2019
ARAPAHOE 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

TABLE OF CONTENTS

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 Arapahoe County in the following report.

REGIONAL/HISTORICAL SKETCH OF ARAPAHOE COUNTY

Regional Information

Arapahoe 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.
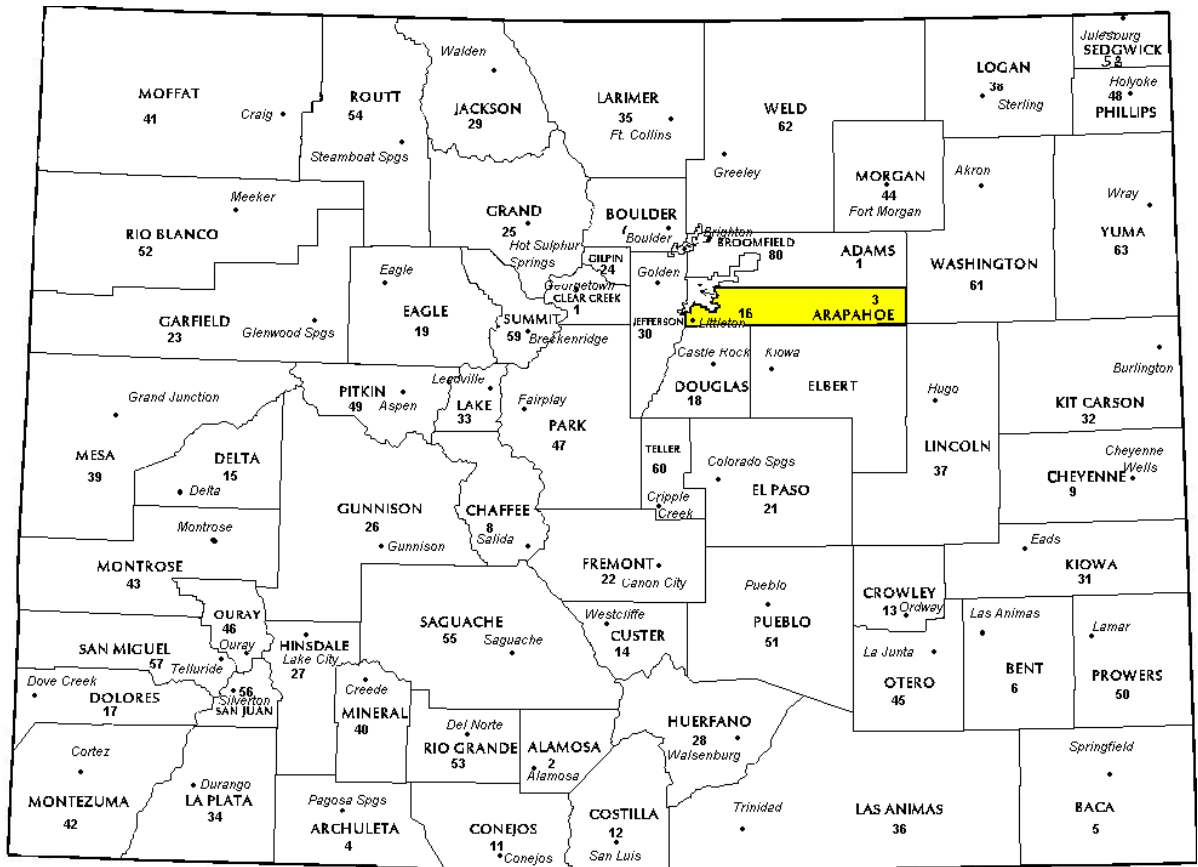
Historical Information

Arapahoe County had an estimated population of approximately 637,068 people with 797.3 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 11.4 percent change from April 1, 2010 to July 1, 2016.

Arapahoe County is the third most populous of the 64 Colorado counties. The county seat is Littleton and the most populous city is Aurora. Arapahoe County is part of the Denver-Aurora Metropolitan Statistical Area and the Denver-Aurora-Boulder Combined Statistical Area. Arapahoe County calls itself "Colorado's First County" since its origins predate the Pike's Peak Gold Rush.

On August 25, 1855, the Kansas Territorial Legislature created a huge Arapahoe County to govern the entire western portion of the Territory of Kansas. The county was named for the Arapaho Nation of Native Americans that lived in the region.

In July 1858, gold was discovered along the South Platte River in Arapahoe County (in present day Englewood). This discovery precipitated the Pike's Peak Gold Rush. Many residents of the mining region felt disconnected from the remote territorial governments of Kansas and Nebraska, so they voted to form their own Territory of Jefferson on October 24, 1859. The following month, the Jefferson Territorial Legislature organized 12 counties for the new territory, including a new Arapahoe County. Denver City served as the county seat of Arapahoe County.

The Jefferson Territory never received federal sanction, but on February 28, 1861, U.S. President James Buchanan signed an act organizing the Territory of Colorado. On November 1, 1861, the Colorado General Assembly organized the 17 original counties of Colorado including a new Arapahoe County. Arapahoe County originally stretched from the line of present-day Sheridan Boulevard 160 miles east to the Kansas state border, and from the line of present-day County Line Road 30 miles north to the Parallel 40° North (168th Avenue). Denver City served as the county seat of Arapahoe County until 1902.

In 1901, the Colorado General Assembly voted to split Arapahoe County into three parts: a new consolidated City and County of Denver, a new Adams County, and the remainder of the Arapahoe County to be renamed South Arapahoe County. A ruling by the Colorado Supreme Court, subsequent legislation, and a referendum delayed the reorganization until November 15, 1902. Governor James Bradley Orman designated Littleton as the temporary county seat of South Arapahoe County. On April 11, 1903, the Colorado General Assembly changed the name of South Arapahoe County back to Arapahoe County. On November 8, 1904, Arapahoe County voters chose Littleton over Englewood by a vote of 1310 to 829 to be the permanent county seat. *(Wikipedia.org)*

RATIO ANALYSIS

Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 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 Arapahoe County are:

Arapahoe County Ratio Grid					
Property Class	**Number of Qualified Sales**	**Unweighted Median Ratio**	**Price Related Differential**	**Coefficient of Dispersion**	**Time Trend Analysis**
Commercial/Industrial	390	0.992	1.010	6.4	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	26,965	1.000	1.005	2.8	Compliant
Vacant Land	192	1.033	1.064	17.5	Compliant

After applying the above described methodologies, it is concluded from the sales ratios that Arapahoe 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 Arapahoe County has complied with the statutory requirements to analyze the effects of time on value in their county. Arapahoe 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

Arapahoe 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 Arapahoe County is reasonably treating its sold and unsold properties in the same manner.

Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass	Value By Subclass
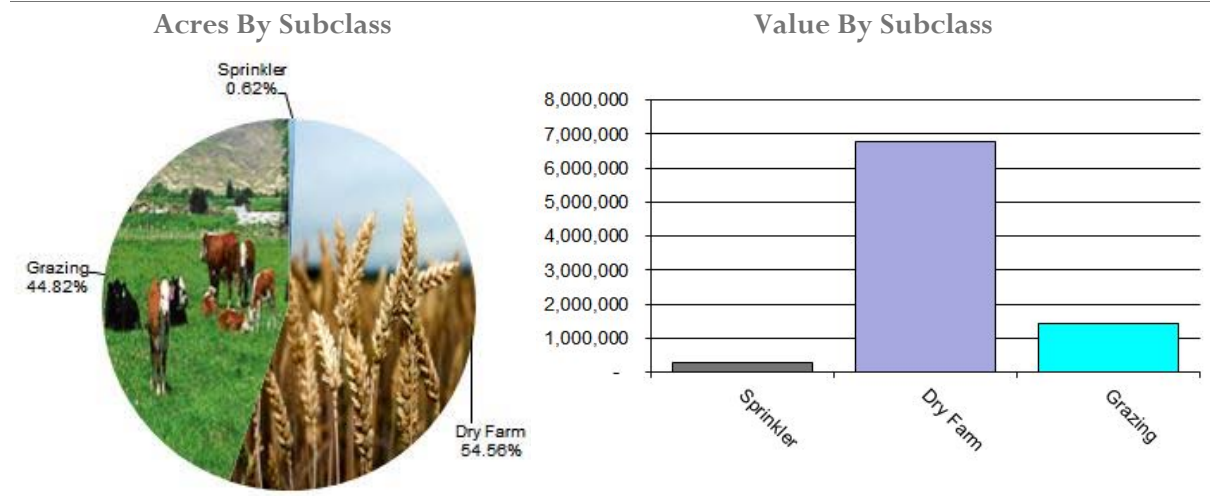
Agricultural Land

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:

Arapahoe County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4107	Sprinkler	1,924	149.67	287,946	287,624	1.00
4127	Dry Farm	169,476	40.03	6,784,145	6,504,246	1.04
4147	Grazing	139,198	10.31	1,434,867	1,434,867	1.00
Total/Avg		**310,598**	**27.39**	**8,506,958**	**8,226,737**	**1.03**

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

Arapahoe 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

Arapahoe 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
- Aerial Photography/Pictometry

Arapahoe 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

Arapahoe 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 Arapahoe County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 61 sales listed as unqualified.

All but one of the sales selected in the sample gave reasons that were clear and supportable. One sale 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.

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

Conclusions

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

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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

Arapahoe 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.

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

Conclusions

Arapahoe 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

Arapahoe 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.

Arapahoe 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
- Chamber of Commerce/Economic Development Contacts
- Personal Observation, Physical Canvassing or Word of Mouth
- Verify all businesses in TIF locations
- 1/3 of the county annually

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.

Arapahoe 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
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts protested with substantial disagreement

Arapahoe 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

Arapahoe 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

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Steve Kane, *Audit Statistician*

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J. Andrew Rodriguez, *Field Analyst*

STATISTICAL APPENDIX

STATISTICAL COMPLIANCE REPORT
FOR ARAPAHOE COUNTY
2019

I. OVERVIEW

Arapahoe County is an urban county that is part of the Denver metropolitan area. The county has a total of 216,164 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:
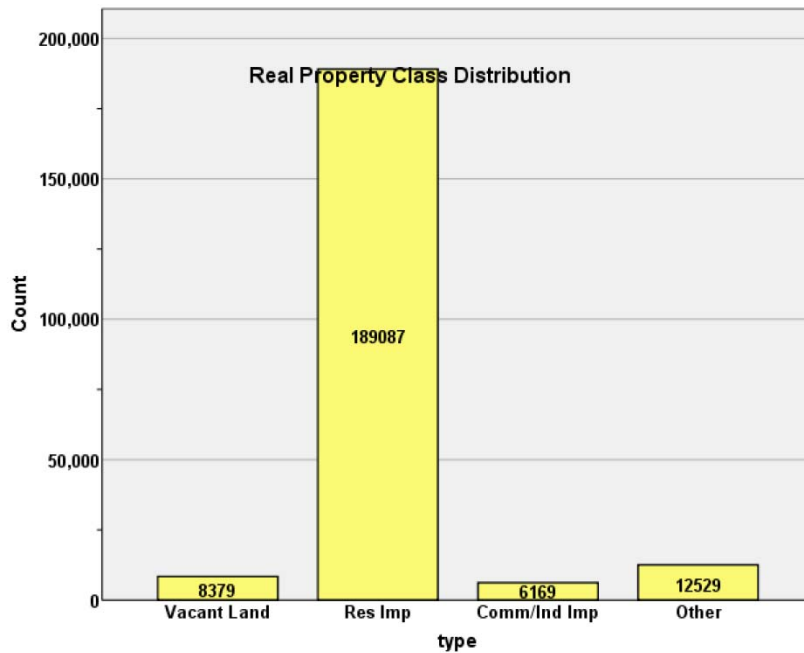
The vacant land class of properties was dominated by residential land. Residential and PUD lots (coded 100 and 400) accounted for 81.7% of all vacant land parcels.

For residential improved properties, single family properties accounted 84.4% of all residential properties. The next significant subclass of properties was condominiums (coded 1230), which accounted for 14.5% of all properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 2.9% of all such properties in this county.

Based on the Audit questionnaire, 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	N	N	N
Neighborhood	N	N	V
Subdivision	N	N	N

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

Note: The MRA models and time studies, are done by region for single family properties. Regions are defined in the extra document which was given to Harry Fuller during his field visit. The MRA modeled value is NOT the final value used for residential properties. A comparable sales selection process is use to value single family, condos, and duplex/triplex properties. Commercial models are applied by similar use not geographic location.

Based on the above geographic breakdowns for Arapahoe County, we will stratify residential properties by economic area and by neighborhood, the latter for neighborhoods with at least 20 sales.

II. DATA FILES

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

III. RESIDENTIAL SALES RESULTS

There were 26,965 qualified residential sales for the 24-month sale period ending June 30, 2018. The sales ratio analysis was as follows:

Ratio Statistics

Median	1.000
Price Related Differential	1.005
Coefficient of Dispersion	2.8

Based on the Audit questionnaire, the following geographic levels were used by the assessor to value residential, commercial and vacant land properties:

Case Processing Summary

		Count	Percent
ECONAREA	1.00	58	0.2%
	2.00	106	0.4%
	3.00	850	3.2%
	4.00	677	2.5%
	5.00	1073	4.0%
	6.00	535	2.0%
	7.00	1048	3.9%
	8.00	5290	19.7%
	9.00	357	1.3%
	10.00	2724	10.1%
	11.00	5120	19.0%
	12.00	338	1.3%
	13.00	821	3.1%
	14.00	1088	4.0%
	15.00	183	0.7%
	16.00	229	0.9%
	17.00	726	2.7%
	18.00	5360	19.9%
	19.00	194	0.7%
	20.00	1	0.0%
	102.00	1	0.0%
	103.00	5	0.0%
	104.00	32	0.1%
	105.00	2	0.0%
	106.00	10	0.0%
	107.00	1	0.0%
	108.00	5	0.0%
	110.00	5	0.0%
	111.00	1	0.0%
	112.00	4	0.0%
	113.00	28	0.1%
	114.00	6	0.0%
	117.00	3	0.0%
	119.00	1	0.0%
Overall		26882	100.0%
Excluded		83	
Total		26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	1.001	1.002	.020
2.00	1.000	1.003	.020
3.00	.999	1.002	.033
4.00	1.000	1.003	.030
5.00	1.000	1.002	.030
6.00	1.000	1.004	.041
7.00	1.000	1.001	.027
8.00	1.000	1.002	.031
9.00	1.000	1.003	.038
10.00	1.000	1.001	.026
11.00	1.000	1.001	.026
12.00	1.000	1.001	.011
13.00	1.000	1.003	.025
14.00	1.000	1.002	.021
15.00	1.000	1.000	.016
16.00	1.000	1.000	.022
17.00	1.000	1.001	.026
18.00	1.000	1.002	.027
19.00	1.001	1.003	.024
20.00	.995	1.000	.000
102.00	.963	1.000	.000
103.00	.982	.998	.022
104.00	.997	1.003	.048
105.00	.987	.986	.015
106.00	1.026	1.006	.047
107.00	1.074	1.000	.000
108.00	.991	.976	.055
110.00	1.069	1.020	.040
111.00	1.058	1.000	.000
112.00	1.031	1.496	.113
113.00	.998	1.002	.048
114.00	1.043	.980	.059
117.00	1.088	1.042	.065
119.00	1.063	1.000	.000
Overall	1.000	1.005	.028

For the 21 economic areas with at least 20 sales, the median sales ratio and coefficient of dispersion metrics were in compliance. We next stratified residential sales by neighborhoods with at least 20 sales, as follows:

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
8	1.000	1.001	.008
11	1.000	1.000	.019
18	1.000	1.000	.017
23	1.003	1.001	.023
24	1.008	1.000	.011
26	1.000	1.001	.017
27	1.000	1.000	.017
33	1.000	1.000	.015
36	.998	1.002	.025
38	.998	1.000	.021
40	1.002	1.000	.015
44	1.003	1.001	.024
45	1.008	1.009	.060
48	1.004	1.002	.019
50	1.001	.998	.039
52	1.000	1.001	.019
53	.998	1.003	.040
58	1.002	1.006	.041
61	.999	1.000	.016
63	1.001	1.001	.015
69	1.002	1.006	.037
87	.995	1.001	.022
91	1.000	1.002	.029
100	1.000	1.001	.018
102	.999	1.002	.025
109	1.001	1.000	.015
110	1.000	1.000	.020
111	1.000	1.002	.026
112	1.003	1.002	.033
115	.993	1.004	.043
117	1.000	1.001	.012
119	1.001	1.002	.023
126	1.000	1.000	.016
128	1.001	1.000	.014
131	1.000	1.001	.011
133	1.008	1.002	.044
136	1.001	1.005	.028
140	.997	1.001	.016
141	1.000	1.001	.009
144	1.031	1.002	.039
147	1.000	1.001	.028
148	1.001	1.001	.015
149	1.000	1.001	.020
151	1.008	1.002	.034
155	.977	1.006	.058
157	1.000	1.002	.023
164	.998	1.001	.030
166	.998	1.001	.015
167	.987	1.002	.038
170	.976	1.004	.042
173	.992	1.001	.030
174	1.003	1.003	.043

176	.994	1.003	.031
177	1.000	1.001	.014
178	1.000	1.006	.036
179	1.002	1.002	.027
182	.998	1.002	.020
183	1.000	1.002	.025
186	1.004	1.000	.027
192	.991	1.012	.065
196	1.000	1.001	.017
202	1.029	1.003	.053
208	1.000	1.000	.017
210	.999	1.000	.013
218	.996	1.003	.042
220	1.000	1.004	.023
225	1.000	1.002	.031
226	.999	1.003	.023
231	.974	1.005	.054
233	1.003	1.004	.042
243	.993	1.001	.026
247	1.000	1.002	.026
248	.997	1.002	.029
249	.996	1.011	.065
250	1.012	1.002	.034
251	.984	1.002	.039
253	1.000	1.001	.018
254	1.000	1.001	.024
261	1.006	1.002	.047
262	1.001	1.006	.041
263	1.000	1.001	.020
264	.999	1.011	.045
266	1.000	1.001	.007
271	1.002	1.002	.018
272	.999	1.001	.015
273	1.002	1.002	.033
277	1.000	1.002	.023
279	1.002	1.001	.024
280	1.001	1.001	.019
284	.997	1.001	.016
285	1.001	1.001	.032
288	1.001	1.001	.028
290	1.000	1.000	.010
291	.998	1.001	.026
304	1.001	1.004	.038
312	.997	1.001	.026
315	.999	1.003	.035
321	1.008	1.003	.038
324	.992	1.001	.029
329	.987	1.001	.025
345	1.002	1.001	.020
348	.996	1.005	.037
349	1.000	1.002	.028
350	1.002	1.005	.049
353	.999	1.002	.028
354	1.000	1.002	.033
371	1.002	1.001	.028
372	1.000	1.002	.026
374	1.000	1.002	.022

375	1.001	1.000	.018
378	.999	1.000	.013
380	.999	1.004	.031
387	1.001	1.001	.021
391	1.003	1.005	.035
401	.995	1.002	.049
410	1.000	1.001	.029
416	1.000	1.001	.011
423	.993	1.002	.043
428	.998	1.001	.012
431	.999	1.002	.031
451	1.001	1.003	.016
457	1.000	1.001	.013
458	.998	1.000	.012
477	1.002	1.001	.023
479	1.000	1.005	.050
481	1.021	1.003	.050
509	1.000	1.002	.025
531	1.000	1.001	.024
550	1.001	1.001	.007
562	.997	1.001	.025
564	.993	1.008	.072
570	1.000	1.001	.021
582	.989	1.002	.033
595	1.001	1.000	.013
596	1.000	1.001	.023
598	1.007	1.001	.025
599	1.009	1.001	.025
600	1.000	1.001	.012
601	1.000	1.001	.018
606	.984	1.003	.037
607	1.006	1.003	.040
608	1.002	1.001	.036
609	1.011	1.001	.023
610	1.000	1.000	.023
611	1.001	1.003	.036
612	1.006	1.002	.041
613	1.005	1.002	.034
614	1.005	1.002	.029
623	.999	1.009	.054
626	1.000	1.001	.008
641	1.000	1.001	.022
643	1.002	1.001	.020
648	1.000	1.001	.017
654	1.001	1.001	.019
661	1.000	1.001	.020
683	1.007	1.001	.038
686	1.001	1.002	.020
718	.997	1.002	.023
732	1.002	1.002	.019
761	1.000	1.001	.023
763	1.000	1.001	.015
773	1.000	1.006	.036
774	.993	1.001	.022
779	.999	1.001	.023
782	1.002	1.003	.039
790	1.000	1.001	.015

791	1.000	1.000	.011
806	.988	1.001	.024
829	.998	1.000	.011
842	.999	1.001	.017
843	.996	1.002	.040
844	1.001	.999	.053
847	1.002	1.002	.028
866	1.000	1.003	.034
868	.996	1.002	.030
870	1.000	1.004	.028
897	.999	1.001	.009
903	.997	1.001	.035
915	1.002	1.004	.029
960	1.000	1.001	.013
961	1.001	1.004	.034
977	1.005	1.006	.031
979	1.003	1.002	.030
980	1.000	1.001	.013
989	.998	1.001	.023
1000	.987	1.001	.036
1018	1.000	1.001	.014
1019	1.000	1.000	.008
1021	1.001	1.001	.019
1040	1.000	1.002	.036
1041	1.001	1.002	.031
1046	1.000	1.001	.021
1047	1.005	1.001	.033
1054	1.001	1.005	.026
1062	.992	1.008	.056
1072	1.002	1.001	.022
1090	1.002	1.003	.034
1097	.996	1.002	.028
1105	.997	1.001	.041
1167	1.008	1.005	.056
1172	1.000	1.002	.028
1173	.999	1.002	.028
1183	.934	1.016	.097
1202	.999	1.001	.015
1210	1.002	1.002	.026
1254	.993	1.003	.056
1291	1.001	1.005	.034
1297	.989	1.003	.042
1313	.996	1.001	.026
1321	1.006	1.005	.044
1324	1.000	1.002	.026
1380	.994	1.003	.035
1386	1.002	1.001	.021
1394	1.000	1.001	.018
1454	1.000	1.001	.017
1476	.998	1.001	.013
1478	1.051	1.004	.051
1479	.998	1.003	.036
1481	.999	1.001	.026
1482	.999	1.001	.015
1483	.998	1.001	.028
1509	1.000	1.002	.022
1510	1.011	1.003	.038

1524	1.003	1.001	.031
1525	1.001	1.002	.033
1526	1.000	1.001	.011
1564	1.000	1.002	.029
1566	1.000	1.000	.016
1583	1.001	1.002	.018
1584	.995	1.001	.023
1586	1.000	1.000	.016
1588	.998	1.002	.024
1589	1.000	1.002	.023
1590	1.000	1.001	.017
1591	.999	1.004	.029
1592	1.000	1.001	.029
1594	1.000	1.001	.025
1600	.998	1.001	.028
1610	1.014	1.003	.036
1623	1.000	1.001	.007
1635	.997	1.004	.042
1636	1.003	1.005	.037
1647	1.000	1.001	.023
1654	1.006	1.000	.020
1655	.997	1.001	.016
1659	.999	1.008	.057
1670	1.022	1.001	.046
1685	1.000	1.001	.020
1712	1.000	1.001	.016
1714	1.000	1.001	.019
1718	.992	1.001	.024
1720	.998	1.000	.016
1722	.999	1.001	.022
1725	1.000	1.002	.032
1739	.996	1.003	.037
1750	.999	1.001	.025
1751	.999	1.001	.011
1753	.999	1.001	.032
1755	.998	1.003	.043
1763	1.000	1.001	.019
1766	1.000	1.002	.021
1776	1.002	1.001	.025
1780	1.002	1.003	.039
1783	1.000	1.001	.012
1789	.994	1.002	.024
1808	.999	1.002	.028
1811	.999	1.001	.019
1819	1.000	1.002	.037
1834	1.013	1.004	.054
1835	.991	1.001	.028
1860	.993	1.001	.024
1863	1.001	1.000	.006
1866	1.000	1.002	.018
1871	1.000	1.002	.017
1875	.954	1.006	.059
1876	.990	1.001	.031
1882	1.006	1.004	.036
1888	.992	1.003	.036
1900	.991	1.006	.048
1903	1.001	1.007	.053

1905	1.000	1.002	.018
1907	1.000	1.001	.026
1909	1.003	1.001	.024
1913	1.001	1.001	.024
1918	1.005	1.002	.030
1920	.998	1.002	.022
1921	1.002	1.000	.019
1923	1.004	1.002	.034
1924	1.001	1.001	.024
1926	.993	1.001	.023
1932	1.000	1.001	.018
1936	1.000	1.001	.021
1937	.969	1.001	.035
1940	.997	1.001	.030
1942	1.002	1.001	.017
1943	1.007	1.003	.038
1946	1.002	1.001	.014
1956	1.000	1.001	.017
1959	1.000	1.001	.024
1969	.997	1.000	.024
1978	.999	1.002	.027
2000	1.000	1.003	.035
2002	1.000	1.000	.014
2007	.999	1.001	.017
2014	1.002	1.000	.015
2017	1.000	1.001	.014
2020	.998	1.001	.012
2021	1.001	1.000	.016
2022	.989	1.002	.029
2023	1.000	1.000	.010
2046	.999	1.001	.010
2050	.998	1.000	.019
2052	.992	1.001	.022
2053	1.002	1.002	.032
2056	1.001	1.001	.022
2060	1.000	1.003	.025
2064	1.002	1.000	.016
2065	1.013	1.004	.052
2068	1.002	1.004	.050
2080	.998	1.003	.034
2083	1.000	1.004	.033
2084	1.002	1.002	.028
2085	1.001	1.001	.027
2094	.997	1.005	.046
2101	1.000	1.002	.023
2102	1.003	1.001	.019
2103	1.009	1.002	.029
2104	1.002	1.001	.021
2107	1.000	1.002	.021
2108	.997	1.001	.035
2110	1.001	1.002	.016
2113	.989	1.008	.063
2118	1.006	1.001	.025
2120	1.003	.998	.020
2121	1.000	1.000	.014
2126	1.000	1.002	.027
2131	.994	1.003	.035

2133	.989	1.003	.062
2134	1.004	1.004	.047
2146	1.007	1.002	.035
2151	1.004	1.006	.045
2156	.999	1.000	.010
2159	1.000	1.001	.020
2161	1.001	1.002	.026
2162	1.003	1.003	.032
2163	1.004	1.000	.016
2172	.999	1.005	.034
2175	.994	1.001	.038
2176	1.001	1.000	.018
2179	1.000	1.004	.029
2181	.992	1.002	.031
2190	1.000	1.002	.013
2193	.965	1.013	.078
2200	.994	1.001	.021
2222	1.002	1.000	.034
2228	.987	1.002	.038
2238	1.000	1.001	.013
2250	1.000	1.002	.021
2256	.997	1.003	.053
2265	.977	1.004	.051
2270	1.000	1.004	.046
2276	1.002	1.002	.027
2289	1.002	1.001	.017
2292	1.001	1.002	.022
2293	.999	1.001	.027
2294	1.000	1.002	.018
2295	1.002	1.001	.019
2296	1.000	1.001	.021
2297	1.002	1.001	.026
2300	1.000	1.000	.013
2305	.994	1.002	.031
2306	1.008	1.001	.028
2308	1.001	1.002	.026
2312	1.002	1.001	.025
2313	1.000	1.002	.031
2314	.998	1.001	.030
2315	.999	1.001	.020
2317	1.001	1.002	.021
2318	1.017	1.001	.038
2322	.994	1.005	.047
2323	.997	1.002	.030
2324	1.000	1.001	.025
2329	1.003	1.003	.042
2330	1.000	1.000	.025
2332	.996	1.002	.029
2342	1.001	1.001	.028
2350	.981	1.004	.054
2352	1.022	1.005	.047
2353	.976	1.006	.052
2363	1.001	1.001	.016
2368	.993	1.001	.026
2373	1.011	1.002	.043
2374	1.008	1.002	.037
2380	.999	1.001	.020

2405	1.000	1.001	.016
2436	1.002	1.001	.024
2437	1.007	1.002	.036
2438	1.000	1.000	.016
2440	1.003	1.001	.027
2448	1.001	1.001	.031
2453	1.001	1.001	.016
2454	.998	1.001	.020
2455	1.001	1.001	.022
2456	1.004	1.001	.021
2460	1.002	1.007	.047
2465	1.001	1.002	.026
2472	.998	1.001	.017
2473	1.000	1.002	.028
2476	1.002	1.002	.022
2477	.995	1.004	.048
2490	.996	1.002	.032
2500	1.001	1.003	.026
2514	1.005	1.003	.030
2516	1.002	1.004	.029
2518	.999	1.003	.034
2519	1.000	1.002	.023
2525	1.000	1.001	.020
2526	1.000	1.000	.009
2549	1.000	1.003	.026
2567	.985	1.002	.071
2586	1.006	1.002	.031
2601	.995	1.001	.026
2610	.998	1.006	.048
2613	.999	1.002	.027
2627	.990	1.007	.058
2634	.999	1.002	.026
2686	.994	1.002	.026
2687	1.001	1.002	.018
2688	1.003	1.002	.028
2689	.995	1.002	.032
2744	.998	1.001	.024
2750	.999	1.001	.024
2752	1.000	1.001	.024
2760	.996	1.014	.071
2762	1.008	1.001	.029
2764	1.002	1.001	.020
2765	.996	1.000	.057
2766	.999	1.000	.019
2768	1.000	1.002	.046
2769	1.001	1.000	.013
2770	1.008	1.006	.050
2776	.998	1.002	.022
2779	.987	1.002	.029
2792	.998	1.001	.025
2795	.999	1.001	.013
2798	.999	1.002	.032
2799	1.004	1.003	.038
2801	1.002	1.006	.055
2813	.999	1.002	.029
2814	1.003	1.001	.027
2815	1.000	1.001	.023

2816	.998	1.003	.025
2889	.999	1.003	.033
2893	1.001	1.001	.019
2894	1.000	1.001	.013
2902	1.001	1.001	.019
2905	1.000	1.001	.019
2906	1.003	1.001	.025
2910	1.001	1.001	.026
2912	.999	1.002	.015
2913	.989	1.006	.047
2918	.999	1.000	.017
2929	.996	1.001	.023
2932	.999	1.001	.015
2935	.998	1.005	.033
2938	1.001	1.001	.020
2939	1.000	1.002	.026
3003	.997	1.003	.048
3013	.998	1.002	.048
3040	1.000	1.002	.023
Overall	1.000	1.002	.029

The above ratio statistics, stratified by neighborhoods, 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 all of these properties:

Mean = 1.00
Std. Dev. = .048
N = 26,965

Residential Sale Price by Sales Ratio
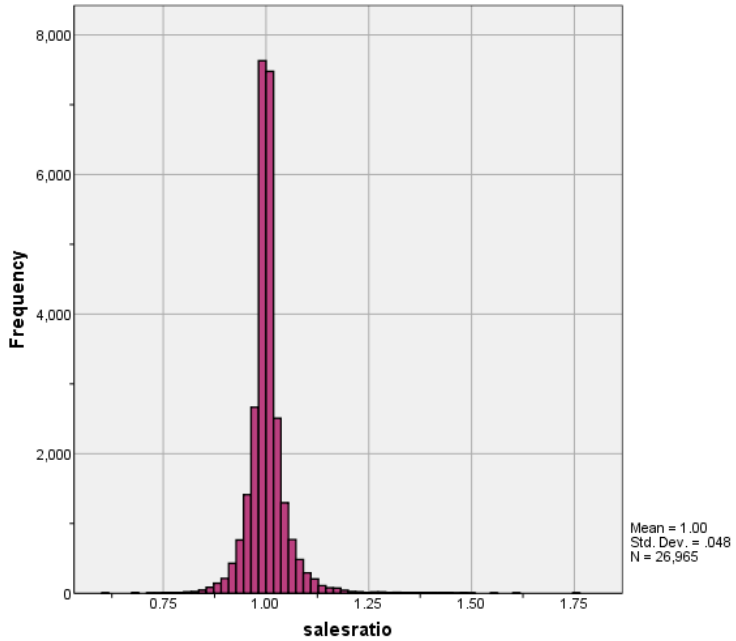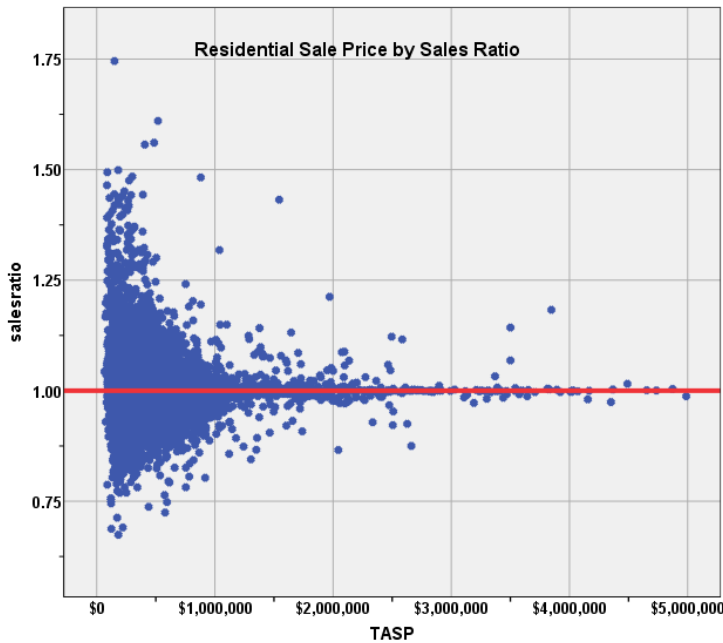
NOTE: Above sales do not include sales over $5,000,000.

The above histogram indicates 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, with the following results:

Coefficients[a]

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.	1	(Constant)	1.030	.018		57.983	.000
		SalePeriod	-.001	.001	-.068	-.610	.544
1.00	1	(Constant)	.994	.007		146.941	.000
		SalePeriod	.001	.000	.232	1.782	.080
2.00	1	(Constant)	1.012	.008		120.650	.000
		SalePeriod	-.001	.001	-.141	-1.456	.148
3.00	1	(Constant)	1.005	.004		279.895	.000
		SalePeriod	.000	.000	-.042	-1.230	.219
4.00	1	(Constant)	1.001	.004		264.498	.000
		SalePeriod	.000	.000	.047	1.221	.223
5.00	1	(Constant)	1.002	.003		308.897	.000
		SalePeriod	.000	.000	.014	.448	.654
6.00	1	(Constant)	1.003	.006		174.691	.000
		SalePeriod	.000	.000	.032	.744	.457
7.00	1	(Constant)	1.005	.003		349.781	.000
		SalePeriod	.000	.000	-.042	-1.346	.179
8.00	1	(Constant)	1.002	.001		726.923	.000
		SalePeriod	6.078E-5	.000	.008	.600	.549

9.00	1	(Constant)	.998	.005		181.766	.000
		SalePeriod	.001	.000	.092	1.748	.081
10.00	1	(Constant)	1.006	.002		530.921	.000
		SalePeriod	.000	.000	-.045	-2.335	.020
11.00	1	(Constant)	1.006	.001		972.851	.000
		SalePeriod	.000	.000	-.073	-5.224	.000
12.00	1	(Constant)	.996	.003		310.956	.000
		SalePeriod	.001	.000	.114	2.106	.036
13.00	1	(Constant)	1.005	.004		285.990	.000
		SalePeriod	-2.267E-5	.000	-.003	-.088	.930
14.00	1	(Constant)	1.004	.003		399.605	.000
		SalePeriod	.000	.000	.028	.912	.362
15.00	1	(Constant)	1.000	.004		228.252	.000
		SalePeriod	-5.745E-5	.000	-.013	-.172	.864
16.00	1	(Constant)	1.006	.005		196.217	.000
		SalePeriod	.000	.000	-.075	-1.138	.257
17.00	1	(Constant)	1.013	.003		291.626	.000
		SalePeriod	-.001	.000	-.102	-2.772	.006
18.00	1	(Constant)	1.001	.001		824.763	.000
		SalePeriod	7.832E-5	.000	.012	.878	.380
19.00	1	(Constant)	1.006	.007		149.363	.000
		SalePeriod	.000	.001	.052	.716	.475

a. Dependent Variable: salesratio

The above analysis indicated that no significant residential market trend was present in the sale data within each economic area. While there was a statistically significant trend for several economic areas, the magnitude of the trend in each was insignificant. We concluded that the assessor has adequately adjusted for market trending for 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 following results present the overall results, as well as by economic area, for sold and unsold properties:

Report

VALSF

SOLD	N	Median	Mean
UNSOLD	161976	$227	$246
SOLD	26963	$230	$246

Report

VALSF

ECONAREA	SOLD	N	Median	Mean
1.00	UNSOLD	272	$334	$319
	SOLD	58	$337	$336
2.00	UNSOLD	950	$303	$304
	SOLD	106	$326	$314
3.00	UNSOLD	4496	$223	$232
	SOLD	850	$227	$237
4.00	UNSOLD	4970	$243	$245

	SOLD	677	$258	$263
5.00	UNSOLD	7740	$211	$221
	SOLD	1073	$215	$224
6.00	UNSOLD	3152	$192	$199
	SOLD	535	$191	$198
7.00	UNSOLD	7211	$197	$201
	SOLD	1048	$206	$209
8.00	UNSOLD	25841	$204	$213
	SOLD	5290	$210	$217
9.00	UNSOLD	2069	$197	$200
	SOLD	357	$200	$203
10.00	UNSOLD	22878	$250	$260
	SOLD	2724	$263	$277
11.00	UNSOLD	25619	$224	$234
	SOLD	5120	$224	$235
12.00	UNSOLD	3462	$406	$440
	SOLD	338	$423	$439
13.00	UNSOLD	5898	$289	$293
	SOLD	821	$301	$308
14.00	UNSOLD	8222	$335	$379
	SOLD	1086	$358	$367
15.00	UNSOLD	1428	$286	$284
	SOLD	183	$297	$293
16.00	UNSOLD	2077	$282	$314
	SOLD	229	$311	$330
17.00	UNSOLD	4321	$250	$262
	SOLD	726	$265	$275
18.00	UNSOLD	28448	$216	$224
	SOLD	5360	$226	$232
19.00	UNSOLD	1225	$214	$216
	SOLD	194	$213	$217
104.00	**UNSOLD**	**134**	**$166**	**$158**
	SOLD	**32**	**$209**	**$200**
106.00	UNSOLD	51	$142	$157
	SOLD	10	$145	$158
113.00	**UNSOLD**	**178**	**$167**	**$173**
	SOLD	**28**	**$201**	**$210**

There were two economic areas with greater than 10 percent difference in the median value per square foot between sold and unsold properties (in red) – for these economic areas, we compared the median change in taxable years 2018 and 2019 between sold and unsold properties for these three economic area. The median difference for these economic areas was not significant. We did contact the assessor to advise them of this result.

We next compared residential sold and unsold properties for neighborhood with at least 15 sales using the median value per square foot method. Neighborhoods with more than a 10 percent difference in either sold/unsold test were identified, as follows:

NBHD		VAL/SF				Pct Diff			
		N	Median	Mean	Pct	N	Median	Mean	Pct
137	UNSOLD	75	$362	$385		75	1.19	1.20	
	SOLD	10	$403	$392	12%	10	1.07	1.08	-11%
206	UNSOLD	176	$295	$294		177	1.21	1.21	
	SOLD	14	$357	$363	21%	14	1.37	1.37	14%
209	UNSOLD	165	$240	$249		165	1.18	1.18	
	SOLD	15	$271	$282	13%	15	1.36	1.33	15%
321	UNSOLD	21	$218	$249		21	1.04	1.09	
	SOLD	51	$315	$308	44%	51	1.21	1.20	15%
1021	UNSOLD	427	$331	$341		427	1.12	1.15	
	SOLD	58	$375	$377	13%	58	1.25	1.26	11%
1473	UNSOLD	159	$161	$171		159	1.08	1.11	
	SOLD	17	$182	$184	12%	17	1.22	1.21	13%
1526	UNSOLD	289	$343	$344		289	1.10	1.12	
	SOLD	49	$410	$411	20%	49	1.23	1.28	12%
1843	UNSOLD	32	$160	$183					
	SOLD	14	$233	$237	46%				
2085	UNSOLD	244	$185	$188					
	SOLD	102	$240	$238	30%				
2373	UNSOLD	94	$207	$218		78	1.01	1.73	
	SOLD	82	$259	$244	25%	82	1.19	1.61	18%
2610	UNSOLD	83	$186	$192		83	1.48	1.56	
	SOLD	25	$211	$206	14%	25	1.78	1.71	20%
3013	UNSOLD	180	$168	$174		180	1.38	1.41	
	SOLD	28	$201	$210	20%	28	1.52	1.54	10%
3030	UNSOLD	186	$294	$324		186	1.31	1.35	
	SOLD	10	$417	$452	42%	10	1.48	1.48	13%

Please note that the above 13 neighborhoods were identified out of a total of 716 residential neighborhoods, or 1.8 percent of all neighborhoods. We have met with the assessor regarding these neighborhoods and have identified factors explaining these differences.

Based on the above overall results, we concluded that the assessor has valued sold and unsold residential properties in a similar manner.

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 390 qualified commercial/industrial sales for the 24-month sale period ending June 30, 2018. The sales ratio analysis was as follows:

Ratio Statistics

Median	0.992
Price Related Differential	1.010
Coefficient of Dispersion	6.4

The above ratio statistics were in compliance overall with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall commercial sales. The following histogram describes further the sales ratio distribution for these properties:
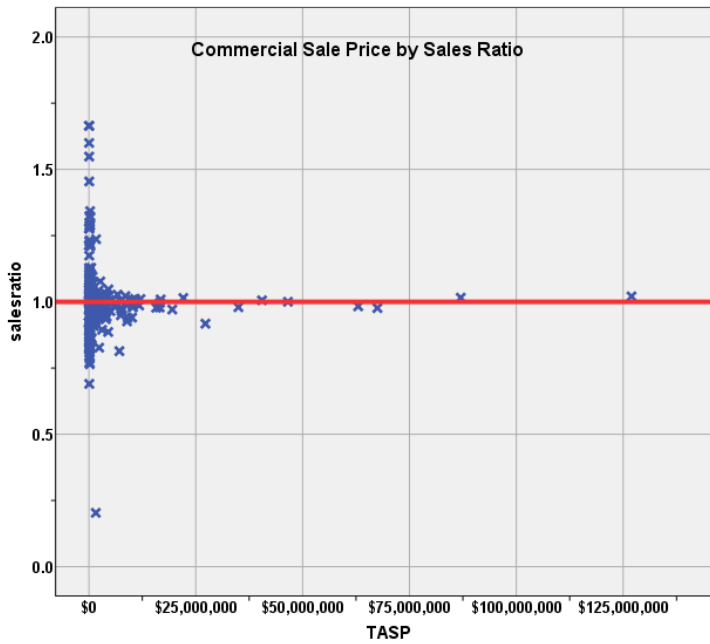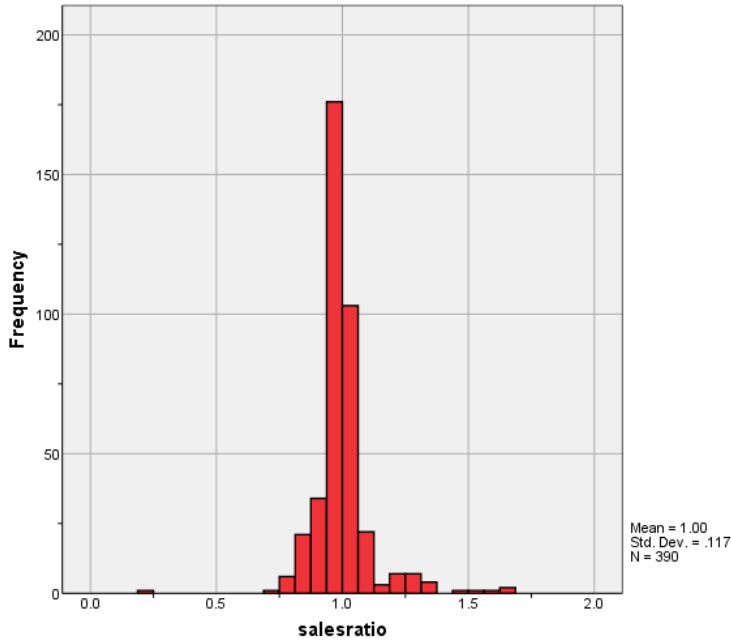
The above histogram indicates that the distribution of the sale ratios was within state mandated limits. No sales were trimmed.

Commercial Market Trend Analysis

We next analyzed the commercial 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)	.954	.008		119.067	.000
	SalePeriod	.004	.001	.292	5.957	.000

a. Dependent Variable: salesratio
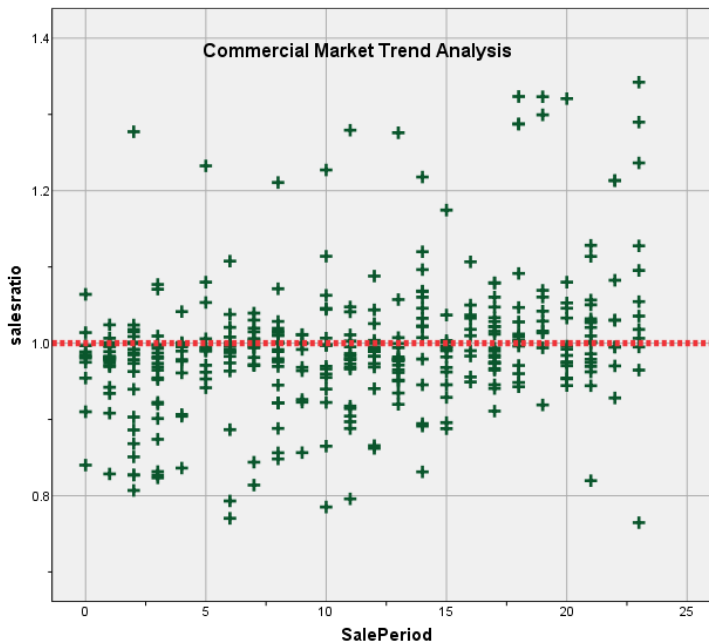
Although there was a statistically significant trend, when the sales were stratified by major commercial subclass, the resulting trends were not significant; therefore, we concluded that the assessor has adequately dealt with market trending for commercial properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold commercial properties, we first compared the median value per square foot between sold and unsold commercial properties, as follows:

Report

VALSF

sold	N	Median	Mean
UNSOLD	5757	$127	$164
SOLD	390	$144	$169

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	.000	Reject the null hypothesis.

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

Report
VALSF

ABSTRIMP	sold	N	Median	Mean
2212.00	**UNSOLD**	**947**	**$136**	**$166**
	SOLD	**37**	**$222**	**$283**
2215.00	UNSOLD	77	$115	$125
	SOLD	6	$139	$133
2220.00	UNSOLD	619	$110	$127
	SOLD	72	$121	$135
2230.00	UNSOLD	1349	$198	$259
	SOLD	30	$170	$223
2235.00	**UNSOLD**	**1051**	**$88**	**$97**
	SOLD	**53**	**$128**	**$172**
2245.00	UNSOLD	1530	$133	$147
	SOLD	183	$162	$152
3215.00	UNSOLD	29	$72	$83
	SOLD	5	$76	$106

Based on the above differences for Subclasses 2212 and 2235, we have met with the assessment staff to further explain these differences.

V. VACANT LAND SALE RESULTS

There were 202 qualified vacant land sales for the 24-month sale period ending June 30, 2018. We trimmed 10 sales due to their extreme ratios, resulting in a final sale total of 192. The sales ratio analysis results were as follows:

Ratio Statistics

Median	1.033
Price Related Differential	1.064
Coefficient of Dispersion	17.5

The above ratio statistics were in compliance overall with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall vacant land sales. The following graphs describe further the sales ratio distribution for all of these properties:
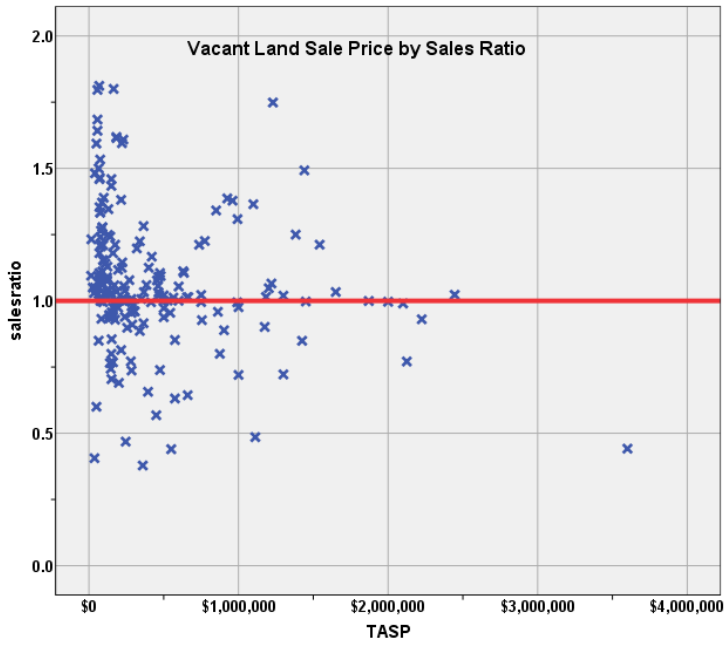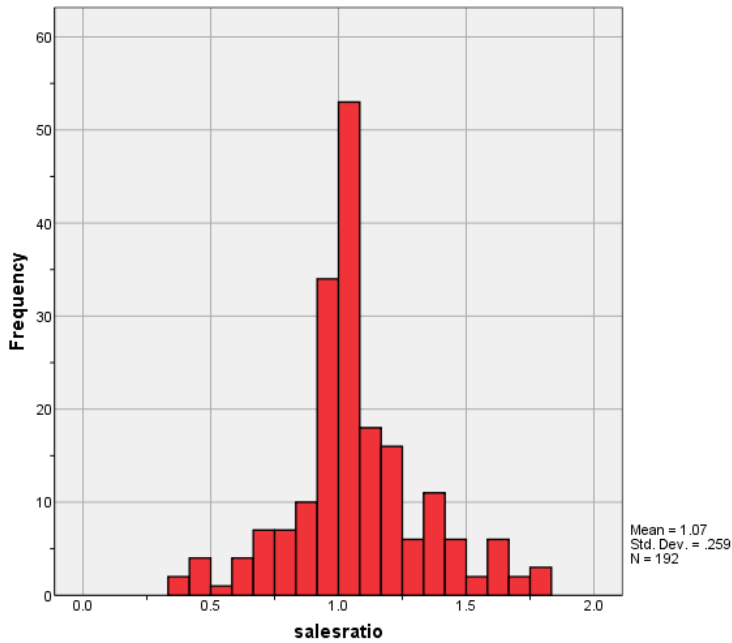
The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits, while the above scatter plot indicated that there was no price related differential issues. No sales were trimmed.

Vacant Land Market Trend Analysis

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

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.038	.031		33.097	.000
	SalePeriod	.006	.003	.156	2.135	.034

a. Dependent Variable: salesratio

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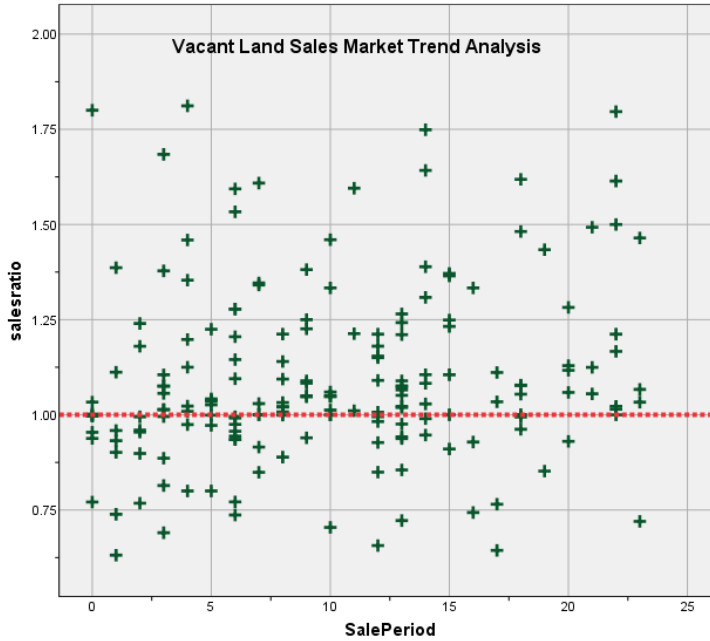
The above analysis indicated that no significant market trending was present in the vacant land sale data. We concluded that the assessor has adequately dealt with market trending for vacant land properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in actual value for taxable years 2018 and 2019 between each group. The following were the results:

Report

DIFF

sold	N	Median	Mean
UNSOLD	3735	1.00	1.21
SOLD	165	1.25	1.33

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 .05.

We next examined the change in value for subdivisions with at least 3 sales:

Report
DIFF

SUBDIVNO	sold	N	Median	Mean
1315	UNSOLD	1	1.20	1.20
	SOLD	3	1.14	1.14
11854	UNSOLD	9	1.00	1.12
	SOLD	7	1.21	1.20
17062	UNSOLD	1	1.00	1.00
	SOLD	4	1.13	1.13
33222	UNSOLD	6	1.20	1.24
	SOLD	6	1.21	1.34
53966	UNSOLD	3	1.06	1.03
	SOLD	3	1.06	1.28
	Total	6	1.06	1.16
Total	UNSOLD	20	1.10	1.14
	SOLD	23	1.21	1.23
	Total	43	1.18	1.19

Based on the comparison between sold and unsold properties at the subdivision level, we concluded that the county assessor valued sold and unsold vacant land properties consistently.

VI. CONCLUSIONS

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

STATISTICAL ABSTRACT

Residential

EA	Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
.	1.021	1.004	1.037	1.001	1.000	1.004	95.2%	1.015	.998	1.033	1.005	.031	7.6%
1	1.004	.997	1.012	1.001	.999	1.007	95.2%	1.003	.995	1.010	1.002	.020	2.8%
2	1.002	.993	1.011	1.000	.997	1.001	95.9%	.999	.991	1.008	1.003	.020	4.8%
3	1.001	.997	1.005	.999	.998	1.000	95.7%	.999	.995	1.003	1.002	.033	5.7%
4	1.005	1.001	1.009	1.000	.999	1.001	95.4%	1.002	.999	1.006	1.003	.030	5.0%
5	1.003	1.000	1.007	1.000	.999	1.001	95.6%	1.001	.998	1.003	1.002	.030	5.5%
6	1.007	1.001	1.013	1.000	.999	1.002	95.3%	1.003	.998	1.007	1.004	.041	6.8%
7	1.002	.999	1.005	1.000	.999	1.000	95.5%	1.001	.998	1.003	1.001	.027	4.9%
8	1.003	1.001	1.004	1.000	1.000	1.000	95.1%	1.001	1.000	1.002	1.002	.031	5.1%
9	1.006	1.001	1.012	1.000	.997	1.002	95.6%	1.004	.998	1.009	1.003	.038	5.3%
10	1.003	1.001	1.005	1.000	.999	1.000	95.2%	1.001	1.000	1.003	1.001	.026	5.1%
11	1.001	1.000	1.003	1.000	1.000	1.000	95.1%	1.001	1.000	1.002	1.001	.026	3.9%
12	1.001	.998	1.005	1.000	1.000	1.001	95.6%	1.001	.998	1.004	1.001	.011	3.4%
13	1.004	1.001	1.008	1.000	.999	1.000	95.7%	1.002	.999	1.004	1.003	.025	5.2%
14	1.006	1.004	1.009	1.000	1.000	1.000	95.1%	1.004	1.002	1.006	1.002	.021	4.4%
15	.999	.995	1.004	1.000	.999	1.001	96.2%	.999	.995	1.003	1.000	.016	3.0%
16	1.001	.995	1.007	1.000	.999	1.000	95.3%	1.001	.996	1.007	1.000	.022	4.5%
17	1.004	1.001	1.007	1.000	.999	1.001	95.1%	1.003	.999	1.006	1.001	.026	4.6%
18	1.002	1.001	1.004	1.000	1.000	1.000	95.2%	1.001	1.000	1.002	1.002	.027	4.5%
19	1.010	1.003	1.017	1.001	1.000	1.002	96.3%	1.007	1.002	1.012	1.003	.024	4.9%
104	1.021	.998	1.043	.997	.989	1.038	98.0%	1.018	.993	1.043	1.003	.048	6.2%
113	1.002	.975	1.028	.998	.972	1.033	96.4%	1.000	.979	1.021	1.002	.048	6.8%

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.

Commercial/Industrial

Ratio Statistics for CurrTot / TASP

	95% Confidence Interval for Mean			95% Confidence Interval for Median					95% Confidence Interval for Weighted Mean				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
.999	.988	1.011	.992	.987	.995	95.2%	.990	.980	1.000	1.010	.064	11.7%

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.

Vacant Land

Ratio Statistics for CurrLnd / TASP

	95% Confidence Interval for Mean			95% Confidence Interval for Median					95% Confidence Interval for Weighted Mean				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
1.069	1.032	1.106	1.033	1.011	1.059	96.4%	1.005	.939	1.070	1.064	.175	24.3%

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

Residential Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$50K to $100K	59	0.2%
	$100K to $150K	477	1.8%
	$150K to $200K	1229	4.6%
	$200K to $300K	5187	19.2%
	$300K to $500K	14179	52.6%
	$500K to $750K	4289	15.9%
	$750K to $1,000K	789	2.9%
	Over $1,000K	756	2.8%
Overall		26965	100.0%
Excluded		0	
Total		26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$50K to $100K	1.048	1.001	.104	14.7%
$100K to $150K	1.014	1.000	.066	10.4%
$150K to $200K	1.001	1.000	.052	8.0%
$200K to $300K	1.001	1.000	.035	5.8%
$300K to $500K	1.000	1.000	.023	3.9%
$500K to $750K	.999	1.000	.024	3.9%
$750K to $1,000K	.999	1.000	.022	4.2%
Over $1,000K	1.000	1.017	.017	4.1%
Overall	1.000	1.005	.028	4.8%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	.00	2	0.0%
	1212.00	21675	80.4%
	1215.00	68	0.3%
	1220.00	49	0.2%
	1225.00	62	0.2%
	1230.00	5108	18.9%
	4277.00	1	0.0%
Overall		26965	100.0%
Excluded		0	
Total		26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	1.074	1.009	.050	7.1%
1212.00	1.000	1.002	.025	4.4%
1215.00	1.000	1.002	.010	3.3%
1220.00	.995	1.012	.054	7.3%
1225.00	1.009	1.046	.051	8.0%
1230.00	.999	1.003	.039	6.2%
4277.00	1.074	1.000	.000	.
Overall	1.000	1.005	.028	4.8%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	0	1	0.0%
	Over 100	113	0.4%
	75 to 100	303	1.1%
	50 to 75	2830	10.5%
	25 to 50	11906	44.2%
	5 to 25	7851	29.1%
	5 or Newer	3961	14.7%
Overall		26965	100.0%
Excluded		0	
Total		26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.128	1.000	.000	.
Over 100	1.001	1.005	.026	6.1%
75 to 100	1.000	1.004	.023	5.3%
50 to 75	1.000	1.002	.025	5.0%
25 to 50	1.000	1.010	.029	5.3%
5 to 25	1.000	1.000	.025	4.0%
5 or Newer	1.001	1.003	.032	4.6%
Overall	1.000	1.005	.028	4.8%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	1	0.0%
	LE 500 sf	50	0.2%
	500 to 1,000 sf	3574	13.3%
	1,000 to 1,500 sf	8518	31.6%
	1,500 to 2,000 sf	6887	25.5%
	2,000 to 3,000 sf	5785	21.5%
	3,000 sf or Higher	2150	8.0%
Overall		26965	100.0%
Excluded		0	
Total		26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.128	1.000	.000	.
LE 500 sf	.999	1.002	.058	9.4%
500 to 1,000 sf	1.000	1.003	.038	6.4%
1,000 to 1,500 sf	1.000	1.002	.029	5.0%
1,500 to 2,000 sf	1.000	1.001	.026	4.3%
2,000 to 3,000 sf	1.000	1.001	.023	4.0%
3,000 sf or Higher	1.000	1.014	.024	4.5%
Overall	1.000	1.005	.028	4.8%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY		1	0.0%
	A	797	3.0%
	A-	1217	4.5%
	A+	458	1.7%
	B	2600	9.6%
	B-	2900	10.8%
	B+	2741	10.2%
	C	11332	42.0%
	C-	315	1.2%
	C+	4232	15.7%
	D	26	0.1%
	D-	8	0.0%
	D+	27	0.1%
	E	2	0.0%
	F	1	0.0%
	R	6	0.0%
	R-	12	0.0%
	X	136	0.5%
	X-	117	0.4%
	X+	37	0.1%
Overall		26965	100.0%

Excluded	0	
Total	26965	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	1.128	1.000	.000	.
A	1.000	1.060	.022	3.7%
A-	1.000	1.002	.027	4.2%
A+	1.000	1.003	.022	3.8%
B	1.000	1.000	.026	4.2%
B-	1.000	1.001	.025	4.1%
B+	1.001	1.002	.029	4.5%
C	1.000	1.002	.031	5.6%
C-	1.000	1.003	.037	6.4%
C+	1.000	1.001	.022	3.9%
D	1.002	.975	.033	10.0%
D-	1.009	1.008	.071	15.9%
D+	1.002	.967	.036	6.7%
E	1.211	1.075	.163	23.1%
F	1.362	1.000	.000	.
R	1.000	1.000	.004	0.7%
R-	.999	1.001	.006	1.2%
X	1.001	1.002	.019	3.5%
X-	1.001	1.001	.013	2.4%
X+	1.000	1.001	.008	1.8%
Overall	1.000	1.005	.028	4.8%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	2	0.5%
	$25K to $50K	19	4.9%
	$50K to $100K	29	7.4%
	$100K to $150K	39	10.0%
	$150K to $200K	45	11.5%
	$200K to $300K	33	8.5%
	$300K to $500K	34	8.7%
	$500K to $750K	27	6.9%
	$750K to $1,000K	24	6.2%
	Over $1,000K	138	35.4%
Overall		390	100.0%
Excluded		0	
Total		390	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	.910	1.005	.099	14.0%
$25K to $50K	1.046	.990	.214	29.7%
$50K to $100K	.994	.996	.082	11.3%
$100K to $150K	1.007	.999	.097	13.0%
$150K to $200K	1.010	1.000	.076	11.1%
$200K to $300K	.998	1.002	.107	14.7%
$300K to $500K	.989	1.000	.030	5.1%
$500K to $750K	.994	1.001	.033	5.0%
$750K to $1,000K	.990	1.001	.023	3.4%
Over $1,000K	.984	.989	.031	8.0%
Overall	.992	1.010	.064	11.9%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	1216.00	1	0.3%
	2212.00	37	9.5%
	2215.00	6	1.5%
	2216.00	1	0.3%
	2220.00	72	18.5%
	2230.00	30	7.7%
	2235.00	53	13.6%
	2245.00	183	46.9%
	2250.00	2	0.5%
	3215.00	5	1.3%
Overall		390	100.0%
Excluded		0	
Total		390	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1216.00	.956	1.000	.000	.
2212.00	.987	1.014	.033	5.9%
2215.00	.971	1.042	.045	7.9%
2216.00	1.071	1.000	.000	.
2220.00	.990	.980	.036	10.1%
2230.00	.984	1.002	.032	5.6%
2235.00	.997	1.004	.023	3.7%
2245.00	.996	1.015	.099	15.4%
2250.00	.948	1.030	.032	4.5%
3215.00	.987	.997	.010	1.4%
Overall	.992	1.010	.064	11.9%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	9	2.3%
	75 to 100	4	1.0%
	50 to 75	38	9.7%
	25 to 50	159	40.8%
	5 to 25	96	24.6%
	5 or Newer	84	21.5%
Overall		390	100.0%
Excluded		0	
Total		390	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.999	1.008	.033	4.9%
75 to 100	.988	1.002	.029	5.0%
50 to 75	.987	1.006	.032	5.8%
25 to 50	.992	1.008	.054	10.7%
5 to 25	.990	1.010	.048	8.1%
5 or Newer	.994	1.018	.119	18.6%
Overall	.992	1.010	.064	11.9%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	15	3.8%
	500 to 1,000 sf	81	20.8%
	1,000 to 1,500 sf	59	15.1%
	1,500 to 2,000 sf	25	6.4%
	2,000 to 3,000 sf	23	5.9%
	3,000 sf or Higher	187	47.9%
Overall		390	100.0%
Excluded		0	
Total		390	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LE 500 sf	.922	1.025	.124	18.3%
500 to 1,000 sf	.995	1.030	.116	18.4%
1,000 to 1,500 sf	1.000	1.011	.073	10.9%
1,500 to 2,000 sf	1.000	1.023	.078	11.9%
2,000 to 3,000 sf	.992	1.040	.074	12.6%
3,000 sf or Higher	.987	.994	.030	7.1%
Overall	.992	1.010	.064	11.9%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	A	5	1.3%
	B	31	7.9%
	C	289	74.1%
	D	65	16.7%
Overall		390	100.0%
Excluded		0	
Total		390	

Ratio Statistics for CurrTot / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
A	.996	1.001	.006	0.8%
B	.993	1.009	.040	8.4%
C	.989	1.019	.074	13.3%
D	.997	1.005	.034	5.4%
Overall	.992	1.010	.064	11.9%

Vacant Land Median Ratio Stratification

Sale Price
Case Processing Summary

		Count	Percent
SPRec	LT $25K	3	1.6%
	$25K to $50K	6	3.1%
	$50K to $100K	39	20.3%
	$100K to $150K	22	11.5%
	$150K to $200K	21	10.9%
	$200K to $300K	24	12.5%
	$300K to $500K	27	14.1%
	$500K to $750K	16	8.3%
	$750K to $1,000K	12	6.3%
	Over $1,000K	22	11.5%
Overall		192	100.0%
Excluded		0	
Total		192	

Ratio Statistics for CurrLnd / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.095	1.009	.055	9.3%
$25K to $50K	1.040	.987	.335	45.1%
$50K to $100K	1.205	1.009	.152	19.7%
$100K to $150K	1.058	1.001	.134	18.2%
$150K to $200K	.992	.996	.187	30.2%
$200K to $300K	1.000	1.011	.151	24.5%
$300K to $500K	1.021	1.001	.127	19.9%
$500K to $750K	1.007	.991	.126	21.2%
$750K to $1,000K	.985	1.000	.200	26.0%
Over $1,000K	1.007	1.044	.189	29.0%
Overall	1.033	1.064	.175	25.4%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	0	24	12.5%
	100	42	21.9%
	200	18	9.4%
	300	6	3.1%
	400	30	15.6%
	1112	53	27.6%
	1135	1	0.5%
	2112	4	2.1%
	2115	1	0.5%
	2130	4	2.1%
	2135	7	3.6%
	2245	1	0.5%
	3115	1	0.5%
Overall		192	100.0%
Excluded		0	
Total		192	

Ratio Statistics for CurrLnd / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.993	1.037	.144	19.3%
100	1.023	1.047	.111	18.6%
200	.999	1.000	.112	19.1%
300	1.027	.994	.088	14.3%
400	1.022	1.042	.142	21.4%
1112	1.205	1.069	.200	25.2%
1135	.600	1.000	.000	.
2112	.645	1.044	.260	36.2%
2115	.442	1.000	.000	.
2130	.969	.981	.166	24.9%
2135	1.048	1.011	.126	18.6%
2245	1.333	1.000	.000	.
3115	1.493	1.000	.000	.
Overall	1.033	1.064	.175	25.4%