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TO: Detroit City Council

FROM: David Whitaker, Director
Legislative Policy Division

DATE: June 3, 2025

RE: Legislative Policy Division (LPD) Summary Report on the IAAO ‘City of Detroit Sales Verification Analysis & 2024 Sales Ratio Study’ Report

The Legislative Policy Division (LPD) has been requested by Council President Mary Sheffield to prepare a Report regarding the ‘City of Detroit Sales Verification Analysis & 2024 Sales Ratio Study’ Report prepared by the International Association of Assessing Officers (IAAO) in February 2025. LPD notes that this Report is intended to summarize the results of the IAAO Report for City Council’s consideration. LPD does not have the technical expertise or resources to complete a detailed analysis and provide an opinion on the results of the IAAO Report.

Professional Consulting Services of IAAO LLC (PCSIAAO), a subsidiary of IAAO, released the ‘City of Detroit Sales Verification Analysis & 2024 Sales Ratio’ Report in February 2025 that contains a technical analysis that compares the Office of the Assessor’s assessed values for tax year 2024 to sales that occurred between 4/1/21 and 3/31/23 (the time frame leading up to the 2024 residential valuation). As part of the analysis, the PCSIAAO project team was required to (1) complete a Sales Verification Analysis to ensure the Office of the Assessor’s sales verification protocols were following (IAAO) industry best practices and (2) conduct a Sales Ratio Study of the Office of Assessor’s residential property valuation based on compliance with IAAO Technical Standards and Michigan State Tax Commission protocols. The Office of the Assessor provided the assessed values and corresponding sales utilized for the 2024 valuation cycle to PCSIAAO’s project team to complete the analysis. For the Sales Verification Analysis, the Office of the Assessor provided standard operating procedures and documents regarding sales validation (including in-house sales validation and verification training materials, Michigan’s 2024 Assessor Manuals, data entry

protocols, and other documents). For the Sales Ratio Study, sales determined to be open market, arm's length transactions by the Office of the Assessor were the only sales utilized. The determination of sale validity was completed by the Office of the Assessor based on their internal office procedures and verification practices. Multi-parcel sales, sales demonstrating undue distress by the buyer or seller at the time of the sale, and sales that were not arm's length in nature were not considered in this sales ratio analysis in keeping with standard operating procedures from the Office of the Assessor. A significant portion of the Report is spent analyzing the performance of the results of the Sales-Ratio Study.

The primary purpose of the Report is to point out gaps and offer suggestions for improvement. All recommendations are made with the understanding that their implementation is the responsibility of the client (e.g., the Office of the Assessor). The Report notes it is not unusual to find gaps between current operations and IAAO Technical Standards. By necessity, the Technical Standards are broad in nature and assume ideal circumstances under which they will be applied by practitioners who are fully trained and experienced in mass appraisal (the process of valuing a group of properties as of a given date using common data, standardized models, and statistical testing).⁽¹⁾⁽²⁾⁽³⁾⁽⁷⁾

Sales Verification Analysis

IAAO Technical Standards state the primary responsibility of the assessor is to estimate the market value of each property within the jurisdiction. Market value for assessment purposes is generally determined through the application of mass appraisal techniques. Mass appraisal is the process of valuing a group of properties as of a given date and using common data, standardized methods, and statistical testing. The integrity and viability of the property tax depends largely on the accuracy of estimating market value. The performance of appraisals made for assessment purposes is therefore of concern, not only to assessors but also to taxing authorities, property taxpayers, and elected representatives. Appraisal performance refers to the degree to which properties are appraised at market value, as defined by professional standards and legal requirements. Appraisal performance is dependent on proper verification and adjustment of sales data. Sales should be verified to determine whether they reflect the market value of the real property transferred. The sales verification process should be conducted in a manner that is timely, uniform, and transparent. Verified sales are more reliable than unverified sales. All sales should be considered candidates for valid sales unless sufficient information can be documented to show otherwise. It is imperative for sales to be verified uniformly and accurately, while also being processed and verified in a timely manner so they are available for analysis. Properly validated sales are the singularly most important part of a sales ratio study.

As explained on the City of Detroit, Office of the Assessor's webpage, the mission of the Office of the Assessor is to discover, list and value at current market conditions all real and tangible personal property in the City of Detroit for the purposes of levying the tax lawfully imposed and to warrant said levy to the Treasurer of the City of Detroit for collection. As required by the Michigan State Tax Commission and Michigan Law, Assessors, including the Office of the Assessor, must inventory and list all property within the assessment jurisdiction and assess all taxable property at 50% true cash value (i.e., market value). Annually, the Office of the Assessor values (assesses) all real property in the City of Detroit by first taking the cost approach, which is calculated using the State of Michigan Assessor's Manual issued by the State Tax Commission, to estimate the cost of constructing improvements to the land and adjusting the calculated cost approach to the local market value, which is determined by the sales data throughout the assessing jurisdiction. Valid arm's length (sales) transactions for property type and geographical areas determine if

¹ City of Detroit Office of the Chief Financial Officer – Office of the Assessor Article, dated April 16, 2025, "Independent Study confirms claims of systematic overassessments in Detroit are false." Article by Office of the Chief Financial Officer. Link to the 'City of Detroit Sales Verification Analysis and 2024 Sales Ratio Study' Report by the International Association of Assessing Officers-Professional Consulting Services of IAAO LLC [IAAO-PCSIAAO] can be found in the Article.

² IAAO, "Professional Consulting Services," IAAO, [May 27, 2025], [<https://www.iaao.org/pcs/>].

³ International Association of Assessing Officers [IAAO]. Standard on Mass Appraisal of Real Property (Approved July 2017). IAAO, Kansas City, MO.

the areas will increase or decrease in value on an annual basis to meet the required 50% true cash value (i.e., market value).

Results of the Sales Verification Analysis provided the following findings and recommendations:

❖ **Dismissal of a significant segment of the market sales transactions due to the deed type.**

Sales Verification Analysis Key Findings: The Officer of the Assessor uses the Wayne County Assessor's Modified Sales Report for final sales verification, data collection, and record updates. The Report only include sale transactions with property transfers via a warranty deed since Wayne County only considers these types of transactions as valid open market transactions. Consequently, the Officer of the Assessor eliminates quit claim and other deed types that are commonly used for sales of lower value properties. The report notes the practice of dismissing a significant segment of the market sales transactions due to the deed type does not meet with best practices established with IAAO Technical Standard on Verification and Adjustment of Sales (Approved April 2020). The IAAO Standard state that sales should be considered and included in modeling and sales ratio studies if they account for more than 20% of sales in a specific market area and for the Office of the Assessor that would extend to considering and including non-warranty deed sales transactions if those sales can be verified to be representative of market transactions in all other ways besides the deed type. The practice of routinely removing a significant portion of the sales transaction file without clearly identifying and documenting the process, and the logic behind the process, creates a scenario where estimates of market value could be unduly influenced upwards.

Recommendation: PCSIAAO strongly recommends this practice be reevaluated and updated for the Office of the Assessor to include sales that transfer with deeds other than warranty deeds. The PCSIAAO understands that revising this practice will require cooperation and concessions made by multiple levels of government, however, finding a solution that allows the Office of the Assessor the ability to fully review and verify the terms of sale for ALL property transfers throughout its jurisdiction is the best way to serve the entire community of Detroit. The Office of the Assessor should have the ability to determine the validity of the transactions in compliance with established state laws and industry standards for best practices as well as leading to more accurate estimates of values for all residential properties.

❖ **Two Important Sales Verification Points missing from Documentation and Training Materials**

Sales Verification Analysis Key Findings: The Office of the Assessor has clear documentation and training materials explaining how to research and review sales, verify the terms of the transaction, confirm the physical characteristics of the residential property, and how to enter the collected sales information into the City of Detroit's Computer Assisted Mass Appraisal (CAMA) system. The areas where the Office of Assessor's documentation were lacking were: (1) on the topic of sales verification interviews with the parties to the sale and (2) field checks to confirm the physical characteristics of the property at the time of the sale. These two points are particularly important for a jurisdiction that is the size of the City of Detroit that also experiences spread of market value demonstrated in the various Economic Condition Factors throughout the City. It is especially important for the Office of the Assessor to complete the field reviews of sales in market areas experiencing significant decline or growth due to revitalization. IAAO Technical Standard on Verification and Adjustment of Sales (Approved April 2020) state that sales data are needed for the valuation process and for sales ratio studies. The reliability of any valuation model or sales ratio study depends on the quality and quantity of its data. Sales data should be collected, edited,

and adjusted to obtain valid indicators of market value. Sales data should be verified by contacting a party to the sale (buyer, seller, or other knowledgeable party) when there is a question or an answer is unclear on a sales questionnaire completed prior to the recordation.

Recommendation: PCSIAAO recommends that the Officer of the Assessor leadership team should develop a standard protocol and set of questions for staff to ask when conducting sales verification interviews. IAAO Technical Standard on Verification and Adjustment of Sales (Approved April 2020) provides an example “Sale Verification Form” that could be used to help develop a similar form to suit the needs of the Officer of the Assessor specifically.⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾⁽⁷⁾

Sales Ratio Study

IAAO Technical Standards state that a Sales Ratio Study is a study of the relationship between assessed values and market values (i.e. sales prices). Market value is a concept in economic theory and cannot be observed directly. However, market values can be represented in ratio studies by sales prices (market prices) that have been confirmed, screened, and adjusted as necessary. Sales prices provide the most objective estimates of market values and under normal circumstances should provide good indications of market value. Dividing the appraised value by the sales price forms the ratios, and a sales ratio study analyzes a set of ratios to determine the degree to which groups of assessed values accurately reflect market value.

Sales ratio studies are used to help evaluate assessment performance. There are two major aspects of assessment performance: level (accuracy) and uniformity. Assessment level refers to the overall ratio of appraised values to market values. Level measurements provide information about the degree to which goals or certain legal requirements are met. Uniformity refers to the degree to which properties are appraised at equal percentages of market value.

The PCSIAAO project team conducted an independent sales ratio study and other associated statistical analyses to statistically analyze the overall assessment performance of the assessed values for the 2024 valuation year (with a 12/31/23 effective date) established by the Office of the Assessor and comparing them to the sales occurring between 4/1/21 and 3/31/23 (the timeframe leading up to the 2024 residential valuation) for assessment level and uniformity. The review was done considering valuation performance related to Michigan Law and IAAO Technical Standards.

Steps in a Ratio Study

PCSIAAO conducted the sales ratio study using the following seven basic steps generally involved with ratio studies as outlined in IAAO Standard on Ratio Studies (Approved April 2013):

- 1. Define the Purpose, Scope, and Objectives – The scope and objectives of the ratio study are defined based on the intended purpose, which is broadly defined according to the end goal or key questions being posed to the researcher.***
- 2. Design – The design of the ratio study is the methodologies by which the purpose, scope, and objectives of the ratio study are investigated. The design includes the choice of analyses, statistical tests, and means of presenting the results.***

⁴ International Association of Assessing Officers [IAAO]. Standard on Verification and Adjustment of Sales (Approved April 2020). IAAO, Kansas City, MO.

⁵ Michigan Compiled Laws (MCL) – Section 211.27 and Section 211.27a. See Supplemental Analysis for True Cash Valuation Determination.

⁶ City of Detroit Office of the Chief Financial Officer – Office of the Assessor, “Sales Study,” Office of the Chief Financial Officer, [May 27, 2025], [<https://detroitmi.gov/departments/office-chief-financial-officer/ocfo-divisions/office-assessor/sales-study>].

⁷ State Tax Commission, “Michigan Assessor Manuals,” Michigan Department of Treasury, [May 27, 2025], [<https://www.michigan.gov/treasury/local/stc/accordion/pubs/michigan-assessor-manuals>].

3. ***Stratification*** – Stratification is the process of dividing the sale properties in the ratio study into stratum/strata (two or more groups) then running the ratio studying in each stratum (strata) as well as for the overall set of properties.
4. ***Collection and Preparation of Market Data*** – The process of collecting and preparing market data for use in a ratio study. The process includes: (1) the sales verification process whereby property sales information is verified and determined for validity for analysis, (2) preparing all sales data in the appropriate format, and (3) defining an appropriate sale date range, where all verified sales within the sale date range are candidates for inclusion in the ratio study.
5. ***Matching of Appraisal and Market Data*** – Process of appropriately matching market data with appraisal data, once the market data is collected and prepared in a usable format. This forms the basis for the Sales Ratio Study because the ratios analyzed in the Study are simply the assessed (appraised) value divided by the proxy for market value (i.e., validated sale price). Properties that are fundamentally different between the sale date and the appraisal data are not matched appropriately and should be removed from the study.
6. ***Statistical Analysis*** – Generates the key statistics evaluated in the Sales Ratio Study. These analyses are defined in the Ratio Study according to the purpose, scope, and objectives of the study. The researcher (e.g., PCSIAAO) has the power to choose the most appropriate set of statistical analyses based on their experience, knowledge of relevant standards, and statistical knowledge.
7. ***Evaluation and Use of Result*** – Interpreting and evaluating the key statistics generated from the statistical analysis, with the end goal of fashioning them into a usable set of results.

2024 Sales Ratio Study

The PCSIAAO project team outlined the City of Detroit's 2024 Sales Ratio study conducted using the IAAO steps taken as follows:

Step 1 – Define the Purpose, Scope, and Objectives

The purpose of the project was to conduct an independent Sales Ratio Study and other associated statistical analyses to statistically review the overall performance of the Office of Assessor's 2024 assessed value (effective date 12/31/23) and corresponding sales (leading up to the 2024 valuation year, which include sales between 4/1/21 and 3/31/23) for assessment level accuracy and uniformity in compliance with Michigan Law and IAAO Technical Standards.

Step 2 – Design

The key elements of the design of the 2024 Sales Ratio Study described are:

- ❖ ***Outlier Handling:*** Outliers are observations that have unusual values, this is, differ markedly from a measure of central tendency, which is the tendency of most of kinds of data to cluster around some typical or central value, such as the mean or median. Some outliers occur naturally while others are due to data errors. Outliers were trimmed (removed) from the sales sample used for the 2024 Sales Ratio Study prior to computing some of the statistical measures that are highly sensitive to outliers. Outliers are traditionally removed to better analyze uniformity measurements. The outliers were trimmed (removed) according to the 1.5 Inner Quartile Range (IQR) Method, which is a commonly accepted industry trimming technique that identifies outliers (ratios) that fall beyond 1.5 times the IQR of the first quartile (lower boundary) and third quartile (upper boundary).
- ❖ ***Statistical Hypothesis Testing:*** Statistical hypothesis testing is used to make conclusions about a population based on a sample. Because not all properties sell in a given period of time, all properties that do sell make up a sales sample of the population of properties. Point estimate statistics calculated from a sales sample inherently contain sampling error (the type of error

resulting from the sampling process). Confidence intervals account for sampling error and thus serve as a measure of the precision for the calculated point estimate statistic of the unknown population parameter with a given degree of confidence. Confidence intervals can also be used to conduct statistical hypothesis testing. In fact, conclusions about the population of properties can't be made without using statistical hypothesis testing to account for sampling error. All conclusions made in the 2024 Sales Ratio Study are made using statistical hypothesis testing so that inferences about the population can be made. All confidence intervals used in the 2024 Sales Ratio Study are 95% two-sided intervals. Confidence intervals for the mean sales ratio and median sales ratio are calculated using a resampling procedure called "bootstrapping" (a statistical method used to derive a conclusion based on repeated resampling of data to provide more information about the population characteristics. Useful method for confidence interval approximation when no traditional formulas are available or the sample is drawn from a population that does not conform to the normal distribution).

- **Confidence Level:** The confidence level is the degree of probability associated with a confidence interval or statistical test, commonly 90%, 95%, or 99%. For example, a 95% confidence interval implies that were the estimation process repeated again and again, then 95% of the calculated intervals would be expected to contain the true population measure (such as the median, mean, or COD).
- ❖ **Sales Price Time Trend Analysis:** In periods of a rapidly changing market, it necessary to consider making a market condition adjustment to sales to adjust sale prices to reflect the current market as of the valuation date. The sales used in the market condition analysis included the arm's length sales transactions identified by the Office of the Assessor that occurred between 4/1/21 and 3/31/23. A market condition adjustment was applied since the 2-year sales period saw rapid growth in home appreciation. The PCSIAAO project team created a market condition time factor independently. After considering several methodologies, the PCSIAAO project team concluded to apply an annual market condition adjustment of 8.5%, or a monthly adjustment of .708% per month, to every sale in the sample set to adjust all sales to a common point in time prior to completing the statistical analysis.
- ❖ **Assessment Level Statistics:** Ratio studies typically include measures of assessment level and assessment uniformity. The assessment level is a measure of central tendency (which is the tendency of most of kinds of data to cluster around some typical or central value, such as the mean or median) for the distribution of sales ratios. This is sometimes referred to as the equalization rate. Depending on the purpose for which the study is being made, different measures of assessment level such as the mean ratio (*average of the sample ratios*), median ratio (*calculated by sorting the sample ratios, then selecting the value halfway through the arrayed data if odd-numbered or if even-numbered, adding the two middle values that fall in the center of the arrayed data and dividing by 2*) or the weighted mean ratio (*aggregate ratio by taking the total sum of the sample's assessed values to the total sum of the sample's sales prices. Each ratio is weighted in proportion to its sale price*) that may be used. When measuring assessment level, the State of Michigan relies on the mean, or average, assessment-to-sales ratio. The desired assessment level is 50.0 per state law. The median ratio is one of the most common statistical measures used in mass appraisal performance. IAAO Technical standards consider the median sales ratio as the most appropriate measure of assessment level because it is less susceptible to the presence of outliers. Per IAAO standards, 100.0 is the target assessment level with an acceptable range of +/- 10%. As such, the assessment level should range between 90.0 and 110.0 of the estimate of fair market value. For the statistical analysis, the target median assessment level of 50.0 was used to be in line with Michigan targets.

- ❖ **Assessment Uniformity Statistics:** Assessment uniformity is a measure of variability of the ratio distribution. Ratio studies are usually concerned with a general measure of overall variability (e.g., the Coefficient of Dispersion (COD)) and a measure of variability that specifically measures vertical inequity (e.g., the Price-Related Differential (PRD)). The COD is the most common measure of horizontal uniformity in the mass appraisal industry. The COD indicates how close the group of ratios are clustered around the median ratio. The COD measures the average amount of dispersion (the degree to which data are distributed either tightly or loosely around a measure of central tendency) from the median and expresses the dispersion as a percentage of the median ratio. The lower the COD, the more tightly the sales ratios are distributed around the median sales ratio indicating more uniformity in assessed values. Conversely, the higher the COD, the more spread out the sales ratios are around the median sales ratio indicating less uniformity in assessed values. The IAAO Standard on Ratio Studies (Approved April 2013) published standard ranges in two different tables for the COD based on the type of property as shown in **FIGURE 2. IAAO Standard Ranges for the COD by Type of Property** and **FIGURE 3. IAAO Standard Ranges for the COD by Type of Property** below:

| FIGURE 2. IAAO Standard Ranges for the COD by Type of Property | | |
|---|--|------------------------------|
| Type of property—General | Type of property—Specific | COD Range** |
| Single-family residential (including residential condominiums) | Newer or more homogeneous areas | 5.0 to 10.0 |
| Single-family residential | Older or more heterogeneous areas | 5.0 to 15.0 |
| Other residential | Rural, seasonal, recreational, manufactured housing, 2-4 unit family housing | 5.0 to 20.0 |
| Income-producing properties | Larger areas represented by large samples | 5.0 to 15.0 |
| Income-producing properties | Smaller areas represented by smaller samples | 5.0 to 20.0 |
| Vacant land | | 5.0 to 25.0 |
| Other real and personal property | | Varies with local conditions |

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

* Appraisal level for each type of property shown should be between 0.90 and 1.10, unless stricter local standards are required.

PRD's for each type of property should be between 0.98 and 1.03 to demonstrate vertical equity.

PRD standards are not absolute and may be less meaningful when samples are small or when wide variation in prices exist. In such cases, statistical tests of vertical equity hypotheses should be substituted (see table 1-2).

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

| FIGURE 3. IAAO Standard Ranges for the COD by Type of Property | | |
|---|---|-------------|
| 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 -.010 or greater than .010 indicate unacceptable vertical inequities.

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

Assuming the assessment process was conducted properly, it is thought that 5%, which is the lower end of each acceptable range, is the best COD that is actually achievable in most circumstances, given the predictive error inherent in the assessment process. The IAAO standard range for the COD used for the 2024 Sales Ratio Study is 5% to 20% for all strata (a class or subset that results from stratification), because Detroit is comprised mostly of older properties and is considered a depressed

market area (see **FIGURE 3**). The PRD is a statistic conventionally used to measure appraisal uniformity as related to the equality of the assessed values of low- and high-value properties within the same market. Appraisals are considered regressive if high-value properties are under-assessed relative to low-value properties and progressive if high-value properties are over-assessed relative to low-value properties. A PRD of 1.00 indicates that low and high-value properties are assessed equally. A PRD greater than 1.00 indicates regressivity, meaning high-value properties may be under assessed relative to lower value properties. A PRD less than 1.00 indicates progressivity, meaning high-value properties may be over assessed relative to lower value properties. The IAAO standard range used for the PRD in the 2024 Sales Ratio Study is 0.98 to 1.03 for all strata (groups) (see **FIGURE 3. IAAO Standard Ranges for the COD by Type of Property**).

- ***Standard Deviation and Coefficient of Variation:*** Under certain assumptions, the standard deviation can be a powerful measure of appraisal uniformity. Many conventional statistical methods assume the sample data confirm to the shape of a bell curve, known as the normal distribution. Performance measures based on the mean or standard deviation can be misleading if the study sample does not meet the assumption of normality. As a first step in the analysis, the distribution of sample ratios should be examined to reveal the shape of the data and uncover any unusual features. When the data are normally distributed, the percentage of observations can be calculated within any number of standard deviations of the mean from normal probability tables. When the data are not normally distributed, the standard deviation is less meaningful and the analyst (e.g., PCSIAAO) should proceed cautiously. Standard deviation is the statistic from a set of numbers by subtracting the mean from each ratio and squaring the remainders, adding together all the squares, dividing by the size of the sample less one, and taking the square root of the result. The Coefficient of Variation (COV) expresses the standard deviation as a percentage. Expression as a percentage makes comparisons of appraisal levels between groups easier. Like the standard deviation, the predictive power of the COV depends on the extent to which the data are normally distributed. When the data is normally distributed, the COV is a powerful measure of uniformity. Conversely, when the data is not normally distributed, the COV is not a meaningful measure of uniformity.

Step 3 – Stratification

The City of Detroit, Office of the Assessor’s webpage, states that Michigan Law requires an economic condition factor (ECF) or neighborhood in the valuation process. An ECF takes the cost approach from the State of Michigan Assessor Manual (issued by the State Tax Commission) and modifies those values to the local market. This ensures that every assessor in Michigan values property the same way. The ECF is used to distinguish the different markets in Michigan. Both Building Type and Geographic Location are used for residential properties. Similar properties in similar neighborhoods are compared to determine value. For the 2024 Sales Ratio Study, sales are stratified by (Geographic) Location for calculating the sales ratio statistics. Sales were stratified (grouped into smaller market area breakouts) by the full sample set of sales, then by ECF Neighborhood Series Group, and finally by individual ECF Neighborhood Series Group. The Report notes the Economic Condition Factors (ECF) were established by the Office of the Assessor.

Sample representativeness means that the properties in the sales sample used for the sales ratio study are sufficiently representative of the properties in the population. Ideally, to perform a statistical ratio analysis, there are adequate occurrences in the sample to appropriately represent the population that is being tested. However, for the 2024 Sales Ratio Study, the stratification performed on the individual ECF Neighborhood Groups resulted in there being several groups that were underrepresented in the sample relative to the population and some groups having no representation. Nonetheless, there were adequate sales in the sample set to represent the population for the large majority of ECF Neighborhoods reviewed in the 2024 Sales

Ratio Study. Groups with less than 5 sales (representing less than 1.0% of the ECF Neighborhood population) were noted as not being representative samples for their respective populations.

Step 4 – Collection and Preparation of Market Data

Upon project commencement, the PCSIAAO project team requested sales, valuation, and property-level data. The Office of the Assessor delivered the data meeting all project requirements in November 2024. The sales data provided was previously reviewed and validated by the Office of the Assessor. The PCSIAAO project team further reviewed the sales in the file for inclusion in the 2024 Sale Ratio Study and filtered the data by the criteria listed below. This resulted in a sample size of 12,498 sales to be used in the statistical analysis:

Step 4 – Collection and Preparation of Market Data

Sales, valuation, and property-level data were requested from the Assessor's Office upon project commencement. Data meeting all project requirements was delivered to the PCSIAAO project team in November 2024. Sales data that was provided by staff had previously been reviewed and validated by the assessor's office. The sales included in the file were then further reviewed by the PCSIAAO project team for inclusion in the sales ratio study. They were filtered by the following criteria:

1. Identified as meeting the definition for "Arm's Length Transaction" as defined by the Assessor's Office sales validation procedures
2. Having a property class description of "Residential-Improved"
3. Having an Occupancy Type of:
 - 0 - Single Family
 - 2 - Town House
 - 3 - Duplex
4. Properties with "\$0" Assessed Value were removed from the analysis
5. Properties with multiple transactions on the same day were reduced to a single sale occurrence with consideration given to transaction involving a "Warranty Deed" as the instrument type

This resulted in a sample size of 12,498 sales to be used in the statistical analysis.

Step 5 – Matching of Appraisal and Market Data

The matching appraisal and market data process was not part of the scope for the 2024 Sales Ratio Study. The process was handled by the Office of the Assessor through a comparison of the data at the time of sale to the data as of the effective valuation date. Prior to the data exchange for the 2024 Sales Ratio Study, the Officer of the Assessor reviewed the data and addressed any data inconsistencies.

Step 6 – Statistical Analysis

The statistical analysis in the 2024 Sales Ratio Study is broken down into two sections. First, a statistical analysis considering Michigan Law and the City of Detroit's jurisdiction adherence to it. Secondly, a statistical analysis with consideration towards IAAO and mass industry standards. Key Findings along with the results are provided throughout the Sales Ratio Study along with the results of the statistical analysis. The Key Findings are also listed at the end of the 2024 Sales Ratio Study. **Note:** Since the findings are based on various standards and industry practices, LPD categorized the Key Findings throughout the Summary Report into the following categories as follows: **Key Findings Considering Michigan State Law, Key Findings Considering IAAO And Industry Standards, and Sales Verification Analysis Key Findings.** Some Key Findings overlap and are identified for more than one consideration.

Statistical Analysis Considering Michigan State Law:

A perfect assessment-to-sale ratio would typically be 1.00 or 100%. However, the State of Michigan Constitution, Section 3 of Article 9 states that all property shall be assessed at 50% of true cash value (i.e., market value). Meaning the desired assessment level for the 2024 Sales Ratio Study is .50, or 50.0%.

Due to the jurisdiction conditions emphasized by the State of Michigan Law that assessed values shall on average not exceed 50.0, the mean, or average ratio was considered. Typically, IAAO standards and industry best practices do not place high reliance on the mean ratio as it is more susceptible to outliers, even when outliers are identified and removed from the analysis.

TABLE 1. Overall City of Detroit Sales Ratio Analysis below shows the results of the 2024 Sales Ratio Study for the City of Detroit:

| TABLE 1. Overall City of Detroit Sales Ratio Analysis | | | |
|--|-------------|----------------------------------|-------|
| City of Detroit – Full Results | | | |
| Number of Sales | 12,498 | Mean Ratio (Outliers Removed) | 50.1% |
| Outliers Trimmed | 496 | Lower Confidence Interval - 95% | 49.7% |
| Number of Sales (Outliers Removed) | 12,002 | Upper Confidence Interval - 95% | 50.5% |
| | | | |
| Monthly Market Condition Adjustment | 0.708% | Median Ratio (All Sales) | 45.7% |
| Annual Market Condition Adjustment | 8.500% | Lower Confidence Interval - 95% | 45.1% |
| | | Upper Confidence Interval - 95% | 46.1% |
| | | | |
| Minimum Sale Price (All) | \$1,000 | | |
| Maximum Sale Price (All) | \$4,900,000 | Coefficient of Dispersion (COD) | 36.6% |
| Average Sale Price (All) | \$77,409 | | |
| Median Sale Price (All) | \$60,000 | Price-Related Differential (PRD) | 1.14 |
| | | | |
| Minimum Ratio (Outliers Removed) | 3.3% | Weighted Mean Ratio | 44.1 |
| Maximum Ratio (Outliers Removed) | 111.1% | | |
| | | | |
| | | Standard Deviation | 20.9 |
| | | Coefficient of Variation (COV) | 41.7% |

Key Findings Considering Michigan State Law:

- The mean ratio for the City of Detroit indicates that the Office of the Assessor met their State of Michigan Constitutional mandated requirement to assess values at 50% of the true cash value (i.e., market value).

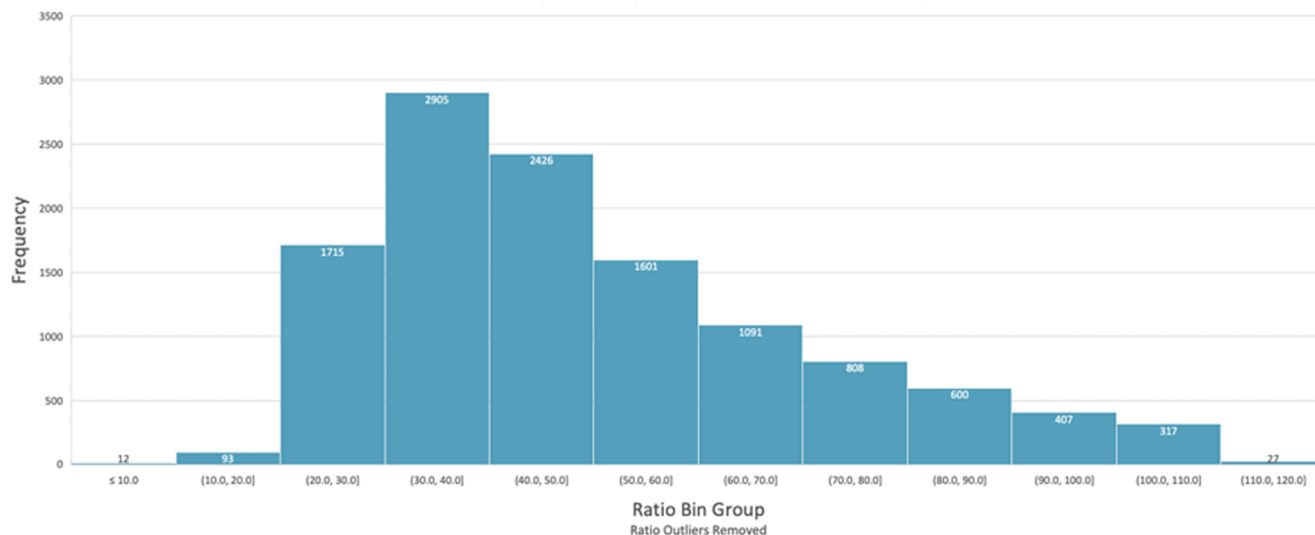
The 2024 Sales Ratio Study compared the 2024 assessed value set by the Office of the Assessor to arm's length transactions of single-family homes, town houses, and duplexes that occurred between 4/1/21 and 3/31/23. All sales had a market condition adjustment applied prior to the calculation of the assessment-to-sales ratio.

Metrics in which all 12,498 sales in the sample are used are noted by (All). Outliers totaling 496 sales were removed, thereby leaving 12,002 sales to be used in calculating the Mean Ratio, Coefficient of Dispersion (COD), Coefficient of Variation (COV), Weighted Mean, and Price-Related Differential (PRD) as these measures can be susceptible to outlier influence.

The standard deviation and Coefficient of Variation (COV) results were both calculated; however, the data in the 2024 Sales Ratio Study is not normally distributed (**as shown in CHART 1. Sales Ratio Frequencies by Distribution of Ratio Groups**). As such, both performance metrics were not considered reliable statistics and were not utilized for any further analysis in the Study.

CHART 1. Sales Ratio Frequencies by Distribution of Ratio Groups below shows the distribution of assessment-to-sales ratio by ratio range:

CHART 1. Sales Ratio Frequencies by Distribution of Ratio Groups



This histogram chart indicates whether a normal distribution occurs within the sample. For many statistical measures reviewed, a normal distribution is assumed and indicated by a bell shape curve in the histogram. Ideally, the most frequency would occur around the 50.0% ratio, as this is the target ratio. The “bins” would then be filled relatively equally as the frequency moved left and right of 50.0%. Since the histogram is not evenly disturbed as the grouping move away from the 50.0% target, this indicates there are some distribution issues somewhere within the data sample. Furthermore, since the distribution is skewed to the right of the 50.0% target, this suggests there are a fair number of high ratios somewhere in the data set, indicating assessed values are higher than the 50.0 target.

CHART 2. Ratio by Time Adjusted Sale Price below depicts the sale ratios by time-adjusted sale price:

CHART 2. Ratio by Time Adjusted Sale Price



Ideally, the sales ratio data points would be equally distributed around the 50% target line for every price range with the market area and this would suggest good vertical uniformity (equity) amongst the various value groups within the jurisdiction. The City’s sales ratio data points fall much closer in proximity to the target line for higher sale price properties. However, there is a significant deviation from the 50.0 target line for the low sale price properties. This suggests that there are some regressivity (vertical equity) concerns

that need to be further investigated. The results notes the margin of error is smaller when comparing the assessed values to sales price on lower priced properties than higher priced properties.

TABLE 2. City of Detroit and ECF Neighborhood Series Sales Summary below gives a summary of the sale count, sale price range, average and median sale price done for the entire City and all ECF Neighborhood Series Groups:

| TABLE 2. City of Detroit and ECF Neighborhood Series Sales Summary | | | | | |
|---|-------------------|---------------------------|---------------------------|---------------------------|--------------------------|
| ECF Group | Sale Count | Minimum Sale Price | Maximum Sale Price | Average Sale Price | Median Sale Price |
| City of Detroit - TOTAL | 12,498 | \$1,000 | \$4,900,000 | \$77,409 | \$60,000 |
| ECF NBHD - 1R100 Series | 2,433 | \$4,000 | \$845,000 | \$83,132 | \$69,000 |
| ECF NBHD - 2R200 Series | 2,476 | \$8,000 | \$4,900,000 | \$107,383 | \$80,000 |
| ECF NBHD - 3R300 Series | 1,664 | \$1,800 | \$175,000 | \$47,427 | \$45,000 |
| ECF NBHD - 4R400 Series | 2,047 | \$4,000 | \$325,000 | \$67,659 | \$57,000 |
| ECF NBHD - 5R500 Series | 678 | \$3,500 | \$1,355,000 | \$130,137 | \$65,000 |
| ECF NBHD - 6R600 Series | 795 | \$1,000 | \$605,000 | \$58,140 | \$40,500 |
| ECF NBHD - 7R700 Series | 2,360 | \$2,500 | \$316,000 | \$55,570 | \$50,000 |
| ECF NBHD - CND Series | 45 | \$88,000 | \$1,750,000 | \$362,150 | \$297,525 |

The Office of Assessor broke out the City into ECF Neighborhood Series Groups as part of their appraisal assignment. Neighborhoods are areas that experience similar physical, economic, governmental, and social factors.

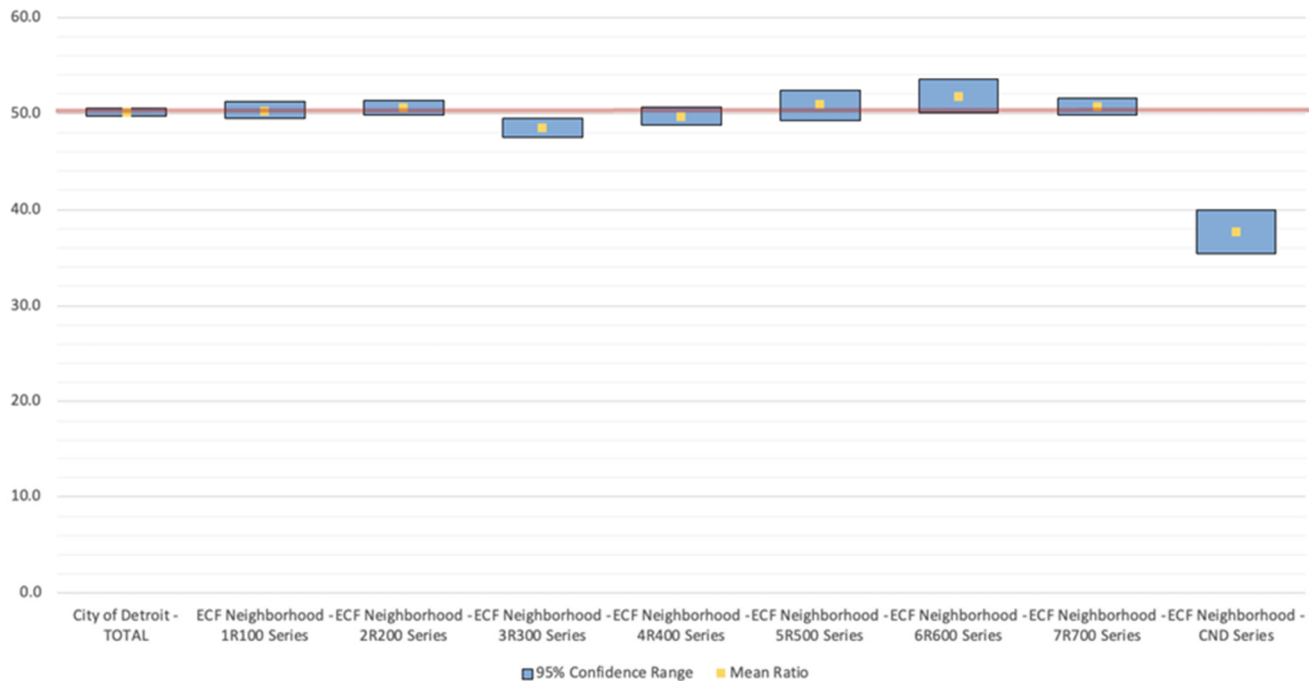
TABLE 3. City of Detroit and ECF Neighborhood Series Mean Statistical Results below shows the statistical results of the City and ECF Neighborhood Series Groups considering the mean, or average, sales ratio results:

| TABLE 3. City of Detroit and ECF Neighborhood Series Mean Statistical Results | | | | | | |
|--|-------------------|-------------------------|--------------------------------------|-------------------|-----------------------------|-----------------------------|
| ECF Group | Sale Count | Outliers Removed | Sale Count (Outliers Removed) | Mean Ratio | 95% Lower Confidence | 95% Upper Confidence |
| City of Detroit - TOTAL | 12,498 | 496 | 12,002 | 50.1 | 49.7 | 50.5 |
| ECF NBHD - 1R100 Series | 2,433 | 93 | 2,340 | 50.3 | 49.5 | 51.2 |
| ECF NBHD - 2R200 Series | 2,476 | 93 | 2,383 | 50.6 | 49.8 | 51.4 |
| ECF NBHD - 3R300 Series | 1,664 | 73 | 1,591 | 48.5 | 47.5 | 49.5 |
| ECF NBHD - 4R400 Series | 2,047 | 76 | 1,971 | 49.7 | 48.8 | 50.6 |
| ECF NBHD - 5R500 Series | 678 | 28 | 650 | 50.9 | 49.3 | 52.4 |
| ECF NBHD - 6R600 Series | 795 | 28 | 767 | 51.8 | 50.1 | 53.6 |
| ECF NBHD - 7R700 Series | 2,360 | 91 | 2,369 | 50.7 | 49.8 | 51.6 |
| ECF NBHD - CND Series | 45 | 6 | 39 | 37.7 | 35.4 | 40.0 |

Outliers were removed since the mean ratio is heavily influenced by outliers. Confidence intervals were also considered when reviewing assessment level.

CHART 3. Mean Summary with Confidence Interval Range below shows where the mean ratio falls in relation to the 50.0 target along with the corresponding interval for the City and ECF Neighborhood Series Groups:

CHART 3. Mean Summary with Confidence Interval Range



The “YELLOW” point indicates the mean ratio, the “BLUE” bar depicts the confidence interval range, and the “RED” line represents the target ratio.

Key Findings Considering Michigan State Law:

- The mean, or average sales-to-assessment ratio for the City of Detroit is 50.1 (as seen in **TABLE 3 and CHART 3**) and this complies with Michigan State Law.
 - Furthermore, the indicated confidence interval ranges between 49.7 and 50.5. This means that with 95% confidence the true mean ratio for the population is between 49.7 and 50.5. This confidence range being on both sides of the 50.0 target ratio is another indication that the Office of the Assessor is compliant with Michigan State Law.
 - The indicated 50.1 mean ratio is +0.1 higher than Michigan’s established target level of 50.0. With the confidence interval in mind, PCSIAAO finds that the City of Detroit has met its legal and statutory obligation to assess residential properties at the required 50.0 target level of True Cash Value (i.e., Market Value).

Similar conclusions can be drawn if the data of the ECF Neighborhood Series groups is broken down further. Most of the groups indicate an average that is around the 50.0 target level with confidence interval on both sides of 50.0. The exceptions to this are the 3R300 Series group, the 6R600 Series group, and the CND Series group, with the CND Series groups indicating the lowest level of assessment that is at best 10 basis points from the target.

CHART 4 through CHART 11 further stratify (group) the ECF Neighborhood Series group data into individual ECF Neighborhood Series groups. The individual ECF statistical results can be found in the Appendix. **Note:** The individual ECF Neighborhood Series group Charts and statistical results are not included in the LPD Summary Report but can be reviewed by obtaining the IAAO City of Detroit Sales Verification Analysis & 2024 Sales Ratio Study Report.

There were some individual ECF Neighborhood Series groups that were not represented as there were no sales within a given time frame. Additionally, some groups did not have a representative sample (only one to five sales), and their results should be considered inconclusive due to being underrepresented in the study. It is expected to see more variation with additional stratification taking place; however, stratification into the individual ECF Neighborhood groups, overall, indicated mean ratios and confidence ranges encompassing the 50.0 target ratio. Nonetheless, there are some individual ECF Neighborhood Series groups that do not overlap the 50.0 target and should be investigated further.

Key Findings Considering Michigan State Law:

- For future internal analysis and sales ratio study purposes, the jurisdiction should review and consider redrawing ECF boundaries and/or consolidating similar problems into larger market areas if a lack of sales with certain ECFs is a reoccurring problem. Alternatively, staff may consider grouping existing similar ECFs together for the purpose of a similar statistical analysis.

Statistical Analysis Considering IAAO and Industry Standards

IAAO's Standard on Ratio Studies (Approved April 2013) outlines industry standards when it comes to conducting a ratio analysis. The ratio standard states both measures of assessment level (accuracy) and variability (uniformity) should be considered. The ratio standard recommends the use of median in measuring appraisal level (accuracy). When measuring uniformity (horizontal equity), the ratio standard recommends using the Coefficient of Dispersion (COD) to measure the dispersion of the data about the median ratio. The COD is calculated by referencing the median sales ratio, it should not be calculated with mean ratio. The ratio standard recommends the Price-Related Differential (PRD) calculation when measuring vertical equity (regressivity). Vertical inequities occur when systematic differences exist in the relative valuation of low- and high-value properties.

TABLE 4. Results of Industry Standard Statistical Analysis below gives a summary of industry standard statistics for the City of Detroit as ECF Neighborhood Series Groups:

| TABLE 4. Results of Industry Standard Statistical Analysis | | | | | |
|---|---------------------|-----------------------------|-----------------------------|------------|------------|
| ECF Group | Median Ratio | 95% Lower Confidence | 95% Upper Confidence | COD | PRD |
| City of Detroit - TOTAL | 45.7 | 45.1 | 46.1 | 36.6% | 1.14 |
| ECF NBHD - 1R100 Series | 45.9 | 44.7 | 46.6 | 35.7% | 1.14 |
| ECF NBHD - 2R200 Series | 46.1 | 44.9 | 47.5 | 34.8% | 1.12 |
| ECF NBHD - 3R300 Series | 43.9 | 43.0 | 45.1 | 37.0% | 1.15 |
| ECF NBHD - 4R400 Series | 45.3 | 44.1 | 46.4 | 37.3% | 1.15 |
| ECF NBHD - 5R500 Series | 47.5 | 45.6 | 49.0 | 33.8% | 1.11 |
| ECF NBHD - 6R600 Series | 45.7 | 43.7 | 48.2 | 43.3% | 1.21 |
| ECF NBHD - 7R700 Series | 46.2 | 45.1 | 47.4 | 37.5% | 1.16 |
| ECF NBHD - CND Series | 36.7 | 35.2 | 42.6 | 15.3% | 1.05 |

For the 2024 Sales Ratio Study, all three of these calculations (Median, COD, & PRD) were conducted and reviewed. The table displays the median sales ratio, along with confidence intervals of the assessment level, COD, and PRD.

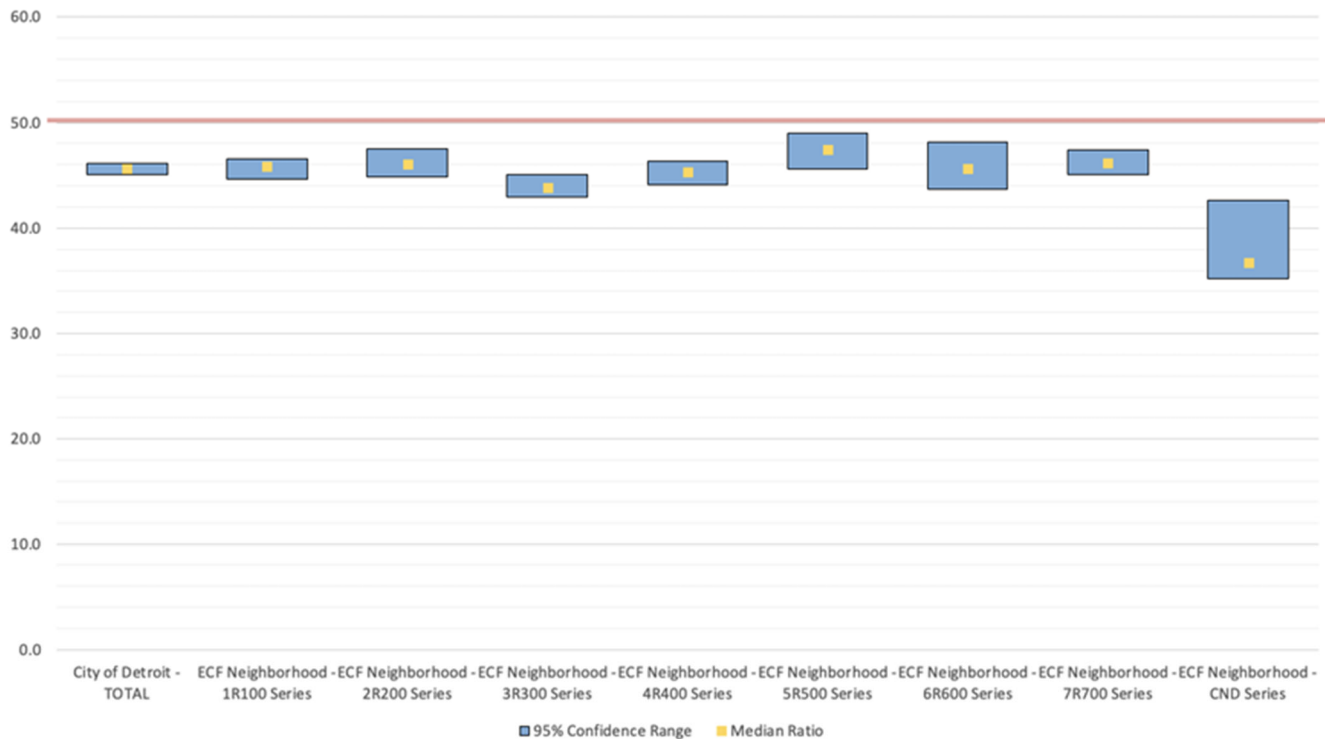
Key Findings Considering IAAO And Industry Standards:

- Although laws specific to the jurisdiction do not require the Median, COD & PRD statistics to be considered; these calculations can give further insight into the overall performance of the assessment

process. Local laws always take precedence over industry standards and norms when it comes to measuring assessment performance.

CHART 12. Median Summary with Confidence Interval Range below demonstrates the median assessment ratio along with the confidence interval range and how they compare to the 50.0 target:

CHART 12. Median Summary with Confidence Interval Range



The results are displayed for the City of Detroit and ECF Neighborhood Series Groups. The “YELLOW” point indicates the median ratio, the “BLUE” bar depicts the confidence range, and the “RED” line represents the target ratio.

Key Findings Considering IAAO And Industry Standards:

- As evident in **TABLE 4 and CHART 12**, the median sales-to-assessment ratio for the City of Detroit is 45.7. In fact, the median ratio for all the stratified groups is below 50.0, suggesting values are under assessed. Furthermore, the indicated confidence interval for the city overall ranges between 45.1 and 46.1. This means that with 95% confidence the true median ratio is between 45.1 and 46.1. Again, further suggesting that with 95% confidence the true median for the population falls below 50.0.
 - IAAO standards allow for a median level of assessment to be +/-10% of the target level, which would be 45.0 to 55.0. The median and the confidence intervals for the City of Detroit all fall within this allowable standard range.

Similar conclusions can be drawn if the data of the ECF Neighborhood Series groups is broken down further. All groups indicate a median ratio that is below 50.0 with confidence intervals also 50.0.

CHART 13 through CHART 20 further stratify (group) the ECF Neighborhood Series group data into individual ECF Neighborhood Series groups. Individual statistical results for each ECF Neighborhood can be found in the Appendix. **Note:** The individual ECF Neighborhood Series group Charts and statistical results are not included in the LPD Summary Report but can be reviewed by obtaining the IAAO City of Detroit Sales Verification Analysis & 2024 Sales Ratio Study Report.

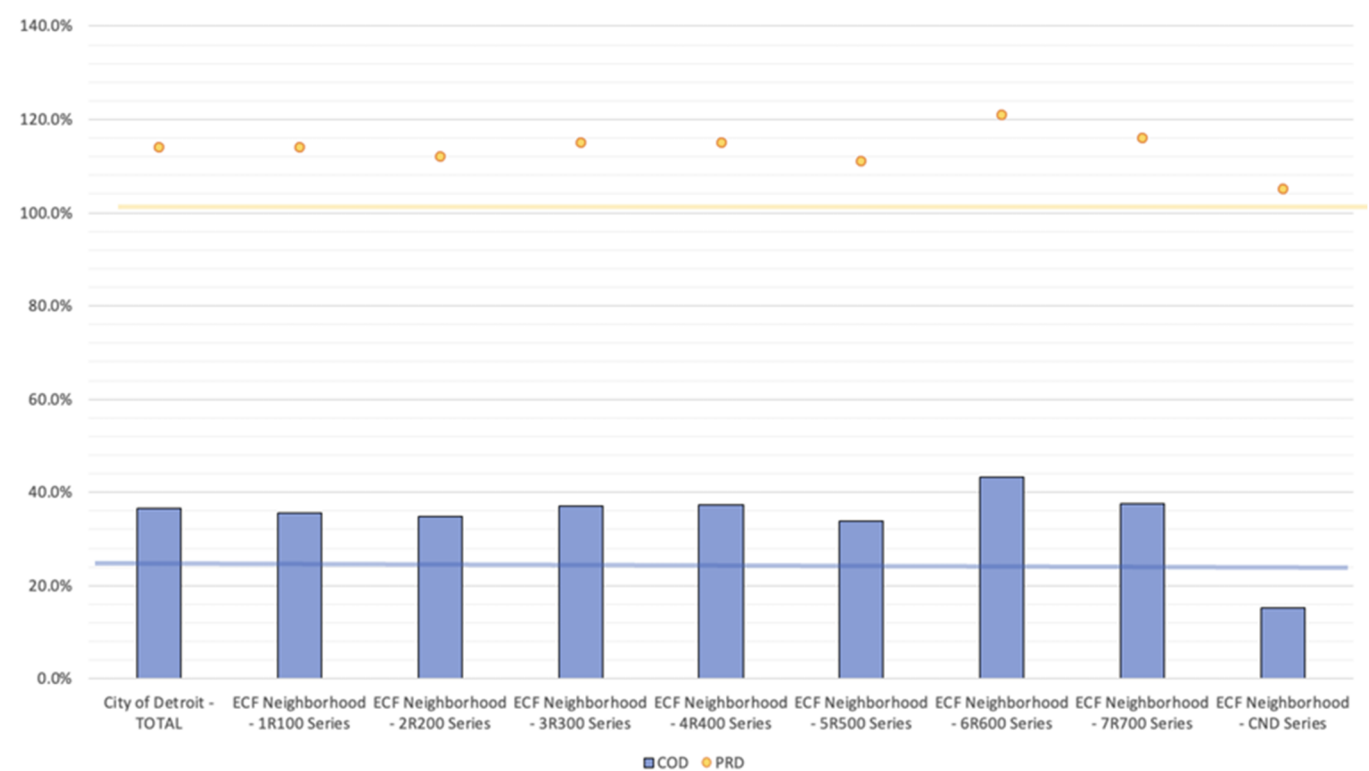
There were some individual ECF Neighborhood groups that were not represented as there were no sales within a given time frame. Additionally, some groups did not have a representative sample (only one to five sales), and their results should be considered inconclusive due to being underrepresented in the study. It is expected to see more variation with additional stratification taking place; however, stratification into the individual ECF Neighborhood groups, overall, indicated mean ratios and confidence ranges encompassing the 50.0 target ratio. Nonetheless, there are some individual ECF Neighborhood groups that do not overlap the 50.0 target and should be investigated further.

Key Findings Considering IAAO And Industry Standards:

- For future internal analysis and sales ratio study purposes, the jurisdiction should review and consider redrawing ECF boundaries and/or consolidating similar problems into larger market areas if a lack of sales with certain ECFs is a reoccurring problem. Alternatively, staff may consider grouping existing similar ECFs together for the purpose of a similar statistical analysis.

CHART 21. COD and PRD Series Summary below depicts the COD and PRD (horizontal and vertical equity) metrics for the City of Detroit and ECF Neighborhood Series Groups:

CHART 21. COD and PRD Series Summary



The “BLUE” bars illustrate the COD while the “BLUE” line illustrates the IAAO standard as to where an acceptable COD should fall, which is between 5.0% and 20.0% Meanwhile, the “YELLOW” dots represent the PRD, while the “YELLOW” line illustrates the desired result for the PRD. Per IAAO standards, the ideal PRD is 1.00, which an acceptable range being between 0.98 and 1.03.

Key Findings Considering IAAO And Industry Standards:

- As evident in reviewing the **additional statistics in TABLE 1, TABLE 4, and CHART 21**, the City is not meeting industry performance standards. The COD of 36.6% and the PRD of 1.14 both indicate significant spread in valuation estimates versus sale price and potentially regressive estimates of value on lower value properties.

- The overall COD for the City of Detroit is 36.6% indicating that there is a significant amount of dispersion among the data. Per IAAO's Standard on Ratio Studies (Approved April 2013), the expected COD for the city should be at, or ideally, below 20.0%.
 - The only Neighborhood Series Group below the 20.0% threshold is the CND Series. This set of data indicates a COD of 15.3% for this particular group. Demonstrating that there is an acceptable to lower value properties.
- The overall PRD for the City of Detroit is 1.14. This places the City's performance 14 basis points (percent) above the IAAO Standard on Ratio Studies (Approved April 2013) desired rate of 1.00 and is well above the acceptable industry upper limit of 1.03. This suggests that the City's assessments are regressive in nature, meaning that higher value properties are valued relatively lower as compared to the values assigned to lower value properties.

CHART 22 through CHART 28 further stratifies (groups) the ECF Neighborhood Series group data into individual ECF Neighborhood Series groups. Specific statistical results can be found in the Appendix. **Note:** The individual ECF Neighborhood Series group Charts and statistical results are not included in the LPD Summary Report but can be reviewed by obtaining the IAAO City of Detroit Sales Verification Analysis & 2024 Sales Ratio Study Report.

There were some individual ECF Neighborhood Series groups that were not represented as there were no sales within a given time frame. Additionally, some groups did not have a representative sample (only one to five sales), and their results should be considered inconclusive due to being underrepresented in the study.

Key Findings Considering IAAO And Industry Standards:

- For future internal analysis and sales ratio study purposes, the jurisdiction should review and consider redrawing ECF boundaries and/or consolidating similar problems into larger market areas if a lack of sales with certain ECFs is a reoccurring problem. Alternatively, staff may consider grouping existing similar ECFs together for the purpose of a similar statistical analysis.

CHART 22 through CHART 28 indicate that the CODs in the majority of the individual ECF Neighborhood Series groups are rather high and are above the acceptable standard. Only 34 out of 209 groups have CODs below 20.0%. Of those 34 groups, many have such few sales that they are not representative of the population and their results should therefore be considered inconclusive. After further breakdown of the CND series, all of the ECF Neighborhoods with adequate representation indicate acceptable CODs below 20.0%.

The majority of the individual Neighborhood groups reviewed indicated PRD's well above what the industry considers acceptable. Only 30 of the 209 groups had PRDs with the acceptable range of 0.98 and 1.03. Which further suggests that regressivity exists in many of the City's ECFs meaning that higher value properties are valued relatively lower as compared to the values assigned to lower value properties.

Step 7 – Evaluation of the Ratio Study Results

The key findings of the statistical analysis are as follows:

Key Findings Considering Michigan State Law:

- The Office of the Assessor is compliant with Michigan State Law having an overall mean (average) assessment level equal to 50.1, with a 95% confidence level ranging between 49.7 and 50.5.
 - The indicated mean is +0.1 higher than the State's established target level, however the confidence interval range of the analysis falls between 49.7 and 50.5. This indicates one can reliably assume, with 95% confidence, that the true mean (average) ratio falls between 49.7 and 50.5. With the confidence interval in mind, PCSIAAO finds that the City of Detroit has

met its legal and statutory obligation to assess residential properties at the required 50.0 of True Cash Value.

- When conducting future analysis and sales ratio studies, the jurisdiction should review and consider redrawing ECF boundaries while possibly consolidating similar properties into larger market areas if there continues to be a lack of sales within certain ECFs. The Office of the Assessor may consider grouping existing similar ECFs together for the purpose of a similar statistical analysis.

Key Findings Considering IAAO and Industry Standards:

- The Office of the Assessor does meet IAAO industry standards when considering the median assessment level, which was 45.7, with a 95% confidence level ranging between 45.1 and 46.1.
 - IAAO standards allow for a median assessment level to be +/-10% of the target level, which would be 45.0 to 55.0. The median and the confidence intervals all fall within this allowable standard range.
- The Officer of the Assessor does not meet the IAAO industry standards when considering uniformity measures, such as the Coefficient of Dispersion (COD) and the Price-Related Differential (PRD).
 - The overall COD was 36.6%, while the industry standard for the jurisdiction should fall between 5.0% and 20.0%.
 - The overall PRD was calculated at 1.14, while the acceptable range per industry standards is between 0.98 and 1.03.
- The jurisdiction has no obligation to achieve industry standards. The jurisdiction only has an obligation to comply with Michigan State Law. Thus, the statistical analysis considering IAAO and industry standards should carry no weight in determining the jurisdiction's compliance with applicable laws.
- Although assessors in the State of Michigan are not required to test for the Coefficient of Dispersion (COD) or the Price-Related Differential (PRD), nor are they required to have results within any established parameters, PCSIAAO recommends the Office of the Assessor incorporate these statistical measures in their business practices and adopt industry parameters consistent for their jurisdiction.
- Industry standards for the COD and PRD should be considered by the jurisdiction in developing appraisal models, neighborhood assignment, assessing property values, future ratio performance studies, and improving overall uniformity with the jurisdiction as well as the various market segments.
- When conducting future analysis and sales ratio studies, the jurisdiction should review and consider redrawing ECF boundaries while possibly consolidating similar properties into larger market areas if there continues to be a lack of sales within certain ECFs. The Office of the Assessor may consider grouping existing similar ECFs together for the purpose of a similar statistical analysis.

Sales Verification Analysis Key Findings:

- While not directly controlled by the Office of the Assessor, the sales verification and validation processes in the City, County, and State should include a review and analysis of all market transactions, regardless of the type of deed utilized in the property transfer. As previously discussed in the PCSIAAO Report, a revision of this practice will require cooperation and concessions made by multiple levels of government; however, finding a solution that allows the Office of the Assessor the ability to fully review and verify the terms of sale for all property transfers throughout its jurisdiction is the best way to serve

the entire community of Detroit. Routinely removing a significant portion of the sales transaction file creates a scenario where estimates of market value could be unduly influenced upwards. ⁽⁴⁾⁽⁷⁾⁽⁸⁾⁽⁹⁾

Please contact LPD for any questions and further assistance.

⁸ International Association of Assessing Officers [IAAO]. Standard on Ratio Studies (Approved April 2013). IAAO, Kansas City, MO.

⁹ City of Detroit Office of the Chief Financial Officer – Office of the Assessor, “Economic Condition Factor (ECF),” Office of the Chief Financial Officer, [May 29, 2025], [<https://detroitmi.gov/departments/office-chief-financial-officer/ocfo-divisions/office-assessor/economic-condition-factor-ecf>].

Supplemental Analysis

True Cash Value Determination

Michigan Law requires property to be assessed at 50% of its true cash value under Section 3 of Article 9 of the state constitution of 1963. True cash value means the usual selling price at the time of the sales transaction that could be obtained for the property at a private sale (i.e. open market) and not an auction sale or at a forced sale (aka arm's length sales transaction). Further, true cash value should not be determined by only the purchase price of the property (i.e., total consideration agreed upon in an arm's length transaction), but the property should be assessed using the same valuation method used to value all other property of that same classification in the assessing jurisdiction (i.e. market value).

Arm's-Length Transactions Determination

The State Tax Commission provides the following guidelines for determining if a sale is an arm's-length transaction:

1. A determination as to whether the type of sale being reviewed is a measurable portion of the market.
2. A determination that the sale property was properly exposed to the market. For example, by listing with a real estate company.
3. A physical inspection of the property to make a determination that the assessment reflects the condition of the property at the time of sale unless the condition can be verified by other means.
4. Receipt of a properly completed real property statement to determine the terms and conditions of the sale unless adequate alternative statistical procedures are utilized to ensure the sales are an adequate part of the market.
5. A determination that the parties to the transaction were not related and each was acting in their own best interest.⁽¹⁰⁾

¹⁰ STC Bulletin No. 6, August 15, 2007, on Foreclosure Guidelines.