Boulder County Colorado

2019
BOULDER COUNTY
PROPERTY ASSESSMENT
STUDY

WILDROSE
APPRAISAL, INCORPORATED
Audit Division

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APPRAISAL, INCORPORATED
Audit Division

September 15, 2019

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

RE: Final Report for the 2019 Colorado Property Assessment Study

Dear Ms. Mullis:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2019 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 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.

Wildrose Appraisal Inc. – 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

Harry J. Fuller
Project Manager
Wildrose Appraisal Inc. – 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.

Wildrose Audit has completed the Property Assessment Study for 2019 and is pleased to report its findings for Boulder County in the following report.

REGIONAL/HISTORICAL SKETCH OF BOULDER COUNTY

Regional Information

Boulder 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.
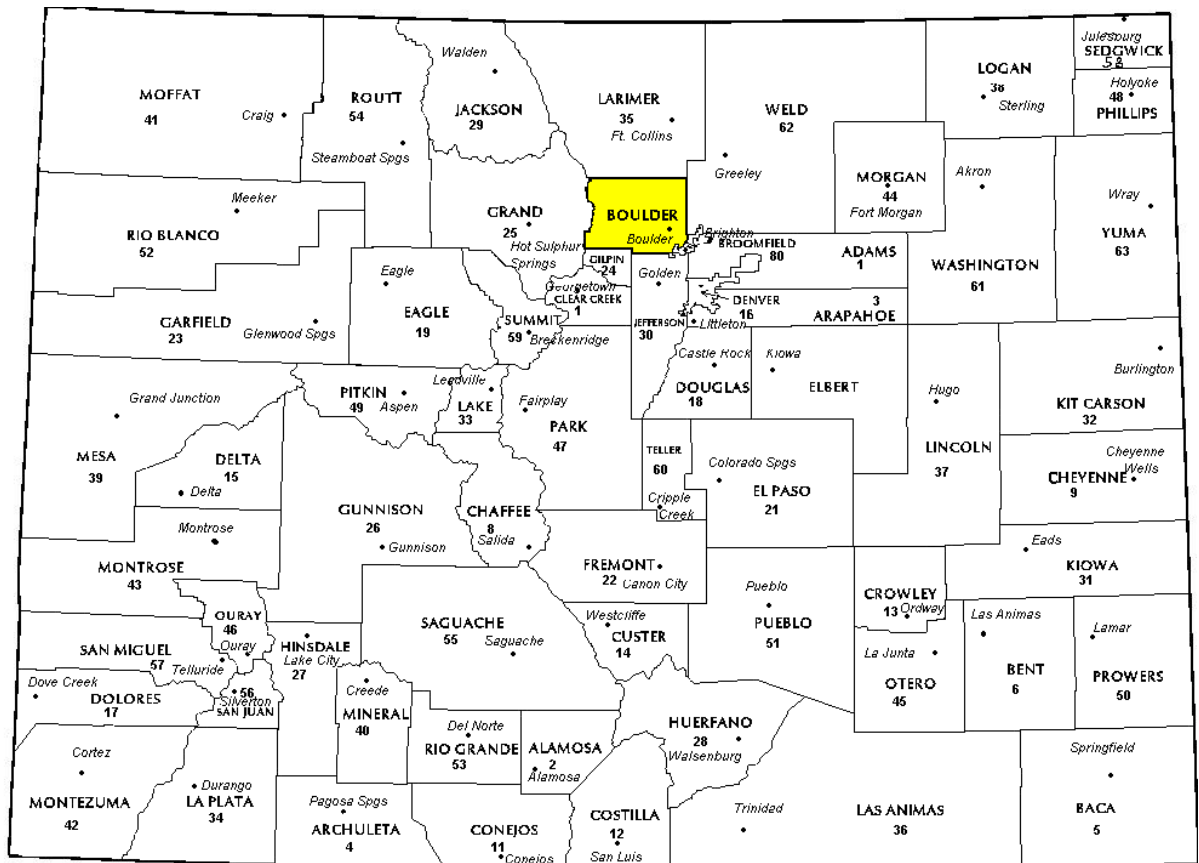
Historical Information

Boulder County had an estimated population of approximately 322,226 people with 443.8 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 9.4 percent change from April 1, 2010 to July 1, 2016.

Boulder County was one of the original 17 counties created by the Territory of Colorado on January 11,1861. The county was named for Boulder City and Boulder Creek, so named because of the abundance of boulders in the area. Boulder County retains essentially the same borders as in 1861, although a small portion of its southeastern corner became part of the City and County of Broomfield in 2001.

In the early to mid 1800s, the nomadic Southern Arapaho Native American tribe frequently wintered at the base of the foothills in the Boulder area. Chief Niwot and his band called the site their home. Other nomadic tribes included the Utes, Cheyennes, Comanches, and Sioux.

The first recorded European settlers in the area were gold prospectors who arrived in 1858, when Boulder was part of the Nebraska Territory (The former boundary between Nebraska and Kansas territories is the present Baseline Road in Boulder). The "Boulder City Town Company" was founded on February 10, 1859. Boulder's first school house was built in 1860, followed by the creation of the Colorado Territory in 1861. In 1871 'Boulder City' was incorporated. In 1873 the railroad was extended to Boulder and, in 1890, the Boulder Railroad Depot was constructed to serve as a station for the Union Pacific Railroad. In 1876 Colorado was granted statehood, and in that same year the University of Colorado at Boulder opened.

Mining gold, silver, and coal continued to be a prominent part of the local economy until the mid 1900s. A coal miners strike lasted from 1910 to 1915, causing a military presence in nearby Louisville. Mining's relevance in the local economy declined in the 1940s, when the city began actively recruiting clean industry, such as the National Bureau of Standards, which today is the National Institute of Standards and Technology, home of the atomic clock.
(Wikipedia.org)

R A T I O   A N A L Y S I S

Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 2017 through June 30, 2018. 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
Condominium	Between .95-1.05	Less than 15.99
Single Family	Between .95-1.05	Less than 15.99
Vacant Land	Between .95-1.05	Less than 20.99

The results for Boulder County are:

Boulder County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	219	0.995	1.039	11.3	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	10,627	0.989	1.003	6.8	Compliant
Vacant Land	294	0.990	1.050	20.8	Compliant

After applying the above described methodologies, it is concluded from the sales ratios that Boulder 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 Boulder County has complied with the statutory requirements to analyze the effects of time on value in their county. Boulder County has also satisfactorily applied the results of their time trending analysis to arrive at the time adjusted sales price (TASP).

Recommendations

None

S O L D / U N S O L D   A N A L Y S I S

Methodology

Boulder 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
Condominium	N/A
Single Family	Compliant
Vacant Land	Compliant

Conclusions

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

Recommendations

None

AGRICULTURAL LAND STUDY
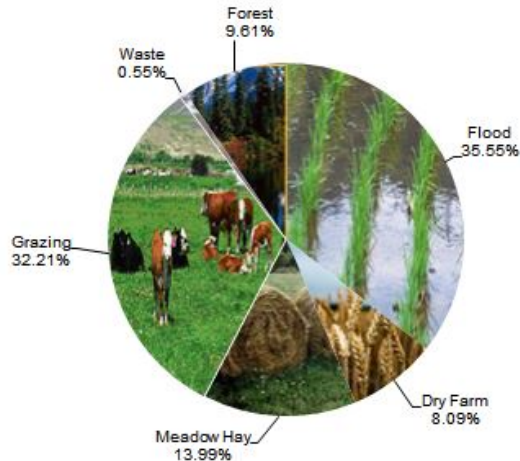
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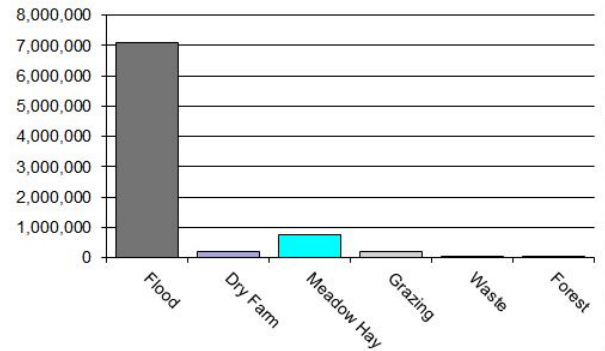
Agricultural Land

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:

Boulder County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4117	Flood	21,637	328.12	7,099,458	6,911,827	1.03
4127	Dry Farm	4,924	43.00	211,751	215,634	0.98
4137	Meadow Hay	8,515	88.11	750,240	769,122	0.98
4147	Grazing	19,603	10.92	214,036	214,036	1.00
4177	Forest	5,848	4.34	25,387	25,387	1.00
4167	Waste	337	2.39	803	803	1.00
Total/Avg		**60,864**	**136.40**	**8,301,675**	**8,136,810**	**1.02**

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

Boulder 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

Boulder 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

Boulder 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.:

- Property Record Card Analysis
- 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

Boulder 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.

WRA reviewed the sales verification procedures in 2019 for Boulder County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 63 sales listed as unqualified.

All but five of the sales selected in the sample gave reasons that were clear and supportable. Five 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.

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

Conclusions

Boulder County appears to be doing a good job of verifying their sales.

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

Boulder County has submitted a written narrative describing the economic areas that make up the county's market areas. Boulder 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 Boulder 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

Producing Oil and Gas

Methodology

Assessors Reference Library (ARL) Volume 3, Chapter 6: Valuation of Natural Resources

STATUTORY REFERENCES
Section § 39-1-103, C.R.S., specifies that producing oil or gas leaseholds and lands are valued according to article 7 of title 39, C.R.S.

Actual value determined – when.
(2) The valuation for assessment of leaseholds and lands producing oil or gas shall be determined as provided in article 7 of this title.
§ 39-1-103, C.R.S.
Article 7 covers the listing, valuation, and assessment of producing oil and gas leaseholds and lands.

Valuation:
Valuation for assessment.
(1) Except as provided in subsection (2) of this section, on the basis of the information contained in such statement, the assessor shall value such oil and gas leaseholds and lands for assessment, as real property, at an amount equal to eighty-seven and one-half percent of:
(a) The selling price of the oil or gas sold there from during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year;
(b) The selling price of oil or gas sold in the same field area for oil or gas transported from the premises which is not sold during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year.
§ 39-7-102, C.R.S.

Conclusions

The county applied approved appraisal procedures in the valuation of oil and gas.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2019 in Boulder County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14) and by applying the recommended methodology in ARL Vol 3, Chap 4. Subdivision Discounting in the intervening year can be accomplished by reducing the absorption period by one year.

Conclusions

Boulder 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.

Boulder County has been reviewed for their procedures and adherence to guidelines when assessing and valuing agricultural, commercial and ski area 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

Boulder 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

Boulder 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.

Boulder 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
- MLS Listing and/or Sold Books
- Chamber of Commerce/Economic Development Contacts
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth
- Questionnaires, Letters and/or Phone Calls to Buyer, Seller and/or Realtor
- Secretary of State Business Search
- Leasing Company Info
- Boulder County Business Report
- Web Search

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.

Boulder County submitted their personal property written audit plan and was current for the 2019 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:

- Businesses in a selected area
- 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 $7,700 actual value exemption status
- Lowest or highest quartile of value per square foot
- Accounts protested with substantial disagreement

Boulder 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

Boulder 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

W I L D R O S E   A U D I T O R   S T A F F

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STATISTICAL APPENDIX

STATISTICAL COMPLIANCE REPORT
FOR BOULDER COUNTY
2019

I. OVERVIEW

Boulder County is an urban county located along Colorado's front range. The county has a total of 125,397 real property parcels, according to data submitted by the county assessor's office in 2019. The following provides a breakdown of property classes for this county:
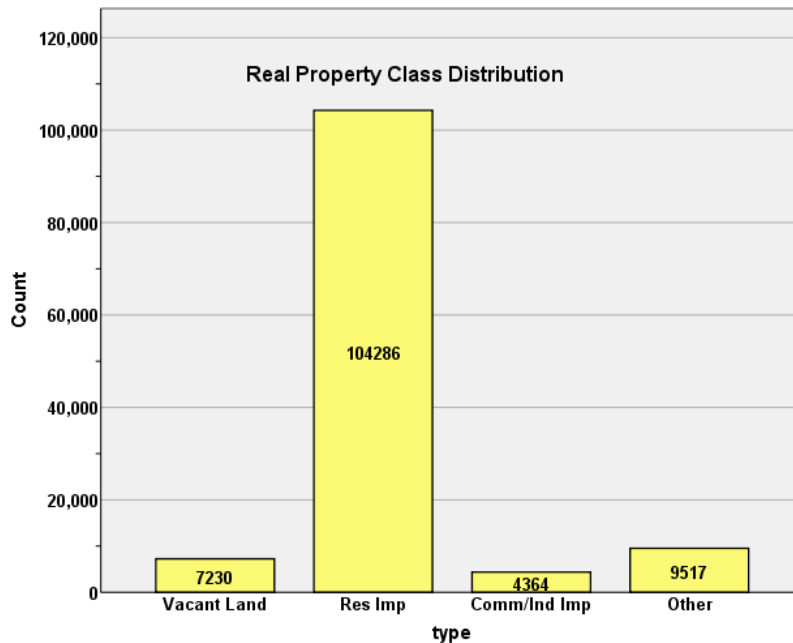
The vacant land class of properties was dominated by residential land. Residential lots (coded 100, 1110 and 1112) accounted for 73.1% of all vacant land parcels.

For residential improved properties, single family properties accounted for 82.7% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 3.5% of all such properties in this county.

Based on the Audit questionnaire filled out by the assessor (see below), the following geographic levels were used by the assessor to value residential, commercial and vacant land properties:

Based on the Audit questionnaire filled out by the assessor (see below), the following geographic levels were used by the assessor to value residential, commercial and vacant land properties:

Geo Area	Residential	Comm/Ind	Vacant Land
Economic Area	V	V	N
Neighborhood	N	N	N
Subdivision	N	N	N

Codes
V=Valid Geographic Level – used for modeling
N = Not used as Geographic Level for modeling

Note: Due to a limited number of vacant land sales, vacant land was analyzed county-wide.

II. DATA FILES

The following sales analyses were based on the requirements of the 2019 Colorado Property Assessment Study. Information was provided by the Boulder Assessor's Office in May 2019. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 10,627 qualified residential sales in the 24-month sale period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

Median	**0.989**
Price Related Differential	**1.003**
Coefficient of Dispersion	**6.8**

We next stratified the sale ratio analysis by economic area and neighborhood. The minimum count for the neighborhood stratification is 20 sales. The following are the results of this stratification analysis:

Economic Area
Case Processing Summary

		Count	Percent
ECONAREA	1	1429	13.5%
	2	665	6.3%
	3	382	3.6%
	4	3056	28.8%
	5	3012	28.4%
	30	1007	9.5%
	32	544	5.1%
	33	455	4.3%
	40	70	0.7%
Overall		10620	100.0%
Excluded		7	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1	.994	1.005	.065
2	.986	1.021	.116
3	.979	1.013	.116
4	.986	1.004	.060
5	.987	1.005	.063
30	.994	.997	.075
32	.983	1.003	.052
33	.986	1.002	.053
40	.984	1.016	.100
Overall	.989	1.003	.068

Neighborhoods with at least 20 sales

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
101	1.015	1.008	.088
102	.997	1.014	.078
103	1.026	1.004	.079
105	.994	1.019	.090
107	.993	1.017	.092
109	1.000	1.004	.082
115	.987	1.020	.076
120	.951	1.003	.059
122	.993	1.010	.068
124	.980	.999	.074
126	.984	1.000	.056
128	.965	1.001	.064
130	.978	1.006	.051
132	1.005	1.013	.076
133	.985	1.007	.065
134	.972	1.000	.058
135	.996	1.002	.066
136	.993	1.005	.072
137	.963	1.001	.053
140	.996	.998	.053
142	.996	1.001	.063
144	1.001	1.036	.118
145	.983	1.008	.111
146	.995	1.000	.054
148	.993	.999	.070
150	.984	1.008	.066
152	.964	1.034	.141
155	.987	1.003	.046
158	.993	1.008	.050
159	.989	1.012	.070
160	.991	1.005	.065
162	.992	1.007	.045
164	.994	1.008	.071
170	.992	1.016	.074
172	1.030	1.029	.118
174	1.000	1.005	.077
178	.987	1.022	.112

201	.978	1.017	.098
202	1.011	1.004	.060
203	.981	1.005	.073
204	.941	1.007	.072
205	.993	1.004	.052
223	.996	1.005	.059
241	.982	1.004	.069
242	.995	1.008	.060
255	.977	1.000	.052
256	.976	1.000	.055
257	.982	1.003	.051
401	.989	1.017	.075
405	1.003	1.005	.052
410	.996	1.002	.047
415	1.005	1.004	.049
420	.982	1.005	.056
425	.986	1.005	.056
430	.980	1.007	.056
440	.990	1.003	.053
445	1.005	1.009	.054
450	.987	1.006	.064
451	.983	1.009	.056
455	.989	1.003	.044
460	.973	1.015	.084
465	.958	1.006	.064
470	.974	1.002	.052
480	.983	.999	.059
501	.978	.993	.067
820	.986	1.013	.129
825	.973	.995	.096
830	.989	1.016	.106
901	.969	1.018	.107
903	.985	1.042	.132
910	.991	1.064	.151
911	.995	1.017	.109
930	.989	1.032	.130
940	.993	1.024	.115
960	.954	1.013	.101
962	.982	1.003	.092
Overall	.989	1.003	.068

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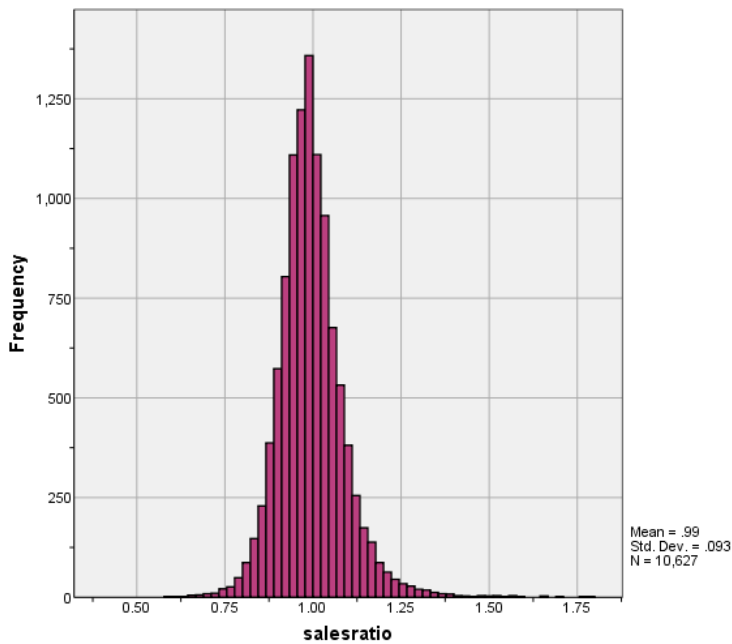
The above graphs indicate that the distribution of the sale ratios was within state mandated limits.

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		Standardized Coefficients		
			B	Std. Error	Beta	t	Sig.
.	1	(Constant)	.889	.146		6.109	.002
		SalePeriod	.006	.014	.177	.403	.704
1	1	(Constant)	1.007	.004		227.511	.000
		SalePeriod	.000	.000	.012	.471	.638
2	1	(Constant)	.977	.011		90.275	.000
		SalePeriod	.002	.001	.077	1.981	.048
3	1	(Constant)	1.001	.015		66.399	.000
		SalePeriod	.000	.001	-.006	-.117	.907
4	1	(Constant)	.978	.003		373.618	.000
		SalePeriod	.001	.000	.097	5.374	.000
5	1	(Constant)	.981	.003		334.861	.000
		SalePeriod	.001	.000	.054	2.983	.003
30	1	(Constant)	1.038	.006		171.603	.000
		SalePeriod	-.002	.000	-.140	-4.478	.000
32	1	(Constant)	.992	.006		178.421	.000
		SalePeriod	-.001	.000	-.083	-1.944	.052
33	1	(Constant)	.975	.007		133.086	.000
		SalePeriod	.001	.001	.115	2.465	.014
40	1	(Constant)	1.016	.030		34.004	.000
		SalePeriod	.000	.003	-.015	-.122	.903

a. Dependent Variable: salesratio

There was no significant residual market trending present in the sale ratio data for most economic areas; the two economic areas with statistically significant residual trends were not significant in terms of the magnitude of the trend. We therefore 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 2019 between each group. The data was analyzed both as a whole and broken down by economic area and by neighborhoods with at least 20 sales, as follows:

Class
Report
VALSF

sold	N	Median	Mean
UNSOLD	93490	$323	$468
SOLD	10627	$313	$358

Economic Area
Report
VALSF

ECONAREA	sold	N	Median	Mean
1	UNSOLD	19233	$535	$585
	SOLD	1429	$553	$591
2	UNSOLD	7553	$308	$325
	SOLD	665	$337	$362
3	UNSOLD	5158	$368	$564
	SOLD	382	$380	$403
4	UNSOLD	23712	$309	$323
	SOLD	3056	$301	$313
5	UNSOLD	23615	$241	$257
	SOLD	3012	$253	$262
30	UNSOLD	7671	$423	$444
	SOLD	1007	$464	$499
32	UNSOLD	3247	$312	$324
	SOLD	544	$317	$327
33	UNSOLD	1847	$228	$236
	SOLD	455	$234	$247
40	UNSOLD	997	$330	$320
	SOLD	70	$265	$304

Neighborhoods with at least 20 sales
Report
VALSF

NBHD	sold	N	Median	Mean
101	UNSOLD	1167	$591	$604
	SOLD	138	$636	$655
102	UNSOLD	1168	$592	$617
	SOLD	99	$600	$643
103	UNSOLD	527	$760	$798
	SOLD	32	$834	$860
105	UNSOLD	761	$657	$683
	SOLD	65	$710	$732
107	UNSOLD	570	$825	$849
	SOLD	45	$817	$870
109	UNSOLD	903	$623	$637
	SOLD	95	$691	$716
115	UNSOLD	1427	$529	$543
	SOLD	108	$591	$604
120	UNSOLD	810	$524	$544
	SOLD	51	$575	$623
122	UNSOLD	1398	$469	$449
	SOLD	117	$501	$504
124	UNSOLD	1211	$403	$394
	SOLD	127	$425	$428
126	UNSOLD	2038	$349	$368
	SOLD	231	$364	$382
128	UNSOLD	846	$373	$371
	SOLD	116	$381	$380
130	UNSOLD	597	$332	$340
	SOLD	69	$324	$329
132	UNSOLD	1230	$314	$326
	SOLD	152	$314	$332

133	UNSOLD	608	$312	$329
	SOLD	47	$328	$360
134	UNSOLD	247	$328	$331
	SOLD	26	$340	$337
135	UNSOLD	1036	$459	$435
	SOLD	150	$512	$505
136	UNSOLD	224	$345	$346
	SOLD	29	$358	$362
137	UNSOLD	318	$342	$344
	SOLD	28	$365	$369
140	UNSOLD	1795	$412	$422
	SOLD	170	$424	$442
142	UNSOLD	992	$383	$404
	SOLD	87	$394	$421
144	UNSOLD	506	$417	$435
	SOLD	26	$452	$477
145	UNSOLD	958	$403	$413
	SOLD	76	$426	$445
146	UNSOLD	652	$466	$474
	SOLD	46	$448	$481
148	UNSOLD	1830	$405	$418
	SOLD	189	$414	$426
150	UNSOLD	773	$533	$535
	SOLD	80	$496	$531
152	UNSOLD	332	$480	$494
	SOLD	20	$477	$484
155	UNSOLD	3015	$272	$275
	SOLD	394	$276	$283
158	UNSOLD	1164	$533	$586
	SOLD	90	$519	$588
159	UNSOLD	189	$299	$298
	SOLD	35	$360	$359
160	UNSOLD	1882	$592	$589
	SOLD	126	$618	$628
162	UNSOLD	481	$644	$646
	SOLD	21	$603	$653
164	UNSOLD	884	$512	$505
	SOLD	52	$552	$546
170	UNSOLD	1607	$663	$690
	SOLD	162	$692	$724
172	UNSOLD	668	$449	$472
	SOLD	74	$505	$519
174	UNSOLD	1391	$529	$534
	SOLD	135	$546	$553
178	UNSOLD	822	$372	$387
	SOLD	87	$388	$414
201	UNSOLD	1707	$303	$309
	SOLD	158	$324	$338
202	UNSOLD	2588	$274	$276
	SOLD	298	$292	$294
203	UNSOLD	2025	$236	$242
	SOLD	266	$253	$266
204	UNSOLD	1601	$237	$243
	SOLD	159	$263	$265
205	UNSOLD	3002	$209	$211
	SOLD	491	$215	$220
223	UNSOLD	3073	$246	$249

	SOLD	354	$263	$264
241	UNSOLD	1364	$253	$251
	SOLD	163	$243	$255
242	UNSOLD	4072	$264	$268
	SOLD	713	$273	$279
255	UNSOLD	3127	$223	$222
	SOLD	411	$232	$235
256	UNSOLD	2073	$225	$226
	SOLD	302	$226	$230
257	UNSOLD	631	$214	$211
	SOLD	143	$231	$256
401	UNSOLD	483	$463	$468
	SOLD	36	$463	$480
405	UNSOLD	203	$410	$398
	SOLD	42	$315	$323
410	UNSOLD	1455	$367	$396
	SOLD	112	$393	$430
415	UNSOLD	781	$328	$335
	SOLD	88	$327	$338
420	UNSOLD	1330	$340	$366
	SOLD	198	$381	$383
425	UNSOLD	1057	$348	$364
	SOLD	73	$361	$372
430	UNSOLD	1190	$391	$396
	SOLD	112	$401	$404
440	UNSOLD	2965	$230	$230
	SOLD	607	$222	$232
445	UNSOLD	363	$258	$264
	SOLD	54	$260	$265
450	UNSOLD	2240	$314	$320
	SOLD	351	$319	$325
451	UNSOLD	403	$284	$292
	SOLD	46	$284	$292
455	UNSOLD	425	$252	$253
	SOLD	39	$257	$259
460	UNSOLD	727	$329	$330
	SOLD	66	$348	$341
465	UNSOLD	1331	$303	$308
	SOLD	171	$309	$315
470	UNSOLD	833	$355	$358
	SOLD	87	$363	$365
480	UNSOLD	2100	$284	$304
	SOLD	403	$272	$280
501	UNSOLD	1531	$346	$351
	SOLD	181	$354	$363
820	UNSOLD	994	$342	$359
	SOLD	87	$353	$377
825	UNSOLD	787	$288	$310
	SOLD	74	$296	$320
830	UNSOLD	1220	$349	$374
	SOLD	80	$359	$397
901	UNSOLD	1032	$282	$294
	SOLD	106	$328	$336
903	UNSOLD	670	$341	$356
	SOLD	53	$379	$388
910	UNSOLD	463	$323	$349
	SOLD	51	$351	$385

911	UNSOLD	516	$254	$261
	SOLD	48	$264	$274
930	UNSOLD	349	$229	$255
	SOLD	21	$303	$277
940	UNSOLD	642	$248	$261
	SOLD	54	$260	$275
960	UNSOLD	1064	$276	$283
	SOLD	52	$288	$311
962	UNSOLD	1052	$322	$331
	SOLD	119	$331	$340

Although there was some differences seen between sold and unsold residential properties at the neighborhood level, when the second percent change in value test is employed, the difference is reduced greatly. The above overall and economic area results indicate that sold and unsold residential properties were valued in a consistent manner.

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 219 qualified commercial and industrial sales in the 24 month sale period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

Median	**0.995**
Price Related Differential	**1.039**
Coefficient of Dispersion	**11.3**

Subclass
Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
2212.00	1.019	1.109	.171
2220.00	1.001	1.043	.126
2225.00	.966	1.000	.000
2229.50	1.049	1.000	.000
2230.00	1.031	.988	.047
2231.00	.970	1.013	.021
2234.00	1.011	.992	.062
2235.00	1.034	.962	.125
2237.00	1.045	.993	.083
2238.00	.984	1.016	.117
2245.00	.979	1.026	.114
2717.50	.959	1.000	.000
3210.00	1.003	1.021	.050
3215.00	.979	.990	.094
3226.67	.971	1.000	.000
3230.00	.973	.960	.066
3235.00	1.066	1.000	.000
Overall	.995	1.039	.113

The above table indicates that the Boulder County vacant land sale ratios were in compliance with the SBOE standards. The following histogram and scatter plot describe the sales ratio distribution further:

Commercial Sale Price by Sales Ratio
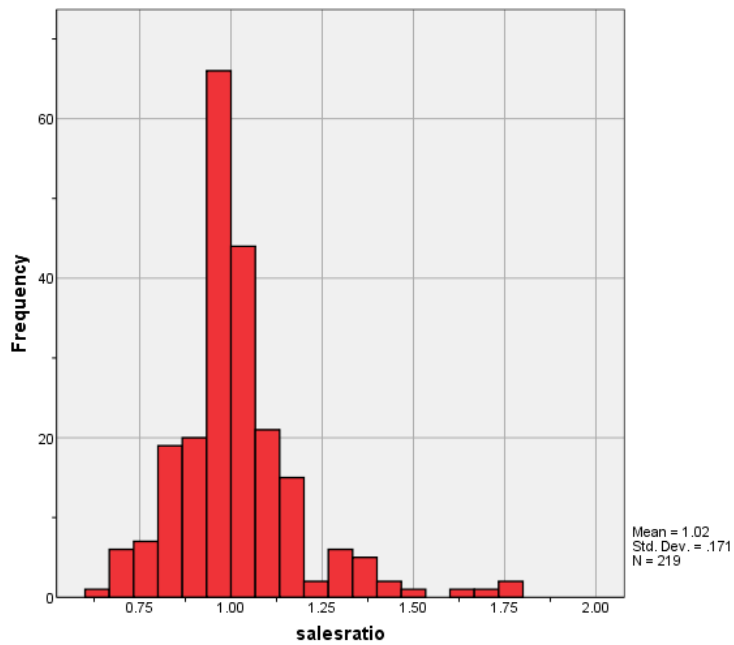
Commercial/Industrial Market Trend Analysis

The commercial/industrial sales were analyzed, examining the sale ratios across the 24-month sale period with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.974	.018		55.183	.000
	SalePeriod	.003	.001	.176	2.547	.012

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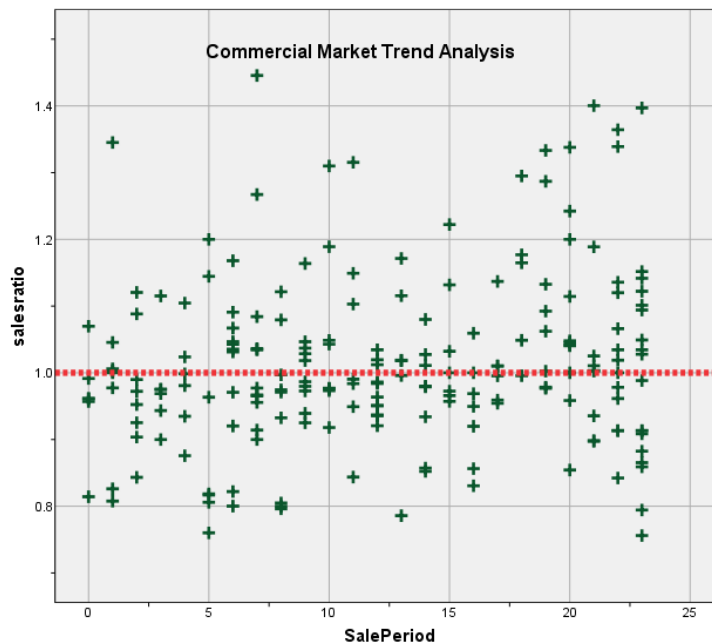
There was no residual market trending present in the commercial sale ratios. We concluded that the assessor has adequately considered market trending adjustments as part of the commercial/industrial valuation.

Sold/Unsold Analysis

We compared the median and mean change in actual value for 2018 and 2019 for sold and unsold commercial properties, as follows:

Report
DIFF

sold	N	Median	Mean
UNSOLD	4121	1.08	1.20
SOLD	219	1.21	1.30

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of DIFF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .00.

Report

DIFF

ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	556	1.08	1.15
	SOLD	33	1.27	1.42
2220.00	UNSOLD	469	1.09	1.14
	SOLD	32	1.26	1.29
2221.00	UNSOLD	67	1.07	1.21
	SOLD	7	1.20	1.30
2230.00	UNSOLD	124	1.05	1.14
	SOLD	6	1.12	1.32
2234.00	UNSOLD	201	1.08	1.16
	SOLD	13	1.12	1.37
2237.00	UNSOLD	106	1.07	1.28
	SOLD	8	1.17	1.26
2238.00	UNSOLD	101	1.05	1.19
	SOLD	7	1.26	1.48
2239.00	SOLD	3	1.21	1.20
2245.00	UNSOLD	774	1.08	1.17
	SOLD	52	1.20	1.22
3210.00	UNSOLD	156	1.11	1.18
	SOLD	7	1.08	1.17
3215.00	UNSOLD	311	1.07	1.11
	SOLD	26	1.23	1.27
3230.00	UNSOLD	139	1.11	1.19
	SOLD	9	1.06	1.34

Based on differences observed at certain subclass levels, we will meet with the assessor to determine reasons for these differences.

V. VACANT LAND SALE RESULTS

There were 294 qualified vacant land sales for the 24 month sale period ending June 30, 2018. The sales ratios were analyzed with the following results:

Median	0.990
Price Related Differential	1.050
Coefficient of Dispersion	20.8

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:

Mean = 1.01
Std. Dev. = .301
N = 294

Vacant Land Sale Price by Sales Ratio
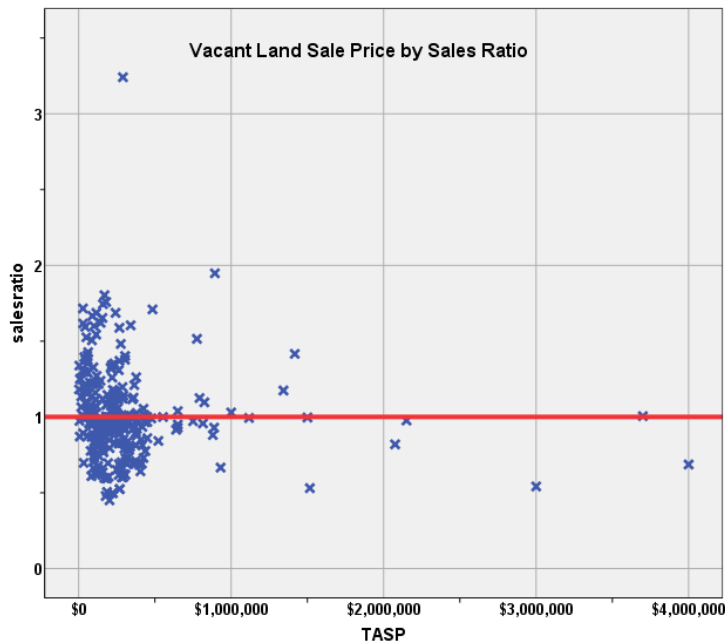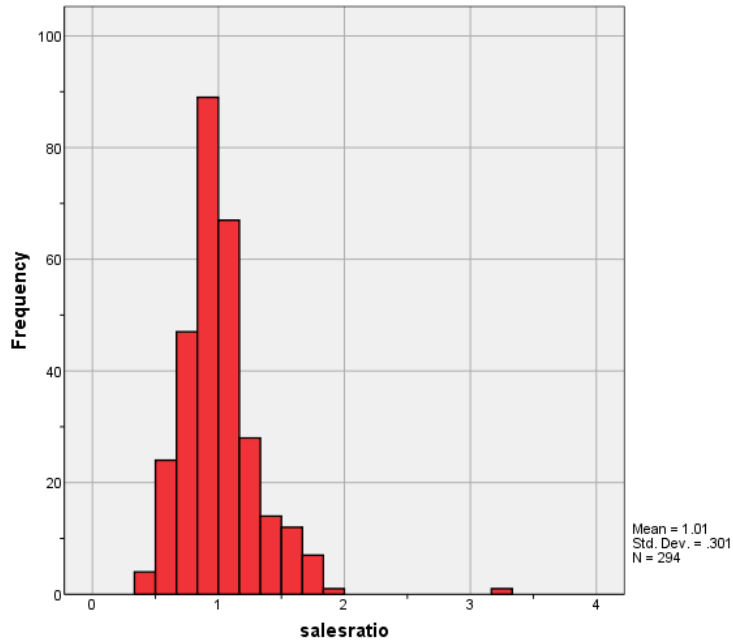
The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits.

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		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.973	.034		28.922	.000
	SalePeriod	.003	.002	.078	1.333	.184

a. Dependent Variable: salesratio

Vacant Land Sales Market Trend Analysis
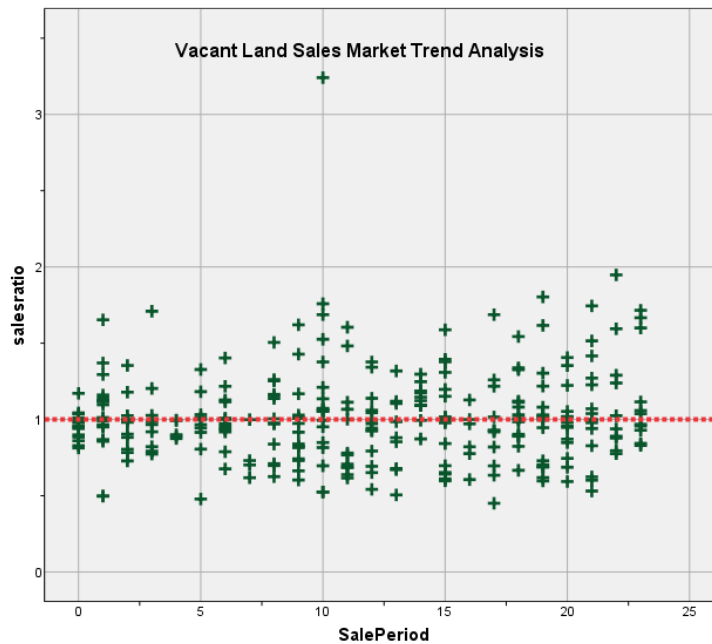
The above analysis indicated that no significant market trending was present in the vacant land sale data. We concluded that the assessor has adequately dealt with market trending for vacant land properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in value for 2018 and 2019 between each group, as follows:

Report

DIFF

sold	N	Median	Mean
UNSOLD	4440	1.07	1.20
SOLD	287	1.14	1.28

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of DIFF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.005	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .00.

We also stratified the analysis by subdivision with more than 5 sales, as follows:

Report
DIFF

SUBDIVNO	sold	N	Median	Mean
1126	UNSOLD	3	.78	.79
	SOLD	21	.79	.80
2644	UNSOLD	2	1.06	1.06
	SOLD	5	1.14	1.14
2734	UNSOLD	32	1.37	1.30
	SOLD	6	1.36	1.36
3383	UNSOLD	13	1.14	1.14
	SOLD	5	1.08	1.09
7480	UNSOLD	46	1.15	1.15
	SOLD	7	1.17	1.15
7872	UNSOLD	1	2.54	2.54
	SOLD	7	2.54	2.54
8476	UNSOLD	11	1.45	1.42
	SOLD	6	1.28	1.49
9914	UNSOLD	64	1.45	1.31
	SOLD	8	1.01	1.03
9915	UNSOLD	84	1.59	1.55
	SOLD	10	1.62	1.49
9916	UNSOLD	114	1.01	1.08
	SOLD	10	1.03	1.00
9917	UNSOLD	59	1.00	1.08
	SOLD	5	1.23	1.45
9918	UNSOLD	103	1.20	1.17
	SOLD	12	1.16	1.01
9919	UNSOLD	64	1.22	1.45
	SOLD	5	1.43	1.50
9942	UNSOLD	147	.99	1.03
	SOLD	5	1.13	1.27
9944	UNSOLD	66	1.00	.93
	SOLD	9	1.02	1.22
Total	UNSOLD	809	1.13	1.18
	SOLD	121	1.14	1.23
	Total	930	1.13	1.19

Overall, we concluded that the county assessor valued sold and unsold vacant properties consistently.

V. CONCLUSIONS

Based on this 2019 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		Actual Coverage	Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
		Lower Bound	Upper Bound		Lower Bound	Upper Bound			Lower Bound	Upper Bound			
.	.939	.768	1.111	.941	.660	1.160	98.4%	.941	.749	1.132	.998	.155	19.8%
1	1.009	1.004	1.013	.994	.991	.997	95.6%	1.004	.999	1.009	1.005	.065	9.0%
2	.995	.984	1.006	.986	.971	.995	95.6%	.974	.957	.991	1.021	.116	15.0%
3	1.000	.984	1.015	.979	.962	.994	95.4%	.987	.970	1.005	1.013	.116	15.6%
4	.990	.988	.993	.986	.982	.989	95.1%	.987	.983	.990	1.004	.060	7.7%
5	.988	.986	.991	.987	.984	.991	95.3%	.984	.981	.987	1.005	.063	8.3%
30	1.015	1.009	1.022	.994	.992	.998	95.6%	1.018	1.009	1.027	.997	.075	10.3%
32	.983	.977	.989	.983	.975	.990	95.6%	.981	.975	.986	1.003	.052	6.8%
33	.991	.984	.998	.986	.979	.991	95.1%	.988	.982	.995	1.002	.053	7.6%
40	1.013	.979	1.048	.984	.969	1.008	95.9%	.998	.961	1.035	1.016	.100	14.2%

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 Land

Ratio Statistics for CURRTOT / TASP

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median		Actual Coverage	Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound			Lower Bound	Upper Bound			
1.017	.994	1.039	.995	.977	1.010	95.8%	.979	.958	.999	1.039	.113	16.8%

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

Ratio Statistics for CURRLND / TASP

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median		Actual Coverage	Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound			Lower Bound	Upper Bound			
1.011	.977	1.046	.990	.966	1.000	95.9%	.963	.907	1.019	1.050	.208	29.7%

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
Sale Price

Case Processing Summary

		Count	Percent
SPRec	$50K to $100K	10	0.1%
	$100K to $150K	32	0.3%
	$150K to $200K	54	0.5%
	$200K to $300K	901	8.5%
	$300K to $500K	4225	39.8%
	$500K to $750K	3188	30.0%
	$750K to $1,000K	1222	11.5%
	Over $1,000K	995	9.4%
Overall		10627	100.0%
Excluded		0	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$50K to $100K	1.264	1.011	.156	19.7%
$100K to $150K	.963	.998	.118	16.2%
$150K to $200K	1.014	.998	.119	17.5%
$200K to $300K	.990	1.000	.070	10.6%
$300K to $500K	.994	1.000	.063	8.6%
$500K to $750K	.986	1.000	.065	8.7%
$750K to $1,000K	.985	1.000	.073	10.0%
Over $1,000K	.973	.998	.085	12.1%
Overall	.989	1.003	.068	9.5%

Subclass
Case Processing Summary

		Count	Percent
ABSTRIMP	1212.00	8440	79.4%
	1213.50	4	0.0%
	1215.00	105	1.0%
	1217.50	1	0.0%
	1220.00	49	0.5%
	1222.00	1	0.0%
	1222.50	1	0.0%
	1223.75	1	0.0%
	1225.00	16	0.2%
	1230.00	2007	18.9%
	1256.67	1	0.0%
	1306.00	1	0.0%
Overall		10627	100.0%
Excluded		0	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212.00	.988	1.004	.068	9.4%
1213.50	1.022	1.042	.187	22.4%
1215.00	.966	.992	.103	13.9%
1217.50	.971	1.000	.000	.
1220.00	.992	1.010	.099	14.3%
1222.00	1.001	1.000	.000	.
1222.50	1.016	1.000	.000	.
1223.75	.971	1.000	.000	.
1225.00	.962	.962	.127	19.1%
1230.00	.991	.996	.064	9.2%
1256.67	1.143	1.000	.000	.
1306.00	.952	1.000	.000	.
Overall	.989	1.003	.068	9.5%

Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	236	2.2%
	75 to 100	202	1.9%
	50 to 75	998	9.4%
	25 to 50	3859	36.3%
	5 to 25	3564	33.5%
	5 or Newer	1768	16.6%
Overall		10627	100.0%
Excluded		0	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.985	1.004	.094	13.4%
75 to 100	.973	1.004	.108	14.7%
50 to 75	.983	1.000	.081	11.6%
25 to 50	.983	1.003	.071	9.8%
5 to 25	.997	1.000	.061	8.6%
5 or Newer	.986	1.006	.059	7.6%
Overall	.989	1.003	.068	9.5%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	72	0.7%
	500 to 1,000 sf	1593	15.0%
	1,000 to 1,500 sf	3205	30.2%
	1,500 to 2,000 sf	2293	21.6%
	2,000 to 3,000 sf	2513	23.6%
	3,000 sf or Higher	951	8.9%
Overall		10627	100.0%
Excluded		0	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LE 500 sf	.984	1.003	.099	15.0%
500 to 1,000 sf	.980	1.004	.070	9.9%
1,000 to 1,500 sf	.985	1.003	.065	9.1%
1,500 to 2,000 sf	.990	1.004	.067	9.4%
2,000 to 3,000 sf	.994	1.007	.065	8.7%
3,000 sf or Higher	.995	1.007	.081	11.3%
Overall	.989	1.003	.068	9.5%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	12	0.1%
	2	107	1.0%
	3	5145	48.4%
	4	4247	40.0%
	5	943	8.9%
	6	173	1.6%
Overall		10627	100.0%
Excluded		0	
Total		10627	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.899	1.036	.191	26.9%
2	.952	1.033	.128	18.4%
3	.982	1.000	.067	9.4%
4	.995	1.007	.064	8.8%
5	.998	1.010	.075	10.2%
6	1.009	1.009	.094	12.5%
Overall	.989	1.003	.068	9.5%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$100K to $150K	9	4.1%
	$150K to $200K	11	5.0%
	$200K to $300K	24	11.0%
	$300K to $500K	28	12.8%
	$500K to $750K	42	19.2%
	$750K to $1,000K	14	6.4%
	Over $1,000K	91	41.6%
Overall		219	100.0%
Excluded		0	
Total		219	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$100K to $150K	1.080	1.009	.174	23.4%
$150K to $200K	.913	1.000	.120	22.8%
$200K to $300K	1.063	1.006	.131	21.9%
$300K to $500K	.978	1.007	.133	20.7%
$500K to $750K	.985	1.004	.119	16.7%
$750K to $1,000K	1.011	.998	.094	14.8%
Over $1,000K	.990	1.024	.086	12.6%
Overall	.995	1.039	.113	17.3%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	2212.00	33	15.1%
	2214.67	2	0.9%
	2215.00	1	0.5%
	2220.00	32	14.6%
	2221.00	7	3.2%
	2222.00	2	0.9%
	2225.00	1	0.5%
	2229.50	1	0.5%
	2230.00	6	2.7%
	2231.00	2	0.9%
	2234.00	13	5.9%
	2235.00	3	1.4%
	2237.00	8	3.7%
	2238.00	7	3.2%
	2239.00	3	1.4%
	2245.00	52	23.7%
	2717.50	1	0.5%
	3210.00	7	3.2%
	3215.00	26	11.9%

	3226.67	1	0.5%
	3230.00	9	4.1%
	3235.00	1	0.5%
	3621.80	1	0.5%
Overall		219	100.0%
Excluded		0	
Total		219	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2212.00	1.019	1.109	.171	26.5%
2214.67	.991	1.010	.033	4.7%
2215.00	.699	1.000	.000	.
2220.00	1.001	1.043	.126	17.4%
2221.00	1.006	1.040	.170	24.3%
2222.00	1.011	1.007	.024	3.4%
2225.00	.966	1.000	.000	.
2229.50	1.049	1.000	.000	.
2230.00	1.031	.988	.047	8.8%
2231.00	.970	1.013	.021	2.9%
2234.00	1.011	.992	.062	8.0%
2235.00	1.034	.962	.125	21.5%
2237.00	1.057	.993	.083	9.3%
2238.00	.984	1.016	.117	16.5%
2239.00	.921	1.011	.095	14.7%
2245.00	.979	1.026	.114	16.7%
2717.50	.959	1.000	.000	.
3210.00	1.003	1.021	.050	8.9%
3215.00	.979	.990	.094	14.9%
3226.67	.971	1.000	.000	.
3230.00	.973	.960	.066	11.2%
3235.00	1.066	1.000	.000	.
3621.80	.852	1.000	.000	.
Overall	.995	1.039	.113	17.3%

Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	20	9.1%
	75 to 100	12	5.5%
	50 to 75	22	10.0%
	25 to 50	75	34.2%
	5 to 25	76	34.7%
	5 or Newer	14	6.4%
Overall		219	100.0%
Excluded		0	
Total		219	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	1.002	1.030	.117	16.7%
75 to 100	1.028	1.203	.236	34.8%
50 to 75	.944	1.069	.145	25.6%
25 to 50	.996	1.036	.095	13.7%
5 to 25	1.000	1.021	.098	13.6%
5 or Newer	.937	.998	.117	21.9%
Overall	.995	1.039	.113	17.3%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	11	5.0%
	2	2	0.9%
	3	182	83.1%
	4	24	11.0%
Overall		219	100.0%
Excluded		0	
Total		219	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.027	1.182	.194	28.3%
2	.837	1.094	.097	13.7%
3	.996	1.039	.113	17.1%
4	.993	1.012	.073	10.6%
Overall	.995	1.039	.113	17.3%

Improvement Condition

Case Processing Summary

		Count	Percent
QUALITY	1	11	5.0%
	2	2	0.9%
	3	182	83.1%
	4	24	11.0%
Overall		219	100.0%
Excluded		0	
Total		219	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.027	1.182	.194	28.3%
2	.837	1.094	.097	13.7%
3	.996	1.039	.113	17.1%
4	.993	1.012	.073	10.6%
Overall	.995	1.039	.113	17.3%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	9	3.1%
	$25K to $50K	13	4.4%
	$50K to $100K	38	12.9%
	$100K to $150K	38	12.9%
	$150K to $200K	36	12.2%
	$200K to $300K	79	26.9%
	$300K to $500K	55	18.7%
	$500K to $750K	7	2.4%
	$750K to $1,000K	9	3.1%
	Over $1,000K	10	3.4%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.182	.983	.103	13.5%
$25K to $50K	1.203	.999	.201	25.3%
$50K to $100K	1.057	1.006	.183	24.2%
$100K to $150K	.921	.999	.213	29.1%
$150K to $200K	.975	1.003	.229	34.0%
$200K to $300K	1.000	1.000	.212	35.5%
$300K to $500K	.935	.997	.174	24.0%
$500K to $750K	.950	.997	.049	6.7%
$750K to $1,000K	1.030	1.006	.243	38.6%
Over $1,000K	.985	1.056	.206	29.2%
Overall	.990	1.050	.208	30.4%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	100	102	34.7%
	200	16	5.4%
	300	17	5.8%
	400	4	1.4%
	510	2	0.7%
	520	34	11.6%
	530	15	5.1%
	540	12	4.1%
	550	10	3.4%
	1112	74	25.2%
	1120	1	0.3%
	1125	1	0.3%
	1140	1	0.3%
	1442	1	0.3%
	1780	2	0.7%
	2115	1	0.3%
	2130	1	0.3%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100	.971	1.042	.203	26.9%
200	.994	1.005	.038	5.4%
300	1.067	1.230	.139	21.6%
400	1.039	1.018	.140	19.4%
510	.887	1.035	.176	24.9%
520	.996	1.028	.156	21.9%
530	.991	1.028	.245	32.2%
540	1.037	.935	.305	41.0%
550	1.032	1.042	.183	28.4%
1112	.941	.974	.270	43.4%
1120	.542	1.000	.000	.
1125	.531	1.000	.000	.
1140	1.210	1.000	.000	.
1442	.878	1.000	.000	.
1780	1.005	1.000	.008	1.2%
2115	.819	1.000	.000	.
2130	1.600	1.000	.000	.
Overall	.990	1.050	.208	30.4%