2023
JEFFERSON COUNTY PROPERTY ASSESSMENT STUDY

EastWest
ECONOMETRICS

September 15, 2023

Ms. Natalie Castle
Director of Research
Colorado Legislative Council
Room 029, State Capitol Building
Denver, Colorado 80203

RE: Final Report for the 2023 Colorado Property Assessment Study

Dear Ms. Castle:

East West Econometrics - Audit Division is pleased to submit the Final Reports for the 2023 Colorado Property Assessment Study.

These reports are the result of two analyses: A procedural audit and a statistical audit.

The procedural audit examines all classes of locally assessed property. It specifically looks at how the assessor develops economic areas, confirms and qualifies sales, develops time adjustments and performs periodic physical property inspections. The audit reviews the procedures for determining subdivision absorption and subdivision discounting. Valuation methodology is examined for residential properties and commercial properties. Procedures are reviewed for producing mines, oil and gas leaseholds and lands producing, producing coal mines, producing earth and stone products, severed mineral interests, and non-producing patented mining claims.

Statistical audits are performed on vacant land, residential properties, commercial/industrial properties and agricultural land. A statistical analysis is performed for personal property compliance on the eleven largest counties: Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld. The remaining counties receive a personal property procedural study.

East West Econometrics – Audit Division appreciates the opportunity to be of service to the State of Colorado. Please contact us with any questions or concerns.

Harry J. Fuller
Project Manager
East West Econometrics – Audit Division

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INTRODUCTION

The State Board of Equalization (SBOE) reviews assessments for conformance to the Constitution. The SBOE will order revaluations for counties whose valuations do not reflect the proper valuation period level of value.

The statutory basis for the audit is found in C.R.S. 39-1-104 (16)(a)(b) and (c).

The legislative council sets forth two criteria that are the focus of the audit group:

To determine whether each county assessor is applying correctly the constitutional and statutory provisions, compliance requirements of the State Board of Equalization, and the manuals published by the State Property Tax Administrator to arrive at the actual value of each class of property.

To determine if each assessor is applying correctly the provisions of law to the actual values when arriving at valuations for assessment of all locally valued properties subject to the property tax.

The property assessment audit conducts a two-part analysis: A procedural analysis and a statistical analysis.

The procedural analysis includes all classes of property and specifically looks at how the assessor develops economic areas, confirms and qualifies sales, and develops time adjustments. The audit also examines the procedures for adequately discovering, classifying and valuing agricultural outbuildings, discovering subdivision build-out and subdivision discounting procedures. Valuation methodology for vacant land, improved residential properties and commercial properties is examined. Procedures for producing mines, oil and gas leaseholds and lands producing, producing coal mines, producing earth and stone products, severed mineral interests and non-producing patented mining claims are also reviewed.

Statistical analysis is performed on vacant land, residential properties, commercial industrial properties, agricultural land, and personal property. The statistical study results are compared with State Board of Equalization compliance requirements and the manuals published by the State Property Tax Administrator.

East West Econometrics Audit has completed the Property Assessment Study for 2023 and is pleased to report its findings for Jefferson County in the following report.

REGIONAL/HISTORICAL SKETCH OF JEFFERSON COUNTY

Regional Information

Jefferson County is located in the Front Range region of Colorado. The Colorado Front Range is a colloquial geographic term for the populated areas of the State that are just east of the foothills of the Front Range. It includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Pueblo, and Weld counties.

Historical Information

Jefferson County has approximately 764.2 square miles and an estimated population of approximately 582,881 people with 699.5 people per square mile, according to the U.S. Census Bureau's 2020 estimated census data. This represents a 9.0 percent change from April 1, 2010 to July 1, 2019.

Jefferson County is one of the seventeen original territorial counties. On August 25, 1855, the Kansas Territorial Legislature created Arapahoe County to govern the entire western portion of the territory. The county was named for the Arapaho Nation of Native Americans that lived in the region.

In July 1858, gold was discovered along the South Platte River in Arapahoe County (in present day Englewood). This discovery precipitated the Pike's Peak Gold Rush. Many residents of the mining region felt disconnected from the remote territorial governments of Kansas and Nebraska, so they voted to form their own Territory of Jefferson on October 24, 1959. The following month, the Jefferson Territorial Legislature organized 12 counties for the new territory, including Jefferson County. Jefferson County was named for the namesake of the Jefferson Territory, Thomas Jefferson, the principal author of the Declaration of Independence and the nation's

third president. Golden City served as the county seat of Jefferson County. Robert Williamson Steele, Governor of the Provisional Government of the Territory of Jefferson from 1859 to 1861, built his home in the county at Mount Vernon and later at Apex.

The Jefferson Territory never received federal sanction, but during his last week in office, President James Buchanan signed an act which organized the Territory of Colorado on February 28, 1861. That November 1, the new Colorado General Assembly organized the 17 original counties of Colorado, including a new Jefferson County. In 1908, the southern tip of Jefferson County was transferred to Park County, reducing Jefferson County to its present length of 54 miles. Several annexations by the City & County of Denver and the 2001 consolidation of the City & County of Broomfield removed eastern portions of the county.

A major employer in Jefferson County is the large Coors Brewing Company in Golden. Also, the state-supported Colorado School of Mines is located in Jefferson County, offering programs in mining and engineering. The county seat is Golden and the most populous city is Lakewood.
(www.wikipedia.org)

RATIO ANALYSIS

Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 2021 through June 30th, 2022. Property classes with less than thirty sales had the sales period extended in six month increments up to an additional forty-two months. If this extended sales period did not produce the minimum thirty qualified sales, the Audit performed supplemental appraisals to reach the minimum.

Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either "Q" or "C." The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were "lost" because of trimming.

All sixty-four counties were examined for compliance on the economic area level. Where there were sufficient sales data, the neighborhood and subdivision levels were tested for compliance. Although counties are determined to be in or out of compliance at the class level, non-compliant economic areas, neighborhoods and subdivisions (where applicable) were discussed with the Assessor.

Data on the individual economic areas, neighborhoods and subdivisions are found in the STATISTICAL APPENDIX.

Conclusions

For this final analysis report, the minimum acceptable statistical standards allowed by the State Board of Equalization are:

ALLOWABLE STANDARDS RATIO GRID		
Property Class	**Unweighted Median Ratio**	**Coefficient of Dispersion**
Commercial/Industrial	Between .95-1.05	Less than 20.99
Residential Condominium	Between .95-1.05	Less than 15.99
Residential	Between .95-1.05	Less than 15.99
Vacant Land	Between .95-1.05	Less than 20.99

The results for Jefferson County are:

Jefferson County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	369	0.987	1.027	8.4	Compliant
Residential	24,578	0.972	1.013	8.7	Compliant
Vacant Land	435	0.986	1.010	10.5	Compliant

After applying the above described methodologies, it is concluded from the sales ratios that Jefferson County is in compliance with SBOE, DPT, and Colorado State Statute valuation guidelines.

Recommendations

None

TIME TRENDING VERIFICATION

Methodology

While we recommend that counties use the inverted ratio regression analysis method to account for market (time) trending, some counties have used other IAAO-approved methods, such as the weighted monthly median approach. We are not auditing the methods used, but rather the results of the methods used. Given this range of methodologies used to account for market trending, we concluded that the best validation method was to examine the sale ratios for each class across the appropriate sale period. To be specific, if a county has considered and adjusted correctly for market trending, then the sale ratios should remain stable (i.e. flat) across the sale period. If a residual market trend is detected, then the county may or may not have addressed market trending adequately, and a further examination is warranted. This validation method also considers the number of sales and the length of the sale period. Counties with few sales across the sale period were carefully examined to determine if the statistical results were valid.

Conclusions

After verification and analysis, it has been determined that Jefferson County has complied with the statutory requirements to analyze the effects of time on value in their county. Jefferson County has also satisfactorily applied the results of their time trending analysis to arrive at the time adjusted sales price (TASP).

Recommendations

None

Methodology

Jefferson County was tested for the equal treatment of sold and unsold properties to ensure that "sales chasing" has not occurred. The auditors employed a multi-step process to determine if sold and unsold properties were valued in a consistent manner.

We test the hypothesis that the assessor has valued unsold properties consistent with what is observed with the sold properties based on several units of comparison and tests. The units of comparison include the actual value per square foot and the change in value from the previous base year period to the current base year. The first test compares the actual value per square foot between sold and unsold properties by class. The median and mean value per square foot is compared and tested for any significant difference. This is tested using non-parametric methods, such as the Mann-Whitney test for differences in the distributions or medians between sold and unsold groups. It is also examined graphically and from an appraisal perspective. Data can be stratified based on location and subclass. The second test compares the difference in the median change in value from the previous base year to the current base year between sold and unsold properties by class. The same combination of non-parametric and appraisal testing is used as with the first test. A third test employing a valuation model testing a sold/unsold binary variable while controlling for property attributes such as location, size, age and other attributes. The model determines if the sold/unsold variable is statistically and empirically significant. If all three tests indicate a significant difference between sold and unsold properties for a given class, the Auditor may meet with the county to determine if sale chasing is actually occurring,

or if there are other explanations for the observed difference.

If the unsold properties have a higher median value per square foot than the sold properties, or if the median change in value is greater for the unsold properties than the sold properties, the analysis is stopped and the county is concluded to be in compliance with sold and unsold guidelines. All sold and unsold properties in a given class are first tested, although properties with extreme unit values or percent changes can be trimmed to stabilize the analysis. The median is the primary comparison metric, although the mean can also be used as a comparison metric if the distribution supports that type of measure of central tendency.

The first test (unit value method) is applied to both residential and commercial/industrial sold and unsold properties. The second test is applied to sold and unsold vacant land properties. The second test (change in value method) is also applied to residential or commercial sold and unsold properties if the first test results in a significant difference observed and/or tested between sold and unsold properties. The third test (valuation modeling) is used in instances where the results from the first two tests indicate a significant difference between sold and unsold properties. It can also be used when the number of sold and unsold properties is so large that the non-parametric testing is indicating a false rejection of the hypothesis that there is no difference between the sold and unsold property values.

These tests were supported by both tabular and graphics presentations, along with written documentation explaining the methodology used.

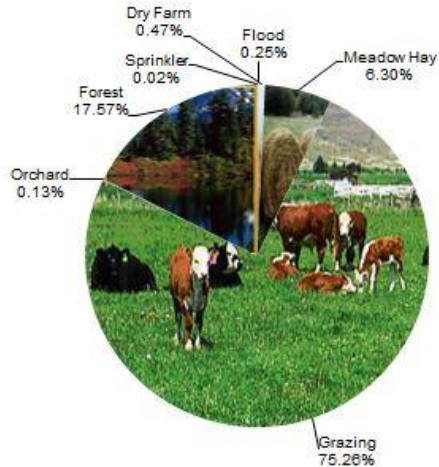| Sold/Unsold Results	
Property Class	**Results**
Commercial/Industrial	Compliant
Residential	Compliant
Vacant Land	Compliant

Conclusions

After applying the above described methodologies, it is concluded that Jefferson County is reasonably treating its sold and unsold properties in the same manner.

Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass	Value By Subclass

Acres By Subclass:
- Dry Farm 0.47%
- Flood 0.25%
- Sprinkler 0.02%
- Forest 17.57%
- Meadow Hay 6.30%
- Orchard 0.13%
- Grazing 75.26%

Value By Subclass (bar chart): Sprinkler, Flood, Dry Farm, Meadow Hay, Grazing, Orchard, Forest
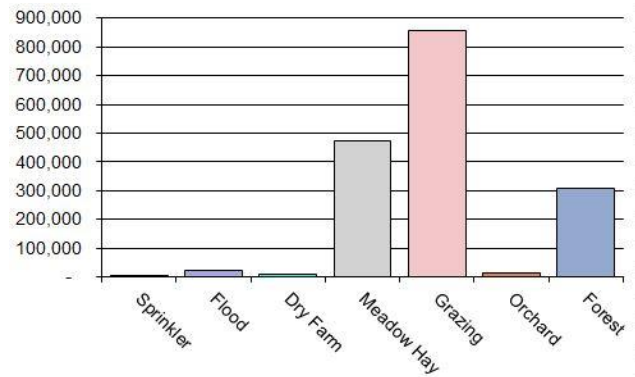
Agricultural Land

County records were reviewed to determine major land categories such as irrigated farm, dry farm, meadow hay, grazing and other lands. In addition, county records were reviewed in order to determine if: Aerial photographs are available and are being used; soil conservation guidelines have been used to classify lands based on productivity; crop rotations have been documented; typical commodities and yields have been determined; orchard lands have been properly classified and valued; expenses reflect a ten year average and are typical landlord expenses; grazing lands have been properly classified and valued; the number of acres in each class and subclass have been determined; the capitalization rate was properly applied. Also, documentation was required for the valuation methods used and any locally developed yields, carrying capacities, and expenses. Records were also checked to ensure that the commodity prices and expenses, furnished by the Property Tax

Administrator (PTA), were applied properly. (See Assessor Reference Library Volume 3 Chapter 5.)

Conclusions

An analysis of the agricultural land data indicates an acceptable appraisal of this property type. Directives, commodity prices and expenses provided by the PTA were properly applied. County yields compared favorably to those published by Colorado Agricultural Statistics. Expenses used by the county were allowable expenses and were in an acceptable range. Grazing lands carrying capacities were in an acceptable range. The data analyzed resulted in the following ratios:

Jefferson County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4107	Sprinkler	13	154.52	2,047	2,047	1.00
4117	Flood	176	141.37	24,866	24,866	1.00
4127	Dry Farm	326	33.78	10,998	10,998	1.00
4137	Meadow Hay	4,366	108.06	471,715	471,715	1.00
4147	Grazing	52,157	16.42	856,247	856,247	1.00
4157	Orchard	89	176.96	15,749	15,749	1.00
4177	Forest	12,176	25.45	309,871	309,871	1.00
Total/Avg		**69,302**	**24.41**	**1,691,494**	**1,691,494**	**1.00**

Recommendations

None

Agricultural Outbuildings

Methodology

Data was collected and reviewed to determine if the guidelines found in the Assessor's Reference Library (ARL) Volume 3, pages 5.74 through 5.77 were being followed.

Conclusions

Jefferson County has substantially complied with the procedures provided by the Division of Property Taxation for the valuation of agricultural outbuildings.

Recommendations

None

Agricultural Land Under Improvements

Methodology

Data was collected and reviewed to determine if the guidelines found in the Assessor's Reference Library (ARL) Volume 3, pages 5.19 and 5.20 were being followed.

Conclusions

Jefferson County has used the following methods to discover land under a residential improvement on a farm or ranch that is determined to be not integral under 39-1-102, C.R.S.:

- Questionnaires
- Field Inspections
- Phone Interviews
- In-Person Interviews with Owners/Tenants
- Written Correspondence other than Questionnaire
- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Jefferson County has used the following methods to discover the land area under a residential improvement that is determined to be not integral under 39-1-102, C.R.S.:

- Questionnaires
- Field Inspections
- Phone Interviews
- In-Person Interviews with Owners/Tenants
- Written Correspondence other than Questionnaire
- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Jefferson County has substantially complied with the procedures provided by the Division of Property Taxation for the valuation of land under residential improvements that may or may not be integral to an agricultural operation.

Recommendations

None

SALES VERIFICATION

According to Colorado Revised Statutes:

A representative body of sales is required when considering the market approach to appraisal.

(8) In any case in which sales prices of comparable properties within any class or subclass are utilized when considering the market approach to appraisal in the determination of actual value of any taxable property, the following limitations and conditions shall apply:

(a)(I) Use of the market approach shall require a representative body of sales, including sales by a lender or government, sufficient to set a pattern, and appraisals shall reflect due consideration of the degree of comparability of sales, including the extent of similarities and dissimilarities among properties that are compared for assessment purposes. In order to obtain a reasonable sample and to reduce sudden price changes or fluctuations, all sales shall be included in the sample that reasonably reflect a true or typical sales price during the period specified in section 39-1-104 (10.2). Sales of personal property exempt pursuant to the provisions of sections 39-3-102, 39-3-103, and 39-3-119 to 39-3-122 shall not be included in any such sample.

(b) Each such sale included in the sample shall be coded to indicate a typical, negotiated sale, as screened and verified by the assessor. (39-1-103, C.R.S.)

The assessor is required to use sales of real property only in the valuation process.

(8)(f) Such true and typical sales shall include only those sales which have been determined on an individual basis to reflect the selling price of the real property only or which have been adjusted on an individual basis to reflect the selling price of the real property only. (39-1-103, C.R.S.)

Part of the Property Assessment Study is the sales verification analysis. WRA has used the above-cited statutes as a guide in our study of the county's procedures and practices for verifying sales.

EWE reviewed the sales verification procedures in 2023 for Jefferson County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically EWE selected 63 sales listed as unqualified.

All but 2 of the sales selected in the sample gave reasons that were clear and supportable. Two sales had insufficient reason for disqualification.

For residential, commercial, and vacant land sales with considerations over $100,000, the contractor has examined and reported the ratio of qualified sales to total sales by class and performed the following analyses of unqualified sales:

The contractor has examined the manner in which sales have been classified as qualified or unqualified, including a listing of each step in the sales verification process, any adjustment procedures, and the county official responsible for making the final decision on qualification.

When less than 50 percent of sales are qualified in any of the three property classes (residential, commercial, and vacant land), the contractor analyzed the reasons for disqualifying sales in any subclass that constitutes at least 20 percent of the class, either by number of properties or by value, from the prior year. The contractor has

reviewed with the assessor any analysis indicating that sales data are inadequate, fail to reflect typical properties, or have been disqualified for insufficient cause. In addition, the contractor has reviewed the disqualified sales by assigned code. If there appears to be any inconsistency in the coding, the contractor has conducted further analysis to determine if the sales included in that code have been assigned appropriately.

If 50 percent or more of the sales are qualified, the contractor has reviewed a statistically significant sample of unqualified sales, excluding sales that were disqualified for obvious reasons.

Jefferson County did not qualify for in-depth subclass analysis.

Conclusions

Jefferson County appears to be doing an adequate job of verifying their sales.

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

Jefferson County has submitted a written narrative describing the economic areas that make up the county's market areas. Jefferson County has also submitted a map illustrating these areas. Each of these narratives have been read and analyzed for logic and appraisal sensibility. The maps were also compared to the narrative for consistency between the written description and the map.

Conclusions

After review and analysis, it has been determined that Jefferson County has adequately identified homogeneous economic areas comprised of smaller neighborhoods. Each economic area defined is equally subject to a set of economic forces that impact the value of the properties within that geographic area and this has been adequately addressed. Each economic area defined adequately delineates an area that will give "similar values for similar properties in similar areas."

Recommendations

None

NATURAL RESOURCES

Earth and Stone Products

Methodology

Under the guidelines of the Assessor's Reference Library (ARL), Volume 3, Natural Resource Valuation Procedures, the income approach was applied to determine value for production of earth and stone products. The number of tons was multiplied by an economic royalty rate determined by the Division of Property Taxation to determine income. The income was multiplied by a recommended Hoskold factor to determine the actual value. The Hoskold factor is determined by the life of the reserves or the lease. Value is based on two variables: life and tonnage. The operator determines these since there is no other means to obtain production data through any state or private agency.

Conclusions

The County has applied the correct formulas and state guidelines to earth and stone production.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2023 in Jefferson County. The review showed that subdivisions were discounted pursuant to 39-1-103 (14) C.R.S. Discounting procedures were applied to all subdivisions where less than 80 percent of vacant land parcels were sold. An absorption rate was estimated for each discounted subdivision. An appropriate discount rate was developed using the Summation Method, following Division of Property Taxation guidelines.

Conclusions

Jefferson County has implemented proper procedures to adequately estimate absorption periods, discount rates, and lot values for qualifying subdivisions.

Recommendations

None

POSSESSORY INTEREST PROPERTIES

Possessory Interest

Possessory interest property discovery and valuation is described in the Assessor's Reference Library (ARL) Volume 3 section 7 in accordance with the requirements of Chapter 39-1-103 (17)(a) (II) C.R.S. Possessory Interest is defined by the Property Tax Administrator's Publication ARL Volume 3, Chapter 7: A private property interest in government-owned property or the right to the occupancy and use of any benefit in government-owned property that has been granted under lease, permit, license, concession, contract, or other agreement.

Jefferson County has been reviewed for their procedures and adherence to guidelines when assessing and valuing agricultural and commercial possessory interest properties. The county has also been queried as to their confidence that the possessory interest properties have been discovered and placed on the tax rolls.

Conclusions

Jefferson County has implemented a discovery process to place possessory interest properties on the roll. They have also correctly and consistently applied the correct procedures and valuation methods in the valuation of possessory interest properties.

Recommendations

None

PERSONAL PROPERTY AUDIT

Jefferson County was studied for its procedural compliance with the personal property assessment outlined in the Assessor's Reference Library (ARL) Volume 5, and in the State Board of Equalization (SBOE) requirements for the assessment of personal property. The SBOE requires that counties use ARL Volume 5, including current discovery, classification, documentation procedures, current economic lives table, cost factor tables, depreciation table, and level of value adjustment factor table.

The personal property audit standards narrative must be in place and current. A listing of businesses that have been audited by the assessor within the twelve-month period reflected in the plan is given to the auditor. The audited businesses must be in conformity with those described in the plan.

Aggregate ratio will be determined solely from the personal property accounts that have been physically inspected. The minimum assessment sample is one percent or ten schedules, whichever is greater, and the maximum assessment audit sample is 100 schedules.

For the counties having over 100,000 population, WRA selected a sample of all personal property schedules to determine whether the assessor is correctly applying the provisions of law and manuals of the Property Tax Administrator in arriving at the assessment levels of such property. This sample was selected from the personal property schedules audited by the assessor. In no event was the sample selected by the contractor less than 30 schedules. The counties to be included in this study are Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld. All other counties received a procedural study.

Jefferson County is compliant with the guidelines set forth in ARL Volume 5 regarding discovery procedures, using the following methods to discover personal property accounts in the county:

- Public Record Documents
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth

The county uses the Division of Property Taxation (DPT) recommended classification and documentation procedures. The DPT's recommended cost factor tables, depreciation tables and level of value adjustment factor tables are also used.

Jefferson County submitted their personal property written audit plan and was current for the 2023 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Accounts with obvious discrepancies
- New businesses filing for the first time
- Accounts with greater than 10% change
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Same business type or use
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts close to the $52,000 actual value exemption status

- Accounts protested with substantial disagreement

Jefferson County's median ratio is 1.00. This is in compliance with the State Board of Equalization (SBOE) compliance requirements which range from .90 to 1.10 with no COD requirements.

Conclusions

Jefferson County has employed adequate discovery, classification, documentation, valuation, and auditing procedures for their personal property assessment and is in statistical compliance with SBOE requirements.

Recommendations

None

EAST WEST ECONOMETRICS AUDITOR STAFF

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STATISTICAL APPENDIX

STATISTICAL COMPLIANCE REPORT
FOR JEFFERSON COUNTY
2023

I. OVERVIEW

Jefferson County is an urban county located along Colorado's Front Range. The county has a total of 228,809 real property parcels, according to data submitted by the county assessor's office in 2023. The following provides a breakdown of property classes for this county:
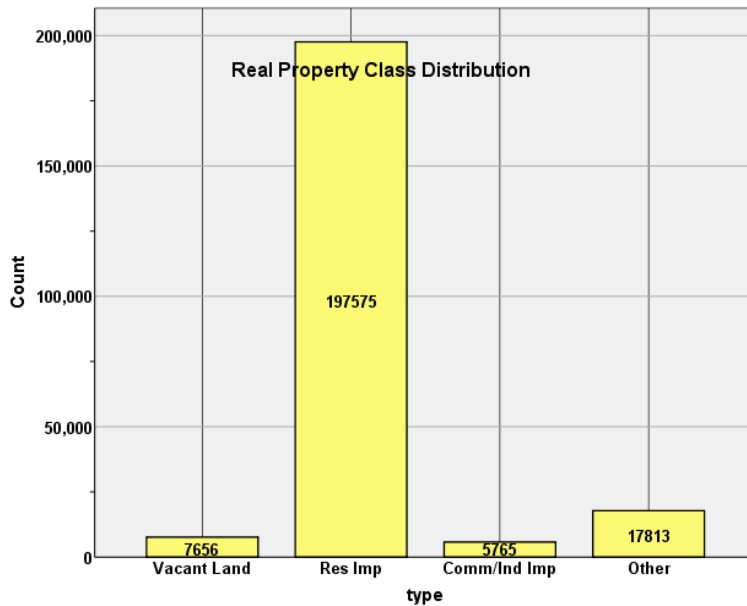
The vacant land class of properties was dominated by residential land. Residential lots (coded 100 and 1112) accounted for 79.1% of all vacant land parcels.

For residential improved properties, single family properties accounted for 91.0% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 2.6% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2023 Colorado Property Assessment Study. Information was provided by the Jefferson Assessor's Office in June 2023. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 24,617 qualified residential sales in the 24-month period ending June 30, 2022. Using IAAO standards, 39 sales were trimmed, resulting in a final count of 24,578 residential sales. The sales ratio analysis results were as follows:

Median	0.972
Price Related Differential	1.013
Coefficient of Dispersion	8.7

We next stratified the sale ratio analysis by economic area and neighborhood. The minimum count for the neighborhood stratification is 50 sales. The following are the results of this stratification analysis:

Economic Area
Case Processing Summary

		Count	Percent
ECONAREA	1.00	3130	14.2%
	2.00	4995	22.6%
	3.00	4690	21.2%
	4.00	4344	19.6%
	5.00	1511	6.8%
	6.00	768	3.5%
	7.00	145	0.7%
	8.00	1121	5.1%
	9.00	1245	5.6%
	11.00	2	0.0%
	12.00	33	0.1%
	22.00	63	0.3%
	23.00	41	0.2%
	26.00	8	0.0%
	33.00	12	0.1%
	44.00	6	0.0%
	58.00	2	0.0%
Overall		22116	100.0%
Excluded		2462	
Total		24578	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.974	1.004	.073
2.00	.971	1.015	.098
3.00	.972	1.010	.084
4.00	.973	1.004	.074
5.00	.981	1.010	.085
6.00	.966	1.012	.104
7.00	.950	1.011	.090
8.00	.957	1.016	.119
9.00	.959	1.018	.118
11.00	1.013	.948	.055
12.00	1.000	1.096	.048

22.00	.989	1.111	.056
23.00	1.010	.990	.074
26.00	.989	.952	.059
33.00	1.015	1.159	.067
44.00	1.040	1.041	.119
58.00	1.037	1.000	.000
Overall	.972	1.013	.088

Economic areas with sufficient sales were in compliance with SBOE sales ratio standards.

B. Neighborhoods with at least 50 sales
Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
101	.984	1.002	.053
1001	.973	1.002	.072
1002	.964	1.005	.076
1003	.977	1.001	.078
1004	.972	1.002	.070
1005	.967	1.003	.074
1006	.964	1.001	.063
1007	.976	1.004	.068
1008	.975	1.009	.086
1009	.974	1.005	.071
1010	.978	1.004	.071
1011	.967	1.002	.072
1012	.997	1.011	.067
1013	.984	1.032	.113
1014	.969	1.002	.062
1015	.979	1.005	.075
1016	.961	1.004	.075
1017	.967	1.004	.086
1905	.977	1.006	.073
1906	.977	1.005	.061
2002	.977	1.014	.097
2301	.959	1.010	.085
2302	.957	1.013	.092
2307	.970	1.020	.108
2311	.987	1.002	.085
2312	.991	1.029	.138
2314	.969	1.004	.087
2319	.966	1.012	.090
2324	.968	1.013	.117
2329	.987	1.011	.099
2337	.975	1.000	.124
2403	.977	1.029	.105
2404	.988	1.027	.115
2405	.956	1.024	.116
2406	.974	1.029	.111
2408	.994	1.018	.108
2410	.971	1.031	.105
2411	.948	1.019	.129
2412	.965	1.025	.108
2417	.991	1.015	.088
2420	.982	1.006	.086
2424	.989	1.017	.094

2923	.992	.998	.080
2927	.978	1.005	.066
2936	.970	1.015	.086
2945	.974	1.026	.103
3001	**.944**	**1.017**	**.148**
3003	**.943**	**1.022**	**.113**
3004	.973	1.019	.130
3005	.982	1.025	.137
3006	.958	1.010	.095
3007	.964	1.009	.091
3008	.977	1.012	.083
3009	.963	1.016	.107
3010	.961	1.007	.101
3011	.971	1.007	.082
3012	.962	1.009	.082
3015	.973	1.009	.080
3016	.978	1.005	.082
3017	.973	1.006	.078
3019	.992	1.021	.090
3021	.974	1.013	.077
3022	.967	1.008	.081
3026	.987	1.012	.078
3028	.966	1.005	.072
3906	.962	1.006	.065
3908	.970	1.001	.071
3910	.965	1.005	.054
3911	.989	1.005	.059
3919	.969	1.004	.060
3924	.979	1.004	.062
3929	.981	1.003	.056
3942	.973	1.004	.060
3944	.999	1.011	.058
4003	.988	1.011	.064
4005	.977	1.002	.068
4006	.983	1.006	.074
4009	.973	1.000	.064
4010	.989	1.006	.086
4011	.980	1.005	.068
4012	.971	1.003	.071
4013	.974	1.009	.072
4015	.972	1.010	.077
4016	.966	1.000	.074
4020	.969	1.001	.067
4021	.969	1.000	.073
4022	.966	1.006	.079
4024	.990	1.000	.064
4025	.979	1.004	.071
4026	.969	1.001	.071
4027	.983	1.003	.046
4029	.970	.997	.059
4030	.966	1.005	.072
4031	.990	1.002	.075
4032	.965	1.002	.081
4034	.971	1.001	.064
4035	.969	1.002	.066
4046	.989	1.018	.135
4904	.973	1.010	.073

4905	.984	1.002	.047
4910	.982	1.002	.044
4912	.971	1.011	.071
4913	.971	.995	.084
4918	**.943**	**1.004**	**.065**
5001	.955	1.018	.131
5006	.992	1.017	.089
5007	.980	1.012	.077
5010	.963	.997	.120
5011	.986	1.006	.082
5901	.983	1.006	.056
6101	.992	1.016	.088
6102	.979	1.012	.087
6103	.967	1.005	.107
6104	.952	1.023	.129
6106	.977	1.021	.116
6107	.963	1.002	.075
7013	**.933**	**1.010**	**.096**
8001	.959	1.035	.138
8003	.957	1.025	.173
8004	.968	1.022	.119
8005	.965	1.020	.106
8009	**.938**	**1.007**	**.100**
8010	.962	1.012	.089
8011	.955	1.018	.112
8016	.966	1.012	.114
8020	.952	1.012	.137
9012	.956	1.024	.124
9024	.951	1.002	.123
9033	.971	1.012	.105
9043	**.934**	**1.011**	**.101**
9074	.972	1.052	.112
9082	.959	1.043	.153
9103	.963	1.039	.155
9114	.960	1.011	.097
9133	.958	1.001	.084
9143	.961	1.023	.090
9152	.962	1.018	.131
9162	**.969**	**.986**	**.176**
Overall	.972	1.011	.089

The neighborhoods highlighted in red were out of the compliance range for either the sales ratio, the COD or both. Most were marginally out of range and would likely be in compliance with trimming, in our opinion.

In terms of overall and economic areas, the above ratio statistics were in compliance with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall residential sales. The following graphs describe further the sales ratio distribution for these properties:

Sales Ratio Distribution

Mean = .98
Std. Dev. = .12
N = 24,578
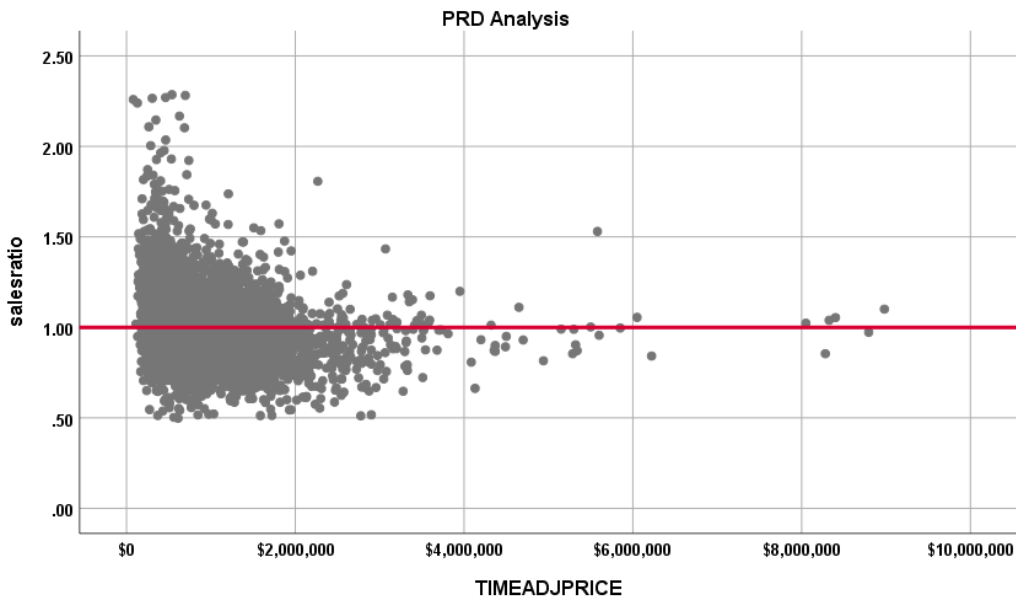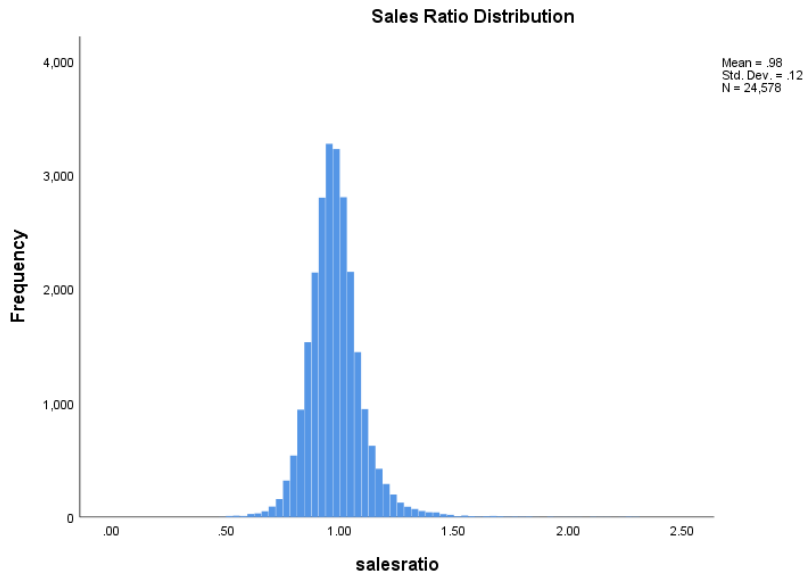
PRD Analysis

NOTE: SALES LIMITED TO LESS THAN $10,000,000.

The above graphs indicate that the distribution of the sale ratios was within state mandated limits.

Subclass 1212 PRD Analysis

We next analyzed residential properties identified as 1212 using the state abstract code system (Jefferson County uses the land code of 1112 for 1212 properties). These include single family residences, town homes and purged manufactured homes. The following indicates the distribution of sales ratios across the sale price spectrum:

1212 SALES
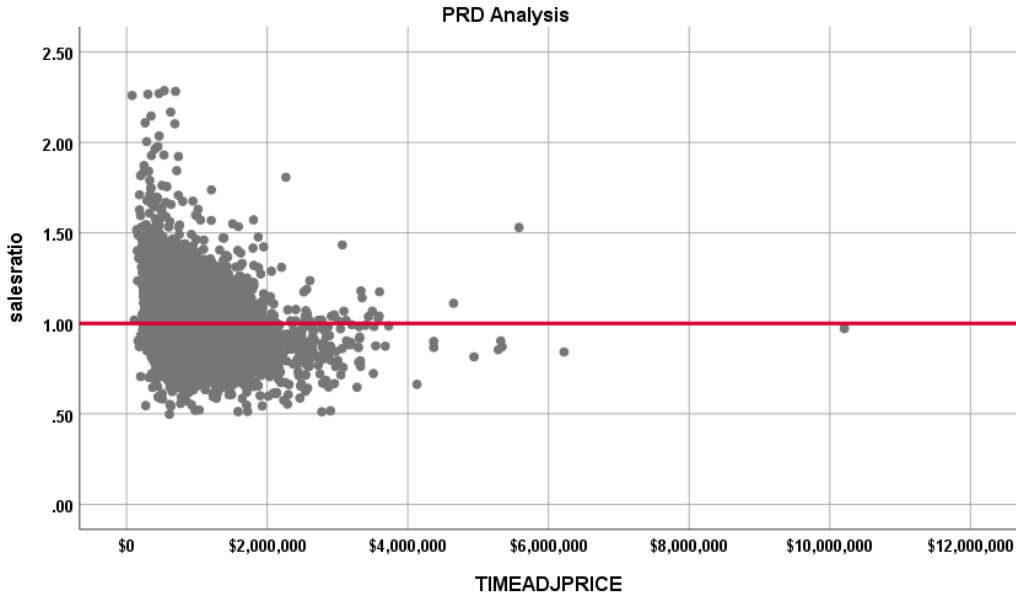
PRD Analysis

The Price-Related Differential (PRD) for 1212 sales is 1.011, which is within IAAO standards for the PRD. We also performed a regression analysis between the sales ratio and the assessor's current value to further test for regressivity or progressivity in the residential sales valuation, as follows:

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.956	.002		493.094	.000
	CURRTOT	.0000000347	.000	.095	13.999	.000

a. Dependent Variable: salesratio

The slope of the line at 0.000000347 indicates that there is virtually no slope in the regression line, which indicates that sales ratios are similar across the entire sale price array. This indicates no regressivity or progressivity in the residential values assigned by the assessor.

Case Processing Summary

		Count	Percent
SPRec	LT $200K	17	0.1%
	$200K to $300K	174	0.8%
	$300K to $400K	1066	4.9%
	$400K to $500K	2276	10.5%
	$500K to $600K	4811	22.2%
	$600K to $700K	4509	20.8%
	$700K to $800K	2983	13.8%
	$800K to $900K	1968	9.1%
	$900K to $1,000K	1130	5.2%
	Over $1,000K	2729	12.6%
Overall		21663	100.0%
Excluded		0	
Total		21663	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
LT $200K	1.401	1.017	.215
$200K to $300K	1.049	1.005	.122
$300K to $400K	.992	1.002	.085
$400K to $500K	.993	1.000	.095
$500K to $600K	.981	1.001	.076
$600K to $700K	.968	1.000	.078
$700K to $800K	.965	1.000	.083
$800K to $900K	.963	1.000	.083
$900K to $1,000K	.966	1.000	.084
Over $1,000K	.938	1.008	.115
Overall	.972	1.011	.088

The above table indicates no regressivity in the sales ratios across sale price categories.

Residential Market Trend Analysis

We next analyzed the residential dataset using the 24-month sale period for any residual market trending and broken down by economic area, as follows:

Coefficients[a]

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1.00	1	(Constant)	.972	.003		303.016	.000
		SalePeriod	.001	.000	.037	2.094	.036
2.00	1	(Constant)	.985	.004		272.201	.000
		SalePeriod	.000	.000	-.010	-.665	.506
3.00	1	(Constant)	.968	.003		300.105	.000
		SalePeriod	.001	.000	.069	4.676	.000
4.00	1	(Constant)	.971	.003		328.636	.000
		SalePeriod	.001	.000	.067	4.447	.000
5.00	1	(Constant)	.943	.006		162.624	.000
		SalePeriod	.003	.000	.220	8.772	.000
6.00	1	(Constant)	.930	.010		94.135	.000
		SalePeriod	.003	.001	.167	4.662	.000
7.00	1	(Constant)	.945	.018		53.670	.000
		SalePeriod	.000	.001	.023	.281	.779
8.00	1	(Constant)	.921	.009		101.215	.000
		SalePeriod	.004	.001	.175	5.912	.000
9.00	1	(Constant)	.934	.009		105.695	.000
		SalePeriod	.004	.001	.165	5.887	.000

a. Dependent Variable: salesratio

There was no residual significant market trending present in the sale ratio data for any of the economic areas; economic areas with statistically significant trends were not significant in terms of magnitude. We concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2023 between each group. The data was analyzed both as a whole and stratified by economic area and neighborhoods (with at least 50 sales), as follows:

Class
Report

VALSF

sold	N	Median	Mean
UNSOLD	188203	$357	$369
SOLD	24572	$380	$406

Economic Area
Report

VALSF

ECONAREA	sold	N	Median	Mean
1.00	0	24280	$346	$362
	1	3130	$362	$379
2.00	0	33630	$410	$419
	1	4995	$424	$438
3.00	0	34531	$374	$390
	1	4690	$382	$399
4.00	0	33831	$334	$350
	1	4344	$359	$377
5.00	0	9678	$355	$375
	1	1511	$367	$380
6.00	0	7239	$438	$461
	1	768	$475	$499
7.00	0	1313	$406	$434
	1	145	$449	$483
8.00	0	8136	$445	$467
	1	1120	$475	$496
9.00	0	9105	$436	$454
	1	1241	$464	$481
12.00	0	362	$230	$289
	1	33	$246	$249
22.00	0	482	$219	$254
	1	63	$260	$289
23.00	0	410	$236	$252
	1	41	$271	$358

Neighborhoods with at least 50 sales
Report

VALSF

NBHD	sold	N	Median	Mean
101	UNSOLD	639	$217	$226
	SOLD	75	$260	$283
1001	UNSOLD	2531	$343	$360
	SOLD	283	$365	$381
1002	UNSOLD	518	$361	$402
	SOLD	56	$354	$385
1003	UNSOLD	3894	$369	$380

	SOLD	509	$381	$392
1004	UNSOLD	1553	$351	$370
	SOLD	178	$372	$387
1005	UNSOLD	954	$310	$322
	SOLD	102	$331	$337
1006	UNSOLD	631	$308	$335
	SOLD	93	$339	$367
1007	UNSOLD	600	$446	$422
	SOLD	91	$481	$458
1008	UNSOLD	1110	$320	$325
	SOLD	138	$339	$343
1009	UNSOLD	1819	$318	$339
	SOLD	214	$339	$370
1010	UNSOLD	476	$357	$369
	SOLD	51	$390	$406
1011	UNSOLD	1067	$335	$343
	SOLD	126	$371	$375
1012	UNSOLD	991	$319	$337
	SOLD	168	$341	$349
1013	UNSOLD	720	$383	$409
	SOLD	50	$409	$413
1014	UNSOLD	376	$331	$349
	SOLD	50	$366	$371
1015	UNSOLD	923	$344	$358
	SOLD	87	$373	$382
1016	UNSOLD	1334	$339	$357
	SOLD	147	$373	$390
1017	UNSOLD	2325	$390	$399
	SOLD	297	$390	$414
1905	UNSOLD	284	$321	$330
	SOLD	67	$334	$346
1906	UNSOLD	378	$328	$337
	SOLD	80	$348	$354
2002	UNSOLD	522	$377	$377
	SOLD	76	$414	$398
2301	UNSOLD	3509	$437	$430
	SOLD	501	$433	$435
2302	UNSOLD	2178	$377	$388
	SOLD	301	$393	$402
2307	UNSOLD	1945	$418	$419
	SOLD	285	$436	$438
2311	UNSOLD	2472	$348	$358
	SOLD	275	$379	$391
2312	UNSOLD	497	$361	$377
	SOLD	62	$413	$428
2314	UNSOLD	1578	$355	$354
	SOLD	222	$378	$392
2319	UNSOLD	1882	$489	$481
	SOLD	271	$502	$499
2324	UNSOLD	485	$485	$490
	SOLD	73	$549	$544
2329	UNSOLD	989	$462	$456
	SOLD	181	$488	$491
2337	UNSOLD	937	$430	$439
	SOLD	156	$470	$468
2403	UNSOLD	1332	$418	$425
	SOLD	170	$451	$464

2404	UNSOLD	1038	$410	$422
	SOLD	100	$450	$457
2405	UNSOLD	2516	$448	$451
	SOLD	331	$482	$484
2406	UNSOLD	1495	$435	$439
	SOLD	182	$454	$456
2408	UNSOLD	407	$390	$417
	SOLD	56	$388	$411
2410	UNSOLD	578	$405	$412
	SOLD	68	$422	$425
2411	UNSOLD	1707	$509	$517
	SOLD	273	$522	$533
2412	UNSOLD	1173	$515	$514
	SOLD	172	$587	$579
2417	UNSOLD	897	$421	$423
	SOLD	93	$485	$499
2420	UNSOLD	662	$468	$447
	SOLD	84	$543	$529
2424	UNSOLD	1392	$399	$407
	SOLD	130	$454	$466
2923	UNSOLD	210	$282	$278
	SOLD	56	$316	$313
2927	UNSOLD	300	$272	$249
	SOLD	224	$270	$279
2936	UNSOLD	292	$362	$356
	SOLD	167	$355	$363
2945	UNSOLD	357	$384	$394
	SOLD	95	$392	$399
3001	UNSOLD	818	$446	$460
	SOLD	147	$474	$465
3003	UNSOLD	906	$416	$422
	SOLD	102	$434	$442
3004	UNSOLD	1000	$411	$422
	SOLD	133	$413	$420
3005	UNSOLD	453	$393	$401
	SOLD	59	$412	$415
3006	UNSOLD	565	$473	$453
	SOLD	61	$478	$468
3007	UNSOLD	1293	$428	$432
	SOLD	165	$451	$451
3008	UNSOLD	515	$383	$383
	SOLD	60	$375	$386
3009	UNSOLD	1161	$407	$413
	SOLD	133	$421	$426
3010	UNSOLD	2037	$441	$447
	SOLD	267	$455	$462
3011	UNSOLD	2487	$367	$386
	SOLD	260	$373	$400
3012	UNSOLD	1099	$431	$421
	SOLD	131	$432	$431
3015	UNSOLD	4696	$416	$407
	SOLD	515	$424	$424
3016	UNSOLD	649	$342	$351
	SOLD	52	$379	$394
3017	UNSOLD	1930	$459	$444
	SOLD	202	$486	$469
3019	UNSOLD	945	$355	$369

	SOLD	112	$368	$395
3021	UNSOLD	1081	$395	$404
	SOLD	113	$409	$415
3022	UNSOLD	959	$319	$332
	SOLD	91	$339	$349
3026	UNSOLD	1661	$381	$390
	SOLD	286	$411	$424
3028	UNSOLD	1300	$364	$380
	SOLD	108	$391	$398
3906	UNSOLD	276	$302	$318
	SOLD	113	$383	$373
3908	UNSOLD	356	$337	$339
	SOLD	147	$314	$332
3910	UNSOLD	420	$385	$360
	SOLD	86	$384	$377
3911	UNSOLD	597	$329	$331
	SOLD	92	$345	$342
3919	UNSOLD	610	$346	$351
	SOLD	141	$355	$362
3924	UNSOLD	529	$253	$258
	SOLD	93	$276	$282
3929	UNSOLD	137	$336	$339
	SOLD	54	$376	$378
3942	UNSOLD	538	$306	$308
	SOLD	98	$322	$320
3944	UNSOLD	204	$298	$305
	SOLD	139	$335	$340
4003	UNSOLD	1013	$331	$353
	SOLD	132	$357	$374
4005	UNSOLD	759	$328	$341
	SOLD	89	$367	$382
4006	UNSOLD	2350	$290	$300
	SOLD	248	$328	$343
4009	UNSOLD	1353	$300	$312
	SOLD	144	$338	$346
4010	UNSOLD	1228	$334	$346
	SOLD	129	$410	$417
4011	UNSOLD	963	$350	$357
	SOLD	161	$372	$376
4012	UNSOLD	314	$399	$411
	SOLD	52	$410	$416
4013	UNSOLD	1218	$328	$338
	SOLD	135	$347	$358
4015	UNSOLD	1344	$327	$336
	SOLD	157	$350	$361
4016	UNSOLD	512	$360	$379
	SOLD	94	$403	$417
4020	UNSOLD	696	$306	$308
	SOLD	70	$340	$345
4021	UNSOLD	1037	$308	$321
	SOLD	135	$333	$353
4022	UNSOLD	1309	$364	$387
	SOLD	145	$371	$401
4024	UNSOLD	723	$312	$326
	SOLD	86	$338	$351
4025	UNSOLD	887	$321	$323
	SOLD	115	$339	$347

4026	UNSOLD	1530	$354	$360
	SOLD	218	$388	$396
4027	UNSOLD	660	$300	$306
	SOLD	60	$340	$348
4029	UNSOLD	872	$328	$334
	SOLD	93	$367	$372
4030	UNSOLD	996	$358	$374
	SOLD	105	$361	$383
4031	UNSOLD	456	$312	$307
	SOLD	73	$332	$335
4032	UNSOLD	2826	$331	$353
	SOLD	381	$349	$374
4034	UNSOLD	758	$348	$356
	SOLD	102	$374	$384
4035	UNSOLD	309	$378	$388
	SOLD	50	$385	$395
4046	UNSOLD	767	$498	$514
	SOLD	78	$565	$586
4904	UNSOLD	164	$361	$368
	SOLD	53	$372	$386
4905	UNSOLD	329	$332	$339
	SOLD	51	$334	$342
4910	UNSOLD	258	$327	$340
	SOLD	51	$343	$353
4912	UNSOLD	299	$341	$341
	SOLD	60	$356	$355
4913	UNSOLD	347	$348	$353
	SOLD	61	$370	$374
4918	UNSOLD	808	$329	$336
	SOLD	167	$341	$348
5001	UNSOLD	775	$385	$398
	SOLD	90	$405	$430
5006	UNSOLD	1834	$365	$372
	SOLD	191	$385	$391
5007	UNSOLD	1167	$340	$346
	SOLD	144	$363	$367
5010	UNSOLD	1325	$426	$466
	SOLD	102	$474	$518
5011	UNSOLD	2622	$313	$323
	SOLD	664	$334	$342
5901	UNSOLD	516	$326	$326
	SOLD	183	$357	$359
6101	UNSOLD	455	$350	$359
	SOLD	52	$401	$409
6102	UNSOLD	616	$342	$349
	SOLD	51	$367	$371
6103	UNSOLD	1375	$438	$449
	SOLD	197	$428	$458
6104	UNSOLD	1486	$542	$544
	SOLD	132	$631	$643
6106	UNSOLD	826	$457	$469
	SOLD	64	$487	$503
6107	UNSOLD	650	$441	$462
	SOLD	65	$493	$513
7013	UNSOLD	805	$404	$431
	SOLD	110	$427	$452
8001	UNSOLD	873	$490	$507

	SOLD	118	$533	$547
8003	UNSOLD	309	$480	$502
	SOLD	50	$527	$555
8004	UNSOLD	575	$466	$478
	SOLD	72	$490	$504
8005	UNSOLD	716	$430	$456
	SOLD	99	$437	$465
8009	UNSOLD	649	$431	$447
	SOLD	127	$460	$468
8010	UNSOLD	429	$427	$439
	SOLD	53	$440	$465
8011	UNSOLD	409	$396	$403
	SOLD	58	$442	$460
8016	UNSOLD	429	$460	$471
	SOLD	58	$488	$488
8020	UNSOLD	543	$467	$500
	SOLD	72	$499	$530
9012	UNSOLD	580	$457	$488
	SOLD	59	$471	$493
9024	UNSOLD	860	$440	$460
	SOLD	124	$466	$490
9033	UNSOLD	1175	$428	$441
	SOLD	128	$466	$479
9043	UNSOLD	1092	$452	$471
	SOLD	186	$480	$495
9074	UNSOLD	389	$443	$458
	SOLD	54	$457	$467
9082	UNSOLD	640	$426	$458
	SOLD	65	$461	$470
9103	UNSOLD	509	$429	$451
	SOLD	75	$487	$518
9114	UNSOLD	612	$432	$440
	SOLD	79	$457	$480
9133	UNSOLD	321	$423	$443
	SOLD	62	$450	$474
9143	UNSOLD	493	$465	$478
	SOLD	87	$483	$500
9152	UNSOLD	818	$448	$459
	SOLD	111	$450	$463
9162	UNSOLD	652	$380	$408
	SOLD	68	$387	$416

Out of 138 residential neighborhoods with at least 50 sales, there were 12 neighborhoods that had differences of 10 percent or more between sold and unsold properties using the value per square foot comparison test and the median change in value comparison test.

The above results indicate that sold and unsold residential properties were valued in a consistent manner.

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 369 qualified commercial/industrial sales in the 24 month period ending June 30, 2022. The sales ratio analysis was analyzed as follows:

Median	0.987
Price Related Differential	1.027
Coefficient of Dispersion	8.4

The above table indicates that the Jefferson County commercial sale ratios were in compliance with the SBOE standards. The following histogram and scatter plot describe the sales ratio distribution further:
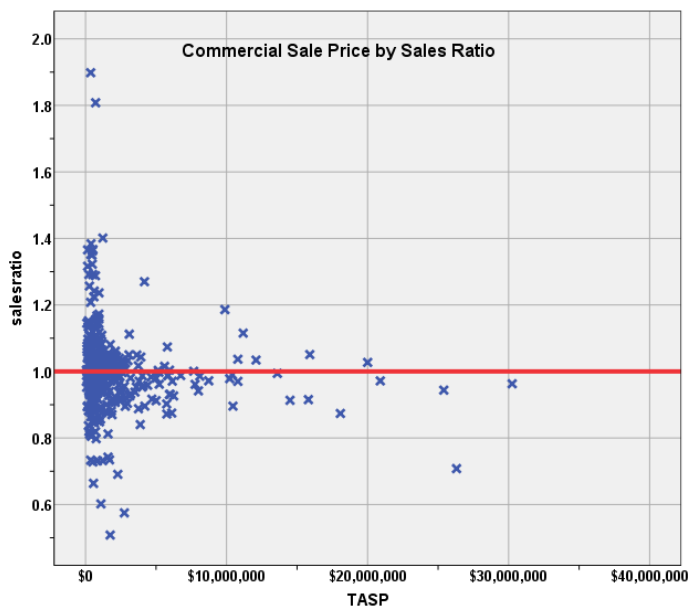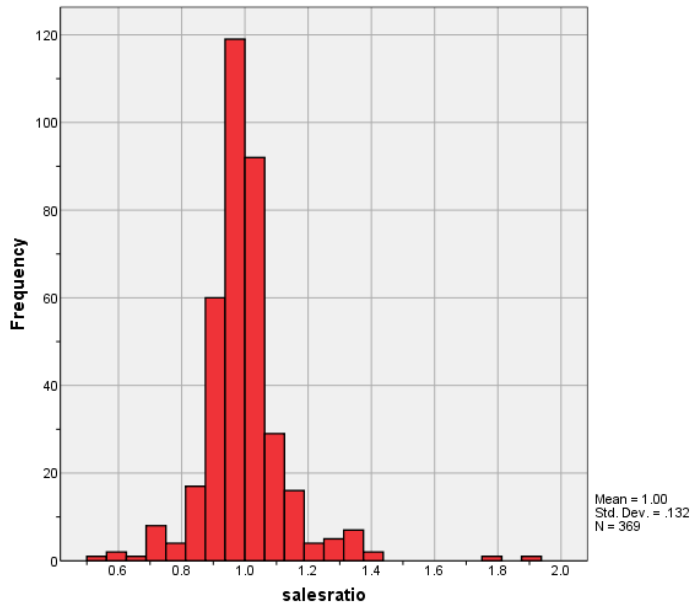
Commercial/Industrial Market Trend Analysis

The commercial/industrial sales were analyzed for residual marketing trending by examining the sale ratios across the 24 month sale period with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.960	.013		76.095	.000
	SalePeriod	.003	.001	.176	3.428	.001

a. Dependent Variable: salesratio
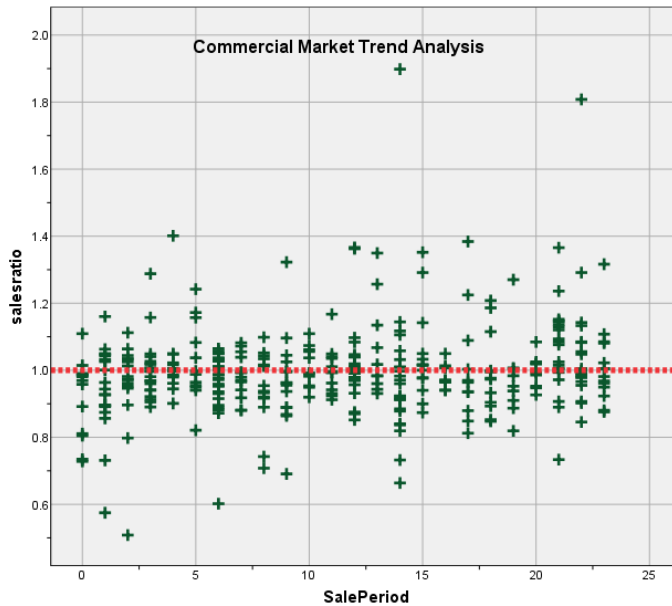
There was no residual market trending present in the commercial sale ratios. We concluded that the assessor has adequately considered market trending adjustments as part of the commercial/industrial valuation.

Sold/Unsold Analysis

We compared the median actual value per square foot for 2023 for sold and unsold commercial properties to determine if they were valued consistently, as follows:

Report

VALSF

sold	N	Median	Mean
UNSOLD	5394	$180	$220
SOLD	367	$209	$227

We checked both the 2023 actual value per square foot and the median/mean change in actual value between taxable years 2020 and 2022 by subclass to determine the differences between sold and unsold commercial properties. The following is the differences based on the second method by subclass for sold and unsold commercial properties:

Report
DIFF

ABSTRIMPMAJOR	sold	N	Median	Mean
2212	UNSOLD	1292	1.13	1.24
	SOLD	67	1.41	1.41
2220	UNSOLD	544	1.05	1.18
	SOLD	74	1.34	1.48
2230	UNSOLD	1166	1.18	1.29
	SOLD	55	1.45	1.52
2235	UNSOLD	752	1.19	1.28
	SOLD	52	1.44	1.69
2245	UNSOLD	483	1.02	1.63
	SOLD	50	1.19	1.31
3215	UNSOLD	108	1.12	1.24
	SOLD	7	1.10	1.28
3230	UNSOLD	780	1.18	1.31
	SOLD	54	1.09	1.29

The differences for subclasses 2212, 2220, 2230, and 2235 were at least partially explained by differences in size, quality and/or age between sold and unsold properties in each class. Overall, the assessor has valued sold and unsold commercial properties consistently.

V. VACANT LAND SALE RESULTS

There were 437 qualified commercial/industrial sales for the 24 month period ending June 30, 2022. Using IAAO standards, we trimmed two sales, resulting in a total of 435 sales. The sales ratio analysis results were as follows:

Median	0.986
Price Related Differential	1.010
Coefficient of Dispersion	10.5

The above ratio statistics were in compliance overall with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall vacant land sales. The following graphs describe further the sales ratio distribution for all of these properties:

Vacant Land Sale Price by Sales Ratio
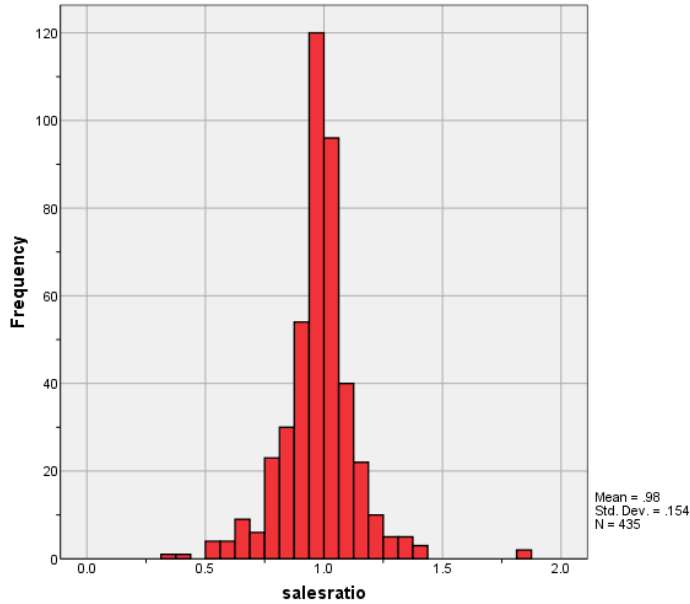
The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits. No sales were trimmed.

Vacant Land Market Trend Analysis

We next analyzed the vacant land dataset using the 24-month sale period, with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.968	.015		64.243	.000
	SalePeriod	.001	.001	.040	.834	.405

a. Dependent Variable: salesratio

Vacant Land Sales Market Trend Analysis
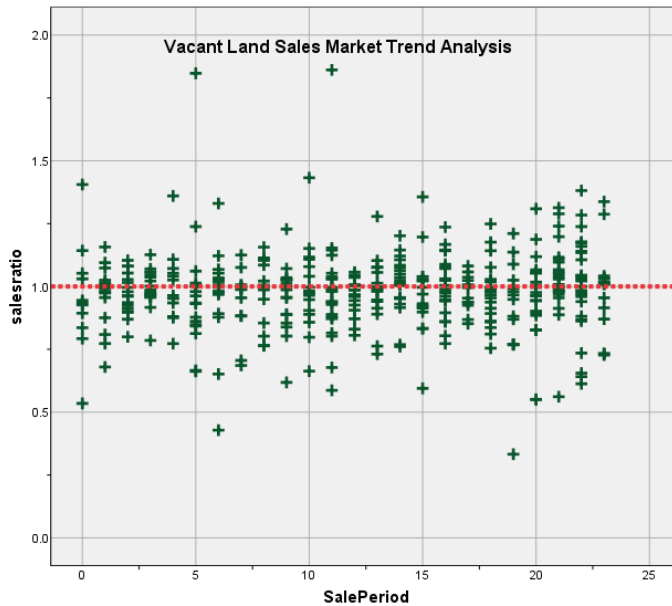
The above analysis indicated that there was no significant statistical trend. We therefore concluded that the assessor has adequately dealt with market trending for vacant land properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in actual value for taxable year 2020 and taxable year 2022 between each group, as follows:

Report

DIFF

sold	N	Median	Mean
UNSOLD	6240	1.42	1.55
SOLD	398	1.45	1.58

We next performed the same comparison analysis by subdivision with at least 3 sales. This indicated that when broken down by subdivision, there was no consistent pattern of sold vacant land parcels being adjusted at a greater rate than unsold properties. The following table was developed using subdivisions with at least 2 sales:

Report

DIFF

SUBDIVNO	sold	N	Median	Mean
177000	UNSOLD	31	1.19	1.40
	SOLD	6	1.04	1.05
229200	UNSOLD	28	1.79	1.95
	SOLD	3	1.19	1.14
285605	UNSOLD	22	1.22	1.25
	SOLD	6	1.66	1.52
361635	UNSOLD	2	1.38	1.38
	SOLD	5	1.22	1.19
486500	UNSOLD	5	3.21	2.81
	SOLD	13	1.39	1.45
505400	UNSOLD	15	1.58	1.51
	SOLD	3	2.10	2.52
535400	UNSOLD	16	1.17	1.14
	SOLD	4	1.16	1.12
577800	UNSOLD	2	1.27	1.27
	SOLD	4	2.64	2.65
596670	UNSOLD	1	1.26	1.26
	SOLD	10	1.26	1.17
615127	UNSOLD	2	1.58	1.58
	SOLD	3	1.33	1.51
791200	UNSOLD	26	1.37	1.46
	SOLD	3	1.42	1.58
833200	UNSOLD	5	1.32	1.57
	SOLD	3	1.16	1.13

V. CONCLUSIONS

Based on this 2023 audit statistical analysis, residential, commercial/industrial and vacant land properties were found to be in compliance with state guidelines.

STATISTICAL ABSTRACT

Residential

Ratio Statistics for CURRTOT / TASP

| ECONAREA | Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
.	.977	.973	.982	.974	.971	.978	95.4%	.967	.962	.973	1.010	.083	11.4%
1.00	.978	.975	.981	.974	.970	.977	95.3%	.974	.971	.978	1.004	.073	9.8%
2.00	.982	.979	.986	.971	.968	.975	95.2%	.968	.964	.972	1.015	.098	13.7%
3.00	.981	.977	.984	.972	.968	.976	95.1%	.971	.967	.974	1.010	.084	11.9%
4.00	.982	.980	.985	.973	.971	.976	95.3%	.979	.975	.982	1.004	.074	10.2%
5.00	.988	.982	.994	.981	.974	.988	95.5%	.978	.971	.985	1.010	.085	11.4%
6.00	.969	.958	.979	.966	.953	.970	95.3%	.957	.946	.968	1.012	.104	15.1%
7.00	.949	.932	.967	.943	.905	.954	95.4%	.939	.922	.957	1.011	.090	11.3%
8.00	.968	.959	.977	.957	.950	.965	95.1%	.953	.942	.963	1.016	.119	16.0%
9.00	.979	.970	.988	.959	.952	.967	95.3%	.961	.950	.972	1.018	.118	16.4%
11.00	1.013	.299	1.727	1.013	.957	1.069	100.0%	1.068	1.043	1.093	.948	.055	7.8%
12.00	.993	.969	1.018	1.000	.965	1.013	96.5%	.907	.812	1.001	1.096	.048	7.0%
22.00	.986	.967	1.006	.989	.963	1.003	95.7%	.888	.785	.992	1.111	.056	8.0%
23.00	1.000	.966	1.034	1.010	.962	1.030	97.2%	1.010	.988	1.032	.990	.074	10.7%
26.00	.943	.858	1.029	.989	.707	1.011	99.2%	.991	.972	1.010	.952	.059	10.8%
33.00	1.004	.931	1.076	1.015	.968	1.055	96.1%	.866	.664	1.068	1.159	.067	11.4%
44.00	1.039	.857	1.221	1.040	.799	1.287	96.9%	.998	.821	1.175	1.041	.119	16.7%
58.00	1.037	1.037	1.037	1.037	1.037	1.037	100.0%	1.037	1.037	1.037	1.000	.000	0.0%

The confidence interval for the median is constructed without any distribution assumptions. The actual coverage level may be greater than the specified level. Other confidence intervals are constructed by assuming a Normal distribution for the ratios.

Commercial

Ratio Statistics for CURRTOT / TASP

| Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
.996	.983	1.010	.987	.979	.996	95.2%	.970	.949	.991	1.027	.084	13.3%

The confidence interval for the median is constructed without any distribution assumptions. The actual coverage level may be greater than the specified level. Other confidence intervals are constructed by assuming a Normal distribution for the ratios.

Vacant Land

	95% Confidence Interval for Mean			95% Confidence Interval for Median				95% Confidence Interval for Weighted Mean					Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
.979	.965	.994	.986	.979	.996	95.6%	.969	.937	1.002	1.010	.105	15.8%

Ratio Statistics for CurrLnd / TASP

The confidence interval for the median is constructed without any distribution assumptions. The actual coverage level may be greater than the specified level. Other confidence intervals are constructed by assuming a Normal distribution for the ratios.

Residential Median Ratio Stratification

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	.00	1	0.0%
	1212.00	21663	88.1%
	1215.00	284	1.2%
	1217.50	1	0.0%
	1220.00	83	0.3%
	1225.00	82	0.3%
	1230.00	2461	10.0%
	1240.00	2	0.0%
	4020.00	1	0.0%
Overall		24578	100.0%
Excluded		0	
Total		24578	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.950	1.000	.000	.
1212.00	.972	1.011	.088	12.4%
1215.00	.937	1.021	.118	18.4%
1217.50	.979	1.000	.000	.
1220.00	.994	1.006	.058	8.7%
1225.00	1.001	1.066	.069	9.9%
1230.00	.974	1.010	.083	11.5%
1240.00	1.003	1.003	.014	1.9%
4020.00	.992	1.000	.000	.
Overall	.972	1.013	.087	12.4%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	0	1	0.0%
	Over 100	191	0.8%
	75 to 100	600	2.4%
	50 to 75	5875	23.9%
	25 to 50	11190	45.5%
	5 to 25	4183	17.0%
	5 or Newer	2538	10.3%
Overall		24578	100.0%
Excluded		0	
Total		24578	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.950	1.000	.000	.
Over 100	.900	1.036	.156	21.2%
75 to 100	.946	1.022	.147	20.2%
50 to 75	.967	1.012	.095	13.9%
25 to 50	.968	1.009	.082	11.4%
5 to 25	.978	1.012	.082	11.2%
5 or Newer	.994	1.031	.081	11.6%
Overall	.972	1.013	.087	12.4%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	1	0.0%
	LE 500 sf	68	0.3%
	500 to 1,000 sf	3347	13.6%
	1,000 to 1,500 sf	8098	32.9%
	1,500 to 2,000 sf	6146	25.0%
	2,000 to 3,000 sf	5264	21.4%
	3,000 sf or Higher	1654	6.7%
Overall		24578	100.0%
Excluded		0	
Total		24578	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.950	1.000	.000	.
LE 500 sf	.894	1.027	.137	20.3%
500 to 1,000 sf	.959	1.015	.093	13.5%
1,000 to 1,500 sf	.969	1.009	.080	11.2%
1,500 to 2,000 sf	.976	1.010	.083	11.6%
2,000 to 3,000 sf	.979	1.015	.089	12.6%
3,000 sf or Higher	.982	1.034	.115	16.2%
Overall	.972	1.013	.087	12.4%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY		1	0.0%
	Average	14680	59.7%
	Economy	15	0.1%
	Excellent	48	0.2%
	Fair	3506	14.3%
	Good	5494	22.4%
	Poor	73	0.3%

	Very Good	761	3.1%
Overall		24578	100.0%
Excluded		0	
Total		24578	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.950	1.000	.000	.
Average	.971	1.009	.083	11.7%
Economy	.904	1.102	.263	46.5%
Excellent	.984	1.012	.128	20.3%
Fair	.958	1.013	.095	14.0%
Good	.984	1.023	.088	12.2%
Poor	.933	1.052	.189	26.2%
Very Good	.991	1.025	.112	15.2%
Overall	.972	1.013	.087	12.4%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$50K to $100K	7	1.9%
	$100K to $150K	6	1.6%
	$150K to $200K	13	3.5%
	$200K to $300K	26	7.0%
	$300K to $500K	44	11.9%
	$500K to $750K	57	15.4%
	$750K to $1,000K	44	11.9%
	Over $1,000K	172	46.6%
Overall		369	100.0%
Excluded		0	
Total		369	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$50K to $100K	1.003	.996	.042	6.8%
$100K to $150K	1.058	.987	.133	18.7%
$150K to $200K	1.020	.998	.052	7.0%
$200K to $300K	.970	1.001	.095	13.3%
$300K to $500K	.984	.998	.126	21.0%
$500K to $750K	.983	.999	.105	17.2%
$750K to $1,000K	1.009	.999	.075	9.9%
Over $1,000K	.981	1.006	.066	10.3%
Overall	.987	1.027	.084	13.4%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	2212.00	68	18.4%
	2215.00	2	0.5%
	2220.00	75	20.3%
	2223.50	1	0.3%
	2225.00	2	0.5%
	2230.00	56	15.2%
	2235.00	51	13.8%
	2245.00	51	13.8%
	3212.00	2	0.5%
	3215.00	7	1.9%
	3230.00	54	14.6%
Overall		369	100.0%
Excluded		0	
Total		369	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2212.00	1.003	1.053	.122	19.2%
2215.00	1.111	1.003	.067	9.5%
2220.00	.981	1.012	.049	6.3%
2223.50	1.033	1.000	.000	.
2225.00	.985	1.077	.255	36.0%
2230.00	1.006	1.089	.114	17.9%
2235.00	.994	1.016	.055	8.3%
2245.00	.983	1.025	.049	8.9%
3212.00	.969	1.000	.001	0.1%
3215.00	.971	1.017	.064	13.1%
3230.00	.978	1.017	.100	12.7%
Overall	.987	1.027	.084	13.4%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	10	2.7%
	75 to 100	8	2.2%
	50 to 75	76	20.6%
	25 to 50	132	35.8%
	5 to 25	124	33.6%
	5 or Newer	19	5.1%
Overall		369	100.0%
Excluded		0	
Total		369	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.949	1.016	.096	15.1%
75 to 100	.985	1.041	.190	27.0%
50 to 75	1.002	1.028	.110	18.0%
25 to 50	.993	1.004	.063	10.6%
5 to 25	.975	1.018	.074	11.3%
5 or Newer	.985	1.055	.109	13.8%
Overall	.987	1.027	.084	13.4%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	2	0.5%
	500 to 1,000 sf	27	7.3%
	1,000 to 1,500 sf	39	10.6%
	1,500 to 2,000 sf	20	5.4%
	2,000 to 3,000 sf	59	16.0%
	3,000 sf or Higher	222	60.2%
Overall		369	100.0%
Excluded		0	
Total		369	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.013	1.000	.008	1.1%
500 to 1,000 sf	.985	1.027	.093	13.5%
1,000 to 1,500 sf	.979	1.020	.123	17.3%
1,500 to 2,000 sf	.973	1.017	.102	15.6%
2,000 to 3,000 sf	.994	1.019	.095	16.8%
3,000 sf or Higher	.988	1.021	.071	11.5%
Overall	.987	1.027	.084	13.4%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	Average	306	82.9%
	Fair	8	2.2%
	Good	54	14.6%
	Very Good	1	0.3%
Overall		369	100.0%
Excluded		0	
Total		369	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Average	.986	1.022	.080	13.5%
Fair	.979	.991	.150	21.6%
Good	.995	1.050	.094	11.7%
Very Good	1.074	1.000	.000	.
Overall	.987	1.027	.084	13.4%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$25K to $50K	1	0.2%
	$50K to $100K	22	5.1%
	$100K to $150K	35	8.0%
	$150K to $200K	50	11.5%
	$200K to $300K	90	20.7%
	$300K to $500K	129	29.7%
	$500K to $750K	60	13.8%
	$750K to $1,000K	19	4.4%
	Over $1,000K	29	6.7%
Overall		435	100.0%
Excluded		0	
Total		435	

Ratio Statistics for CurrLnd / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$25K to $50K	1.044	1.000	.000	.
$50K to $100K	1.048	.996	.045	6.2%
$100K to $150K	1.022	.998	.060	8.5%
$150K to $200K	1.021	1.001	.075	11.2%
$200K to $300K	.982	1.000	.102	17.6%
$300K to $500K	.977	.999	.104	14.9%
$500K to $750K	.941	1.005	.123	18.0%
$750K to $1,000K	.953	1.001	.090	14.8%
Over $1,000K	.999	.966	.179	23.7%
Overall	.986	1.010	.105	15.7%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	100.00	198	45.5%
	200.00	28	6.4%
	300.00	9	2.1%
	510.00	5	1.1%

	520.00	21	4.8%
	530.00	5	1.1%
	540.00	16	3.7%
	550.00	19	4.4%
	600.00	4	0.9%
	1112.00	119	27.4%
	1115.00	1	0.2%
	1125.00	2	0.5%
	2112.00	1	0.2%
	2120.00	2	0.5%
	2130.00	4	0.9%
	2135.00	1	0.2%
Overall		435	100.0%
Excluded		0	
Total		435	

Ratio Statistics for CurrLnd / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100.00	.995	1.021	.074	10.7%
200.00	1.034	.928	.144	19.2%
300.00	.947	.931	.169	22.2%
510.00	.918	1.082	.137	27.1%
520.00	.965	1.028	.122	23.9%
530.00	.987	1.058	.094	17.2%
540.00	.998	1.068	.094	14.7%
550.00	.986	1.023	.062	8.1%
600.00	.875	.986	.139	17.1%
1112.00	.970	1.011	.124	16.9%
1115.00	1.176	1.000	.000	.
1125.00	1.360	1.524	.369	52.1%
2112.00	1.024	1.000	.000	.
2120.00	.960	.980	.061	8.7%
2130.00	.578	.993	.216	42.4%
2135.00	.686	1.000	.000	.
Overall	.986	1.010	.105	15.7%