



2017

MONTEZUMA COUNTY  
PROPERTY ASSESSMENT  
STUDY

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WILDROSE  
APPRAISAL, INCORPORATED  
Audit Division



September 15, 2017

Mr. Mike Mauer  
Director of Research  
Colorado Legislative Council  
Room 029, State Capitol Building  
Denver, Colorado 80203

**RE: Final Report for the 2017 Colorado Property Assessment Study**

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2017 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, flowing style.

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

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# INTRODUCTION

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## 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.

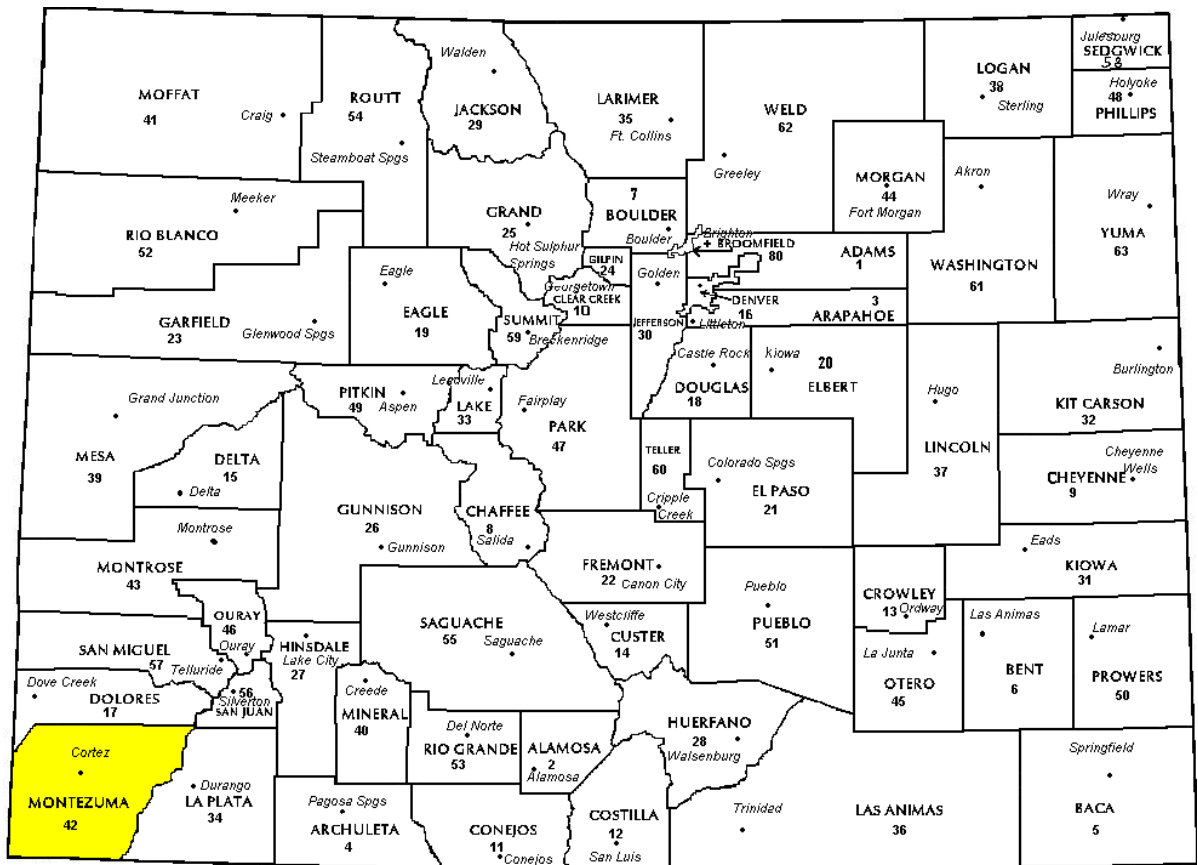
Wildrose Audit has completed the Property Assessment Study for 2017 and is pleased to report its findings for Montezuma County in the following report.

# REGIONAL/HISTORICAL SKETCH OF MONTEZUMA COUNTY

## Regional Information

Montezuma County is located in the Western Slope region of Colorado. The Western Slope of Colorado refers to the region west of the Rocky Mountains. It includes Archuleta, Delta, Dolores, Eagle, Garfield, Grand,

Gunnison, Hinsdale, Jackson, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Juan, San Miguel, and Summit counties.





## Historical Information

Montezuma County had an estimated population of approximately 26,999 people with 13.3 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 5.7 percent change from April 1, 2010 to July 1, 2016.

Montezuma County is the southwestern most of the 64 Colorado counties and is where the San Juan Mountains meet the desert canyon country. The elevation ranges from 6,200 feet in Cortez to approximately 7,000 feet in Mancos and Dolores.

Mesa Verde National Park, Canyon of the Ancients National Monument, Yucca House National Monument, and Hovenweep National Monument preserve hundreds of ancient Amerindian structures, including the famous cliff-dwellings, found in the county. Montezuma County is also home to most of the Ute Mountain Indian Reservation, home of the Weeminuche Band of the Ute Nation, known as the Ute Mountain Ute Tribe, with its headquarters at Towaoc.

The City of Cortez is a Home Rule Municipality and is the county seat.  
([www.Wikipedia.org](http://www.Wikipedia.org) & [theusgenweb.org](http://theusgenweb.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, 2015 through June 20, 2016. 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. For the largest 11 counties, the residential ratio statistics were broken down by economic area as well.

## 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 Montezuma County are:

<b>Montezuma County Ratio Grid</b>					
<b>Property Class</b>	<b>Number of Qualified Sales</b>	<b>Unweighted Median Ratio</b>	<b>Price Related Differential</b>	<b>Coefficient of Dispersion</b>	<b>Time Trend Analysis</b>
Commercial/Industrial	44	0.957	1.028	18.4	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	383	0.969	1.008	11.8	Compliant
Vacant Land	18	0.963	1.039	14.4	Compliant

After applying the above described methodologies, it is concluded from the sales ratios that Montezuma County is in compliance

with SBOE, DPT, and Colorado State Statute valuation guidelines.

**Recommendations**

None

Montezuma County’s Residential, Commercial/Industrial, Vacant Land and Agricultural classifications are in compliance because of new valuations determined after the issuance of the Preliminary Report on August 15, 2017. This approval is contingent upon these revised values going into effect in a timely manner and the affected taxpayers being offered the opportunity to exercise their administrative appeal remedies.





# 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 Montezuma County has complied with the statutory requirements to analyze the effects of time on value in their county. Montezuma 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

Montezuma 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.

<b>Sold/Unsold Results</b>	
<b>Property Class</b>	<b>Results</b>
Commercial/Industrial	Compliant
Condominium	N/A
Single Family	Compliant
Vacant Land	Compliant

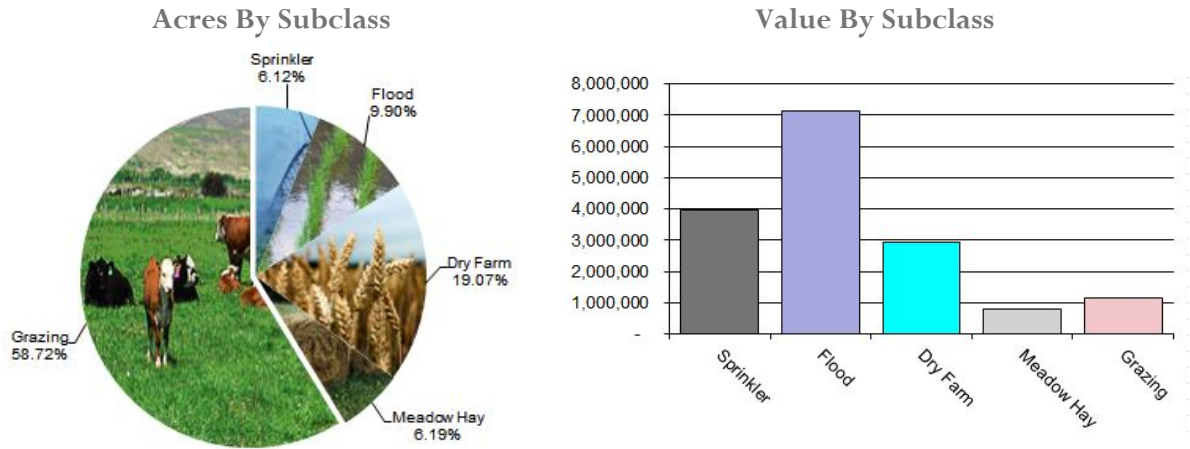
**Conclusions**

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

**Recommendations**

None

# AGRICULTURAL LAND STUDY



## 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:

<b>Montezuma County Agricultural Land Ratio Grid</b>						
<b>Abstract Code</b>	<b>Land Class</b>	<b>Number Of Acres</b>	<b>County Value Per Acre</b>	<b>County Assessed Total Value</b>	<b>WRA Total Value</b>	<b>Ratio</b>
4107	Sprinkler	17,976	221.53	3,982,303	4,070,382	0.98
4117	Flood	29,086	245.37	7,136,772	7,255,281	0.98
4127	Dry Farm	56,024	52.10	2,918,801	2,912,052	1.00
4137	Meadow Hay	18,177	44.60	810,696	810,696	1.00
4147	Grazing	172,500	6.64	1,144,927	1,144,927	1.00
<b>Total/Avg</b>		<b>293,763</b>	<b>54.44</b>	<b>15,993,499</b>	<b>16,193,338</b>	<b>0.99</b>

### **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**

Montezuma County has substantially complied with the procedures provided by the Division

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## Agricultural Land Under Improvements

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### 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

Montezuma 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
- In-Person Interviews with Owners/Tenants
- Personal Knowledge of Occupants at Assessment Date

Montezuma 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.:

- Field Inspections
- In-Person Interviews with Owners/Tenants
- Personal Knowledge of Occupants at Assessment Date

Montezuma 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 2017 for Montezuma County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 45 sales listed as unqualified.

All of the sales in the unqualified sales sample had reasons that were clear and supportable.

For residential, commercial, and vacant land sales with considerations over \$500, 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.

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

### **Conclusions**

Montezuma County appears to be doing a good job of verifying their sales. WRA agreed with the county's reason for disqualifying each of the sales selected in the sample. There are no recommendations or suggestions.

### **Recommendations**

None



# ECONOMIC AREA REVIEW AND EVALUATION

## **Methodology**

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

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## Earth and Stone Products

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### 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

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## Producing Oil and Gas

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### 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 2017 in Montezuma County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14). Discounting procedures were applied to all subdivisions where less than 80 percent of all sites were sold using the present worth method. The market approach was applied where 80 percent or more of the subdivision sites were sold. An absorption period was estimated for each subdivision that was discounted. An appropriate discount rate was

developed using the summation method. Subdivision land with structures was appraised at full market value.

### **Conclusions**

Montezuma 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.

Montezuma 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

Montezuma 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

Montezuma 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.

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

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

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

Montezuma County submitted their personal property written audit plan and was current for the 2017 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Accounts with obvious discrepancies
- New businesses filing for the first time
- Accounts with greater than 10% change
- Incomplete or inconsistent declarations
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts close to the \$7,400 actual value exemption status



- Accounts protested with substantial disagreement

### **Conclusions**

Montezuma 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*

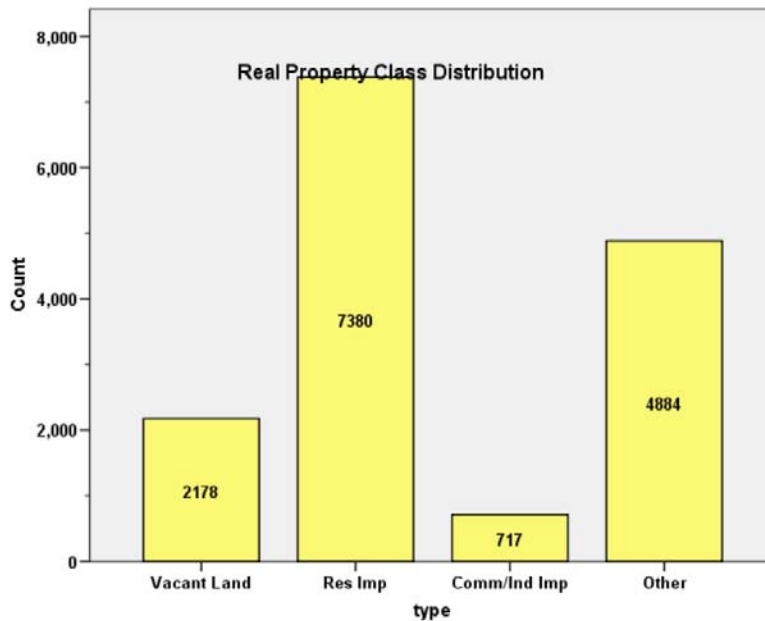
# APPENDICES



## STATISTICAL COMPLIANCE REPORT FOR MONTEZUMA COUNTY 2017

### I. OVERVIEW

Montezuma County is located in extreme southwestern Colorado. The county has a total of 15,159 real property parcels, according to data submitted by the county assessor’s office in 2017. 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 66.5% of all vacant land parcels.

For residential improved properties, single family properties accounted for 95.1% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 4.7% of all such properties in this county.

## II. DATA FILES

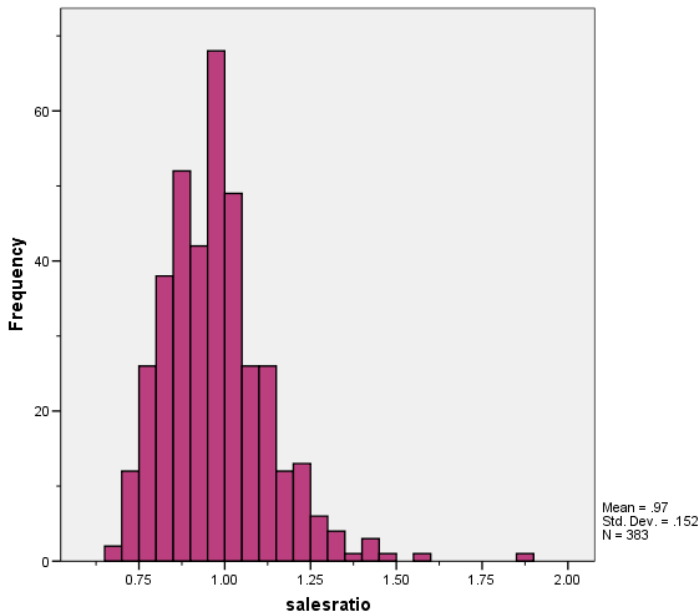
The following sales analyses were based on the requirements of the 2017 Colorado Property Assessment Study. The data included all 5 property record files as specified by the Auditor.

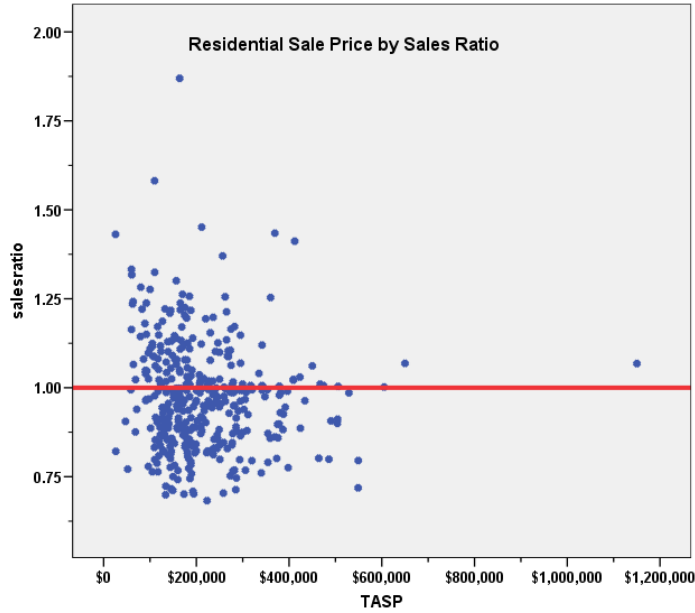
## III. RESIDENTIAL SALES RESULTS

There were 392 qualified residential sales for the 18 month sale period ending June 30, 2016. We trimmed 9 sales with extreme sales ratios, resulting in a total of 383 residential sales for this analysis. The sales ratio analysis results were as follows:

Median	<b>0.969</b>
Price Related Differential	<b>1.008</b>
Coefficient of Dispersion	<b>11.8</b>

The following graphs describe further the sales ratio distribution for these properties:





The above analysis and graphs indicate that the median sales ratio and coefficient of dispersion were in compliance with state mandated limits.

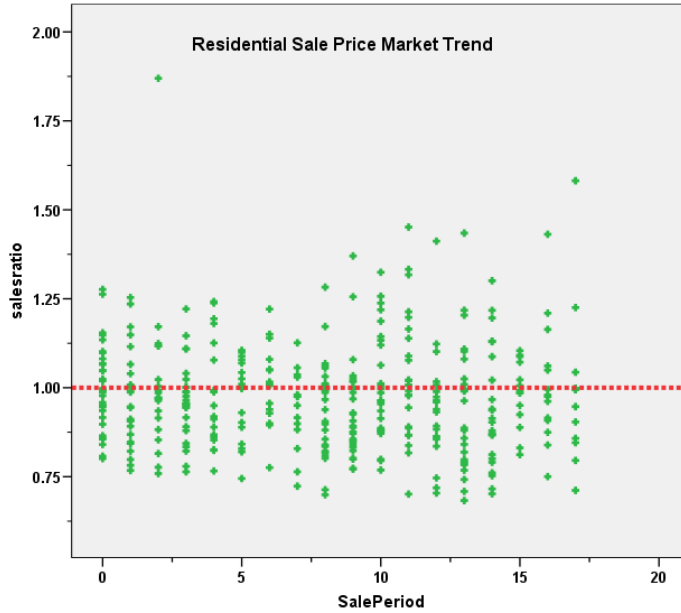
### Residential Market Trend Analysis

We next analyzed the residential dataset using the 18-month sale period for any residual market trending, with the following results:

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.983	.014		68.724	.000
	SalePeriod	-.001	.002	-.038	-.751	.453

a. Dependent Variable: salesratio



The above analysis indicated no statistically significant trend. We therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

**Sold/Unsold Analysis**

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2017 between each group, as follows:

**Report**

VALSF			
Category	N	Median	Mean
UNSOLD	6,799	\$95	\$104
SOLD	381	\$99	\$107

**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	.005	Retain the null hypothesis.

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

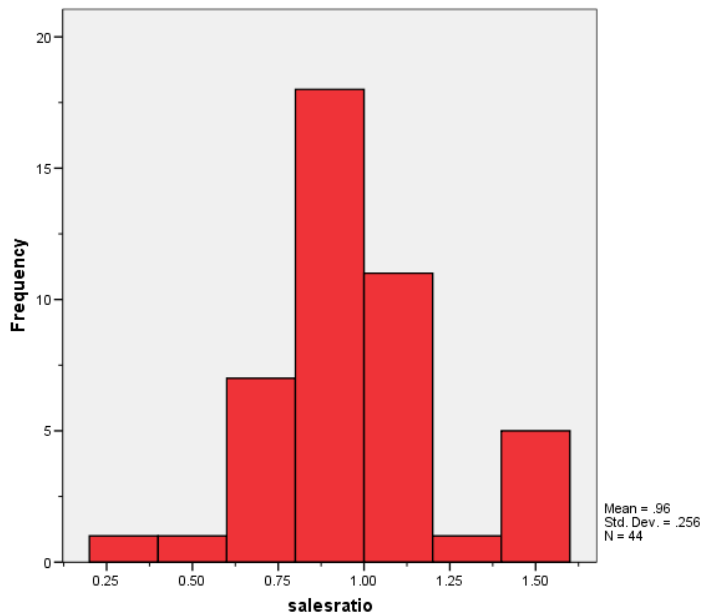
The above results indicate that sold and unsold residential properties were valued in a consistent manner.

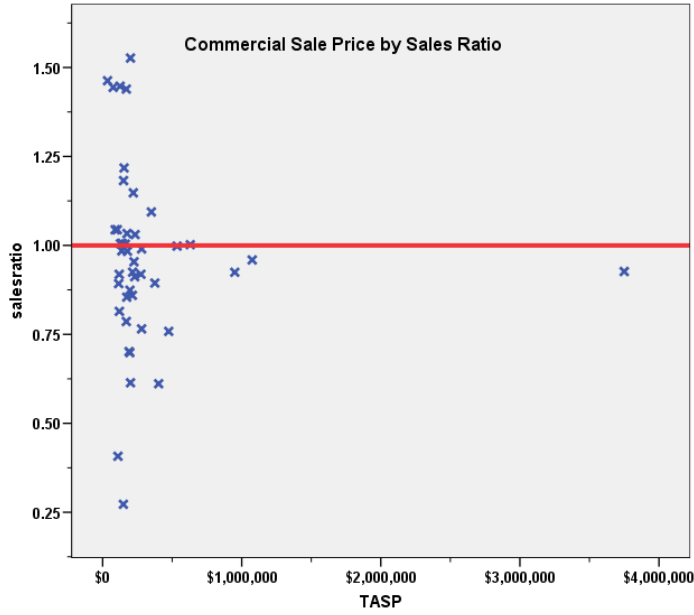
#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 44 qualified commercial/industrial sales for the 42 month sale period ending June 30, 2016. The sales ratio analysis results were as follows:

Median	<b>0.957</b>
Price Related Differential	<b>1.028</b>
Coefficient of Dispersion	<b>18.4</b>

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





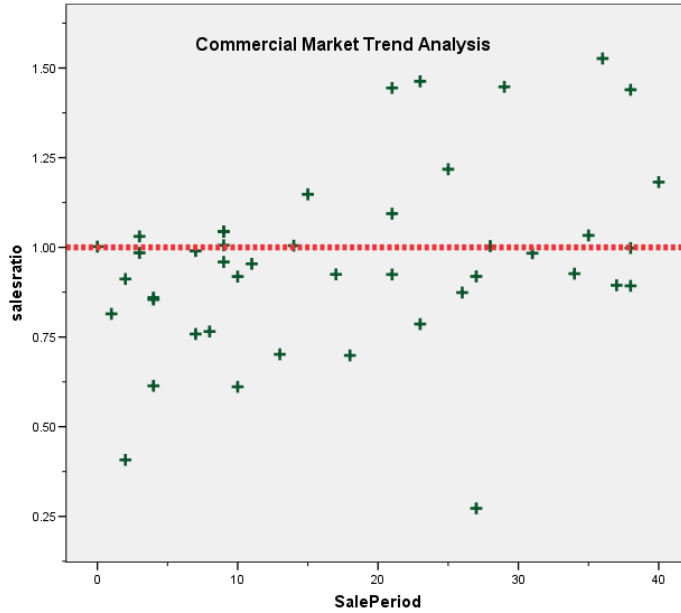
### Commercial Market Trend Analysis

The 44 commercial/industrial sales were analyzed, examining the sale ratios across the standard 42 month sale period with the following results:

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.826	.064		12.963	.000
	SalePeriod	.008	.003	.371	2.585	.013

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 actual value between taxable years 2016 and 2017 for sold and unsold commercial properties to determine if the assessor was valuing each group consistently, as follows

#### Report

DIFF			
	N	Median	Mean
UNSOLD	676	1.01	1.07
SOLD	44	1.01	.99

#### 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	.079	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

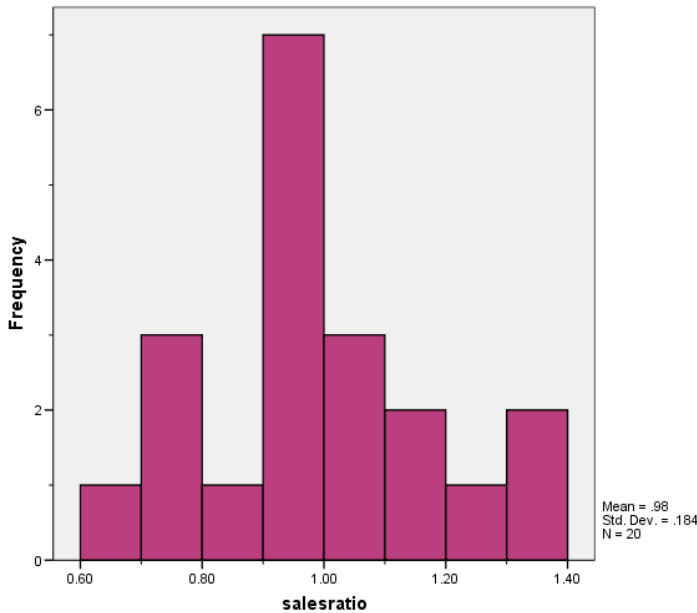
The analysis results indicate that the assessor has valued sold and unsold commercial/industrial properties consistently.

**V. VACANT LAND SALE RESULTS**

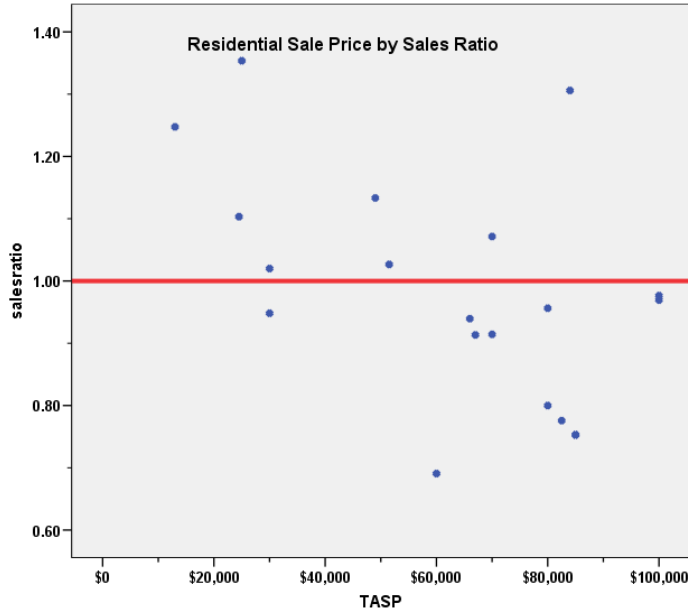
There were 20 qualified vacant land sales for the 18 month sale period ending June 30, 2016; two sales were trimmed, resulting in a sale total of 18 sales. Because there were fewer than 20 sales, 2 supplemental appraisals were completed. The 18 sales were used to analyze market trending and the sold unsold comparison. The sales ratio analysis results were as follows:

Median	<b>0.963</b>
Price Related Differential	<b>1.039</b>
Coefficient of Dispersion	<b>14.4</b>

The following histogram and scatter plot describe the sales ratio distribution further:







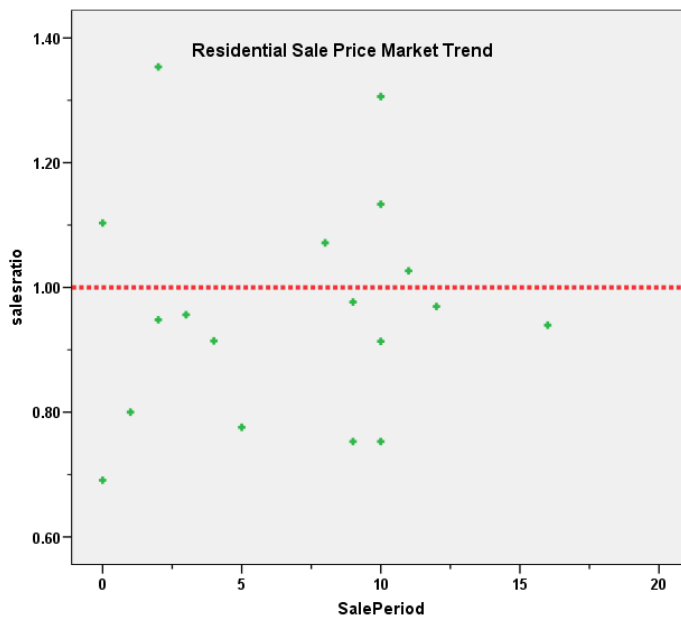
### Vacant Land Market Trend Analysis

The 18 vacant land sales were analyzed for residual market trending, examining the sales ratios across the 18-month sale period with the following results:

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.946	.079		12.011	.000
	SalePeriod	.003	.010	.077	.311	.760

a. Dependent Variable: salesratio



The market trend analysis indicated no statistically significant trend. We concluded that the assessor has adequately considered market trending in their vacant land valuation analysis.

### Sold/Unsold Analysis

We compared the median change in actual value between taxable years 2016 and 2017 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

#### Report

DIFF			
DIFF	N	Median	Mean
UNSOLD	2,128	1.00	1.15
SOLD	18	1.00	.98

#### 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	.261	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The analysis results indicate that the assessor has valued sold and unsold vacant land properties consistently.

### VI. AGRICULTURAL IMPROVEMENTS ANALYSIS

The final statistical verification concerned the assigned actual values for agricultural residential improvements. We compared the actual improved value per square foot rate for this group and compared it to the actual improved value per square foot for residential single family improvements in Montezuma County.

The following indicates that both groups were valued in essentially the same manner:

#### Report

IMPVALSF			
ABSTRIMP	N	Median	Mean
1212.00	6,842	\$72.05	\$72.46
4277.00	497	\$74.10	\$76.34

### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of IMPVALSF is the same across categories of ABSTRIMP.	Independent-Samples Mann-Whitney U Test	.043	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .04.

## VII. CONCLUSIONS

Based on this statistical analysis, there were no significant compliance issues for residential, commercial and vacant land properties in Montezuma 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			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			
.974	.959	.990	.969	.950	.987	95.9%	.967	.951	.982	1.008	.118	15.6%

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.

**Commercial/Industrial**

**Ratio Statistics for CURRTOT / TASP**

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
.962	.884	1.040	.957	.912	1.004	95.1%	.935	.893	.978	1.028	.184	26.6%

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.

**Vacant Land**

**Ratio Statistics for CURRLND / TASP**

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
.983	.897	1.069	.963	.913	1.071	95.9%	.946	.863	1.029	1.039	.144	18.7%

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

**Residential Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	\$25K to \$50K	3	0.8%
	\$50K to \$100K	29	7.6%
	\$100K to \$150K	84	21.9%
	\$150K to \$200K	102	26.6%
	\$200K to \$300K	107	27.9%
	\$300K to \$500K	49	12.8%
	\$500K to \$750K	8	2.1%
	Over \$1,000K	1	0.3%
Overall		383	100.0%
Excluded		0	
Total		383	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$25K to \$50K	.905	1.033	.225	41.6%
\$50K to \$100K	1.080	1.002	.111	13.8%
\$100K to \$150K	.915	1.004	.129	17.3%
\$150K to \$200K	.970	1.003	.121	16.9%
\$200K to \$300K	.974	1.001	.100	13.5%
\$300K to \$500K	.967	.999	.097	14.2%
\$500K to \$750K	.949	.996	.097	12.7%
Over \$1,000K	1.068	1.000	.000	.
Overall	.969	1.008	.118	15.7%

**Subclass**

**Case Processing Summary**

		Count	Percent
ABSTRIMP	1212.00	379	99.0%
	1213.50	1	0.3%
	1215.00	1	0.3%
	1225.00	2	0.5%
Overall		383	100.0%
Excluded		0	
Total		383	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212.00	.967	1.009	.118	15.8%
1213.50	.851	1.000	.000	.
1215.00	1.144	1.000	.000	.
1225.00	1.065	.999	.003	0.4%
Overall	.969	1.008	.118	15.7%

### Age

#### Case Processing Summary

AgeRec	Count	Percent
Over 100	16	4.2%
75 to 100	26	6.8%
50 to 75	68	17.8%
25 to 50	110	28.7%
5 to 25	155	40.5%
5 or Newer	8	2.1%
Overall	383	100.0%
Excluded	0	
Total	383	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.942	1.001	.105	13.5%
75 to 100	.947	1.034	.136	17.9%
50 to 75	.959	1.023	.146	17.8%
25 to 50	.955	1.011	.118	14.6%
5 to 25	.986	1.005	.105	15.8%
5 or Newer	.971	.989	.048	7.2%
Overall	.969	1.008	.118	15.7%

## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	7	1.8%
	500 to 1,000 sf	37	9.7%
	1,000 to 1,500 sf	101	26.4%
	1,500 to 2,000 sf	77	20.1%
	2,000 to 3,000 sf	90	23.5%
	3,000 sf or Higher	71	18.5%
Overall		383	100.0%
Excluded		0	
Total		383	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LE 500 sf	1.049	.986	.147	21.2%
500 to 1,000 sf	.903	1.032	.144	17.9%
1,000 to 1,500 sf	.955	1.018	.125	15.4%
1,500 to 2,000 sf	.969	1.011	.110	15.1%
2,000 to 3,000 sf	.973	1.011	.113	16.9%
3,000 sf or Higher	.986	1.005	.104	14.5%
Overall	.969	1.008	.118	15.7%

## Improvement Quality

### Case Processing Summary

		Count	Percent
QUALITY	1	3	0.8%
	2	2	0.5%
	3	15	4.0%
	4	10	2.7%
	5	117	31.0%
	6	103	27.3%
	7	79	21.0%
	8	31	8.2%
	9	10	2.7%
	10	6	1.6%
	11	1	0.3%
Overall		377	100.0%
Excluded		6	
Total		383	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.009	1.113	.160	29.9%
2	1.030	.999	.034	4.9%
3	1.061	1.011	.105	13.4%
4	.895	1.017	.137	17.4%
5	.898	1.007	.119	15.5%
6	.976	1.017	.113	14.8%
7	.975	1.010	.107	14.8%
8	1.010	1.019	.102	18.6%
9	.996	1.037	.111	15.4%
10	1.007	.992	.149	26.2%
11	1.219	1.000	.000	.
Overall	.969	1.009	.118	15.8%

**Improvement Condition**

**Case Processing Summary**

	Count	Percent
CONDITION 2	1	0.3%
3	369	96.6%
4	10	2.6%
5	2	0.5%
Overall	382	100.0%
Excluded	1	
Total	383	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2	1.072	1.000	.000	.
3	.967	1.008	.117	15.1%
4	.969	1.030	.172	33.3%
5	.992	1.001	.013	1.9%
Overall	.969	1.008	.117	15.7%



## Economic Area

### Case Processing Summary

		Count	Percent
ECONAREA	1.00	180	47.0%
	3.00	15	3.9%
	4.00	29	7.6%
	5.00	7	1.8%
	6.00	152	39.7%
Overall		383	100.0%
Excluded		0	
Total		383	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.984	1.006	.119
3.00	1.002	1.005	.108
4.00	.962	.991	.092
5.00	1.002	1.017	.059
6.00	.942	1.004	.122
Overall	.969	1.008	.118

## Commercial Median Ratio Stratification

### Sale Price

### Case Processing Summary

		Count	Percent
SPRec	\$25K to \$50K	1	2.3%
	\$50K to \$100K	2	4.5%
	\$100K to \$150K	11	25.0%
	\$150K to \$200K	12	27.3%
	\$200K to \$300K	9	20.5%
	\$300K to \$500K	4	9.1%
	\$500K to \$750K	2	4.5%
	\$750K to \$1,000K	1	2.3%
Over \$1,000K	2	4.5%	
Overall		44	100.0%
Excluded		0	
Total		44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$25K to \$50K	1.463	1.000	.000	.
\$50K to \$100K	1.244	1.015	.161	22.8%
\$100K to \$150K	.985	1.000	.220	34.3%
\$150K to \$200K	.929	1.007	.240	31.7%
\$200K to \$300K	.925	1.004	.080	11.8%
\$300K to \$500K	.826	1.016	.187	24.9%
\$500K to \$750K	1.000	1.000	.002	0.3%
\$750K to \$1,000K	.924	1.000	.000	.
Over \$1,000K	.943	1.010	.017	2.4%
Overall	.957	1.028	.184	26.7%

### Subclass

#### Case Processing Summary

		Count	Percent
ABSTRIMP	.00	1	2.3%
	1550.67	1	2.3%
	1713.50	1	2.3%
	1886.33	1	2.3%
	2131.42	1	2.3%
	2142.00	1	2.3%
	2212.00	10	22.7%
	2215.00	4	9.1%
	2220.00	2	4.5%
	2230.00	13	29.5%
	2235.00	6	13.6%
	3212.00	1	2.3%
	3215.00	2	4.5%
Overall		44	100.0%
Excluded		0	
Total		44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.407	1.000	.000	.
1550.67	.919	1.000	.000	.
1713.50	1.030	1.000	.000	.
1886.33	.925	1.000	.000	.
2131.42	.998	1.000	.000	.
2142.00	.959	1.000	.000	.
2212.00	.906	1.030	.158	23.7%
2215.00	.841	.906	.143	18.7%
2220.00	1.101	.994	.106	15.0%
2230.00	.984	1.045	.194	27.8%
2235.00	.978	.952	.236	37.6%
3212.00	1.148	1.000	.000	.
3215.00	1.222	.996	.178	25.2%
Overall	.957	1.028	.184	26.7%

### Age

#### Case Processing Summary

		Count	Percent
AgeRec	0	1	2.3%
	Over 100	1	2.3%
	75 to 100	6	13.6%
	50 to 75	8	18.2%
	25 to 50	22	50.0%
	5 to 25	6	13.6%
Overall		44	100.0%
Excluded		0	
Total		44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.407	1.000	.000	.
Over 100	.759	1.000	.000	.
75 to 100	.906	1.047	.168	28.5%
50 to 75	.932	.994	.177	28.2%
25 to 50	.984	1.053	.191	27.4%
5 to 25	.981	.998	.088	17.2%
Overall	.957	1.028	.184	26.7%

## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	0	1	2.3%
	LE 500 sf	1	2.3%
	1,000 to 1,500 sf	4	9.1%
	1,500 to 2,000 sf	4	9.1%
	2,000 to 3,000 sf	9	20.5%
	3,000 sf or Higher	25	56.8%
Overall		44	100.0%
Excluded		0	
Total		44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.407	1.000	.000	.
LE 500 sf	.272	1.000	.000	.
1,000 to 1,500 sf	.922	1.194	.228	38.1%
1,500 to 2,000 sf	.835	.996	.038	4.7%
2,000 to 3,000 sf	1.004	1.061	.219	30.1%
3,000 sf or Higher	.990	1.036	.119	18.2%
Overall	.957	1.028	.184	26.7%

## Improvement Quality

### Case Processing Summary

		Count	Percent
QUALITY	1	1	2.3%
	2	4	9.3%
	3	11	25.6%
	4	4	9.3%
	5	19	44.2%
	6	2	4.7%
	7	2	4.7%
Overall		43	100.0%
Excluded		1	
Total		44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.893	1.000	.000	.
2	1.044	1.056	.109	22.3%
3	.894	1.021	.162	24.2%
4	.972	1.011	.026	3.8%
5	.985	1.009	.206	30.1%
6	.967	.977	.187	26.4%
7	.768	.924	.204	28.9%
Overall	.959	1.038	.175	25.5%

### Improvement Condition

#### Case Processing Summary

	Count	Percent
CONDITION 3	43	100.0%
Overall	43	100.0%
Excluded	1	
Total	44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
3	.959	1.038	.175	25.5%
Overall	.959	1.038	.175	25.5%

### Economic Area

#### Case Processing Summary

	Count	Percent
ECONAREA 1.00	21	47.7%
3.00	4	9.1%
4.00	7	15.9%
6.00	12	27.3%
Overall	44	100.0%
Excluded	0	
Total	44	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.927	1.021	.201
3.00	1.019	.999	.038
4.00	.919	1.022	.084
6.00	1.023	1.051	.231
Overall	.957	1.028	.184

### Vacant Land Median Ratio Stratification

#### Sale Price

#### Case Processing Summary

		Count	Percent
SPRec	LT \$25K	3	15.0%
	\$25K to \$50K	3	15.0%
	\$50K to \$100K	14	70.0%
Overall		20	100.0%
Excluded		0	
Total		20	

### Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.248	1.001	.067	10.2%
\$25K to \$50K	1.020	.983	.061	9.3%
\$50K to \$100K	.927	.999	.127	17.3%
Overall	.963	1.039	.144	19.2%

#### Subclass

#### Case Processing Summary

		Count	Percent
ABSTRLND	100.00	1	5.0%
	510.00	5	25.0%
	520.00	4	20.0%
	530.00	3	15.0%
	540.00	3	15.0%
	550.00	2	10.0%
	1112.00	2	10.0%
	Overall		20
Excluded		0	
Total		20	

**Ratio Statistics for CURRLND / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100.00	.753	1.000	.000	.
510.00	.948	1.078	.180	26.7%
520.00	.845	1.005	.101	11.9%
530.00	.977	1.008	.077	13.3%
540.00	1.133	.986	.108	16.2%
550.00	1.020	1.009	.050	7.1%
1112.00	1.134	1.041	.100	14.2%
Overall	.963	1.039	.144	19.2%

**Economic Area**

**Case Processing Summary**

	Count	Percent
ECONAREA 1.00	2	10.0%
4.00	1	5.0%
6.00	17	85.0%
Overall	20	100.0%
Excluded	0	
Total	20	

**Ratio Statistics for CURRLND / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.819	1.055	.157
4.00	1.354	1.000	.000
6.00	.969	1.031	.126
Overall	.963	1.039	.144