

CLEAR CREEK COUNTY



2019

CLEAR CREEK COUNTY PROPERTY ASSESSMENT STUDY



WILDROSE
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.

A handwritten signature in black ink that reads "Harry J. Fuller". The signature is written in a cursive style.

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

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INTRODUCTION



Colorado

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.

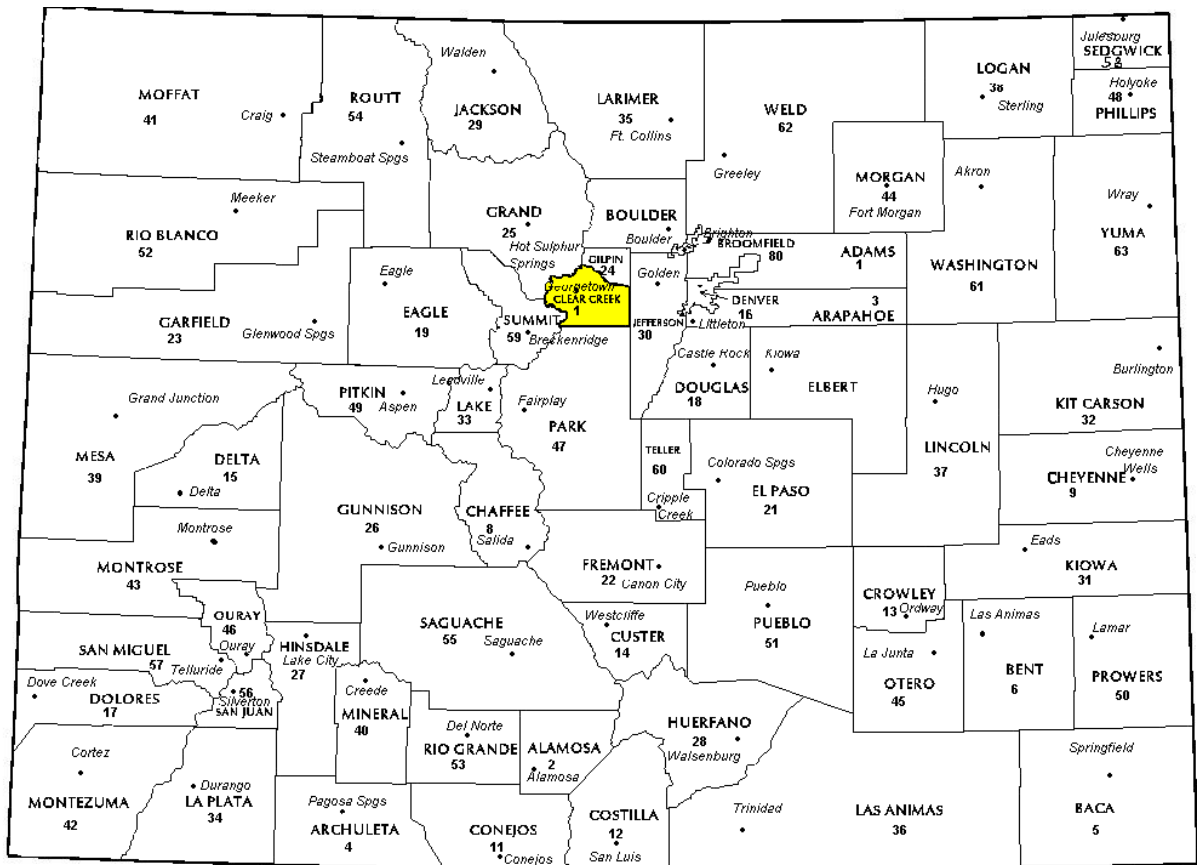
Wildrose Audit has completed the Property Assessment Study for 2019 and is pleased to report its findings for Clear Creek County in the following report.

REGIONAL/HISTORICAL SKETCH OF CLEAR CREEK COUNTY

Regional Information

Clear Creek County is located in the Central Mountains region of Colorado. The Central Mountains Region is in the central portion of Colorado. It extends from the northern Gilpin county boundary approximately 210 miles

southeasterly to the southern boundary of Colorado, including Chaffee, Clear Creek, Custer, Fremont, Gilpin, Huerfano, Lake, Las Animas, Park, and Teller counties.



Historical Information

Clear Creek County had an estimated population of approximately 9,436 people with 23.9 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 3.8 percent change from April 1, 2010 to July 1, 2016.

Clear Creek County was one of the original 17 counties created by the Colorado legislature on 1 November 1861, and is one of only two counties (along with Gilpin) to have persisted with its original boundaries unchanged. It was named after Clear Creek, which runs down from the continental divide through the county. Idaho Springs was originally designated the county seat, but the county government was moved to Georgetown in 1867.

George Jackson discovered gold in a sandbar in the western reaches of Clear Creek (then called Vasquez Creek) just south of present-day Idaho Springs in January, 1859, thus starting the Colorado Gold Rush. Within a year, almost every foot of upper Clear Creek was staked out as a placer claim by miners eager to find their fortune by gold panning. It wasn't long, however, before the creek's easily accessible placer deposits were panned out.

The heartier miners shifted their focus to hard-rock mining, using the hydro-energy from the creek to help with milling operations. Miners continued to venture west, and in 1864 silver was discovered in Georgetown. With thousands of mines in operation, the population of Clear Creek Watershed swelled, at one point reaching 50,000 residents. The first train ran up Clear Creek Canyon in 1872 to Black Hawk. Mining and milling boomed in the area until the late 1890s. Silver mining continued for only two decades until the United States government removed silver as a standard for our monetary system. Gold mining continued sporadically in the communities along the creek until the early 1940s, when it could no longer be sustained.

People today can experience some of Clear Creek County's history by visiting the Georgetown Loop Railroad, a famous railroad that climbs several hundred feet between Georgetown and Silver Plume in a short distance by looping over itself and by taking in the Phoenix Mine, a working gold mine with tours and gold panning available to the public. (*Wikipedia.org, clearcreekwater.org & peaktotop.com*)

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, 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 Clear Creek County are:

Clear Creek County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	30	1.001	0.972	11.6	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	458	1.003	1.009	10.9	Compliant
Vacant Land	159	0.983	1.038	15.7	Compliant

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

Recommendations

None

SOLD / UNSOLD ANALYSIS

Methodology

Clear Creek 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

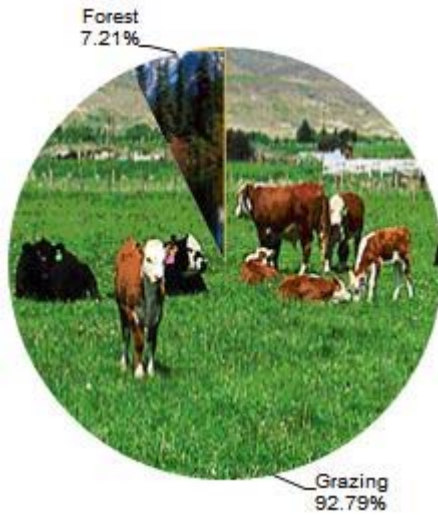
After applying the above described methodologies, it is concluded that Clear Creek County is reasonably treating its sold and unsold properties in the same manner.

Recommendations

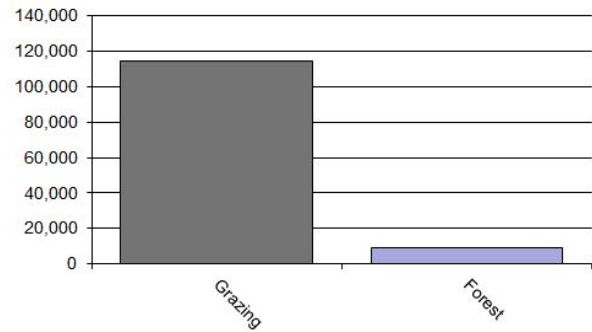
None

AGRICULTURAL LAND STUDY

Acres By Subclass



Value By Subclass



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:

Clear Creek County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4147	Grazing	13,869	8.25	114,442	114,442	1.00
4177	Forest	1,078	8.25	8,895	8,895	1.00
Total/Avg		14,947	8.25	123,337	123,337	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.

of Property Taxation for the valuation of agricultural outbuildings.

Recommendations

None

Conclusions

Clear Creek County has substantially complied with the procedures provided by the Division

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

Clear Creek 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.:

- Field Inspections

Clear Creek 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
- Field Inspections
- Personal Knowledge of Occupants at Assessment Date

Clear Creek 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 Clear Creek County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 32 sales listed as unqualified.

All but two 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.

The following subclasses were analyzed for Clear Creek County:

2112 Merchandising
2130 Special Purpose
3115 Manufacturing/Processing
3215 Manufacturing/Processing

Conclusions

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

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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

Methodology

Colorado Revised Statutes (CRS) Article 39, Section 6, and the Assessor's Reference Library (ARL), Volume 3 are the basis for valuing producing mine property. The gross value of the ore extracted during the preceding year is determined. All costs of treatment, reduction, transportation and sale are deducted to estimate gross proceeds. The costs of extraction are deducted from the gross proceeds to estimate net proceeds.

The current value for assessment is determined by determining if 25% of the gross proceeds or 100% of the net proceeds is greater, then applying that number as the valuation for assessment.

Conclusions

The County valued the producing mine production using acceptable appraisal procedures.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2019 in Clear Creek 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

Clear Creek 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.

Clear Creek County has been reviewed for their procedures and adherence to guidelines

when assessing and valuing 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

Clear Creek 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

Clear Creek 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.

Clear Creek 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
- Knowledge of local properties

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.

Clear Creek 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:

- Accounts with obvious discrepancies
- Incomplete or inconsistent declarations
- Same business type or use
- Non-filing Accounts - Best Information Available
- Accounts protested with substantial disagreement



Conclusions

Clear Creek 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

WILDROSE AUDITOR STAFF

Harry J. Fuller, *Audit Project Manager*

Suzanne Howard, *Audit Administrative Manager*

Steve Kane, *Audit Statistician*

Carl W. Ross, *Agricultural / Natural Resource Analyst*

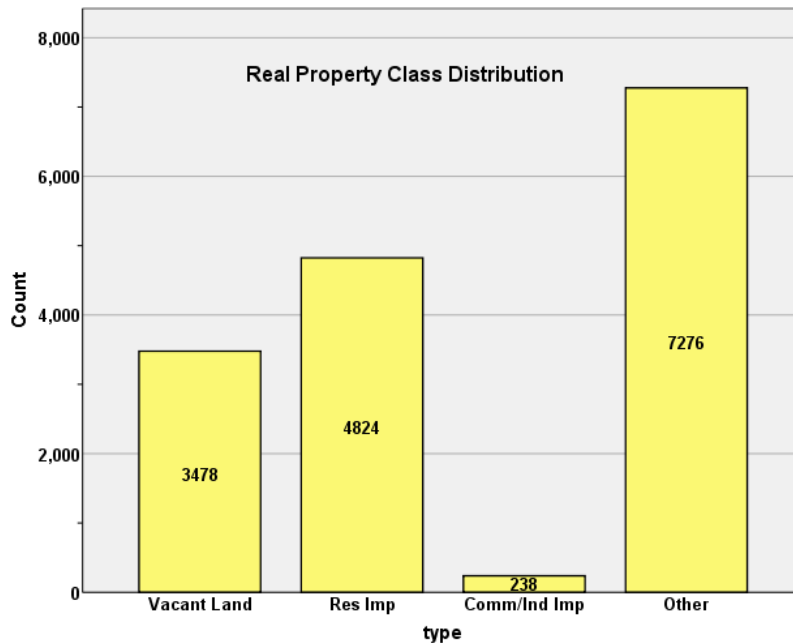
J. Andrew Rodriguez, *Field Analyst*

STATISTICAL APPENDIX

STATISTICAL COMPLIANCE REPORT FOR CLEAR CREEK COUNTY 2019

I. OVERVIEW

Clear Creek County is located in central Colorado. The county has a total of 15,816 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 and 1112) accounted for 62.4% of all vacant land parcels.

For residential improved properties, single family properties accounted for 93.7% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for less than 1.5% 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:

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

Codes

V=Valid Geographic Level – used for modeling

N = Not used as Geographic Level for modeling

The assessor uses appraisal district for geographic stratification analysis when valuing residential properties. They do not use economic area and neighborhood variables, which were missing in the extract file for Clear Creek County. Given that appraisal district is a county-specific variable and is not part of the extract file, we stratified the residential sales analysis by subdivision.

II. DATA FILES

The following sales analyses were based on the requirements of the 2019 Colorado Property Assessment Study. Information was provided by the Clear Creek 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 458 qualified residential sales for the 24-month sale period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

Median	1.003
Price Related Differential	1.009
Coefficient of Dispersion	10.9

We next stratified the sale ratio analysis by subdivisions with at least 15 sales. The following are the results of this stratification analysis:

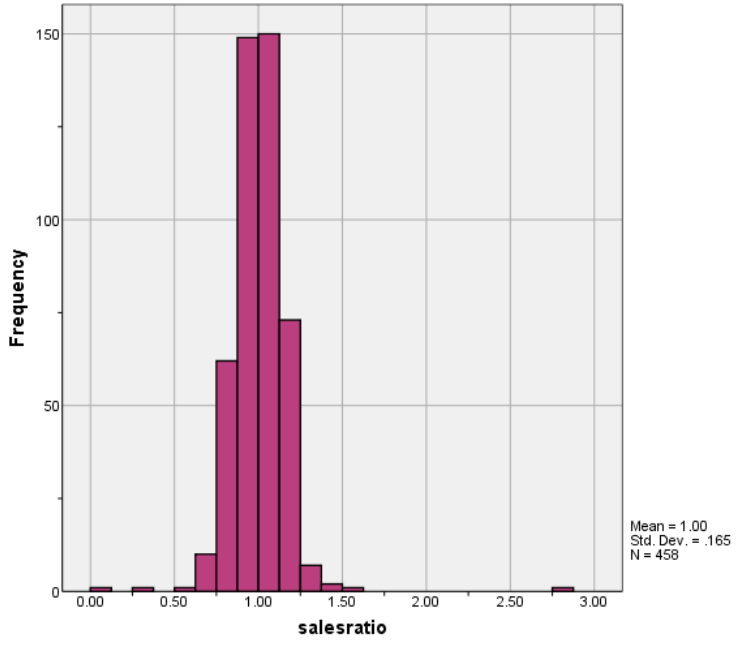
Case Processing Summary

	Count	Percent
SUBDIVNO		
190	25	10.6%
320	23	9.7%
360	34	14.4%
450	19	8.1%
470	38	16.1%
540	17	7.2%
650	16	6.8%
670	28	11.9%
999	36	15.3%
Overall	236	100.0%
Excluded	48	
Total	284	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
190	.994	.994	.156
320	1.009	1.010	.117
360	.993	1.019	.102
450	1.017	1.008	.075
470	.990	1.036	.147
540	1.031	1.016	.079
650	.976	1.019	.077
670	.999	1.004	.099
999	.983	1.006	.093
Overall	.994	1.012	.110

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.

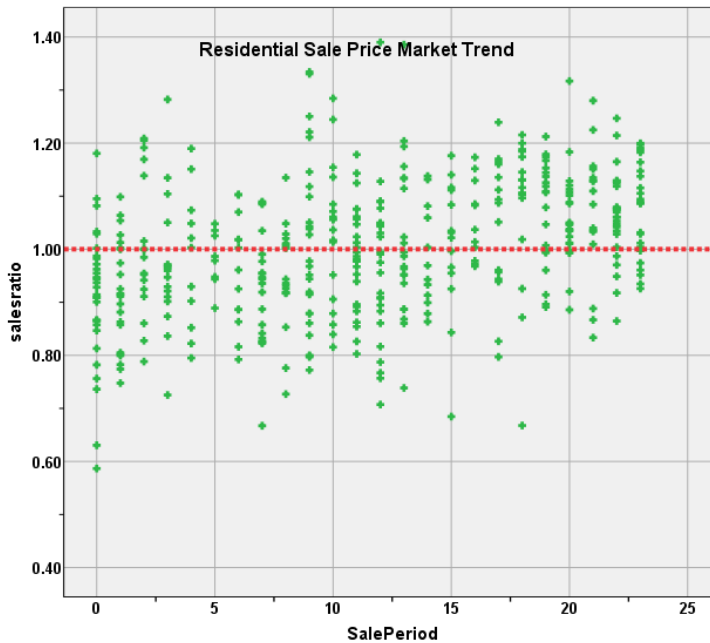
Residential Market Trend Analysis

We next analyzed the residential dataset using the 24-month sale period for any residual market trending, with the following results:

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.925	.011		87.484	.000
	SalePeriod	.007	.001	.371	8.499	.000

a. Dependent Variable: salesratio



The above analysis indicated that there was a statistically significant market trend present in the sales ratio with the 24-month sale period, but was slightly less so with the 18-month sale period. While we are passing the county on this test, the assessor needs to address market trending in the residential sale data and has been advised of this issue.

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, as follows:

Report			
VALSF			
sale	N	Median	Mean
UNSOLD	4324	\$224	\$237
SOLD	456	\$237	\$249

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of VALSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.001	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .01.

Based on the marginally significant difference observed between sold and unsold residential properties, we next applied the second test to analyze any significant difference between sold and unsold properties. This second test compares the median and mean change in actual value from taxable years 2018 and 2019 between sold and unsold residential properties, as follows:

Report

DIFF		N	Median	Mean
UNSOLD		4360	1.21	1.36
SOLD		458	1.24	1.29

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	.038	Retain the null hypothesis.

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

We next stratified this analysis for subdivisions with at least 5 sales, as follows:

Report

DIFF	SUBDIVNO	sold	N	Median	Mean
110	UNSOLD		59	1.25	1.29
	SOLD		5	1.26	1.40
130	UNSOLD		17	1.20	1.19
	SOLD		5	1.17	1.19

155	UNSOLD	30	1.41	1.39
	SOLD	8	1.39	1.45
160	UNSOLD	104	1.15	1.18
	SOLD	12	1.16	1.11
190	UNSOLD	166	1.21	1.22
	SOLD	25	1.24	1.21
230	UNSOLD	79	1.13	1.15
	SOLD	6	1.16	1.18
280	UNSOLD	50	1.16	1.15
	SOLD	8	1.21	1.19
310	UNSOLD	106	1.25	1.30
	SOLD	5	1.25	1.27
320	UNSOLD	230	1.12	1.13
	SOLD	23	1.12	1.10
360	UNSOLD	274	1.26	1.29
	SOLD	34	1.27	1.31
370	UNSOLD	72	1.14	1.14
	SOLD	6	1.16	1.14
450	UNSOLD	223	1.11	1.11
	SOLD	19	1.12	1.14
470	UNSOLD	359	1.32	1.36
	SOLD	38	1.32	1.37
540	UNSOLD	122	1.16	1.17
	SOLD	17	1.22	1.21
560	UNSOLD	30	1.27	1.28
	SOLD	10	1.35	1.39
650	UNSOLD	111	1.11	1.10
	SOLD	16	1.12	1.11
670	UNSOLD	130	1.24	1.25
	SOLD	28	1.24	1.21
700	UNSOLD	45	1.28	1.29
	SOLD	6	1.26	1.27
710	UNSOLD	111	1.13	1.22
	SOLD	10	1.26	1.27
760	UNSOLD	47	1.32	1.36
	SOLD	7	1.29	1.36

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

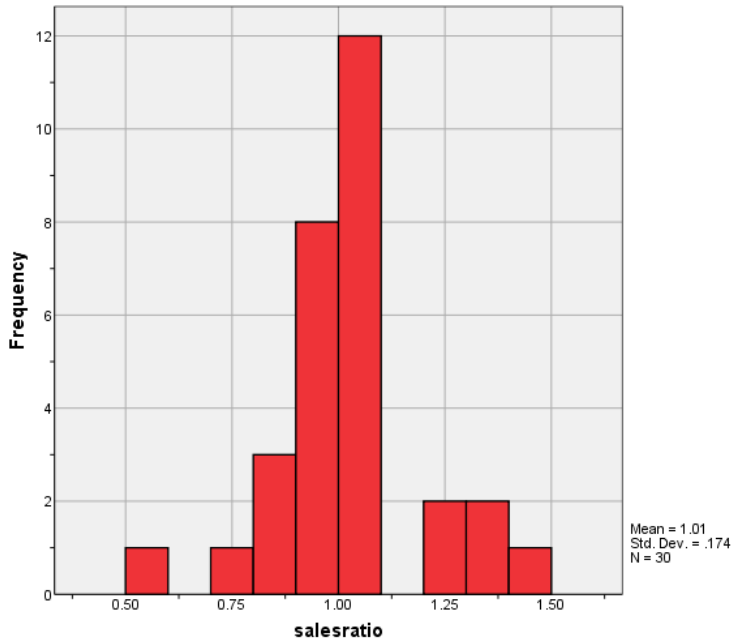
IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 30 qualified commercial and industrial sales for the 60 month sale period ending June 30, 2018.

The sales ratio analysis results were as follows:

Median	1.001
Price Related Differential	0.972
Coefficient of Dispersion	11.6

The above tables indicate that the Clear Creek County commercial/industrial sale ratios were in compliance with the SBOE standards. The following histogram and scatter plot describe the sales ratio distribution further:



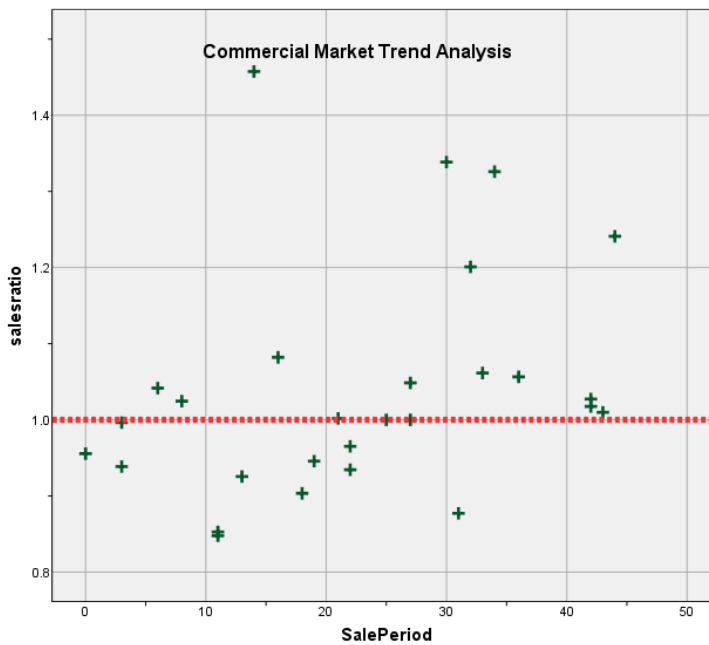
Commercial Market Trend Analysis

The commercial/industrial sales were analyzed, examining the sale ratios across a 60-month sale period with the following results:

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.957	.055		17.373	.000
	SalePeriod	.004	.002	.317	1.702	.101

a. Dependent Variable: salesratio



The market trend results indicated no statistically significant trend. We concluded that the assessor has adequately considered market trending in their commercial/industrial valuations.

Sold/Unsold Analysis

We compared the median change in the actual value between taxable years 2018 and 2019 between sold and unsold commercial properties to determine if the assessor was valuing each group consistently, as follows

Report			
DIFF			
sold	N	Median	Mean
UNSOLD	209	1.14	1.53
SOLD	30	1.21	1.52

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of VALSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.400 ¹	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .01.

¹Exact significance is displayed for this test.

We also stratified this analysis by subclass, with the following results:

Report

DIFF	ABSTRIMP	sold	N	Median	Mean
2212		UNSOLD	55	1.06	1.13
		SOLD	15	1.19	1.21
2215		UNSOLD	13	1.19	1.33
		SOLD	4	1.57	1.51
2220		UNSOLD	8	1.15	1.21
		SOLD	2	1.49	1.49
2230		UNSOLD	80	1.08	1.13
		SOLD	5	1.00	1.04
2235		UNSOLD	16	1.15	1.20
		SOLD	1	1.72	1.72

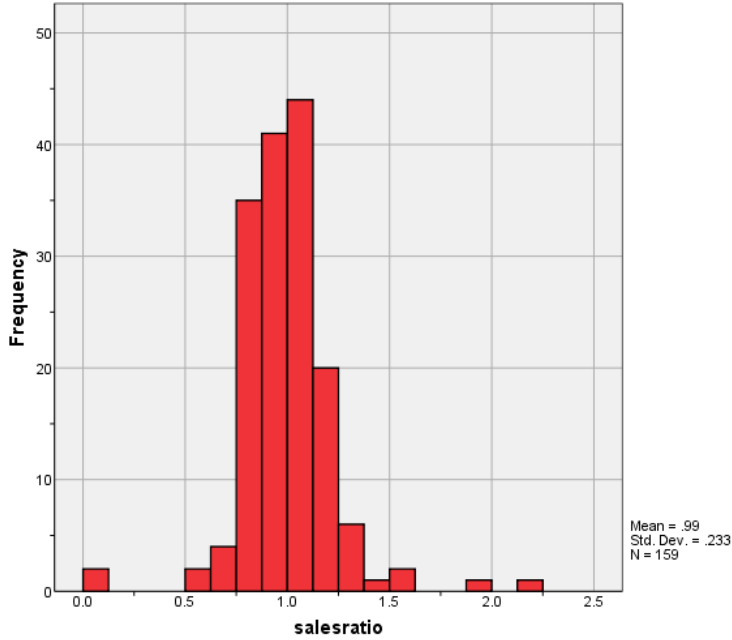
The above results indicate that the assessor has valued sold and unsold commercial properties consistently.

V. VACANT LAND SALE RESULTS

There were 161 qualified vacant land sales for the 24-month sale period ending June 30, 2018. Two sales were trimmed using IAAO standards, resulting in a final count of 159 qualified residential sales. The sales ratio analysis results were as follows:

Median	0.983
Price Related Differential	1.038
Coefficient of Dispersion	15.7

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



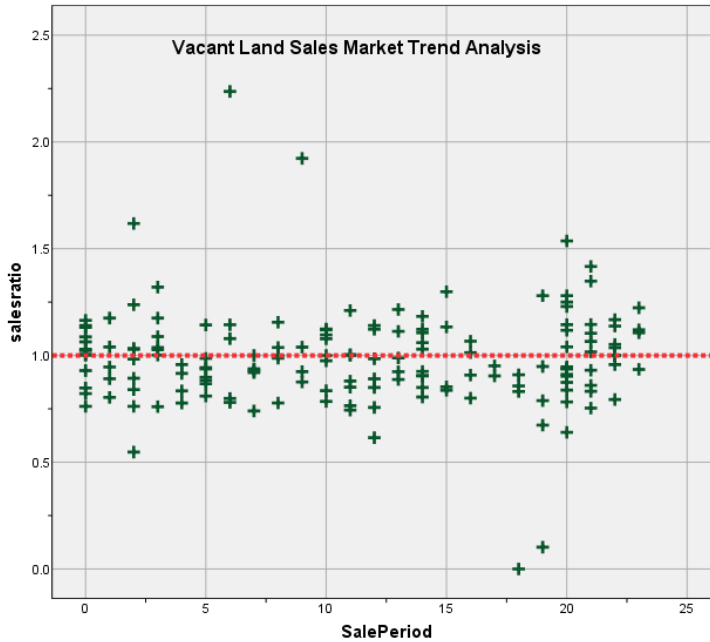
Vacant Land Market Trend Analysis

We analyzed the sales ratios for vacant land sales, based on the time adjusted sale price (TASP) and the actual land value to determine if there was any residual time trending in the vacant land valuations. The vacant land sales were analyzed, examining the sales ratios across the 24 month sale period with the following results:

Coefficients^a

Model	Unstandardized Coefficients		Standardized	t	Sig.	
	B	Std. Error	Coefficients Beta			
1	(Constant)	.994	.034		29.204	.000
	SalePeriod	-.001	.003	-.021	-.267	.790

a. Dependent Variable: salesratio



The market trend analysis indicated no statistically significant trend. Based on these results, we concluded that the assessor has adequately considered market trending in their vacant land valuations.

Sold Unsold Analysis

We compared the median change in actual value between 2018 and 2019 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

Report			
DIFF			
sold	N	Median	Mean
UNSOLD	3311	1.00	1.63
SOLD	159	1.15	1.73

We stratified this analysis by subdivisions with at least 5 sales, as follows:

Report				
DIFF				
SUBDIVNO	sold	N	Median	Mean
160	UNSOLD	147	1.00	1.00
	SOLD	5	1.00	3.00
190	UNSOLD	46	1.00	1.01
	SOLD	5	1.00	1.15
530	UNSOLD	71	1.16	1.49
	SOLD	6	1.06	1.07
540	UNSOLD	26	1.00	1.00
	SOLD	7	1.16	1.14
650	UNSOLD	23	1.00	1.01
	SOLD	6	1.00	.97
670	UNSOLD	662	1.15	1.37
	SOLD	46	1.43	1.51
790	UNSOLD	244	1.04	1.39
	SOLD	24	1.00	1.26
Total	UNSOLD	1219	1.06	1.31
	SOLD	99	1.08	1.42

The above results stratified by subdivisions indicated that sold properties were not valued consistently more than unsold properties.

V. CONCLUSIONS

Based on this statistical analysis, there were no significant compliance issues concluded for Clear Creek County as of the date of this report.

STATISTICAL ABSTRACT

Residential

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				
1.003	.988	1.018	1.003	.987	1.017	95.6%	.994	.980	1.009	1.009	.109	16.4%	

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/Industrial

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				
1.013	.948	1.078	1.001	.946	1.042	95.7%	1.042	.907	1.177	.972	.116	17.1%	

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				
.986	.950	1.023	.983	.935	1.004	96.1%	.950	.902	.997	1.038	.157	23.6%	

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	\$25K to \$50K	2	0.4%
	\$50K to \$100K	15	3.3%
	\$100K to \$150K	21	4.6%
	\$150K to \$200K	33	7.2%
	\$200K to \$300K	131	28.6%
	\$300K to \$500K	164	35.8%
	\$500K to \$750K	68	14.8%
	\$750K to \$1,000K	14	3.1%
	Over \$1,000K	10	2.2%
Overall		458	100.0%
Excluded		0	
Total		458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$25K to \$50K	.853	.983	.101	14.3%
\$50K to \$100K	.994	.991	.130	16.3%
\$100K to \$150K	.997	1.006	.198	43.8%
\$150K to \$200K	1.024	.997	.120	19.0%
\$200K to \$300K	1.029	1.001	.109	15.8%
\$300K to \$500K	.986	1.001	.096	11.8%
\$500K to \$750K	.965	1.000	.091	11.4%
\$750K to \$1,000K	1.003	.995	.097	14.8%
Over \$1,000K	.988	1.015	.129	14.7%
Overall	1.003	1.009	.109	16.5%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	1	0.2%
	1212	420	91.7%
	1225	1	0.2%
	1230	36	7.9%
Overall		458	100.0%
Excluded		0	
Total		458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.052	1.000	.000	.
1212	1.006	1.010	.108	16.1%
1225	.926	1.000	.000	.
1230	.983	1.006	.093	12.6%
Overall	1.003	1.009	.109	16.5%

Age

Case Processing Summary

	Count	Percent
AgeRec 0	1	0.2%
Over 100	72	15.7%
75 to 100	11	2.4%
50 to 75	55	12.0%
25 to 50	202	44.1%
5 to 25	113	24.7%
5 or Newer	4	0.9%
Overall	458	100.0%
Excluded	0	
Total	458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.052	1.000	.000	.
Over 100	.979	1.032	.132	26.3%
75 to 100	.911	1.016	.122	16.3%
50 to 75	.997	.993	.150	19.3%
25 to 50	1.012	1.008	.095	12.3%
5 to 25	1.004	1.006	.090	11.2%
5 or Newer	.881	1.032	.042	6.3%
Overall	1.003	1.009	.109	16.5%

Improved Area

Case Processing Summary

	Count	Percent
ImpSFRec 0	2	0.4%
LE 500 sf	7	1.5%
500 to 1,000 sf	105	22.9%
1,000 to 1,500 sf	160	34.9%
1,500 to 2,000 sf	84	18.3%
2,000 to 3,000 sf	79	17.2%
3,000 sf or Higher	21	4.6%
Overall	458	100.0%
Excluded	0	
Total	458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.489	.556	.893	126.3%
LE 500 sf	.767	1.076	.155	26.6%
500 to 1,000 sf	.997	1.011	.106	13.3%
1,000 to 1,500 sf	1.003	1.009	.101	13.0%
1,500 to 2,000 sf	1.007	1.021	.099	12.2%
2,000 to 3,000 sf	1.002	1.026	.117	24.0%
3,000 sf or Higher	1.061	1.013	.078	10.7%
Overall	1.003	1.009	.109	16.5%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	3	0.7%
	2	36	7.9%
	3	380	83.3%
	4	30	6.6%
	5	7	1.5%
Overall		456	100.0%
Excluded		2	
Total		458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.993	1.050	.253	38.0%
2	.957	.987	.125	17.6%
3	1.008	1.015	.104	15.5%
4	.996	.992	.095	13.1%
5	1.054	1.038	.138	18.9%
Overall	1.003	1.008	.107	15.9%

Improvement Condition

Case Processing Summary

		Count	Percent
CONDITION	1	1	1.8%
	2	6	10.9%
	3	37	67.3%
	4	11	20.0%
Overall		55	100.0%
Excluded		403	
Total		458	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.630	1.000	.000	.
2	.999	1.026	.152	18.1%
3	1.009	1.010	.097	12.9%
4	1.048	1.028	.101	12.5%
Overall	1.009	1.010	.110	14.0%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	\$50K to \$100K	2	6.7%
	\$150K to \$200K	3	10.0%
	\$200K to \$300K	4	13.3%
	\$300K to \$500K	13	43.3%
	\$500K to \$750K	3	10.0%
	Over \$1,000K	5	16.7%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$50K to \$100K	1.022	1.000	.005	0.7%
\$150K to \$200K	1.000	1.001	.019	4.0%
\$200K to \$300K	.994	.992	.115	15.3%
\$300K to \$500K	1.002	.994	.156	21.6%
\$500K to \$750K	.965	1.003	.019	3.3%
Over \$1,000K	.934	.968	.155	28.9%
Overall	1.001	.972	.116	17.4%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	1212	1	3.3%
	2212	15	50.0%
	2215	4	13.3%
	2220	2	6.7%
	2230	5	16.7%
	2235	1	3.3%
	2245	2	6.7%
	Overall		30
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212	1.018	1.000	.000	.
2212	1.010	1.001	.086	13.1%
2215	1.136	.986	.223	26.3%
2220	.803	.969	.275	38.9%
2230	1.000	1.006	.057	7.4%
2235	.925	1.000	.000	.
2245	.839	1.005	.119	16.8%
Overall	1.001	.972	.116	17.4%

Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	13	43.3%
	75 to 100	2	6.7%
	50 to 75	7	23.3%
	25 to 50	4	13.3%
	5 to 25	3	10.0%
	5 or Newer	1	3.3%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	1.000	1.000	.082	11.6%
75 to 100	.902	1.026	.060	8.5%
50 to 75	1.025	1.017	.164	25.0%
25 to 50	1.036	.874	.131	23.9%
5 to 25	.925	.959	.072	14.3%
5 or Newer	1.042	1.000	.000	.
Overall	1.001	.972	.116	17.4%

Improvement Condition

Case Processing Summary

		Count	Percent
CONDITION	1	2	6.9%
	2	6	20.7%
	3	14	48.3%
	4	6	20.7%
	5	1	3.4%
Overall		29	100.0%
Excluded		1	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.022	1.000	.005	0.7%
2	.950	.995	.134	21.3%
3	.998	.940	.127	19.8%
4	1.045	1.012	.065	9.8%
5	1.000	1.000	.000	.
Overall	1.000	.967	.108	16.6%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT \$25K	95	59.7%
	\$25K to \$50K	23	14.5%
	\$50K to \$100K	26	16.4%
	\$100K to \$150K	3	1.9%
	\$150K to \$200K	7	4.4%
	\$200K to \$300K	3	1.9%
	\$300K to \$500K	1	0.6%
	\$500K to \$750K	1	0.6%
Overall		159	100.0%
Excluded		0	
Total		159	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.000	1.000	.165	23.6%
\$25K to \$50K	.948	.996	.098	12.3%
\$50K to \$100K	.988	1.010	.198	33.8%
\$100K to \$150K	.924	.997	.050	9.7%
\$150K to \$200K	.957	.996	.096	12.8%
\$200K to \$300K	.939	.993	.070	10.8%
\$300K to \$500K	.762	1.000	.000	.
\$500K to \$750K	.893	1.000	.000	.
Overall	.983	1.038	.157	23.7%

**Subclass
Case Processing Summary**

		Count	Percent
ABSTRLND	0	1	0.6%
	100	111	69.8%
	510	1	0.6%
	520	17	10.7%
	530	9	5.7%
	540	2	1.3%
	550	9	5.7%
	560	1	0.6%
	1112	7	4.4%
	1135	1	0.6%
Overall		159	100.0%
Excluded		0	
Total		159	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.000	.	.	.
100	.985	1.011	.149	20.1%
510	.851	1.000	.000	.
520	.988	1.054	.126	15.3%
530	.947	.989	.080	10.7%
540	.902	1.005	.024	3.4%
550	.957	1.061	.085	11.6%
560	1.040	1.000	.000	.
1112	1.078	.957	.262	38.1%
1135	2.236	1.000	.000	.
Overall	.983	1.038	.157	23.7%