MONTROSE COUNTY
COLORADO

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M O N T R O S E   C O U N T Y
P R O P E R T Y   A S S E S S M E N T
S T U D Y

WILDROSE
APPRAISAL, INCORPORATED
Audit Division

WILDROSE
APPRAISAL, INCORPORATED
Audit Division

September 15, 2016

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

RE: Final Report for the 2016 Colorado Property Assessment Study

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2016 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
Project Manager
Wildrose Appraisal Inc. – Audit Division

TABLE OF CONTENTS

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 2016 and is pleased to report its findings for Montrose County in the following report.

Regional Information

Montrose 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.
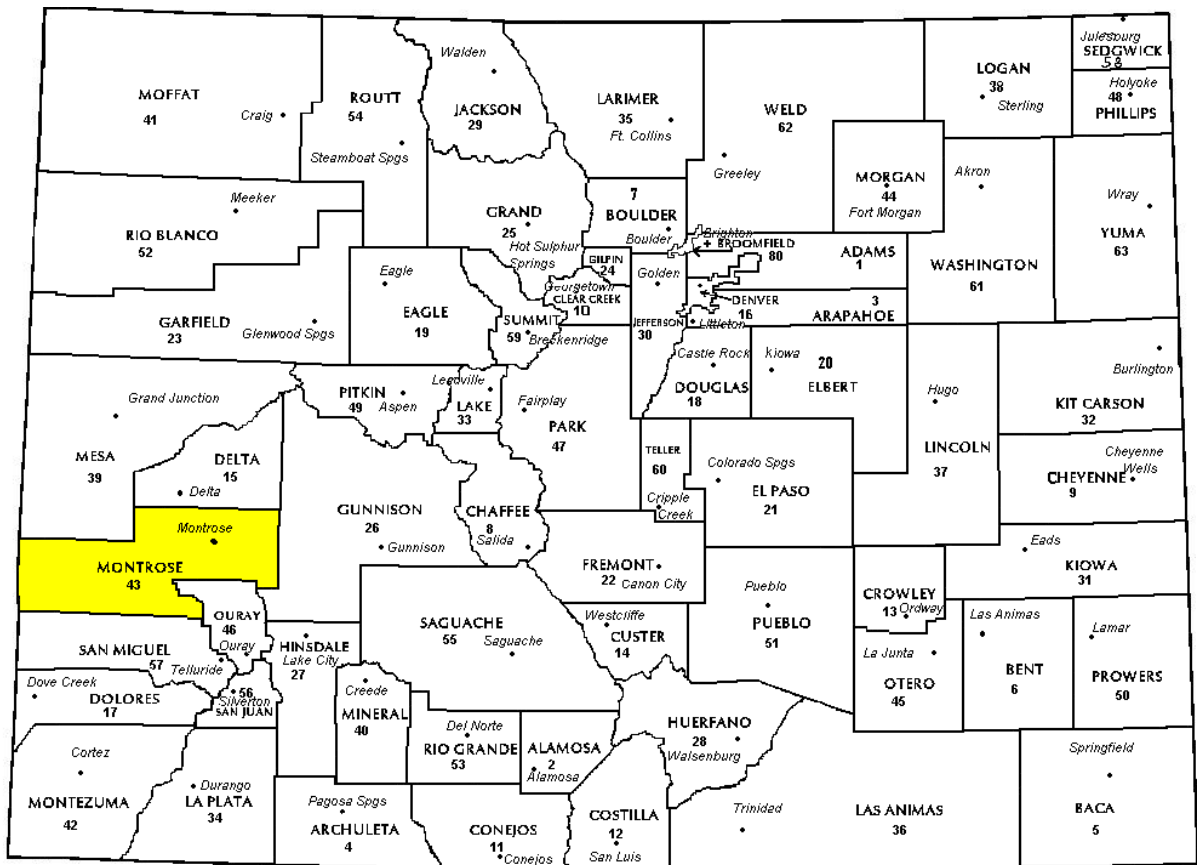
Historical Information

Montrose County had an estimated population of approximately 40,873 people with 18.4 people per square mile, according to the U.S. Census Bureau's 2014 estimated census data. This represents a -1 percent change from April 1, 2010 to July 1, 2014.

The first settlers came to the Uncompahgre Valley in the 1870s, but legally could not purchase land until after September 1881, when the Ute Indians were removed from their land and put on a reservation in Utah. The first stake was driven in December of 1881 and in 1882 Montrose officially became a town.

Montrose County, formed from a part of Gunnison County, was established in 1883 with an area of 2,238 square miles. It was named for the town of Montrose, which is the county seat. The town was known by the names of Pomona, Dad's Town, Uncompahgre Town, and several other names, before it finally came to be known as Montrose. Joseph Selig suggested the name Montrose after a favorite character in Sir Walter Scott's novel, The Legend of Montrose.

In 1882, the Denver & Rio Grande Railroad Co. built its narrow gauge mainline railroad through Montrose on its way from Denver to Salt Lake City, Utah. In 1890 the D&RGRR completed its standard gauge railroad from Denver to Grand Junction, leaving Montrose on the narrow gauge from Salida to Grand Junction and Ouray. In 1906, the track from Grand Junction to Montrose was changed from narrow gauge to standard gauge.

In 1909 the Gunnison Tunnel opened providing irrigation water from the Gunnison River in the Black Canyon to the Uncompahgre Valley helping turn Montrose into an agricultural hub as well.

Today Montrose serves as the gateway to the Black Canyon of the Gunnison National Park to the east of town and winter transportation hub to ski areas of the San Juan Mountains to the south. The majority of the County is made up of National Forest, Bureau of Land Management or National Park lands. The main cities include Montrose, Maher, Naturita, Nucla, Olathe and Paradox.

(www.Wikipedia.org, www.co.montrose.co.us, www.cityofmontrose.org)

RATIO ANALYSIS

Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 2013 and June 2014. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2014 in 6-month increments. If there were still fewer than 30 sales, supplemental appraisals were performed and treated as proxy sales. Residential sales for all counties using this method totaled at least 30 per county. For commercial sales, the total number analyzed was allowed, in some cases, to fall below 30. There were no sale quantity issues for counties requiring vacant land analysis or condominium analysis. 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 Montrose County are:

Montrose County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	35	1.043	1.047	13.8	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	808	0.999	1.010	9.3	Compliant
Vacant Land	85	0.999	1.022	15.2	Compliant

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

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

Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass	Value By Subclass
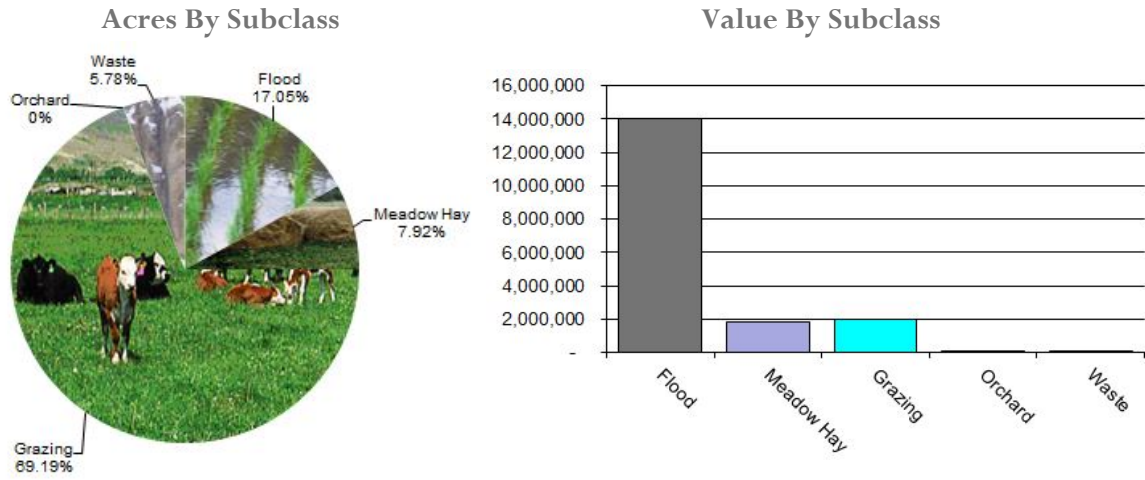
Agricultural Land

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:

Montrose County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4117	Flood	63,249	210.16	13,292,271	14,040,878	0.95
4137	Meadow Hay	29,369	63.51	1,865,331	1,865,331	1.00
4147	Grazing	256,698	7.89	2,024,148	2,024,148	1.00
4157	Orchard	259	270.35	70,021	70,021	1.00
4167	Waste	21,427	1.99	42,565	42,565	1.00
Total/Avg		371,002	46.62	17,294,336	18,042,943	0.96

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

Montrose 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

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

- Questionnaires
- Field Inspections
- Phone Interviews
- In-Person Interviews with Owners/Tenants
- Written Correspondence other than Questionnaire

- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Montrose 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.:

- Aerial Photography/Pictometry
- Used 1/2 acre

Montrose 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 2016 for Montrose County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 39 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.

> 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.

Conclusions

Montrose 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

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

Methodology

Under the guidelines of the Assessor's Reference Library (ARL), Volume 3, Section 6, Valuation of Producing Coal Leaseholds and Lands, the income approach is the primary method applied to find value for the valuation of coalmines. This methodology estimates annual economic royalty income based on previous year's production, then capitalizes that income to value using a Hoskold factor to estimate the present worth of the permitted acres. The operator provides production data and the life of the leases.

Conclusions

County has applied the correct formulas and state guidelines to coal mine valuation.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2016 in Montrose 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 was accomplished by reducing the absorption period by one year. In instances where the number of sales within an approved plat was less than the absorption rate per year calculated for the plat, the absorption period was left unchanged.

Conclusions

Montrose 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.

Montrose 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

Montrose 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

Montrose 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.

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

- Public Record Documents
- MLS Listing and/or Sold Books
- Chamber of Commerce/Economic Development Contacts
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth
- Questionnaires, Letters and/or Phone Calls to Buyer, Seller and/or Realtor

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.

Montrose County submitted their personal property written audit plan and was current for the 2016 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Businesses in a selected area
- Accounts with obvious discrepancies
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Same business type or use
- Businesses with no deletions or additions for 2 or more years

- Non-filing Accounts - Best Information Available
- Lowest or highest quartile of value per square foot
- Accounts protested with substantial disagreement

Conclusions

Montrose 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*

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Steve Kane, *Audit Statistician*

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

J. Andrew Rodriguez, *Field Analyst*

APPENDICES

**STATISTICAL COMPLIANCE REPORT
FOR MONTROSE COUNTY
2016**

I. OVERVIEW

Montrose County is located in western Colorado. The county has a total of 22,238 real property parcels, according to data submitted by the county assessor's office in 2016. The following provides a breakdown of property classes for this county:
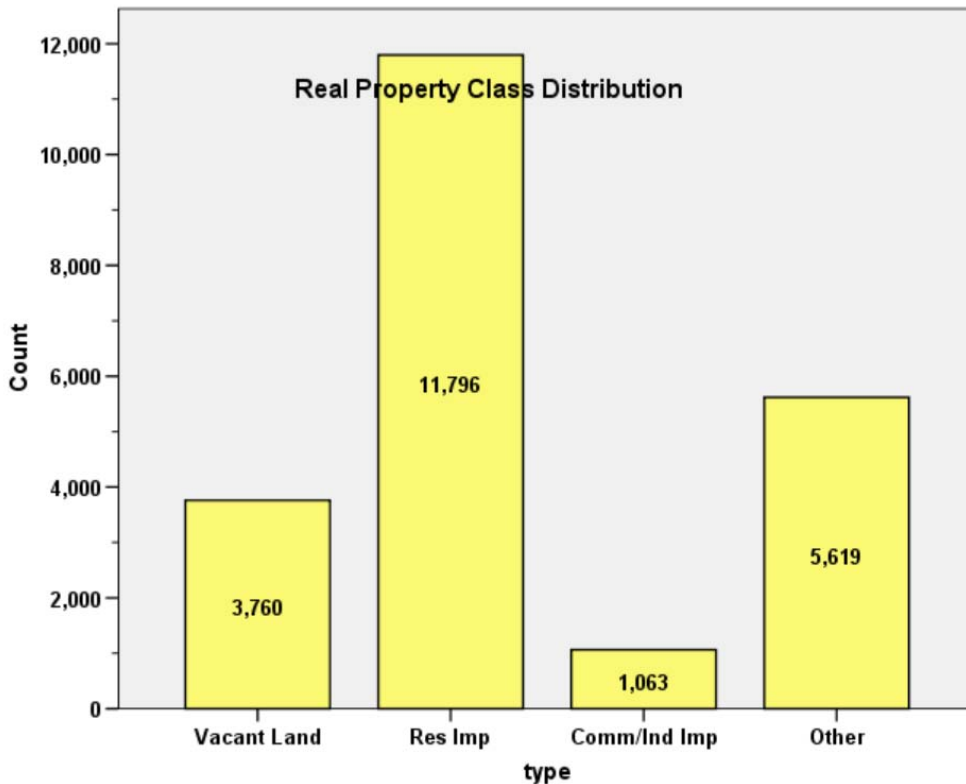
The vacant land class of properties was dominated by residential land. Residential lots (coded 100 and 1112) accounted for 71.9% of all vacant land parcels.

For residential improved properties, single family properties accounted for 96.5% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 4.8% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2016 Colorado Property Assessment Study. Information was provided by the Montrose Assessor's Office in April 2016. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 808 qualified residential sales in Montrose County for the 18 month sale period prior to June 30, 2014. The sales ratio analysis was analyzed as follows:

Median	0.999
Price Related Differential	1.010
Coefficient of Dispersion	9.3

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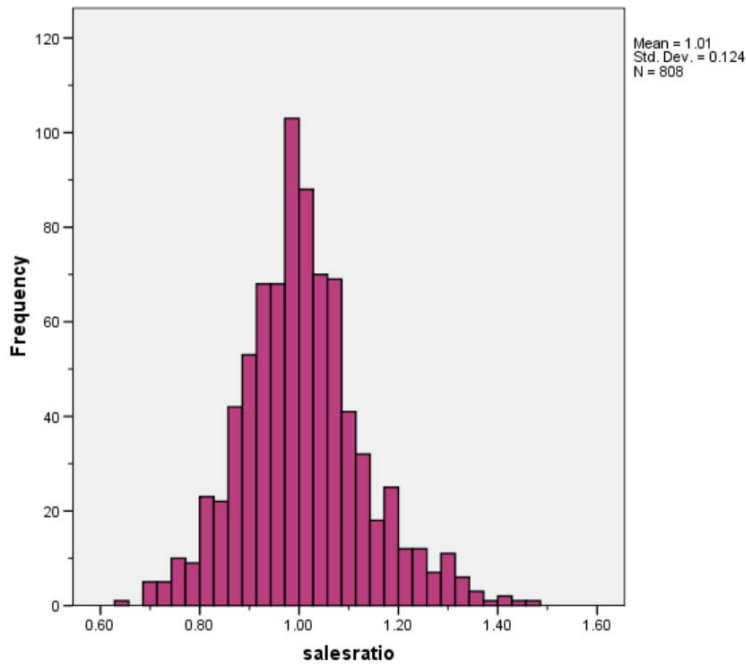
The above graphs indicate that the distribution of the sale ratios was within state mandated limits. No sales were trimmed.

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[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.007	.008		122.801	.000
	SalePeriod	.000	.001	-.005	-.152	.879

a. Dependent Variable: salesratio
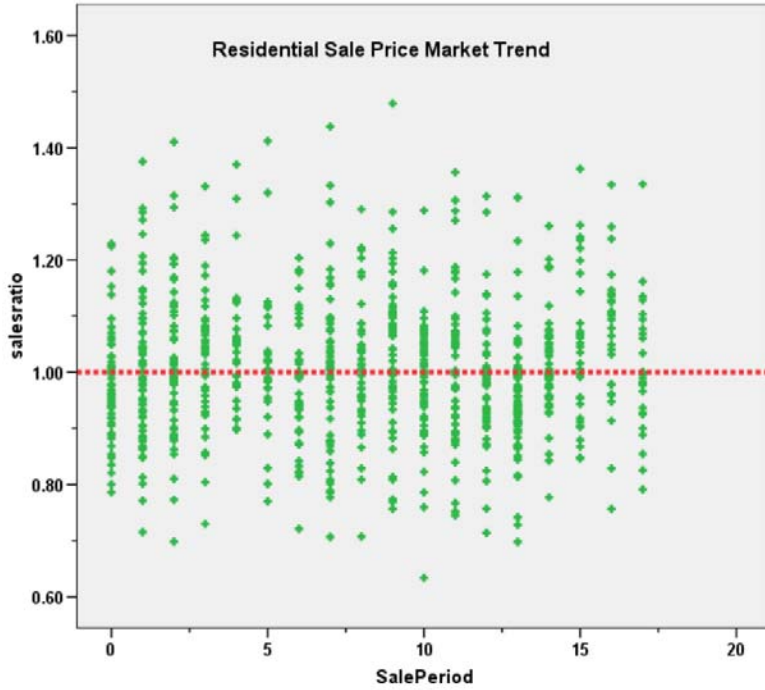
The above analysis indicated that the assessor has adequately addressed market trending in the valuation of residential properties.

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 2016 between each group, as follows:

Group	No.	Median	Mean
Unsold	10,988	$107	$110
Sold	808	$112	$113
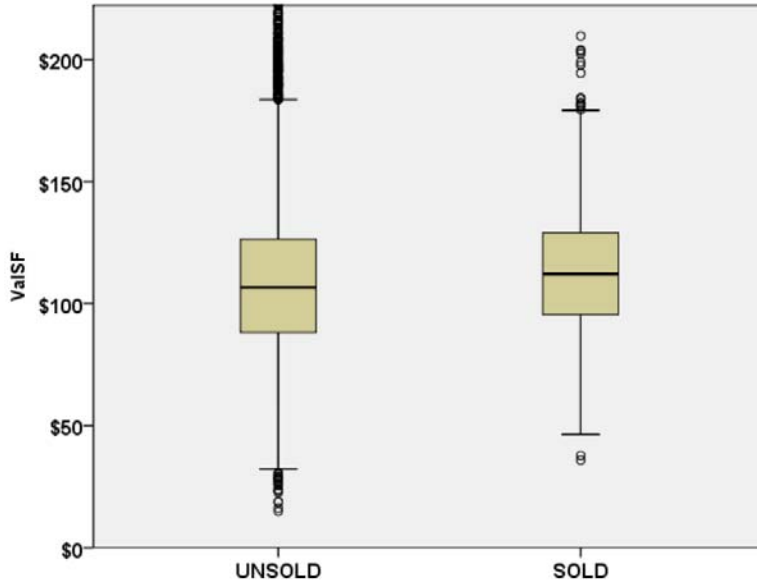
Hypothesis Test Summary

	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 .05.

Given that there was a statistically significant difference using the non-parametric Mann Whitney U test, we next compared the percent change in value between 2014 and 2016 for sold and unsold residential properties in Montrose County, as follows:

Group	N	Median Chg Val	Mean Chg Val
Unsold	10,769	1.10	1.10
Sold	805	1.12	1.12

The median change in value between sold and unsold residential properties was very similar.

As a final check, we developed an econometric model that used the assessor's actual value as the predicted variable. A total of 11,666 residential properties were analyzed. Residential property subclasses included the following:

ABSTRIMP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1212	11386	97.6	97.6	97.6
	1215	99	.8	.8	98.4
	1220	39	.3	.3	98.8
	1225	33	.3	.3	99.1
	1230	109	.9	.9	100.0
	Total	11666	100.0	100.0	

We developed a stepwise regression model to test whether sold and unsold properties were valued differently by the assessor.

To do this, we included a binary variable for sold/unsold status. For the model, sold properties were coded "1" and unsold properties were coded "0." Other variables tested included living area, age, and residential property type. The stepwise regression analysis adds variables to the model based on their contributory strength, as measured by their t or p values (depending on the test). At each step, a variable is added, and variables already in the model are re-evaluated to determine if they should remain in the model. After it is determined that adding additional variables will not improve the model's predicative or explanatory power, the process stops. Variables not included at this point are determined to not be significant. In this analysis, our primary focus was the sold/unsold variable previously described.

After 5 iterations, the following results were generated by the model:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795[a]	.632	.632	80304.489
2	.824[b]	.679	.679	75039.062
3	.834[c]	.695	.695	73129.881
4	.835[d]	.697	.697	72854.345
5	.836[e]	.699	.699	72620.389
6	.836[f]	.699	.699	72581.131

a. Predictors: (Constant), LIVEAREA

b. Predictors: (Constant), LIVEAREA, AGE

c. Predictors: (Constant), LIVEAREA, AGE, T1225

d. Predictors: (Constant), LIVEAREA, AGE, T1225, T1230

e. Predictors: (Constant), LIVEAREA, AGE, T1225, T1230, T1220

f. Predictors: (Constant), LIVEAREA, AGE, T1225, T1230, T1220, T1215

The model at Step 5 did not include the Sold/Unsold variable, indicating that it did not make a significant difference in the model whether the properties were sold or unsold. Based on this finding, we concluded that the assessor valued sold and unsold residential properties consistently in 2016.

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

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 35 qualified commercial sales in Montrose County for the 24 month sale period prior to June 30, 2016. The sales ratio analysis was analyzed as follows:

Median	1.043
Price Related Differential	1.047
Coefficient of Dispersion	13.8

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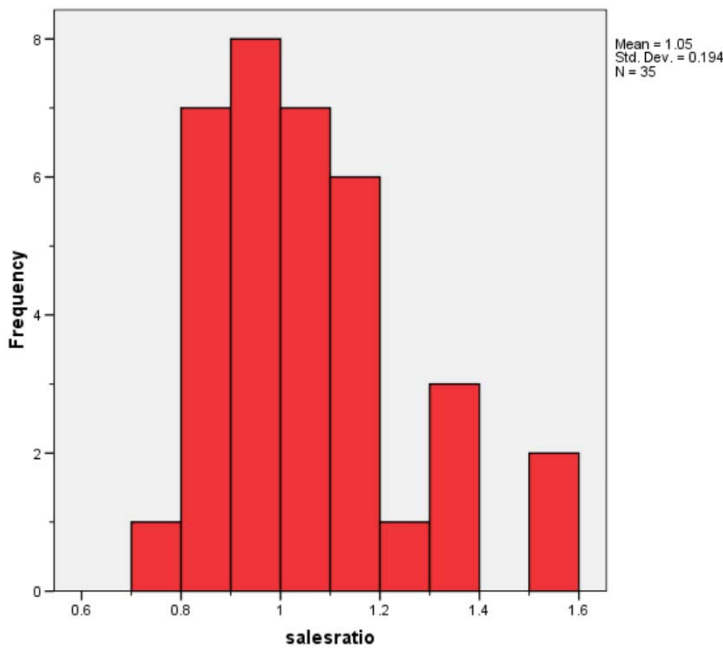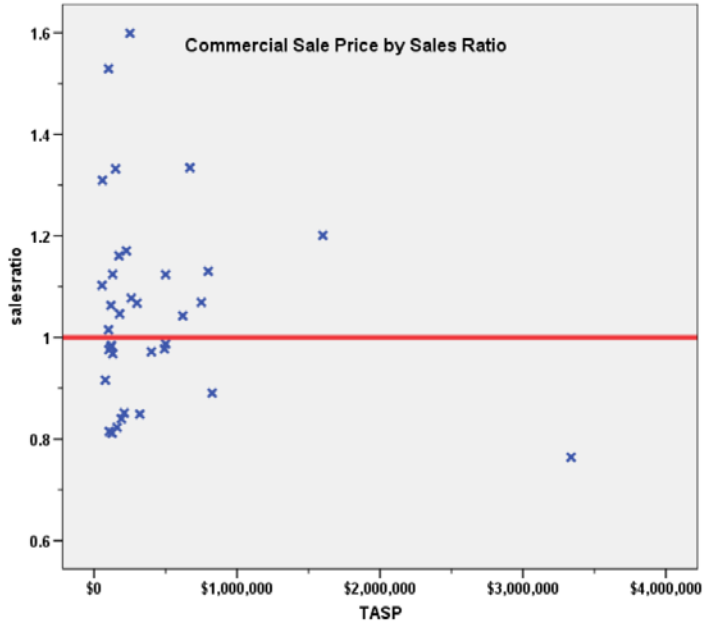
Commercial Market Trend Analysis

The 35 commercial/industrial sales were analyzed, examining the sale ratios across a 24-month sale period with the following results:

Coefficients[a]

| Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.087	.064		17.004	.000
	SalePeriod	-.003	.005	-.103	-.597	.555

a. Dependent Variable: salesratio
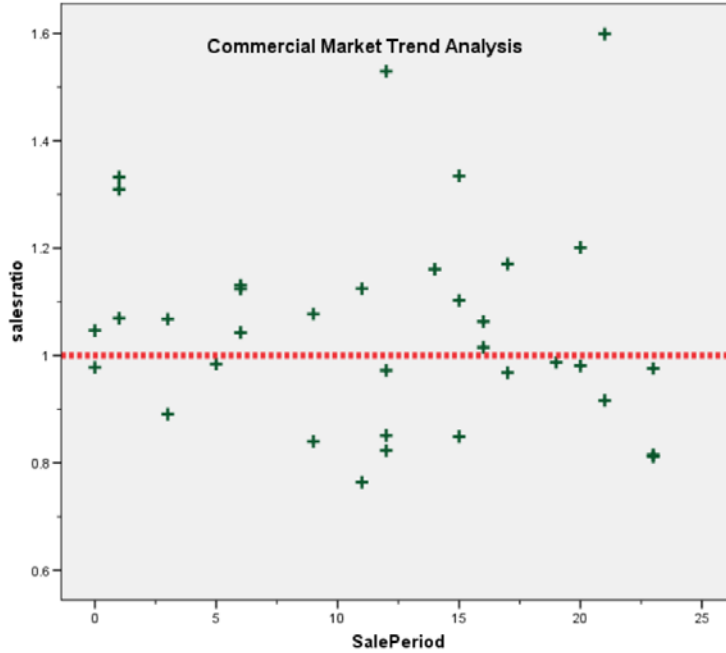
The market trend results indicated no statistically significant trend. We concur that no market trend adjustments were warranted for properties in this class for Montrose County.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold commercial/industrial properties, we compared the median actual value per square foot for 2016 between each group, as follows:

Group	No.	Median Val SF	Mean Val SF
Unsold	1,027	$72	$90
Sold	33	$63	$83
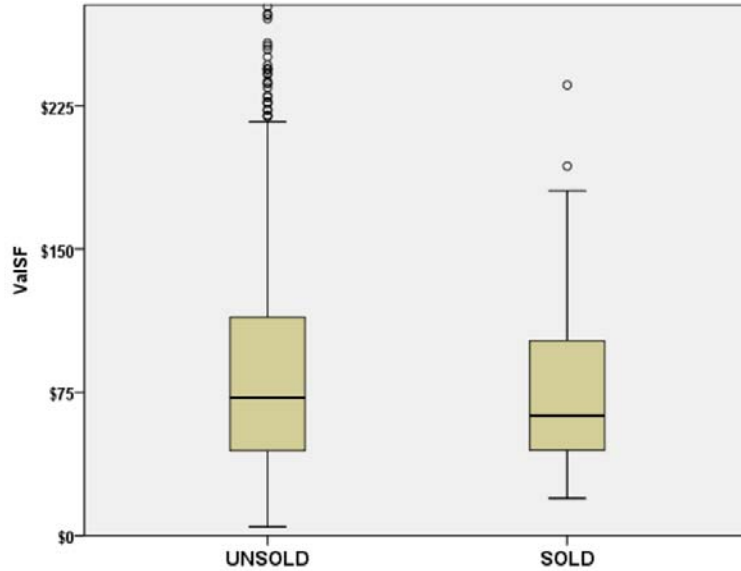
Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ValSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.653	Retain the null hypothesis.

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

The above indicated that the assessor has valued both groups consistently.

V. VACANT LAND SALE RESULTS

There were 86 qualified vacant land sales in Montrose County for the 18 month sale period prior to June 30, 2016; one sale was trimmed due to its extreme sale ratio, resulting in a total of 85 sales. The sales ratio analysis was analyzed as follows:

Median	0.999
Price Related Differential	1.022
Coefficient of Dispersion	15.2

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

Vacant Land Sale Price by Sales Ratio
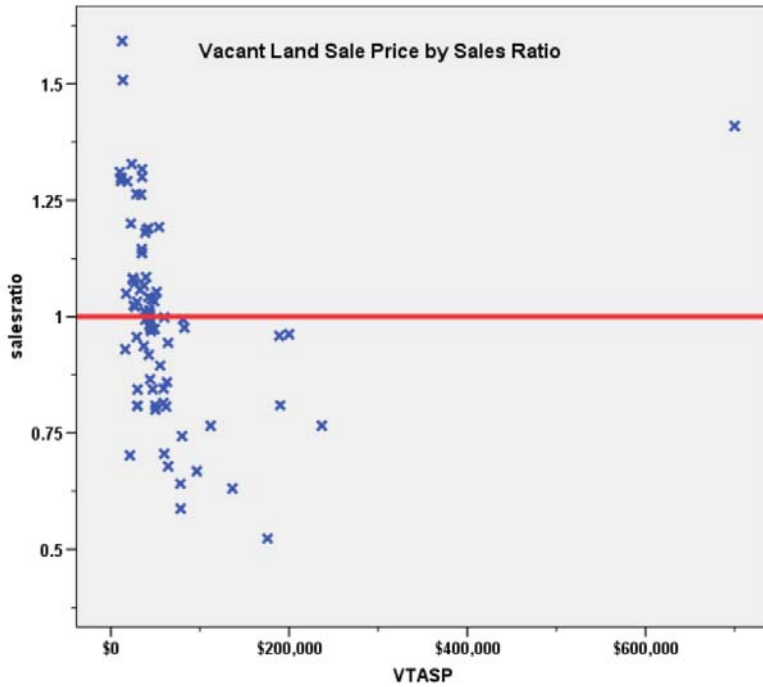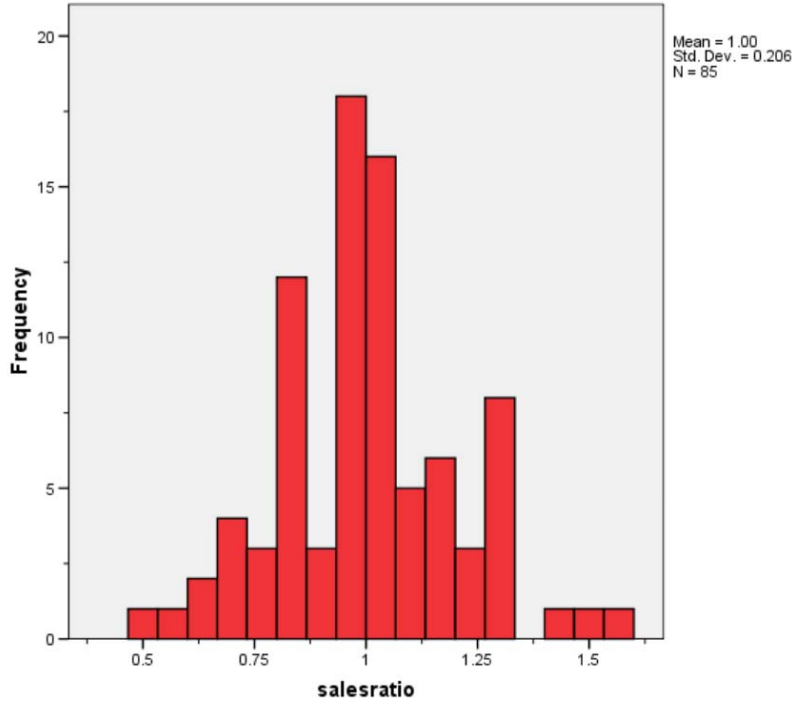
Vacant Land Market Trend Analysis

The 85 vacant land sales were analyzed, examining the sale ratios across the 18 month sale period with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.938	.044		21.153	.000
	VSalePeriod	.008	.005	.179	1.657	.101

a. Dependent Variable: salesratio
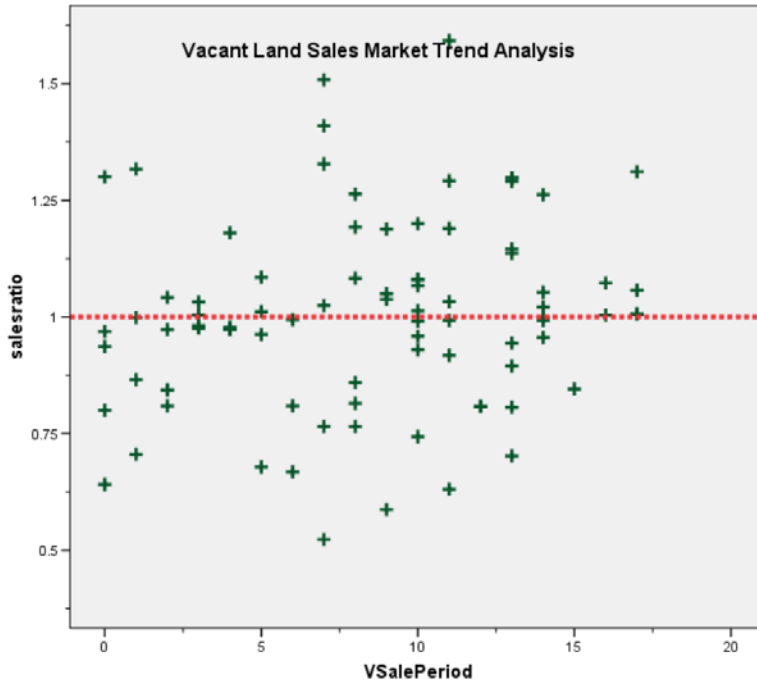
Vacant Land Sales Market Trend Analysis

The market trend results indicated no statistically significant trend. We concur that no market trend adjustments were warranted for properties in this class for Montrose County.

Sold/Unsold Analysis

We compared the median change in actual value between 2014 and 2016 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

Group	N	Median	Mean
Unsold	2,710	1.00	1.00
Sold	81	1.00	1.01

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	.808	Retain the null hypothesis.

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

The above results indicated that sold and unsold vacant land properties were valued consistently overall.

V. AGRICULTURAL IMPROVEMENTS ANALYSIS

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

The following indicates that agricultural residential improvements were valued in a manner similar to the single family residential improvements in this county:

Descriptives

ABSTRIMP				Statistic	Std. Error
ImpValSF	**SFR**	Mean		$90.29	$.264
		95% Confidence Interval for Mean	Lower Bound	$89.77	
			Upper Bound	$90.81	
		5% Trimmed Mean		$89.37	
		Median		$88.87	
		Variance		793.445	
		Std. Deviation		$28.168	
		Minimum		$0	
		Maximum		$619	
		Range		$619	
		Interquartile Range		$35	
		Skewness		1.094	.023
		Kurtosis		11.710	.046
	Ag Res	Mean		$95.42	$1.734
		95% Confidence Interval for Mean	Lower Bound	$92.02	
			Upper Bound	$98.82	
		5% Trimmed Mean		$91.68	
		Median		$87.46	
		Variance		2287.756	
		Std. Deviation		$47.830	
		Minimum		$0	
		Maximum		$365	
		Range		$365	
		Interquartile Range		$53	
		Skewness		1.996	.089
		Kurtosis		7.678	.177

VI. CONCLUSIONS

Based on this statistical analysis, there were no significant compliance issues concluded for Montrose 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 |
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.006	.998	1.015	.999	.993	1.003	95.5%	.997	.987	1.006	1.010	.093	12.3%

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.

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 |
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.055	.988	1.121	1.043	.976	1.103	95.9%	1.007	.873	1.142	1.047	.138	18.4%

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

Vacant Land

Ratio Statistics for CURRLND / VTASP

| Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.002	.958	1.047	.999	.973	1.032	97.1%	.980	.851	1.109	1.022	.152	20.6%

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

Residential Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$25K to $50K	1	.1%
	$50K to $100K	52	6.4%
	$100K to $150K	220	27.2%
	$150K to $200K	219	27.1%
	$200K to $300K	200	24.8%
	$300K to $500K	106	13.1%
	$500K to $750K	10	1.2%
Overall		808	100.0%
Excluded		0	
Total		808	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$25K to $50K	1.060	1.000	.000	.%
$50K to $100K	1.090	1.003	.129	15.9%
$100K to $150K	1.003	1.002	.088	12.1%
$150K to $200K	.999	1.000	.086	11.2%
$200K to $300K	.983	1.001	.087	11.6%
$300K to $500K	.993	1.001	.094	12.5%
$500K to $750K	.900	1.000	.136	16.4%
Overall	.999	1.010	.093	12.4%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	1212	796	98.5%
	1214	1	.1%
	1215	3	.4%
	1220	3	.4%
	1230	5	.6%
Overall		808	100.0%
Excluded		0	
Total		808	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212	.999	1.009	.093	12.4%
1214	.995	1.000	.000	.%
1215	.995	1.028	.089	14.4%
1220	.890	1.033	.087	13.0%
1230	1.058	1.013	.098	14.1%
Overall	.999	1.010	.093	12.4%

Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	43	5.3%
	75 to 100	27	3.3%
	50 to 75	65	8.0%
	25 to 50	164	20.3%
	5 to 25	486	60.1%
	5 or Newer	23	2.8%
Overall		808	100.0%
Excluded		0	
Total		808	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.963	1.023	.129	17.5%
75 to 100	.952	1.012	.124	15.0%
50 to 75	.960	1.018	.101	14.0%
25 to 50	.993	1.013	.107	14.0%
5 to 25	1.004	1.009	.082	11.0%
5 or Newer	.940	1.017	.087	11.0%
Overall	.999	1.010	.093	12.4%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	500 to 1,000 sf	23	2.8%
	1,000 to 1,500 sf	281	34.8%
	1,500 to 2,000 sf	293	36.3%
	2,000 to 3,000 sf	180	22.3%
	3,000 sf or Higher	31	3.8%
Overall		808	100.0%
Excluded		0	
Total		808	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
500 to 1,000 sf	.894	1.042	.139	20.4%
1,000 to 1,500 sf	.985	1.015	.092	12.4%
1,500 to 2,000 sf	1.002	1.016	.087	11.8%
2,000 to 3,000 sf	1.017	1.014	.090	11.6%
3,000 sf or Higher	1.071	1.012	.114	14.6%
Overall	.999	1.010	.093	12.4%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	3	.4%
	2	44	5.5%
	3	561	69.7%
	4	149	18.5%
	5	44	5.5%
	6	4	.5%
Overall		805	100.0%
Excluded		3	
Total		808	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.194	1.033	.145	25.7%
2	.944	1.021	.133	16.4%
3	.999	1.012	.092	12.3%
4	1.000	1.004	.081	10.9%
5	1.005	1.012	.102	13.4%
6	1.088	1.004	.059	11.3%
Overall	.999	1.009	.093	12.4%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$50K to $100K	5	14.3%
	$100K to $150K	9	25.7%
	$150K to $200K	4	11.4%
	$200K to $300K	5	14.3%
	$300K to $500K	5	14.3%
	$500K to $750K	3	8.6%
	$750K to $1,000K	2	5.7%
	Over $1,000K	2	5.7%
Overall		35	100.0%
Excluded		0	
Total		35	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$50K to $100K	1.103	.993	.165	23.4%
$100K to $150K	.981	.988	.106	16.4%
$150K to $200K	.943	1.000	.144	17.6%
$200K to $300K	1.077	.995	.158	26.7%
$300K to $500K	.978	.989	.059	10.0%
$500K to $750K	1.069	1.000	.091	17.6%
$750K to $1,000K	1.011	1.002	.119	16.8%
Over $1,000K	.983	1.085	.222	31.4%
Overall	1.043	1.047	.138	18.7%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	2	5.7%
	1716	1	2.9%
	1721	1	2.9%
	2212	8	22.9%
	2215	1	2.9%
	2220	4	11.4%
	2221	1	2.9%
	2230	9	25.7%
	2235	3	8.6%
	2240	1	2.9%
	2245	2	5.7%
	3215	1	2.9%
	3230	1	2.9%
Overall		35	100.0%
Excluded		0	
Total		35	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.978	1.003	.006	.9%
1716	.968	1.000	.000	.%
1721	1.103	1.000	.000	.%
2212	1.128	1.025	.186	23.6%
2215	.978	1.000	.000	.%
2220	1.045	.990	.014	2.1%
2221	.891	1.000	.000	.%
2230	1.063	1.066	.142	18.4%
2235	1.171	1.033	.135	26.0%
2240	1.077	1.000	.000	.%
2245	.902	1.015	.088	12.4%
3215	.987	1.000	.000	.%
3230	.916	1.000	.000	.%
Overall	1.043	1.047	.138	18.7%

Age

Case Processing Summary

		Count	Percent
AgeRec	0	2	5.7%
	Over 100	4	11.4%
	75 to 100	2	5.7%
	50 to 75	7	20.0%
	25 to 50	6	17.1%
	5 to 25	14	40.0%
Overall		35	100.0%
Excluded		0	
Total		35	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.978	1.003	.006	.9%
Over 100	.943	1.001	.193	26.7%
75 to 100	1.070	.997	.007	.9%
50 to 75	1.103	1.043	.081	10.9%
25 to 50	.929	1.078	.160	29.6%
5 to 25	1.069	1.057	.148	20.7%
Overall	1.043	1.047	.138	18.7%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	2	5.7%
	500 to 1,000 sf	3	8.6%
	1,000 to 1,500 sf	5	14.3%
	1,500 to 2,000 sf	1	2.9%
	2,000 to 3,000 sf	6	17.1%
	3,000 sf or Higher	18	51.4%
Overall		35	100.0%
Excluded		0	
Total		35	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.978	1.003	.006	.9%
500 to 1,000 sf	.976	1.020	.066	11.4%
1,000 to 1,500 sf	.916	1.079	.129	22.3%
1,500 to 2,000 sf	1.530	1.000	.000	.%
2,000 to 3,000 sf	1.055	.990	.064	11.0%
3,000 sf or Higher	1.101	1.078	.137	18.7%
Overall	1.043	1.047	.138	18.7%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	4	12.1%
	2	29	87.9%
Overall		33	100.0%
Excluded		2	
Total		35	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.350	.970	.158	18.5%
2	1.015	1.029	.123	15.5%
Overall	1.047	1.050	.142	19.1%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	15	17.6%
	$25K to $50K	45	52.9%
	$50K to $100K	17	20.0%
	$100K to $150K	2	2.4%
	$150K to $200K	4	4.7%
	$200K to $300K	1	1.2%
	$500K to $750K	1	1.2%
Overall		85	100.0%
Excluded		0	
Total		85	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.291	1.029	.129	18.7%
$25K to $50K	1.006	1.006	.090	12.7%
$50K to $100K	.845	1.016	.158	19.6%
$100K to $150K	.698	1.010	.096	13.6%
$150K to $200K	.884	.991	.166	25.1%
$200K to $300K	.765	1.000	.000	.%
$500K to $750K	1.410	1.000	.000	.%
Overall	.999	1.022	.152	20.6%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	100	32	37.6%
	200	3	3.5%
	530	1	1.2%
	550	2	2.4%
	1112	43	50.6%
	1135	4	4.7%
Overall		85	100.0%
Excluded		0	
Total		85	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100	1.055	1.138	.170	22.2%
200	.962	.867	.208	34.7%
530	.743	1.000	.000	.%
550	.831	1.184	.241	34.1%
1112	.991	1.050	.107	16.9%
1135	1.068	1.111	.228	26.4%
Overall	.999	1.022	.152	20.6%