maintenance of records of an adequate description of properties to assist in the determination of the value of those properties, and to permit inspection thereof by the public at all times during office hours. **Non-compliant with respect to adequate data.**
- Ensure the defense of assessed values. **Compliant**
- Receive from the Department of Records a report of every deed or conveyance of land entered in the office for recording, which record shall set forth the following information: the recording date of the deed or conveyance; the names of the grantor and grantee in the deed; the consideration paid; the location of the property; and such additional information about the property's condition and characteristics as the Office of Property Assessment shall require in order to support its data collection requirements for accurate property valuation. **Substantially compliant though not consistent with industry best practices.**
- Maintain an on-line database of each parcel which includes, at a minimum, the characteristics of the property; ownership information; certified values for the last five (5) years, showing the baseline assessment of the property as well as the effect of any changes based on an exemption or abatement; tax information, including the property's real estate tax and tax balances; zoning designation; and the existence of special conditions or certifications regarding the property, including whether the property is subject to any historical designations. **Substantially compliant.**
- Make underlying supporting data, documentation, methodology and any other information used to certify each property assessment publicly available by May 1. **Non-compliant.**

Previous OPA Performance and Operational Reviews

In 2011, the City contracted with the International Association of Assessing Officers to conduct an evaluation of the practices and procedures of OPA including an evaluation of the then current assessments using sales ratio analyses and an on-site data quality study. A summary of their recommendations is included in Appendix A. The City is in the process of implementing one of the major recommendations, installing a contemporary CAMA system but for the most part, particularly the section in the 2012 Report addressing property data deficiencies and implementation of a regular (cyclical) property inspection, these recommendations as well as the conclusions from the sales ratio analyses, set forth in this report appear equally valid as of 2018.

Valuation Methodology

Land Valuation

Philadelphia has a large and active abatement program (14,606 parcels as of September 2018) where the value of new construction is abated over a ten-year period. This program results in many properties paying property taxes either solely or in part on the City's estimate of land value. Therefore, there is significant public attention placed on the accuracy and uniformity of assessments of both vacant land and the land value component of the total value of improved properties. While one can argue inconclusively on true, but unknowable, value of the land component of an improved property, there is no question that public acceptability of property assessments rests heavily on conclusions regarding fairness, i.e. are like properties treated in a similar manner.

Given public focus on the impact of this program on property assessments, it is important to discuss in detail generally accepted appraisal practices regarding land valuation given OPA's background documentation of its land valuation processes.

OPA addresses land valuation overall by dividing it into two major categories, residential, (including small multi-unit/family parcels) and non-residential. Within these two major property categories, land valuation procedures are labeled as follows:

1. Vacant land – land with no structures, but may have improvements such as parking lots
2. Residual land – land with improvements, typically with buildings.

There is no Certified 2019 Assessment specific background documentation available for the valuation of land. However, an undated Power Point document entitled *Residential Land Valuation Project* was downloaded from OPA's public web site. It is provided as documentation for the processes used to value residential land. A similar process was followed for non-residential land valuation except the allocation method is used to estimate the land value portion of improved properties.

As set forth in the documentation the term *residual land* is defined as land that is encumbered by a building. Generally accepted appraisal practice defines the term residual as:

The quantity left over; in appraising, a term used to describe the result of an appraisal procedure in which known components of value are accounted for, thus solving for the quantity left over, such as land residual or building residual.³

³ *The Dictionary of Real Estate Appraisal, 6th Edition* (Chicago: Appraisal Institute, 2015)

OPA Land Valuation Models

Land valuation models labeled as follows were developed and applied to specific property types as detailed below:

1. Residential Land Model
2. Residual Residential
3. Commercial Land Model
4. Residual Commercial
5. Manual

Prop Type	Floor Plan	Description	Valuation Method
LU	Excess Land	Unbuildable Excess Land	Residual Residential
LX	PUD Common Element	Zero Value Common Element	Residual Residential
LZ	Common Element	Unbuildable Private Yard	Residual Residential
LC	Land Zoned Commercial	Buildable Commercial Land	Commercial Land Model
LI	Land Zoned Industrial	Buildable Industrial Land	Commercial Land Model
LP	Parking Lot	Unattended Parking Lot (Free Parking)	Commercial Land Model
LB	Cemetery	Cemetery	Manual
LO	None or Pending	Unspecified Vacant Land	N/A
LG	Vacant Land Garden	Buildable Vacant Land Garden	Residential Land Model
LR	Land Zoned Residential	Buildable Land Residential	Residential Land Model
LS	Private Parking	Buildable Private Parking	Residential Land Model
LY	Private Yard	Buildable Private Yard	Residential Land Model
LQ	Common Element	Non PUD Common Element	Residential Residual
LJ	Railroad Land	Railroad Land	Residual Commercial
LH	Vacant Land Garden	UnBuildable Vacant Land Garden	Residual Residential
LT	Private Parking	Unbuildable Private Parking	Residual Residential
LV	Low Income	Low Income	Residual Residential

Vacant Land Valuation

As set forth in the land valuation documentation, valuation of vacant land follows standard valuation approaches, market and/or income, and therefore market value is typically estimated using generally recognized appraisal techniques. Similar to improved residential property, market value is specified using the sales comparison approach to estimate vacant land value. Regression analysis is employed as the calibration technique to estimate land characteristic components which are then summed to a total value estimate.

Improved Properties – Valuation of Land Component

Improved properties are a distinctly different type of property compared with vacant land properties regardless of its current or potential use. As correctly noted in OPA's residential land valuation documentation, the land value portion of an improved property is NOT the same type of property as an otherwise similar parcel of land with no improvements. This is not to suggest that the land value in such a situation cannot be the same. Unfortunately, for improved properties, there is no way to empirically "prove" the component values of a total value estimate. In other words, it is simply impossible to state with certainty what the true market value is of any component of the total market value of an improved property, including the land component.

Notwithstanding the fact that land value portion of the total value of an improved property is empirically unknowable, generally accepted appraisal practice provides techniques to assist in estimating component values such as land value. Since appraisal practice includes several valuation techniques for estimating the value of vacant land, these same techniques are employed to estimate the land value of improved parcels.

OPA's land valuation documentation mentions some of these techniques. The technique OPA uses to estimate land values include the sales comparison approach and market extraction as further described in the next two sections.

OPA Methodology for Estimating Vacant Land Value

The sales comparison approach to value was used to estimate the value of vacant land using validated vacant land sales. Values derived from the sales comparison approach were compared to the value estimates generated from the valuation model used to estimate the land value portion of improved properties (see below) and these estimates set the "floor" for land value. For vacant land parcels where site development was not economically feasible, the value estimate from the land value was used. Analysis of valid land sales above shows very high incidence of error. Therefore, it is highly likely there a significant problem with the process used in applying the sales comparison approach.

OPA Methodology for Estimating Land Value Component of Improved Properties

The land value component of improved properties was estimated using a market extraction technique. An estimate of the value of the improvements (typically the building components) is subtracted from the total sale price of the property; the result is an estimate of the land value.

As set forth in the documentation, component land values were determined in a four-step approach.

1. A cost model was specified (land value + improvements value).
2. The model includes factors for location, lot size, building size (area), type of building age and condition, garage type and spaces, view, zoning, degree of slope, air conditioning and proximity to highways, commercial corridors, water, light rail, recreation facilities, neighborhood services was calibrated to market value using regression analysis.
3. From this model, the land allocation percentage was determined for each property. This land allocation percentage was then applied to the total value to derive a component land value estimate.
4. In some instances, land value estimates resulted in "extremely low or high allocation percentages" [of the total value]. Therefore, land value estimates were set at not less than 14% and no higher than 60%, of the total value of the property.

Regardless of the perceived accuracy of the land value component of the improved properties, OPA's market extraction valuation process often produces significantly different land value estimates for neighboring properties that appear otherwise comparable. In assessment jurisdictions where the total value of the property is considered and used as a basis for calculating property taxes, such disparity is not an issue as the focus is solely and appropriately placed on a property's total assessed value.

As stated above, the City's large and active abatement program results in many properties paying property taxes either solely or in part on the City's estimate of land value. Given the intense public attention placed on the accuracy and uniformity of these assessments it is important for OPA to estimate these land values accurately in a uniform manner. Significant land value differences for otherwise similar parcels of property results in inequitable assessments and detracts public acceptance of property assessments.

Generally accepted mass appraisal practice in the property assessment community is to estimate the land value component of improved properties by using one of three methodologies, either market extraction, allocation or one of the income capitalization techniques. Regardless of the methodology employed, accepted practice for jurisdictions where assessments are regularly, if not annually, updated is to specify and calibrate valuation models so as to generate uniform value land value estimates recognizing market-driven variation from parcel to parcel. Model specification tends to remain similar from year to year; model calibration is used typically to adjust values from one year to the next. Adhering to this process not only maintains accurate values, but also keeps value change trends among similar properties relatively stable from year to year.

Non-Residential Land Valuation

Initial value estimates for non-residential vacant land was completed using the same methodology employed for vacant residential land. As with all automated system generated values, these estimates are subject to review and adjustment by OPA Evaluators.

Value estimates for land value component of improved properties were estimated using the allocation method. There was no specific documentation provided to support this process.

Residential Valuation – Improved Properties

There was limited valuation documentation provided consistent with the requirements set forth in either the City Code, the IAAO *Standard on Mass Appraisal of Real Property* or the *2018-2019 Uniform Standards of Professional Appraisal Practice*. The documentation provided included performance statistics generated from the sales comparison models applied by neighborhood throughout the City.

The process for setting the Certified 2019 assessments commenced with the “projection” of value estimates from the sales comparison models. These projected values were provided to OPA Evaluators assigned by market area in the City for review and adjustment as required. While the performance statistics generated for each of the sales comparison models were generally good, there were no performance statistics available to evaluate the final values extended to the assessment roll. Therefore, it appears there has been minimal, if any, post-valuation modeling performance review by OPA.

Non-Residential Improved Property Valuation

Residential condominium data collection and valuation is prepared using spreadsheet software. While not optimal compared with contemporary CAMA systems, using generic software not specific to the task such as spreadsheets is likely sufficient for generating accurate values assuming the proper data is collected and maintained accurately.

The processes for valuing the commercial and multi-family properties were reviewed with staff. There is no standard data collection form and no uniform methodology for collecting value-influencing property characteristics within OPA.

It appears that the income approach to value supplemented with comparable sales approach to valuation is the primary methodology for valuing multi-unit residential and non-residential properties.

Property Data Issue

As noted above OPA has acquired a CAMA system and is currently working on implementation. No timetable was offered for implementation. While this is a fundamental requirement for a contemporary market-value based assessment system, technology alone will not overcome the problems with either missing or incorrect data.

The following paragraphs are taken directly from the 2012 IAAO Report. While our scope of work for this audit does not include an evaluation of the property data, it bears repeating given our findings with respect to assessment performance: ***for all classes of property there appear to be serious data deficiencies that no amount of technology can overcome.*** Improvement in assessment performance will be difficult to attain even given the very best of level of quality inherent in any valuation methodology.

IAAO's Standard on Mass Appraisal of Real Property," Section 3.3 states "The assessor should collect and maintain sufficient property characteristics data for classification, valuation, and other purposes. Accurate valuation of real property by any method requires descriptions of land and building characteristics." While we cannot state with certainty that the current system does not have necessary property characteristics to generate accurate values, it is clear that without a computer-assisted mass appraisal system (CAMA) which incorporates a sketching of the facility fully integrated with the underlying property characteristic data, the City may face tremendous difficulties in the implementation of market value assessments in a timely fashion.

Total living area in conjunction with location and condition is typically the most important input in determining accurate values. In addition to generating area measurements accurately and efficiently, sketches are a key component in providing property owners with the confidence that accurate information is being used to develop their property value. Without a CAMA system with integrated sketches, OPA may have continued difficulties developing accurate values consistently from year to year with a high level of public confidence in the process.

The Standard also states in Section 3.3.4 "A system should be developed for making periodic field inspections to identify properties and ensure that property characteristics data are complete and accurate. Properties should be periodically revisited to ascertain that assessment records are accurate and current. Assuming that most new construction activity is identified through building permits or other ongoing procedures, a physical review at least every four to six years should be conducted, including an on-site verification of property characteristics." Based on the properties inspected as part of our on-site review, it is clear that not all properties are on a schedule for timely visits to update assessment records. In conclusion, the missing data and questionable quality of the existing data indicates the need for a comprehensive inspection of all properties using generally accepted industry practices.

A complete property characteristic specification manual should be developed which details each property characteristic. Examples of such specifications are as follows:⁴

- 1. Conduct a complete on-site inspection of properties that have not had a full inspection in the past six years and enter all data into the CAMA system. The implementation of portable computer collection devices, integrated with the CAMA system, may increase production rates for residential properties and minimize the need for data entry upon completion of field work.*
- 2. Given that OPA's goal is to have proposed values ready for final value field review by November 2012, either increasing the number of residential appraisers and/or contracting with firms with personnel experienced in on-site data collection procedures will likely be necessary.*
- 3. Develop and implement an on-going plan for regular property inspections in order to continue to ensure that the information and data about the properties and valuation of properties is accurate. This will help to ensure that City of Philadelphia assessments are accurate, fair, and equitable.*

⁴ Uniform Appraisal Dataset Specification, Document Version 1.1. Developed by FannieMae and FreddieMac, under the direction of their regulator Federal Housing Finance Agency, 2011.

Public Relations – OPA Web Site

The Philadelphia Office of Property Assessment (OPA) website provides general information about property assessments and taxes. As noted earlier in this report, the City Code sets forth public information requirements on their public website including specific references to the assessment information provided by the International Association of Assessing Officers (IAAO) Standard on Public Relations and the District of Columbia.

The OPA is, by law, required to publish the methodology used to assess property values. Section 2-305 sets forth a specific requirement to make the methodology employed available to the public.

That Section also requires the OPA to publish annual assessment-sales ratio studies and "an explanation of the extent to which the methodology employed ratio studies and "an explanation of the extent to which the methodology employed conforms to nationally recognized assessment standards such as those approved by the International Association of Assessing Officers (IAAO) for mass appraisals of real property."

Specifically, Section 2-305(2)(d)(i) states "The methodology employed shall be made available to the public, including an explanation of the extent to which the methodology employed conforms to nationally recognized assessment standards such as those approved by the International Association of Assessing Officers (IAAO) for mass appraisals of real property. The Government of the District of Columbia's document 'Appraiser's Reference Materials,' attached as Appendix '1,' shall serve as a point of reference."

The International Association of Assessing Officers (IAAO) Standard on Public Relations (https://www.iaao.org/media/standards/Standard_on_Public_Relations.pdf), prepared by the IAAO Technical Standards Committee and last published in July of 2011, is less comprehensive than the District of Columbia reference but states that "sites should be content-driven, so information can be quickly accessed, retrieved, and reviewed. Web site data should be accessible by "multiple search criteria."

The District of Columbia's Real Property Assessment Process website listing is a comprehensive explanation of the assessment process describing initiatives and benefits.
(<https://otr.cfo.dc.gov/page/real-property-assessment-process-0>)

The listing culminates with a description of real estate assessment quality measurements performed annually by DC's Office of Tax and Revenue (DCOTR) and a link to a web page with reports available for download.
(<https://otr.cfo.dc.gov/node/432852>)

The link titled, Assessment Materials and Reports, leads to a well-organized web page listing reference materials year-by-year dating back to 2001. The 2019 referenced materials, available for download, include three assessment studies: *Appraiser's Reference Materials - Real Property Assessment Division - 2019 General Assessment Program*, *Tax Year 2019 Pertinent Data Book for the District of Columbia* and the *Tax Year 2019 Market Analytics Book for the District of Columbia*.

The *Tax Year 2019 Pertinent Data Book* provides a sample tax invoice, a comprehensive explanation of tax rates and ratios, assessment data and maps of assessment neighborhoods and the effective rent study methodology for offices, hotels, apartments, retail and land sales.

The *Tax Year 2019 Market Analytics Book* provides a capitalization rate study for offices, hotels, apartments, retail and land sales in the DC area.

The publication *Appraiser's Reference Materials*, referenced in the Philadelphia Code 2-305(2)(d)(i), provides a complete explanation of valuation methods and processes used by the District of Columbia Real Property Assessment Division of the Office of Tax and Revenue. The guide is comprehensive and, although some calculations are complex, is easy to read and contains numerous charts, formulas, and neighborhood-by-neighborhood assessment breakdowns. It begins with a well written explanation of the reassessment and the process used.

Compared to the DC website, the City of Philadelphia Property Assessment Data web page (<https://www.phila.gov/OPA/Assessments/Pages/AssessmentData.aspx>) is woefully out of date. The methodology data available on the OPA website is a 15 slide PowerPoint presentation, titled Property Assessment Methodology, created in April of 2013. A separate 14-page PDF, dated February 2013, is available. Its explanation, on the webpage but not in the attachment, references over 600 Geographical Market Areas (GMAs) for the City of Philadelphia. The PDF map lists zones from A to P and the GMAs from 2012 without further explanation.

A link to a separate website titled "OpenDataPhilly" lists sections for Exterior Condition Map, Atlas, Property Search and OPA Property Assessment Visualization. Each opens a new website.

Appendix B provides several examples of assessment-related web sites from larger cities and counties around the country.

First Level Review Audit

The First Level Review (FLR) is an informal appeal process in which a property owner/taxpayer files a written request to OPA requesting a review of their property value. The FLR process was created in 2014 to help address taxpayer questions regarding the Actual Value Initiative (AVI) results on their property values.

There are three specific reasons for requesting such review. Property owners can file for any or all reasons noted as follows:

1. Market value – is the property assessment equal to market value as of the date of value (March 31).
2. Non-uniformity – is the property assessment consistent with property assessments on similar properties.
3. Incorrect Exemption/Abatement – is the exemption/abatement listed for the property incorrect or missing.

The applicant is encouraged to provide relevant information documenting their request. Filing an FLR does not preclude a tax payer from filing a formal appeal with the Board of Revision of Taxes (BRT).

The steps in the FLR process are as follows:

1. OPA determines the FLR filing deadline.
 - a. The deadline is set for no less than 4 weeks after the Assessment Notice mailing date.
 - b. The deadline for Tax Year 2019 was May 25, 2018 for notices mailed in mid-April 2018.
 - c. The deadline for notices mailed in mid-July 2018 is August 31, 2018
2. FLR forms are included with the Assessment Notice sent to the taxpayer
3. Completed forms are received and processed with the date the application is received recorded in the OPA's FLR database.
4. Each request is assigned to the appropriate Evaluator for their review.
5. Once the Evaluator completes their review, their FLR decision is submitted to their Supervisor for approval. Once approved the taxpayer is notified of the decision.

Compliance with Industry Benchmarks

The FLR process is consistent with IAAO's *Standard on Assessment Appeal*. Specifically, Section 3.1 of the *Standard* entitled *Informal Review by the Assessor* outlines a model informal review process. The City's FLR application request options mirror the Standard except for a 4th option in the *Standard* for a review based on a factual error. As a practical matter, this option is effectively addressed by the three other options. The FLR process is compliant with the remaining procedures detailed in Section 3.1 and therefore is consistent with industry best practices.

FLR Applications Audit

We tested operational compliance with the FLR procedures via an audit of 100 residential and 50 non-residential FLR applications. OPA attempts to complete all reviews prior to October 1, the deadline for filing a formal appeal with the Board of Revision of Taxes (BRT). Given our time constraints, we selected a random sample of completed residential appeals as of September 12 and completed commercial/non-residential appeals as of September 18, 2018.

FLR Summary – Residential as of September 12, 2018

There were 20,444 applications of which 17,103 were residential parcels and 3,320 were commercial parcels. There were 21 exemption applications. 371 applications were automatically denied due to untimely application and 18 applications were withdrawn by the applicant.

As of September 13, the process was complete for 6,448 residential parcels. From the list of completed cases a stratified sample of 101 completed cases was selected for review. Most properties were single-unit parcels with 15 condominiums, 8 duplex, 2 tri-plex and 1 quad-plex. Our findings and conclusions are as follows.

Most decisions were supported with between three and five comparable sales. Reductions were granted to 24 of the 101 residential cases with a median decrease of 8% and 14 assessment reductions of 10% or less. In general, comparable sales from as far back as 2015 were used to support these assessment reductions. The largest decrease was 28%, a reduction from \$309,800 to \$223,000 in a case where the owner's opinion of market value was \$256,000. In several cases, the assessment was reduced to at or near what the property sold for regardless of how long ago it sold. In one case it was just over a year and another the assessment was reduced by 11% to the June 2013 sale price. The smallest reduction was 2% for a property where the listed comparable sales supported the assessment. Given the appreciating market value in many areas of the City, it appears many of the assessment reductions could have been avoided by limiting the time period for comparable sale selection to 2017 and 2018.

FLR Summary – Non-Residential as of September 18, 2018

There were 20,481 applications in the system as of September 18, 2018, of which a total of 7,421 were processed as complete. From this list of completed cases, there were 925 commercial/industrial/apartment/mixed use/non-residential vacant land classes of property. As with the residential cases, a stratified sample technique was employed to select 54 cases.

Many decisions were supported with three comparable sales while others were supported with reference to a revised income approach to value. Reductions were granted in 23 of the 54 cases reviewed. The median assessment decrease is 20%. In 3 cases with assessments under \$100,000, reductions of 64% were made, one with no supporting documentation and the other with simply a reference to the 2018 certified value. In nine other cases, there was no valuation documentation to support decreases ranging from 3% to 34%. The smallest reduction was 2% for a property where two of the comparable sales support the certified 2019 assessment.

Comments

With a deadline for processing FLR's of October 1, less than two weeks from the date of our audit, less than 40% of the cases were completed. Given the market conditions for residential property, there appears to be little support for making many assessment reductions and certainly final decisions for this class should be much closer to completion. For commercial properties, it appears a significant number of reductions were made with little or no supporting documentation.

Appendix A – 2012 OPA Review

The recommendations below are taken directly from the 2012 review of the Office of Property Assessment completed by the IAAO. While analysis of OPA's success in implementing these recommendations was not part of our Scope of Work, we note that the most important recommendations relating to data quality and completeness, fundamental to any significant improvements in property assessment accuracy and uniformity, have not been implemented.

Summary of Recommendations

Recommendation 1

Continue the existing practice of regular staff meetings. As work progresses on updating all real property values for the 2013 tax year and as new or enhanced plans, standards, and procedures are implemented, more frequent meetings may be necessary to reinforce the importance of new plans, standards, and procedures. The CAO should actively participate on occasion in individual Division meetings, especially as new standards or procedures are being discussed and implemented.

The OPA should implement a time and task project plan such as Gantt charts that assign personnel, time frames, tasks, critical paths, and task dependencies in conjunction with OPA plans to appraise all real property at market value by the end of 2012. This is an important management tool that should be completed prior to the reappraisal project in order that an accurate measure can be made of the time and resources needed to complete a citywide revaluation, and to ensure that work, to that end, progresses on schedule.

Recommendation 2

Place a high priority on developing detailed plans, standards, and procedures for all office tasks, both on-going assessment tasks and the major task of completing a revaluation by the end of 2012. These plans, standards, and rules include:

1. Adoption of a comprehensive written revaluation plan that meets IAAO and USPAP Standards. Adopt a specific action plan and schedule in order to meet its objectives in a timely manner. Define critical activities showing the completion dates, assigned responsibilities, and production standards for the collection of data and field-work. An adequate budget, included in this written plan, is crucial because it can overcome deficiencies with existing resources. This plan requires a detailed specification and schedule for all phases of a revaluation, including informal hearings to be held after initial values have been determined, but before the tax rolls and mailing of tax bills is finalized. Include a breakdown of major tasks, and the analysis and estimate of reasonable daily production goals. Include flow charts that clearly delineate the flow of work through the process, and the specific staff person(s) with the authority and responsibility for completing this work. Address and account for all non-personnel supply and equipment resources that are required together with a specific delivery schedule.
2. Establish office standards and procedures for both the Residential and the Commercial & Industrial Property Divisions. Presently each section within a division, and in some instances even to the level of each Evaluator, has unique work procedures including the data taken into the field, data collected in the field and the methods and procedures for developing this data to arrive at an opinion of market value. It is essential to establish a uniform process for each property type including standardizing training of new personnel and to enable existing personnel to take on additional responsibilities when required.

Include standardized procedures for the processing of

- Building permits within Divisions and Sections
- Sales verification
- Informal value appeal reviews; and
- Formal value appeals with the BRT

Recommendation 3

We recommend that an on-going Public Relations Program be formulated and begin operating immediately in particular, the revaluation public relations program commence immediately.

While OPA has a good system for tracking public information requests, the development of procedural manuals detailing how all staff (not just those in CSC) should communicate with the public are critical for an effective public relations program. Include information on the following subjects:

- Professional standards adopted
- Important dates and deadlines
- Rules for disclosure of different types of information and confidentiality of data
- Any established records retention policy
- Identification of who is authorized (and who is not) to communicate as an official spokesperson
- Guidelines for staff interactions with the public
- Guidelines and an authorization process for using intellectual property, logos, trademarks, and copyrights
- A privacy statement and policy for public comment mechanisms
- Code of conduct for online behavior
- Protocols and authorization for posting information to online media such as Web sites, social media sites, and community forums
- Identification of media outlets and communication services that staff are authorized to use
- Policy regarding appropriate online use of the assessing jurisdiction's name and identity
- Policy regarding endorsements and political statements
- Suggestions for responding to irate taxpayers
- Guidelines for assessment hearings and appeals
- Staff appearance and attire
- Identification badges, nameplates, and vehicle identification
- Telephone and e-mail etiquette
- Guidelines for the style and structure of letters and e-mail
- Methods for recording actions

Recommendation 4

Given the anticipated timeframe of the revaluation program the City is undertaking and the limited internal resources, consider supplementing existing information technology resources with features available in many commercially available CAMA Systems.

Among other advantages, contemporary CAMA systems provide the framework for discipline of data maintenance required for accurate record keeping and uniform valuations. The City already possesses much of the hardware and supporting software required for a CAMA System. While acquiring a CAMA System that has been time-tested by others and proven successful is often more cost effective, we have been advised based on the City's recent history in the procurement of a commercial CAMA system precludes this approach. Other advantages that a contemporary CAMA system will provide are stated throughout this report.

Recommendation 5

Establish a unique parcel numbering system consistent with guidelines in the IAAO Standard on Digital Cadastral Maps and Parcel Identifiers. Replace or supplement the existing account number with a location-based parcel identifier. Include this parcel identifier in the CAMA database for use as a search criterion. Assign new parcel numbers for property splits, combinations, or new sub-divisions in conjunction with or by GIS personnel and identify the old parcel number(s) for deletion.

Ensure that the CAMA system has clear specifications for incorporating a GIS interface.

Work with other City departments to obtain easy access to any restricted GIS layers than would enhance OPA's operations.

Recommendation 6

Identify office space needs for any additional staff. The office layout should be re-configured to make the enlarged office efficient for the tasks to be performed.

Recommendation 7

Analyze and evaluate the adequacy of all of their computer hardware as well as their computer system itself in light of the significant increase in the number of personnel and the anticipated increased use of the system. New computers should be obtained to accommodate any new hires. In addition, the OPA should re-examine its Technical Support needs to ensure that sufficient support is available for the increases in both hardware and usage of the system.

Recommendation 8

Evaluate the need for any additional office equipment, such as copy machines and faxes, needed for the additional staffing. Concurrently, evaluate the status of existing equipment for continued use or replacement.

Recommendation 9

Continue the formal training program for Evaluators with specific detail for all external and in-house training and associated tracking record for each employee. Ensure training will meet State Certification requirements for Evaluators. Enhance the existing training program, set forth in Appendix D to ensure that all personnel will have the opportunity to attend training classes in a progressive education and professional development program. Include in the training program internal rules, standards, and procedures (both current and planned). Include formal outlines, Power Point presentations, and associated training material in a manner that allows for repeated use and ease of updating.

While many of the current staff have adequate experience and training, obtaining CPE certification will enhance public confidence in the assessment process. Therefore, we recommend all staff responsible for valuing property obtain their CPE as soon as possible.

Recommendation 10

Develop a comprehensive training program for new Evaluators in the mass appraisal process commencing with data collection.

Given the aggressive schedule for completing the revaluation, develop realistic personnel estimates for all major functions to ensure timely completion. The need for additional resources, both temporary and permanent, may become evident as a result of these activities.

Recommendation 11

Review current job descriptions to ensure that the descriptions meet the mass appraisal requirements for an office that values property at market value.

Recommendation 12

Work closely with the Department of Licenses and Inspections to ensure that all building permits continue to be received on a timely basis. Implement an automated process directly linked to the L&I database so that OPA has real-time knowledge of permit activity.

Recommendation 13

Adopt clear and precise procedures for all cadastral processes and make available to all personnel processing any flagged deeds. Include a timeline with specific deadlines to complete each process.

Recommendation 14

Adopt an automated building permit tracking system including standardized procedures for all field work that addresses:

1. records/forms that are taken to the field
2. the data that is collected
3. the improvements and dimensions that must be measured
4. the digital images required
5. the process for capturing building sketches for each improvement

Recommendation 15

Create standardized procedures and written documentation for administering all abatement and exemption programs.

Recommendation 16

In conjunction with the creation of standard procedures and policies, document work flow charts for all of its major processes.

Recommendation 17

As noted above OPA should consider acquiring a CAMA system and immediately commence converting their existing data to this system.

1. A complete property characteristic specification manual should be developed which details each property characteristic. Examples of such specifications are as follows:⁶

Design (Style)

Enter an appropriate architectural design (style) type descriptor that best describes the subject property. Valid descriptions include, but are not limited to, 'Colonial,' 'Rambler,' 'Georgian,' 'Farmhouse'. Do not use descriptors such as 'brick,' '2 stories,' 'average,' 'conventional,' or 'typical' as these are not architectural styles.

Reporting Format:

Design (Style) – Text

Year Built

Indicate the year the subject property was built. If it is unknown or unavailable estimate the year the subject property was built.

Reporting Format:

Year Built – 4-digit number, yyyy

Quality of Construction

Select one quality rating from the list below. Indicate the quality rating that best describes the overall quality of the property.

AAA

Dwellings with this quality rating are usually unique structures that are individually designed by an architect for a specified user. Such residences typically are constructed from detailed architectural plans and specifications and feature an exceptionally high level of workmanship and exceptionally high-grade materials throughout the interior and exterior of the structure. The design features exceptionally high-quality exterior refinements and ornamentation, and exceptionally high-quality interior refinements. The workmanship, materials, and finishes throughout the dwelling are of exceptionally high quality.

AA

Dwellings with this quality rating are often custom designed for construction on an individual property owner's site. However, dwellings in this quality grade are also found in high-quality tract developments featuring residences constructed from individual plans or from highly modified or upgraded plans. The design features detailed, high-quality exterior ornamentation, high-quality interior refinements, and detail. The workmanship, materials, and finishes throughout the dwelling are generally of high or very high quality.

A

Dwellings with this quality rating are residences of higher quality built from individual or readily available designer plans in above-standard residential tract developments or on an individual property owner's site. The design includes significant exterior ornamentation and interiors that are well finished. The workmanship exceeds acceptable standards and many materials and finishes throughout the dwelling have been upgraded from "stock" standards.

B

Dwellings with this quality rating meet or exceed the requirements of applicable building codes. Standard or modified standard building plans are utilized and the design includes adequate fenestration and some exterior ornamentation and interior refinements. Materials, workmanship, finish, and equipment are of stock or builder grade and may feature some upgrades.

C

Dwellings with this quality rating feature economy of construction (meets current building code) and basic functionality as main considerations. Such dwellings feature a plain design using readily available or basic floor plans featuring minimal fenestration and basic finishes with minimal exterior ornamentation and limited interior detail. These dwellings meet minimum building codes and are constructed with inexpensive, stock materials with limited refinements and upgrades.

D

Dwellings with this quality rating are of basic quality and lower cost; typically, they do not meet current building code requirements. Some may not be suitable for year-round occupancy. Such dwellings are often built with simple plans or without plans, often utilizing the lowest quality building materials. Such dwellings are often built or expanded by persons who are professionally unskilled or possess only minimal construction skills. Electrical, plumbing, and other mechanical systems and equipment may be minimal or non-existent. Older dwellings may feature one or more substandard or non-conforming additions to the original structure.

Reporting Format:

Quality of Construction – select one value from the specified list

-
2. Conduct a complete on-site inspection of properties that have not had a full inspection in the past six years and enter all data into the CAMA system. The implementation of portable computer collection devices, integrated with the CAMA system, may increase production rates for residential properties and minimize the need for data entry upon completion of field work.

3. Given that OPA's goal is to have proposed values ready for final value field review by November 2012, either increasing the number of residential appraisers and/or contracting with firms with personnel experienced in on-site data collection procedures will likely be necessary.
4. Develop and implement an on-going plan for regular property inspections in order to continue to ensure that the information and data about the properties and valuation of properties is accurate. This will help to ensure that City of Philadelphia assessments are accurate, fair, and equitable.

Recommendation 18

1. Integrate the residential condominium valuation function with the residential appraisal division. The market forces influencing condominiums while unique remain are under the general influence of overall market forces that influence owner-occupied residential property.
2. Continue an annual program of collecting and verifying income and expense data using forms optimized for distinct property uses.
3. Incorporate valuation and requisite data requirements in OPA CAMA system.
4. Implement a periodic on-site inspection program to ensure that the all property characteristic data for all properties is verified.
5. Review and update non-residential Evaluator job descriptions to ensure qualifications require experience and education to meet State licensing requirements for Certified General Real Property Appraiser classification⁷.
6. Implement a program, with appropriate funding, for external education from qualified real estate educational providers to ensure non-residential Evaluators meet the continuing education requirements for State licensed Certified General Appraiser.

Recommendation 19

The OPA should regularly test for selective reappraisals to avoid sales chasing problems such as inequitable values among similar properties. Appendix D beginning on page 56 of the Ratio Standard includes sales chasing detection techniques. The OPA may find one or more of these techniques usable now and after the planned citywide reappraisal

Recommendation 20

Incorporate "hard edits" into the computer system to prevent miscoding or omission of data. For example, do not permit entry of sales dates subsequent to the current date. Reject Style codes if they are not consistent with category codes. If an attempt is made to enter a non-complying code the computer system should reject its entry and instantly notify the operator. Another method is the incorporation of "drop down" entry fields that are populated from a table created by management that lists the sales qualification codes. This requires the person entering the record to select a code from the preset list and will not allow skipping of the information. Set reasonable time limits on entering important data such as sales qualification codes. For example, if more than a month passes from the date of sale and a qualification code is lacking, generate a red flag report requiring proper entry. Develop edit reports to identify records with missing variables. Correct omissions immediately.

Recommendation 21

Develop a comprehensive procedure to assure property sales qualification and data entry coding. Permit a maximum limit of three months to qualify each sale. Review parcels experiencing extreme ratios.

Recommendation 22

Develop a procedure to check outliers to determine the cause of large differences between price and value. Comprised in this review procedure is confirmation of public records, review of property characteristics, and confirmation of the terms of sale and field visits where necessary. If outliers persist, a review of the valuation model may also be needed.

Recommendation 23

Given these results the problems are likely systemic. A thorough review of the sample sales may reveal some that are invalid and this likely will have an effect on the COD and PRD. However, the median ratio is less affected by extremes. Therefore, regardless if some of the sales are disqualified these data still indicate significant problems. We recommend comprehensive review of the valuation process. Confirm all factual data especially the property characteristics. Develop valuation models for each property type. Specify property characteristics carefully to reflect market-based supply and demand factors. Calibrate value coefficients using confirmed, arms-length sale prices.

Recommendation 24

Incorporate a longer time period for informal appeals after preliminary change of assessment notices go out to allow adequate time to process appeals and adopt efficient procedures for the processing and approval of recommended settlements between Evaluators and taxpayers.

Appendix B – City/County Web Site Case Studies

Philadelphia Office of Property Assessment Website

The Philadelphia Office of Property Assessment (OPA) website provides general information about property assessments and taxes. The Philadelphia City Code sets forth public information requirements on their public website, including specific references to the assessment information provided on the District of Columbia website (otr.cfo.dc.gov).

Philadelphia Code Section 2-305

The OPA, by law, is required to publish the methodology used to assess property values. Bill No. 170564, passed by the City Council of the City of Philadelphia on June 15, 2017 and signed into law by the Mayor on September 12, 2017 amended Section 2-305 of The Philadelphia Code, entitled “Office of Property Assessment; Chief Assessment Officers; Powers and Duties.”

In addition to amendments related to rent restrictions, affordability requirements, and income tax credits, Bill No. 170564 sets forth an amendment to the methodology for the valuation of properties and, more importantly, a specific requirement to make the methodology employed available to the public. Philadelphia Code, Section 305(2)(d)(i) states, “The methodology employed shall be made available to the public, including an explanation of the extent to which the methodology employed conforms to nationally-recognized assessment standards such as those approved by the International Association of Assessing Officers (IAAO) for mass appraisals of real property. The Government of the District of Columbia's document ‘Appraiser's Reference Materials,’ attached as Appendix 1, shall serve as a point of reference.”

Note: Appendix 1, as described in the code, is not available on the OPA website.

The Philadelphia Code specifically references IAAO standards (see Appendix A: International Association of Assessing Officers) and the DC website. The IAAO Standard on Public Relations is less comprehensive than the DC reference but states that “sites should be content-driven, so information can be quickly accessed, retrieved, and reviewed.” The DC website provides a comprehensive and well-written explanation of the reassessment process.

District of Columbia Website and Reference Materials

DC's annual ‘Appraiser's Reference Materials,’ provides a complete explanation of valuation methods and processes used by the District of Columbia Real Property Assessment Division of the Office of Tax and Revenue. The guide is fully comprehensive; and although some calculations are complex, it is easy to read and contains numerous charts, formulas, and neighborhood-by-neighborhood assessment breakdowns. It begins with a well-written explanation of the reassessment and the process used.

The District of Columbia's Real Property Assessment Process website listing at <https://otr.cfo.dc.gov/page/real-property-assessment-process-0> is a comprehensive explanation of the assessment process describing initiatives and benefits. DC's website listing culminates with a description of real estate assessment quality measurements performed annually by DC's Office of Tax and Revenue (DCOTR). A link to a webpage (<https://otr.cfo.dc.gov/node/432852>) with reports is available for download. The link, entitled Assessment Materials and Reports, leads to a well-organized web page listing reference materials year-by-year dating back to 2001. The 2019 referenced materials, available for download, include three assessment studies: “Appraiser's

Reference Materials,” “Pertinent Data Book for the District of Columbia,” and “TY 2019 Market Analytics Book.” DC’s “Appraiser’s Reference Materials” is specifically referenced in Philadelphia Code, Section 305(2)(d)(i).

The “2019 Pertinent Data Book for the District of Columbia” provides a sample tax invoice, a comprehensive explanation of tax rates and ratios, assessment data and maps of assessment neighborhoods, and the effective rent study methodology for offices, hotels, apartments, retail and land sales. The “TY 2019 Market Analytics Book” provides a capitalization rate study for offices, hotels, apartments, and retail and land sales in the DC area.

Case Studies

In addition to the DC website, as a point-of-reference for consideration regarding improvements to Philadelphia’s website, we’ve evaluated the Larimer County (Fort Collins), CO, website, attached as Case Study 5. The Larimer County website is well-designed and well-organized, makes Property Lookup a breeze (via a link from the homepage), and offers good navigation within the “Property & Taxes” section. Assessment reports, however, are hard to find and not particularly informative. Additional case studies include reviews of websites (and their respective assessment sections) for the afore-mentioned Washington, DC; York County, PA; Maricopa County (Phoenix), AZ; and the aforementioned Larimer County (Fort Collins), CO.

About Philadelphia’s Website

The *Office of Property Assessment* page of the phila.gov website has two sections that relate to property assessment methodology: Property Information, and Assessments.

- On the “Property Information” page, you can search and compare property valuation data in Philadelphia.
- The Assessments page lists “How OPA Assesses Property” and is well placed in the menu structure to locate the information.
<https://www.phila.gov/OPA/Assessments/Pages/HowOPAAssessessProperty.aspx>
- In addition, a search for phrases like “assessment” and “assessment-sales ratio” yields relevant results. The few paragraphs on the page, however, pale in comparison to the wealth of information available on the DC website.

Several links are available on the Property Assessment Data page. A link titled, “Presentation” opens a 15-slide PowerPoint presentation, titled “Property Assessment Methodology”, created in April of 2013. A separate 14-page PDF, dated February 2013, is available. Its explanation, on the webpage but not in the attachment, references over 600 Geographical Market Areas (GMAs) for the City of Philadelphia. The PDF map lists zones from A to P and the GMAs from 2012 without further explanation.

A link to a separate website titled “OpenDataPhilly” list sections for Exterior Condition Map, Atlas, Property Search and OPA Property Assessment Visualization. Each opens to a new page or new website and offers no explanation on how to return to the original page or website. Other sections like FAQs (<https://www.phila.gov/OPA/Pages/FAQ.aspx>) and Property Search (<https://property.phila.gov/>) also do not meet the minimum requirements of Philadelphia Code, Section 305(2)(d)(i) of conveying the methodology employed to show the conformity to nationally recognized assessment standards.

Additional information about Philadelphia’s OPA website can be found in the Appendix titled, “Case Study: Philadelphia, PA, Website”

International Association of Assessing Officers (IAAO)

The International Association of Assessing Officers (IAAO) Standard on Public Relations available at https://www.iaao.org/media/standards/Standard_on_Public_Relations.pdf, prepared by the IAAO Technical Standards Committee and last published in July of 2011, is less comprehensive than the DC reference but states that “sites should be content-driven, so information can be quickly accessed, retrieved, and reviewed. Website data should be accessible by multiple search criteria.”

The International Association of Assessing Officers (IAAO) Standard on Public Relations states, “In addition to more traditional communication methods, the Internet is an effective way of informing the public. Relevant assessment and property tax information should be available on the Web. Assessing officers must research, plan, and implement ways to deliver information on the Internet. Social media sites should be evaluated to determine their effectiveness for public relations purposes and directing site visitors to authoritative sources of information such as the agency website. Assessment agency websites should be content-driven, so information can be quickly accessed, retrieved, and reviewed. Website data should be accessible by multiple search criteria.” Specifically, information from the publication includes two relevant sections.

Section 12.2 State and Provincial Web Site Content

State and provincial jurisdiction Web sites should include information found in the annual report and should include:

- Contact information for departments
- Information relevant to the public and governmental agencies that rely on property tax information at the state and provincial level
- Intergovernmental links
- Intragovernmental links at the state and provincial level
- Administrative rules and statutes
- Forms and Web-based applications
- Links to related Web sites.

Section 12.3 Key Web Site Features

Web sites should include the following features:

- Appropriate keyword metatags
- No “orphan” Web pages
- Copyright statement
- Complete contact information for the Web site owner
- Page revision dates
- Up-to-date content
- E-mail link to the Webmaster
- Search feature and site map
- Home page links for current hot issues.

Case Study: Philadelphia Website

Overall Website

Homepage: <https://www.phila.gov/>

The homepage states that “We’re in the process of creating a new website for Philadelphia from the ground up.” Site users can expect changes and updates to the site over time. It seems pertinent information is often not yet added to the new site – links take you to older sites.

Website Functionality

- Works on mobile; is responsive (new website)
- Easy to navigate (new website)
- Look and feel: Clean, organized and professional (new website)
- Much of the website content has not been integrated onto the new platform making usability difficult

Website’s Search Function

The standard magnifying glass in the upper right corner of every web page expands to a large search window.

Website Accessibility

When websites and web tools are properly designed and coded, people with disabilities can use them. Proper accessibility standards remove barriers that make websites difficult or impossible for some people to use.

- According to <https://webaccessibility.com>: Total Compliance 89%
- Context: This number is relative to a website that is fully compliant in all ways for persons with various disabilities; consider that a score of 89% earns a school student a grade of B+. (90% is an A-)
- There are numerous evaluation tools that help with evaluation; however, no tool alone can determine if a site meets accessibility guidelines. Knowledgeable human evaluation is required to determine if a site is accessible.
- Other accessibility evaluation tools can be found at <https://www.w3.org/WAI/ER/tools/>

Assessment Section

Assessment Information Page

- <https://www.phila.gov/departments/office-of-property-assessment/>
- A brief description of what assessment is and how it informs taxes is given on this page; for deeper information, the reader is directed to a page on the city’s legacy site at <https://www.phila.gov/opa/pages/default.aspx> Moving from one site to another is confusing.
- A totally different page for The Office of Property Assessment appears at <https://www.phila.gov/opa/pages/default.aspx>
- Its content is different; this disconnect should be addressed, and the disparate pages should be combined into one thorough resource for information about Property Assessment.
- This section’s FAQs page at <https://www.phila.gov/OPA/Pages/FAQ.aspx> also has a very informative list of topics that shed light on the tax assessment. But information regarding recent assessment activity seems to be missing.

Searching for Assessment Information

- Searching “assessment” results in a link to the Office of Property Assessment.
- Searching “home taxes” does not reveal a link to Assessments; the Office of Property Assessment need to be searchable by other intuitive keywords like “residential taxes,” “home taxes,” etc.

Assessment Navigation Menu

- The Office of Property Assessment landing page at <https://www.phila.gov/departments/officeof-property-assessment/> has very little information; under the header is a secondary navigation listing three “Services.” Clicking to any of these three “Services” sections nets a secondary navigation in the left-hand column; it is the same in all three sections. Moving this navigation item up to the Office of Property Assessment landing page would eliminate the three arbitrary “buckets” listed under “Services,” and put information one click closer to the user. “Featured” content can still be called out specifically, but the arbitrary listing of three items as “Services” pages only serves to confuse.
- The alternate page at <https://www.phila.gov/opa/pages/default.aspx> likewise contains a confusing mix of navigational elements. One thorough horizontal-bar or vertical-column navigational element common to all Office of Property Assessment pages should be instituted.

Annual Assessment Reports

<https://www.phila.gov/OPA/Assessments/Pages/AssessmentData.aspx> The “Property Assessment Data” section of this page offers the OPA’s property CD for a \$100 purchase.

Property Lookup Tool

- Very easy to find: a link is located right on the homepage.
- Entering an address nets a page showing:
 - A graph of past and current market value
 - Links to tax balance lookups
 - “Access the Raw Data,” a link to download property assessment data in bulk.

Assessment Methodology and Process

- <https://www.phila.gov/OPA/Assessments/Pages/default.aspx> The data is out of date.
- “How OPA Assesses Property” links to <https://www.phila.gov/OPA/Assessments/Pages/HowOPAAssessProperty.aspx> The overview is dated.
- “Property Assessment Data” links to <https://www.phila.gov/OPA/Assessments/Pages/AssessmentData.aspx> Property assessment data is out of date.
- Recent data for assessment was not available.

About the Assessor

- The Office of Property Assessment (OPA) is responsible for assessing properties in Philadelphia
- The OPA formally took over responsibility for assessments in October 2010. Under the leadership of the Chief Assessment Officer, OPA is responsible for the annual reassessment of the approximately 579,000 parcels in Philadelphia.

About Philadelphia

Philadelphia is the largest city in Pennsylvania, and the sixth-most populous U.S. city, with a 2017 census-estimated population of 1,580,863. Since 1854, the city has been coterminous with Philadelphia County, the most populous county in Pennsylvania and the urban core of the eighth-largest U.S. metropolitan statistical area, with over 6 million residents as of 2017. Philadelphia is also the economic and cultural anchor of the greater Delaware Valley, located along the lower Delaware and Schuylkill Rivers, within the Northeast megalopolis. The Delaware Valley's population of 7.2 million ranks it as the eighth largest combined statistical area in the United States.

Case Study: Washington, DC, Website

Overall Website

Homepage: <https://dc.gov/>

The District of Columbia's website contains information for residents and visitors, with sections about government, infrastructure and resources, education, jobs and careers, community services, real estate taxes and assessment, and more.

Website Functionality

- Works on mobile; is responsive
- Easy to navigate
- Look and feel: Professional

Website's Search Function

Effective. Placed very front-and-center at the top of the homepage, it remains in that (relative) position on subsequent pages. Resources can be found via a wide variety of word combinations for any given topic.

Website Accessibility

When websites and web tools are properly designed and coded, people with disabilities can use them. Proper accessibility standards remove barriers that make websites difficult or impossible for some people to use.

- According to <https://webaccessibility.com>: Total Compliance 86%
- Context: This number is relative to a website that is fully complaint in all ways for persons with various disabilities; consider that a score of 86% earns a school student a grade of B+.
- There are numerous evaluation tools that help with evaluation; however, no tool alone can determine if a site meets accessibility guidelines. Knowledgeable human evaluation is required to determine if a site is accessible.
- Other accessibility evaluation tools can be found at <https://www.w3.org/WAI/ER/tools/>

Assessment Section

Assessment Information Page

<https://otr.cfo.dc.gov/service/real-property-tax-service-center> This page is not easily found from homepage's navigation at <https://dc.gov/> Assessments Information is contained in the section called "Office of Tax and Revenue," but this wording is not listed in any drop-down navigation on the homepage.

Searching for Assessment Information

- Assessment information and data are accessible via multiple search criteria:
- Search "property taxes" in Search bar > Click "Real Property Taxpayers" and other pertinent documents.
- These documents are also found by searching "property assessment," "residential taxes," and "taxes on homes," as examples.

Assessment Navigation Menu

The main navigation for the overall website disappears upon arriving on the “Office of Tax and Revenue” landing page. Although this section is still part of the same website, the main navigation is replaced by a new (different) main navigation (horizontal) and sidebar navigation (vertical). Not having a clear click from the homepage to the Office of Tax and Revenue page— and losing the main navigation bar once there causes a disconnect, making the site less clear in its organization and navigability.

- Navigation from homepage: Poor
- Navigation within Office of Tax and Revenue section: Excellent

Annual Assessment Reports

- Found via search function: search “annual assessment reports” > locate PDF called “Property Assessment Division 2019 General Report”
- Also see “Assessment Materials and Reports” for tax years 2019 back to 2001. These documents provide detailed information about rates, the assessment process, assessment appeals, and more.

Property Lookup Tool

Initially, this tool is hard to find; users must first find their way (with difficulty) to the Office of Tax and Revenue page.

From here the process gets easier: after clicking (in left sidebar navigation) “Real Property Tax Database Search” – click on “Search Real Property Assessment Database” to get to https://www.taxpayerservicecenter.com/RP_Search.jsp?search_type=Assessment Upon filling in the “Street #” field and the “Street Name” field and clicking “Search Now,” the Property Detail panel shows the current 2018 and proposed 2019 Taxable Assessment.

Assessment Methodology and Process

- <https://otr.cfo.dc.gov/node/388692> Search “property taxes” in Search bar > Click “Real Property Taxpayers” > Assessment Process
- Very well described in the “**Property Assessment Division 2019 General Report**”
- (Office of Tax and Revenue > Assessment Materials and Reports > Appraisers Reference Materials > PDF called “2019 Assessment Reference”)

This document should serve as a point of reference in making Philadelphia’s assessment methodology information more understandable to the public.

- Also see “Assessment Materials and Reports” for tax years 2019 back to 2001
- Also see (Real Property secondary navigation) > “Real Property Tax FAQs” By cross-referencing these pages and documents, a clear picture of the assessment methodology emerges.

About the Assessor

An individual person or agency is not identified; rather, website users are directed to the Customer Service Center, a walk-in facility at 1101 4th Street, SW, Suite W270, Washington, DC 20024 Phone: 202-727- 4TAX (4829)

About Washington DC

Washington had an estimated population of 693,972 as of July 2017, making it the 20th largest American city by population. Commuters from the surrounding Maryland and Virginia suburbs raise the city's daytime population to more than one million during the workweek. The Washington metropolitan area, of which the District is the principal city, has a population of over 6 million, the sixth-largest metropolitan statistical area in the country.

Case Study: York County, PA, Website (York, PA)

Overall Website

Homepage: <https://yorkcountypa.gov/>

York County’s website contains information for residents and visitors, with sections about county administration, courts and criminal justice, health and human services, voting and elections, property and taxes, parks and recreation, emergency services, and more.

Website Functionality

- Works on mobile; is responsive
- Easy to navigate
- Look and feel: Professional

Website’s Search Function

Effective. Placed in the header of the homepage, it remains in that position on subsequent pages. Resources can be found via a wide variety of word combinations for any given topic.

Website Accessibility

When websites and web tools are properly designed and coded, people with disabilities can use them. Proper accessibility standards remove barriers that make websites difficult or impossible for some people to use.

- According to <https://webaccessibility.com>: Total Compliance 74%
- Context: This number is relative to a website that is fully complaint in all ways for persons with various disabilities; consider that a score of 74% earns a school student a grade of C.
- There are numerous evaluation tools that help with evaluation; however, no tool alone can determine if a site meets accessibility guidelines. Knowledgeable human evaluation is required to determine if a site is accessible.
- Other accessibility evaluation tools can be found at <https://www.w3.org/WAI/ER/tools/>

Assessment Section

Assessment Information Page

<https://yorkcountypa.gov/property-taxes/assessment-and-tax-claim-office/about-us-assessment.html>

This page is very easily found from the homepage’s navigation at <https://yorkcountypa.gov/> Assessments Information is contained in the section called “Property & Taxes.” The sub-section called “Assessment and Tax Claim Office” has 7 pages of information about various aspects of property assessment

Searching for Assessment Information

Assessment information and data are accessible via multiple search criteria:

- “Property & Taxes” appears in the main navigation bar on all pages
- These documents are also found by searching “assessment,” “residential taxes,” and “taxes,” as examples.

Assessment Navigation Menu

- The main navigation offers a tab—with drop-down—for all aspects of Property and Taxes Navigation from homepage: Excellent
- Navigation within Office of Tax and Revenue section: Excellent (by main navigation dropdown or left column sidebar)

Annual Assessment Reports

The site does not appear to host any Assessment Reports.

Property Lookup Tool

Relatively easy to find on the “Assessment Information” page

- Real Estate Assessment Data: <http://assessments.yorkcountypa.gov/Search> Info needed: Parcel ID, Owner or Property Address Tool works well to reveal the tax assessments for the property. Alternative found on the Assessment Information page, in the text as a link called “Property Viewer – Mapping/Property Tax Liability Lookup”
- York County Property Viewer: <http://yorkcountypa.maps.arcgis.com/apps/webappviewer/index.html?id=5774257ab4fb4aee9cf318e7313049ee> Info needed: Address, Last Name or PIDN Tool works well to reveal the tax assessments for the property.

Assessment Methodology and Process

- <https://yorkcountypa.gov/property-taxes/assessment-and-tax-claim-office/assessmentinformation.html>: “This page is meant to help you understand the property assessment process and provide you resources to conduct additional research.” The page does not, however, provide many details that make the process or methodology clear.
- <https://yorkcountypa.gov/property-taxes/assessment-and-tax-claim-office/assessmentinformation.html>
- Easily found from (main navigation) Property and Taxes > (secondary navigation) Assessment and Tax Claim Office > Assessment Information
- Additional info at Property and Taxes > “About Us”. Overarching information about the Assessment Office’s process, purpose, and special programs related to Assessment. No links to anything particularly detailed where process and/or methodology are concerned.

About the Assessor

The Department of Assessment is responsible for evaluating Residential, Agricultural, Commercial and Industrial properties, and placing market value assessments on them. It is through this department that equitable and fair evaluations are established on all real estate in York County.

About York County, PA

York County is a county in Pennsylvania. As of the 2010 census, the population was 434,972. Its county seat is the city of York, which is in the midst of a renaissance. York offers big-city amenities with small-town charm. While continuing to embrace its agricultural roots, York has also evolved into a manufacturing and business hub. Major companies with roots here include Harley-Davidson, York Barbell, Voith Hydro, York International, Utz Quality Foods, Snyder’s of Hanover, BAE Systems and more. It features a wide variety of restaurants, a growing nightlife, and is home to York County’s independent league baseball team, the York Revolution.

Case Study: Maricopa County, AZ, website (Phoenix, AZ)

Overall Website

Homepage: <https://www.maricopa.gov/>

The Maricopa County website's mission is to efficiently and effectively administer all laws and regulations for Maricopa County property owners so that all ad valorem property is fairly and equitably valued.

Website Functionality

- Works on mobile; is responsive
- Look and feel: Professional
- Easy to navigate

Website's Search Function

Effective. Placed at the top right of the homepage, it remains in that position on subsequent pages. Resources can be found via a wide variety of word combinations for any given topic.

Website Accessibility

When websites and web tools are properly designed and coded, people with disabilities can use them. Proper accessibility standards remove barriers that make websites difficult or impossible for some people to use.

- According to <https://wave.webaim.org/>, the website has 16 errors and 10 alerts which includes missing labels and alt text, empty links, broken references and unordered structural elements.
- According to <https://webaccessibility.com>: Total Compliance 84%
- Context: This number is relative to a website that is fully compliant in all ways for persons with various disabilities; consider that a score of 84% earns a school student a grade of B.
- There are numerous evaluation tools that help with evaluation; however, no tool alone can determine if a site meets accessibility guidelines. Knowledgeable human evaluation is required to determine if a site is accessible.
- Other accessibility evaluation tools can be found at <https://www.w3.org/WAI/ER/tools/>

Assessment Section

Assessment Information Page

<https://www.mcassessor.maricopa.gov/faq/faq-property-tax.php>

This page is not at all easy to find from the homepage's navigation at <https://www.maricopa.gov/> — as previously mentioned, user must look under “Government” rather than “Residents,” and once on the Assessor's website, the user must click Property > Residential Property > FAQs (link in text, not navigation) > Property Tax (in left-hand column navigation).

Searching for Assessment Information

- Not found very intuitively; “Assessor” is listed under “Government” rather than “Residents.” Once the user finds their way to the Assessor's website, further searching remains a struggle.
- A search for “Residential Taxes” nets a list of links that are not particularly pertinent.
- A search for “Taxes on Homes” nets a list of Tax Rate PDFs that are confusing and not specific to individual properties.

Assessment Navigation Menu

- The website is not easy to navigate for those searching for Real Property Assessment information. “Assessor” is not listed under “Residents” but rather under “Government,” which is not very intuitive; not to mention that “Assessor” is not an intuitive or top-of-mind word for users to look for, like “Property Taxes” would be. Furthermore, clicking Assessor takes the user to a separate website, the website of Assessor Paul D. Petersen, Maricopa County Assessor's Office, which then causes more confusion by showing, front and center, a link to the Treasurer's website
- Upon arriving on the Assessor's website at <https://www.mcassessor.maricopa.gov/>, no navigation bar is visible until user clicks one of the very small links in the upper right of the page. At that point the main navigation appears, as does the secondary navigation (left-hand column) and is useful moving forward.
- Property Tax is found under Property > Business Personal Property > Property Tax This is not a very intuitive track to follow, as the word “Business” does not seem to include Residential property owners.

Annual Assessment Reports

The Assessor's website's “Reports & Sales Data” tab leads users to a thorough list of reports from 2019 back to 2007. These reports present useful data such as residential property cost valuation changes by zip code as well as by municipality, commercial comparisons of percentage changes from 2018 to 2019, and more. It's a good batch of resources to gain insight into assessments county-wide.

Property Lookup Tool

- Once arrived at the Assessor's website's homepage, the Property Lookup Tool is centered on the page. It is overshadowed, however, by a large link directing those seeking property tax questions to go to the Treasurer's website.
- The Property Lookup Tool does work well, however; typing in a residential address nets a Real Property (Parcel) Search Result, with an APN link that reveals the most recent Property Assessment information.

Assessment Methodology and Process

- The “Policy Guidelines” page at <https://www.mcassessor.maricopa.gov/about-us/policy.php> provides links of dubious use to users looking to understand the process.
- <https://yorkcountypa.gov/property-taxes/assessment-and-tax-claim-office/about-us/assessment.html> Easily found from (main navigation) Property and Taxes > (secondary navigation) Assessment and Tax Claim Office

Assessment Information

- Additional info at Property and Taxes > “About Us”

About the Assessor

The County's Assessor, Paul D. Peterson, annually notices and administers over 1.7 million real and personal property parcels/accounts with full cash value of more than \$508 billion in 2018, according to his (separate) website, reached by navigating <https://www.maricopa.gov/> > Government > Assessor. His office lists 12 support staff by name and position.

About Maricopa County, AZ

Maricopa County is a county in the south-central part of Arizona. As of the 2010 census, its population was 3,817,117, making it the state's most populous county, and the fourth-most populous in the United States. It is more populous than 23 states. The county seat is Phoenix, the state capital and fifth-most populous city in the country.

Case Study: Larimer County, CO, website (Fort Collins, CO)

Overall Website

Homepage: <https://www.larimer.org/>

The Larimer County website is a wide-reaching resource for residents and tourists alike, with vast information for locals and visitors. Of all the sites studied in this document, this website contains the most detailed information about the widest range of resources and services.

Website Functionality

- Works on mobile; is responsive
- Easy to navigate
- Look and feel: Friendly, Attractive, Professional

Website's Search Function

Effective. Intuitively placed near the right end of the header, it remains in that position on all internal pages.

Website Accessibility

When websites and web tools are properly designed and coded, people with disabilities can use them. Proper accessibility standards remove barriers that make websites difficult or impossible for some people to use.

According to <https://webaccessibility.com>: Total Compliance 81%

Context: This number is relative to a website that is fully complaint in all ways for persons with various disabilities; consider that a score of 81% earns a school student a grade of B.

There are numerous evaluation tools that help with evaluation; however, no tool alone can determine if a site meets accessibility guidelines. Knowledgeable human evaluation is required to determine if a site is accessible.

Other accessibility evaluation tools can be found at <https://www.w3.org/WAI/ER/tools/>

Assessment Section

Assessment Information Page

There is no page entitled Assessment. Choices under I'm a Local > Property and Taxes include Property Search, Property Tax Inquiry and Pay Property Taxes, but information about assessments themselves is hard to find.

Searching for Assessment Information

From the homepage, the path is rather intuitive: "I'm a Local" > Property and Taxes Using the search tool to search "tax assessment" nets a list of search results related to Property and Taxes, but not the most pertinent pages that are easily found in the website's main navigation.

Assessment Navigation Menu

Once on the Property and Taxes page, the Secondary navigation is clear, and clicking to subsequent links, the resulting pages have "breadcrumbs" back to the page you came from. Navigation from homepage: Excellent Navigation within Property and Taxes section: Good

Annual Assessment Reports

Found via search function: search “assessment reports,” for links to a plethora of Assessor Forms and Reports. These reports turn out, however, to be lacking in general information about local property taxes and assessment processes or methodologies.

Property Lookup Tool

- A direct link is right on the homepage, clearly marked “Property Search” Tool function: Good
- Property search tool requires paying special attention to not inputting “N, S, E, W, or St. Rd. Ln, etc.” ONLY the street name must be entered in that field or user gets no results.

Assessment Methodology and Process

The “Assessment Information” page is meant to help readers understand the property assessment process and provide resources to conduct additional research. The page is a good resource for understanding the process, the measurements used in the process, and how to calculate a tax bill based on assessment, with a link to the Property Lookup Tool for finding the latest assessment amount.

About the Assessor

<https://www.larimer.org/assessor/>

<https://www.larimer.org/elected-officials/steve-miller>

Appointed in 1984, appointed again 1989, elected in 1990, re-elected in 1994 & again in 1998, elected back into office in 2006. Conducted seven biennial reappraisals of all real and personal property in Larimer County, Colorado. Managed a staff of 50 and an annual operating budget of \$2 million. The total value of all properties valued in 2002 was approximately \$14 billion. Honored as the first Assessor of the Year in Colorado. Served as President of the Colorado Assessors Association and as chairman of that association's legislative, audit, finance, and assessment issues committees.

About Larimer County

Larimer County is one of the 64 counties in the U.S. state of Colorado. As of the 2010 census, the population was 299,630. The county seat and most populous city is Fort Collins. The county was named for William Larimer, Jr., the founder of Denver. Larimer County comprises the Fort Collins, CO Metropolitan Statistical Area. The county is located at the northern end of the Front Range, at the edge of the Colorado Eastern Plains along the border with Wyoming.

Appendix C - Resumes

John F. Ryan

Professional Experience

J.F. Ryan Associates Inc., Newburyport, Massachusetts, 1986 to Present.

President

Responsible for managing a staff of consultants that provides property appraisal, property assessment administration and systems consulting services. Consulting services including the following:

- Computer-assisted mass appraisal modeling services for all major classes of property using a variety of commercial and generic software.
- Extensive experience in the specification, design and implementation of PC-based CAMA systems using a variety of data base management platforms.
- Design and implementation of ratio studies used to both evaluate assessments and implement equalization programs.
- Customized training programs in all aspects of mass appraisal and assessment administration.
- Management audits of assessors' offices including organizational structure, office procedures (manual and automated), internal controls, and public information programs.
- Extensive litigation support and expert witness experience for a variety of complex computer-assisted mass appraisal issues including sales ratio studies and commercial/industrial single property appraisals.

In 2016 Mr. Ryan was appointed to serve as a member of The Appraisal Foundation's (TAF) *Appraiser Qualifications Board* (AQB) located in Washington, DC. (TAF sets Congressionally-authorized standards and qualifications for real estate appraisers with the goal of ensuring appraisals are independent, consistent, and objective.) Mr. Ryan is licensed as a State-Certified General Appraiser in Massachusetts and Connecticut. Mr. Ryan has testified in courts and appeal boards in many states on all types of real estate including office buildings, industrial plants, public utilities, warehouses, shopping centers, apartments, restaurants, hotel/motels, nursing homes, recreation properties, residential properties and vacant land. He has also provided expert witness support in several states on technical issues dealing with mass appraisal and sales ratio studies. Over the past four decades, Mr. Ryan has contributed his expertise to the IAAO in the development and maintenance of their Standards of Professional Practice including the *Standard on Ratio Studies*.

From 2007 - 2015, Mr. Ryan was a Subject Matter Expert for the development and subsequent maintenance of the national real estate appraiser licensing exams. He completed a six-year term in 2006 as a member of the Board of Trustees of The Appraisal Foundation. Served on the Executive Committee of the Board of Trustees as well as Chair of the Finance and Audit Committees. He is an AQB Certified USPAP Instructor. Mr. Ryan provides expert witness support to several State Appraiser Licensing Boards.

Assessors Department, City of Woburn, Massachusetts, 1985-1987

Chief Appraiser

Directed and implemented a complete reorganization of the Assessors' Department. Recruited, hired and trained professional appraisal staff providing appraisal and administrative support for the City. Designed and installed a complete in-house CAMA system including mass appraisal and administration system for the City.

Mass. Department of Revenue, Bureau of Local Assessment, Boston, 1979-1985

Manager

Responsible for a wide variety of appraisal activities and managed professional technical staff in providing support to appraisers throughout the state during this period. Author of technical specifications for a local level implementation of a state-financed CAMA system.

New York State Division of Equalization and Assessment, Albany, NY, 1978-1979.

Analyst

Worked with the New York State Real Property System and performed related mass appraisal activities.

Litigation Support Experience

State of Tennessee, State Board of Equalization

State of Massachusetts, Superior Court, Norfolk, Essex Counties

State of Massachusetts, Appellate Tax Board

State of New Hampshire Board of Land and Tax Review

State of Illinois, Department of Revenue

State of Oregon, Department of Revenue

State of Connecticut, Superior Court, Hartford and Stamford

State of Texas, Equalization Study Appeals

Arlington County Virginia

Numerous boards and quasi-judicial hearings at state and local levels of government

Degrees and Professional Designations/Affiliations

MPA Pennsylvania State University, Master's Degree. 1978 in public finance/administration

BA Merrimack College, North Andover, Massachusetts, Bachelor's Degree, 1977 with a concentration in economics/political science

CAE, Certified Assessment Evaluator, International Assoc. of Assessing Officers

Massachusetts Certified General Real Estate Appraiser, License # 1234

Connecticut Certified General Real Estate Appraiser, License # 552

Maine Certified Assessor #539

Connecticut Office of Policy & Management: Certified Real Estate Appraisal Supervisor

Subject Matter Expert, Appraiser Qualifications Board, The Appraisal Foundation, 2007-2015

Member, Board of Trustees, The Appraisal Foundation, 2000-2006

Teaching Faculty and Lecturer

Nationally certified appraisal instructor for the International Association of Assessing Officers (IAAO) since 1984. Instructed numerous IAAO sponsored courses in Chicago and numerous states and Canadian provinces.

Selected Major Program Appearances and Published Articles

1998: Panelist at session on advanced CAMA applications and integrating with GIS at the *Integrating GIS & CAMA Conference* cosponsored by Urban and Regional Information Systems Association (URISA) and the International Association of Assessing Officers (IAAO), Albuquerque, New Mexico.

1997: Presented Keynote speech at the *Integrating GIS & CAMA Conference* cosponsored by Urban and Regional Information Systems Association (URISA) and the International Association of Assessing Officers (IAAO), Savannah, Georgia.

1996: Developed and presented IAAO's 1996 Professional Development Workshop for Real Property Report Graders Workshop, Houston, Texas.

1994: Developed and moderated 1994 Professional Seminar on *New Developments in Commercial Property Appraisal: Issues Facing Assessors and Appraisers*, cosponsored by IAAO, The Appraisal Institute, and the American Society of Appraisers, Seattle, Washington

1992: Reviewed paper on innovative uses of assessment data at the IAAO Seminar on Computer Assisted Advancements in Appraisal, St. Louis, Missouri

1991: "Time Adjustments for Assessments," IAAO Conference on Assessment Administration, Phoenix, AZ

1989: Reviewed paper on application of expert system techniques used to apply the income approach to commercial and industrial property, IAAO Technical Seminar, Fort Worth, Texas

1987: Reviewed paper on CAMA implementation at IAAO Technical Seminar, New Orleans, Louisiana.

1986: "The Application of Discounted Cash Flow Models in the Mass Appraisal of Commercial and Industrial Property," IAAO Conference, San Francisco, California.

1985-1986: Three-part series on CAMA system design issues in "CAAS News"

1984: "Measuring Assessment Uniformity: A Practitioner's Perspective," IAAO Conference, Hollywood, FL

1983: Reviewed paper on the application of econometric methods for the mass appraisal of land, Lincoln Institute of Land Policy, Cambridge, Massachusetts.

Edgar E. Hayes

Professional Experience

Senior Consulting Analyst

Career Synopsis

Mr. Hayes has more than forty-five years' experience in the assessment industry, including employment in the public, private and academic sectors. Early in his career, Mr. Hayes focused on appraisal activities in the mass appraisal field, working for two national mass appraisal firms. Leaving the private sector to enter public service, Mr. Hayes directed the appraisal and assessment system efforts for one of the ten largest taxing jurisdictions in the country. After successfully completing multiple reassessments and system development efforts, Mr. Hayes then undertook a dual role of regional manager and director of property tax programs with a leading educational and research institution. After a five-year tenure he left to found an assessment and systems consulting company. As its president and lead consultant Mr. Hayes continues to work toward effective reassessment systems implementations and related valuation analysis and planning activities. Insight into the tension between theory and practice and identification of solutions, coupled with the ability to effectively convey complex issues in understandable terms is the basis for Mr. Hayes' acceptance as an important participant in the assessment industry.

Professional Experience

1985 - Present

Senior Technical Consultant, New Kent, Virginia. Responsibilities include policy determination, project design, and technical consulting. Past and present clients include state, county, and local government agencies in ten states. Project and consulting endeavors have included participation in a range of efforts from designing the assessment system for an entire state (Kansas), execution of multi-million dollar contracting endeavors, to detailed assessment performance evaluation of counties, in addition to many efforts dealing with maximizing assessment performance for either in-house or contracted assessment efforts. Worked extensively as a Senior Technical Consultant with RYAN ASSOCIATES on several high-level projects including the State of Michigan, City of Detroit as well as municipal projects in New York and Connecticut.

1980 - 1985

Regional Manager and Director of Property Tax Programs for the Lincoln Institute of Land Policy, Cambridge, Massachusetts. The Lincoln Institute is the premier educational and research institution specializing in land and tax policy issues, in the U.S. Examination of assessment administration and valuation methodologies was a significant component of the Institute's programs. Mr. Hayes' responsibilities included technical and practical research, and teaching. He both designed and conducted many educational efforts directly related to valuation and assessment methods, performance analysis and systems development and has been an educator to literally hundreds of assessment professionals throughout the country.

Areas of specialty included valuation modeling, assessment performance evaluation, and systems functionality.

1976 - 1980

Appraisal Director and CAMA Coordinator, for Cuyahoga County (Cleveland), Ohio. Responsibilities included directing all appraisal, CAMA (computer assisted mass appraisal) and revaluation activities for the 500,000-parcel jurisdiction. As manager of appraisal operations, valuation model(s) designer and system coordinator, he led all assessment analysis and application activities, with emphasis on commercial and industrial property valuation and appraisal performance evaluation.

1970 - 1976

Appraiser, Appraisal Supervisor and Project Manager. Cole-Layer-Trumble Co. and Sabre Systems and Service Co., both of Dayton, Ohio. Appraisal activities covered all types and classes of properties. Administrative and appraisal responsibilities included property appraisal, project planning and execution in four states.

Professional Affiliations

1980 - present Member, International Association of Assessing Officials.

Presented at numerous IAAO conferences as technical commentator and education sessions.