



2023

# LAS ANIMAS COUNTY PROPERTY ASSESSMENT STUDY

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September 15, 2023

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

**RE: Final Report for the 2023 Colorado Property Assessment Study**

Dear Ms. Castle:

East West Econometrics - Audit Division is pleased to submit the Final Reports for the 2023 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 locally assessed 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.

East West Econometrics – 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".

Harry J. Fuller  
Project Manager  
East West Econometrics – 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.

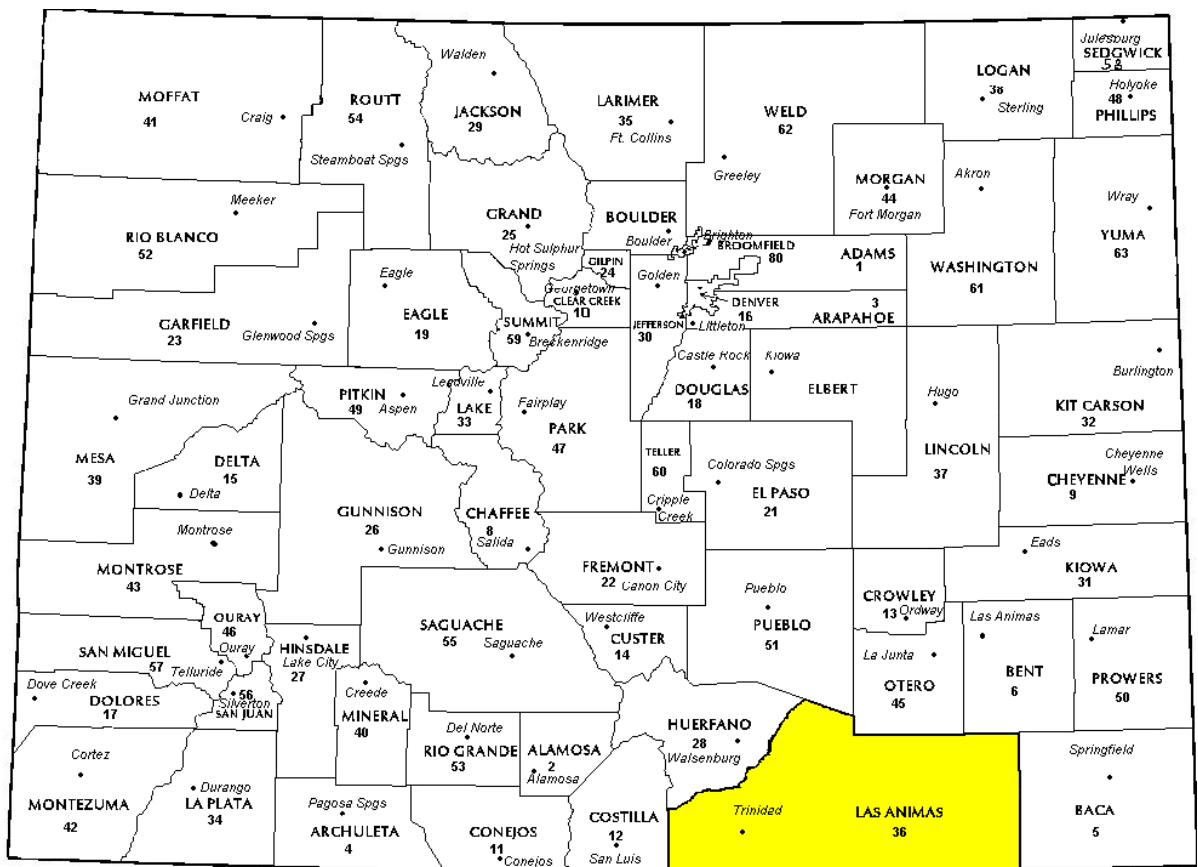
East West Econometrics Audit has completed the Property Assessment Study for 2023 and is pleased to report its findings for Las Animas County in the following report.

# REGIONAL/HISTORICAL SKETCH OF LAS ANIMAS COUNTY

## Regional Information

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

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



## Historical Information

Las Animas County has approximately 4,772.69 square miles and an estimated population of approximately 14,506 people with 3.2 people per square mile, according to the U.S. Census Bureau's 2020 estimated census data. This represents a -6.5 percent change from April 1, 2010 to July 1, 2019.

Las Animas County is the largest of the 64 counties in Colorado and takes its name from the Spanish language name of the Animas River, Río de las Ánimas Perdidas, which means "River of the Lost Souls."

The City of Trinidad was founded in 1876, and was slated as a possible capitol for the State of Colorado. Due to many circumstances that dream did not come into fruition, but it is the County seat of Las Animas County. During the height of the cattle industry based around the Santa Fe Trail, around 1881, Trinidad was home to Bat Masterson, the Earps, Doc

Holiday, and many other well-known personages.

During the 1900's the industry shifted to Coal Mining and was supported by the railroad industry. Coal camps spread throughout the Purgatoire Valley and many of the surrounding canyons.

The largest habitat acquisition to date for both the Rocky Mountain Elk Foundation and the Colorado Division of Wildlife, the Bosque del Oso State Wildlife Area, is located in Las Animas County. This area protects nearly 30,000 acres of critical habitat and provides winter range for animals for Colorado's second-largest elk herd, along with habitat for mule deer, bears, turkeys, bobcats, bald eagles and trout. Now, as a public wildlife area, many generations will enjoy the Bosque's open spaces, wildlife, scenery and recreational opportunities.

*(Wikipedia.org, www.trinidadco.co, trinidadchamber.com)*

# RATIO ANALYSIS

## Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 2021 through June 30th, 2022. Property classes with less than thirty sales had the sales period extended in six month increments up to an additional forty-two months. If this extended sales period did not produce the minimum thirty qualified sales, the Audit performed supplemental appraisals to reach the minimum.

Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either “Q” or “C.” The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In

every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were “lost” because of trimming.

All sixty-four counties were examined for compliance on the economic area level. Where there were sufficient sales data, the neighborhood and subdivision levels were tested for compliance. Although counties are determined to be in or out of compliance at the class level, non-compliant economic areas, neighborhoods and subdivisions (where applicable) were discussed with the Assessor.

**Data on the individual economic areas, neighborhoods and subdivisions are found in the STATISTICAL APPENDIX.**

## Conclusions

For this final analysis report, the minimum acceptable statistical standards allowed by the State Board of Equalization are:

ALLOWABLE STANDARDS RATIO GRID		
Property Class	Unweighted Median Ratio	Coefficient of Dispersion
Commercial/Industrial	Between .95-1.05	Less than 20.99
Residential Condominium	Between .95-1.05	Less than 15.99
Residential	Between .95-1.05	Less than 15.99
Vacant Land	Between .95-1.05	Less than 20.99

The results for Las Animas County are:

<b>Las Animas 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	36	0.951	1.047	11.5	Compliant	
Residential	340	0.964	1.027	14.1	Compliant	
Vacant Land	223	0.987	1.060	17.9	Compliant	

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

Las Animas 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
Residential	Compliant
Vacant Land	Compliant

### **Conclusions**

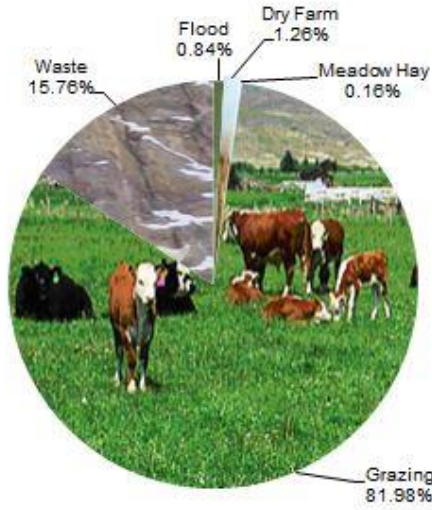
After applying the above described methodologies, it is concluded that Las Animas County is reasonably treating its sold and unsold properties in the same manner.

### **Recommendations**

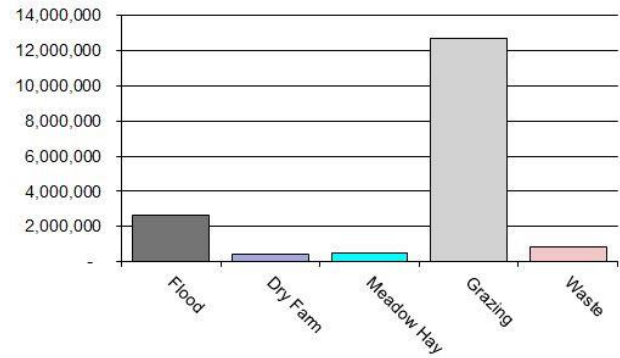
None

# 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:

<b>Las Animas 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>
4117	Flood	20,446	130.80	2,674,308	2,760,821	0.97
4127	Dry Farm	30,465	13.78	419,925	419,925	1.00
4137	Meadow Hay	3,939	132.96	523,675	523,675	1.00
4147	Grazing	1,990,051	6.36	12,666,029	12,666,029	1.00
4167	Waste	382,575	2.19	837,133	837,133	1.00
<b>Total/Avg</b>		<b>2,427,476</b>	<b>7.05</b>	<b>17,121,070</b>	<b>17,207,584</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

Las Animas 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

Las Animas 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

Las Animas County has used the following methods to discover the land area under a residential improvement that is determined to be not integral under 39-1-102, C.R.S.:

- Property Record Card Analysis
- Field Inspections
- Phone Interviews
- In-Person Interviews with Owners/Tenants
- Written Correspondence other than Questionnaire
- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Las Animas 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.

EWE reviewed the sales verification procedures in 2023 for Las Animas County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically EWE selected 35 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 \$100,000, the contractor has examined and reported the ratio of qualified sales to total sales by class and performed the following analyses of unqualified sales:

The contractor has examined the manner in which sales have been classified as qualified or unqualified, including a listing of each step in the sales verification process, any adjustment procedures, and the county official responsible for making the final decision on qualification.

When less than 50 percent of sales are qualified in any of the three property classes (residential, commercial, and vacant land), the contractor analyzed the reasons for disqualifying sales in any subclass that constitutes at least 20 percent of the class, either by number of properties or by value, from the prior year. The contractor has reviewed with the assessor any analysis indicating that sales data are

inadequate, fail to reflect typical properties, or have been disqualified for insufficient cause. In addition, the contractor has reviewed the disqualified sales by assigned code. If there appears to be any inconsistency in the coding, the contractor has conducted further analysis to determine if the sales included in that code have been assigned appropriately.

If 50 percent or more of the sales are qualified, the contractor has reviewed a statistically significant sample of unqualified sales, excluding sales that were disqualified for obvious reasons.

Las Animas County did not qualify for in-depth subclass analysis.

### **Conclusions**

Las Animas County appears to be doing an adequate job of verifying their sales. EWE 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**

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

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## Producing Coal Mines

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### 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

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**Las Animas County is exempt from the Vacant Land Subdivision  
Discount Study.**

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# 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.

Las Animas County has been reviewed for their procedures and adherence to guidelines when

assessing and valuing agricultural 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

Las Animas 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

Las Animas 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.

Las Animas 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.

Las Animas County submitted their personal property written audit plan and was current for the 2023 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
- Accounts with omitted property
- Same business type or use

- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts close to the \$52,000 actual value exemption status
- Accounts protested with substantial disagreement

## **Conclusions**

Las Animas 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

# EAST WEST ECONOMETRICS AUDITOR STAFF

**Harry J. Fuller**, *Audit Project Manager*

**Suzanne Howard**, *Audit Administrative Manager*

**Steve Kane**, *Audit Statistician*

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

**J. Andrew Rodriguez**, *Field Analyst*



# STATISTICAL APPENDIX

**STATISTICAL COMPLIANCE REPORT  
FOR LAS ANIMAS COUNTY  
2023**

**I. OVERVIEW**

Las Animas County is located in southern Colorado. The county has a total of 17,232 real property parcels, according to data submitted by the county assessor’s office in 2023. 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 550) accounted for 78.7% of all vacant land parcels.

For residential improved properties, single family properties accounted for 92.9% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 4.2% of all such properties in this county.

**II. DATA FILES**

The following sales analyses were based on the requirements of the 2023 Colorado Property Assessment Study. Information was provided by the Las Animas Assessor’s Office in May 2023. The data included all 5 property record files as specified by the Auditor.

### III. RESIDENTIAL SALES RESULTS

There were 340 qualified residential sales for the 18-month sale period ending June 30, 2022. The sales ratio analysis results were as follows:

Median	<b>0.964</b>
Price Related Differential	<b>1.027</b>
Coefficient of Dispersion	<b>14.1</b>

We next stratified the sale ratio analysis by economic area and neighborhood. The minimum count for the neighborhood stratification is 15 sales. The following are the results of this stratification analysis:

#### Economic Area Case Processing Summary

		Count	Percent
ECONAREA	1.00	276	84.4%
	2.00	34	10.4%
	3.00	17	5.2%
Overall		327	100.0%
Excluded		2	
Total		329	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.966	1.023	.122
2.00	.935	.987	.126
3.00	.851	1.020	.156
Overall	.962	1.018	.124

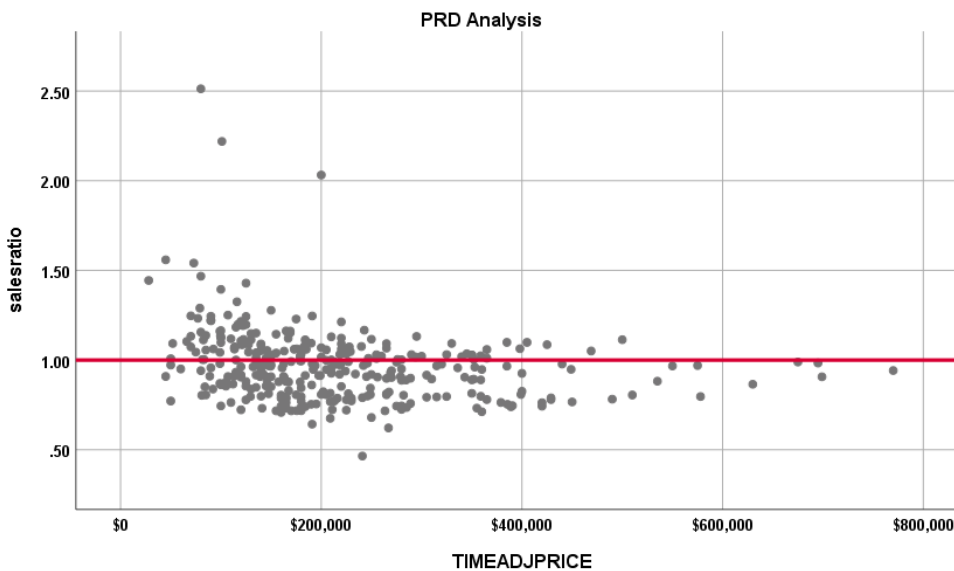
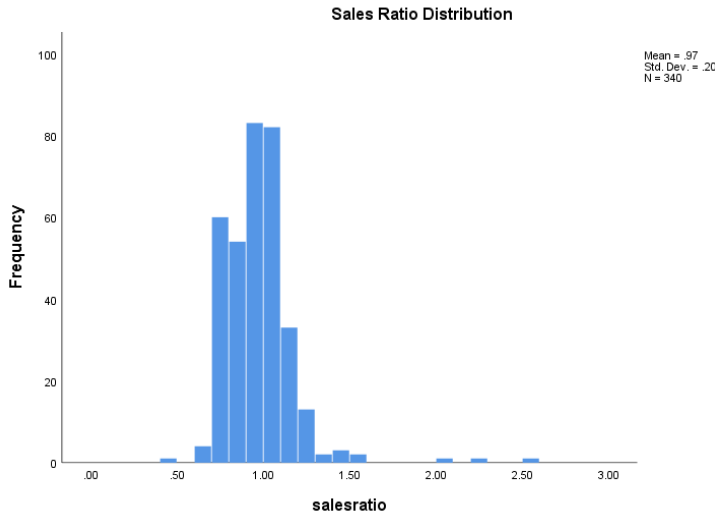
#### Neighborhoods with 15 or more sales Case Processing Summary

		Count	Percent
NBHD	300	109	63.0%
	400	64	37.0%
Overall		173	100.0%
Excluded		0	
Total		173	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
300	.991	1.041	.144
400	.988	1.032	.133
Overall	.991	1.037	.140

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:



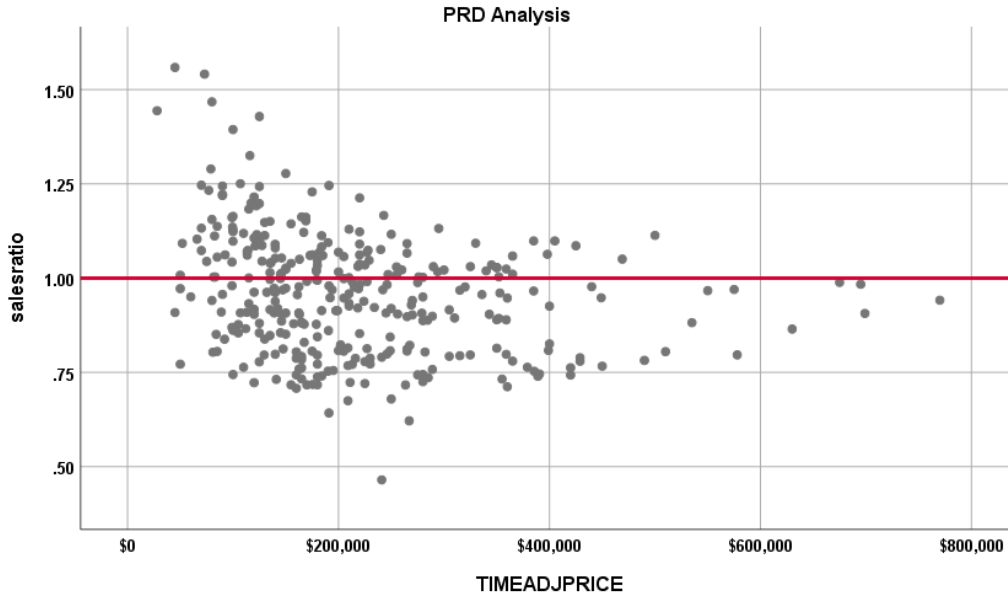
**NOTE: One sale omitted in above graph for illustration purposes.**

The above graphs indicate that the distribution of the sale ratios was within state mandated limits. No sales were trimmed.

### Subclass 1212 PRD Analysis

We next analyzed residential properties identified as 1212 using the state abstract code system. These include single family residences, town homes and purged manufactured homes. The following indicates the distribution of sales ratios across the sale price spectrum:

### 1212 SALES



The Price-Related Differential (PRD) for 1212 sales is 1.026, which is within IAAO standards for the PRD. We also performed a regression analysis between the sales ratio and the assessor’s current value to further test for regressivity or progressivity in the residential sales valuation, as follows:

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.966	.018		53.208	.000
	CURRTOT	-.0000000417	.000	-.029	-.523	.601

a. Dependent Variable: salesratio

The slope of the line at -0.0000000417 indicates that there is virtually no slope in the regression line, which indicates that sales ratios are similar across the entire sale price array. This indicates no regressivity or progressivity in the residential values assigned by the assessor.

We also stratified the sales ratio analysis by the sale price range, as follows:

#### Case Processing Summary

		Count	Percent
SPRec	LT \$100K	46	13.8%
	\$100K to \$200K	139	41.6%
	\$200K to \$300K	88	26.3%
	\$300K to \$400K	61	18.3%
Overall		334	100.0%
Excluded		0	
Total		334	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$100K	1.083	1.007	.139	18.1%
\$100K to \$200K	.969	1.007	.130	15.8%
\$200K to \$300K	.927	1.001	.122	15.0%
\$300K to \$400K	.916	.999	.109	12.7%
Overall	.962	1.026	.132	16.6%

The above table indicates no regressivity in the sales ratios across sale price categories.

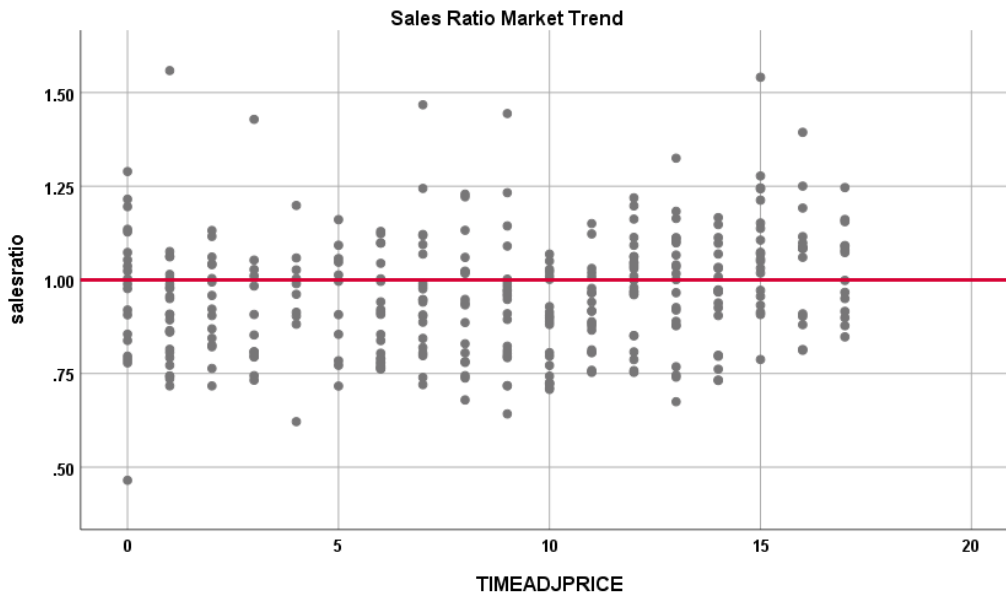
### Residential Market Trend Analysis

We next analyzed the residential dataset using the 18-month sale period for any residual market trending. The following indicates that there was no statistically significant residual trend based on the sale ratios:

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

Model		Unstandardized Coefficients B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.911	.017		54.114	.000
	SalePeriod	.005	.002	.174	3.240	.001

a. Dependent Variable: salesratio



The above analysis indicated that there is a marginal market trend in the residential data. We will advise the assessor of these results, but in terms of the overall magnitude of the raw sales market trend for residential properties, we concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

### Sold/Unsold Analysis

We first analyzed the 2023 median actual value per square foot between sold and unsold residential properties, as follows:

**Report**

VALSF				
	sold	N	Median	Mean
	SOLD	4759	\$80	\$79
	UNSOLD	340	\$81	\$77

### 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	.816	Retain the null hypothesis.

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

We also stratified this analysis by economic area, as follows:

**Report**

VALSF				
ECONAREA	sold	N	Median	Mean
1.00	UNSOLD	2905	\$82	\$81
	SOLD	281	\$81	\$77
2.00	UNSOLD	1289	\$67	\$68
	SOLD	39	\$71	\$70
3.00	UNSOLD	412	\$95	\$99
	SOLD	18	\$100	\$95

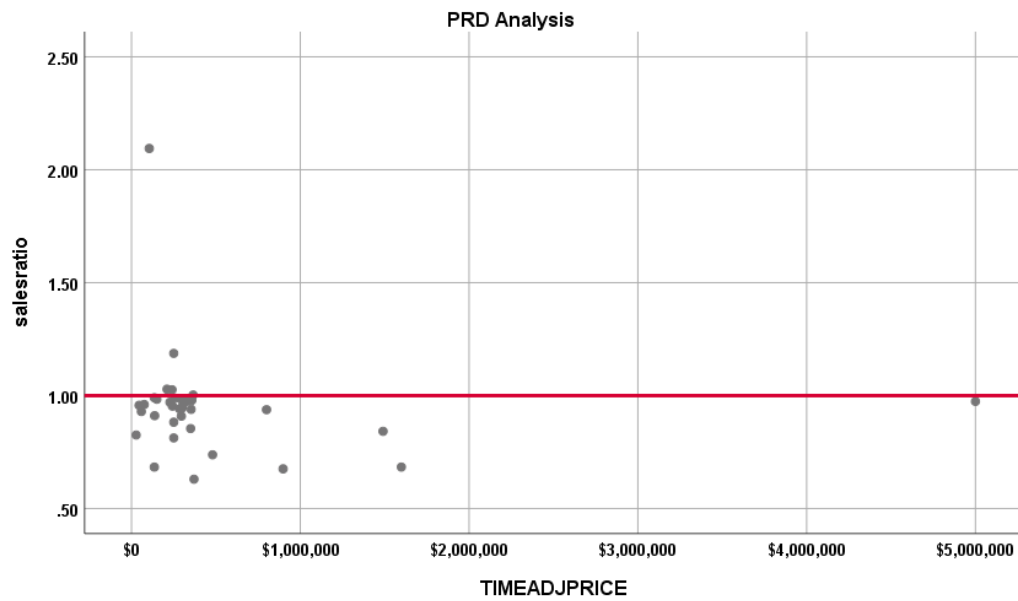
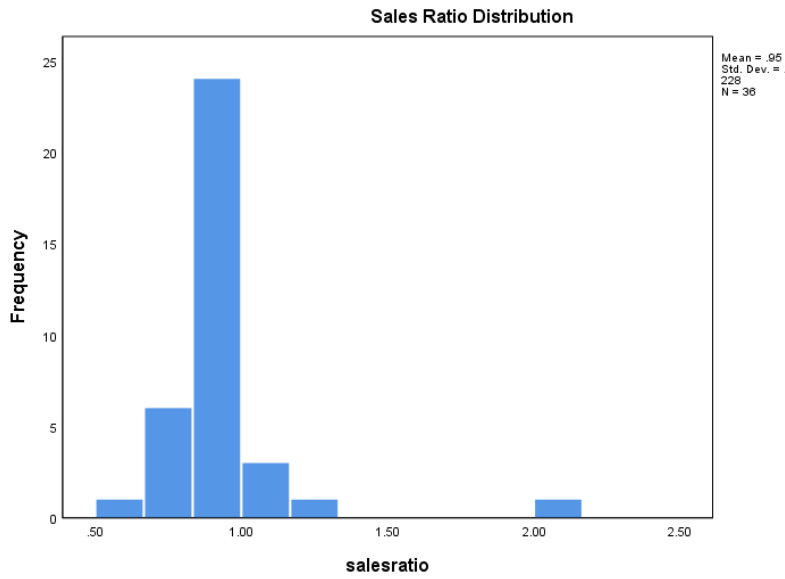
Based on the above comparisons, we concluded that the assessor has valued sold and unsold residential properties in a consistently.

### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 36 qualified commercial and industrial sales for the 60-month sale period ending to June 30, 2022. The sales ratio analysis results were as follows:

Median	<b>0.951</b>
Price Related Differential	<b>1.047</b>
Coefficient of Dispersion	<b>11.5</b>

The above table indicates that the Las Animas County commercial/industrial sale ratios were in compliance with the SBOE standards for the median sales ration and corresponding COD. The following histogram and scatter plot describe the sales ratio distribution further:



### Commercial Market Trend Analysis

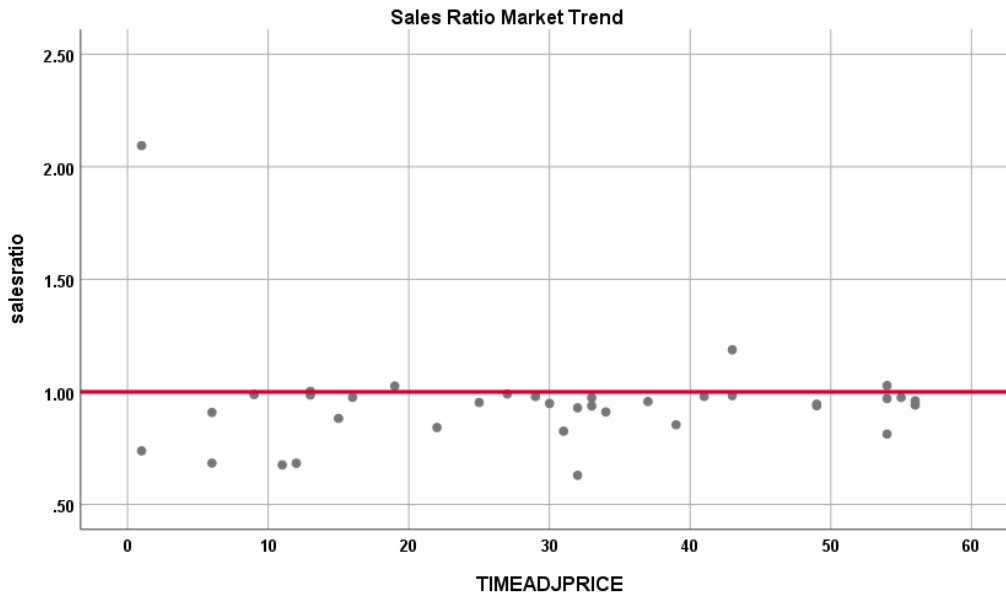
The commercial sales were analyzed, examining the sale ratios across the 48-month sale period with the following:



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

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.976	.078		12.444	.000
	SalePeriod	-.001	.002	-.072	-.422	.675

a. Dependent Variable: salesratio



The market trend analysis indicated no statistically significant trend. We concluded that the assessor has adequately addressed market trending for commercial/industrial sales in Las Animas County.

### Sold/Unsold Analysis

We compared the change in actual value for taxable year 2020 and taxable year 2022 between sold and unsold commercial properties to determine if the assessor was valuing each group consistently. The following results indicate that, based on the mean and median actual value, both groups were valued consistently:

Report			
DIFF			
sold	N	Median	Mean
UNSOLD	660	1.00	1.15
SOLD	36	1.01	1.13

### 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	.481	Retain the null hypothesis.

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

#### Report

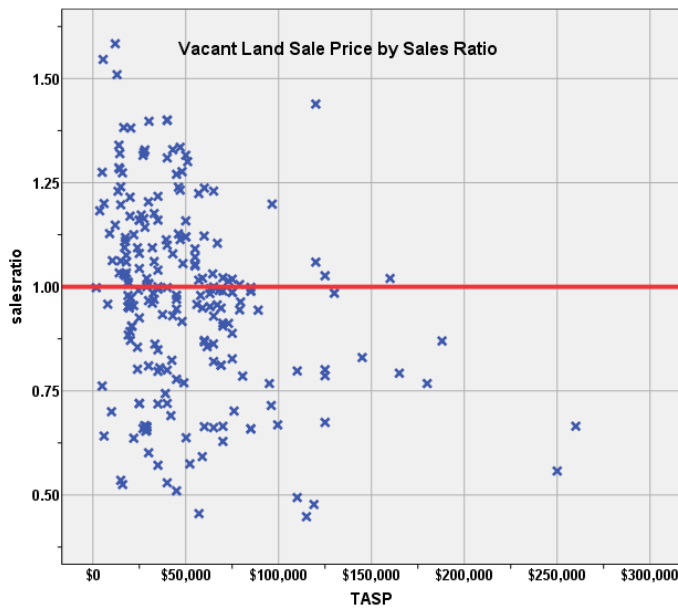
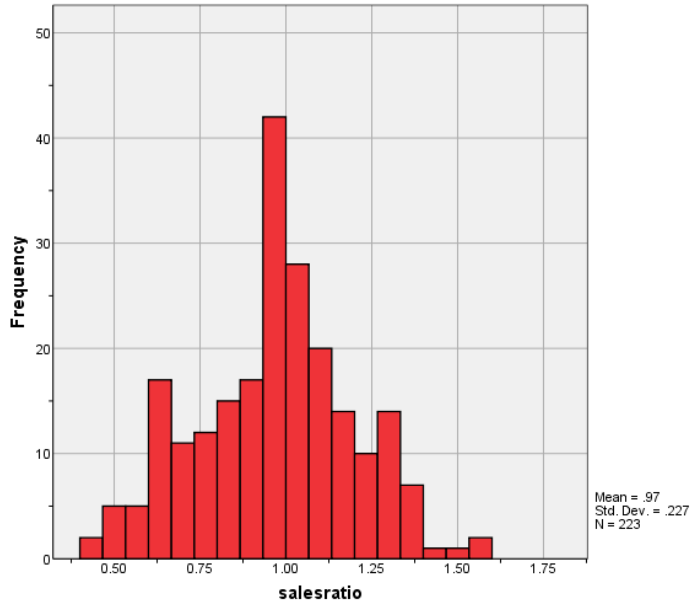
DIFF	ABSTRIMP	sold	N	Median	Mean
2215.00		UNSOLD	3	.91	.93
		SOLD	1	1.03	1.03
2220.00		UNSOLD	7	.96	.96
		SOLD	1	.94	.94
2225.00		UNSOLD	19	.94	.96
		SOLD	2	.97	.97
2230.00		UNSOLD	187	.96	.99
		SOLD	20	1.00	1.12
2235.00		UNSOLD	73	.96	1.02
		SOLD	3	1.47	1.35

#### V. VACANT LAND SALE RESULTS

There were 225 qualified vacant land sales for the 18-month sale period ending June 30, 2022. Two sales were trimmed using IAAO standards, resulting in 223 sales in the following analysis. The sales ratio analysis results were as follows:

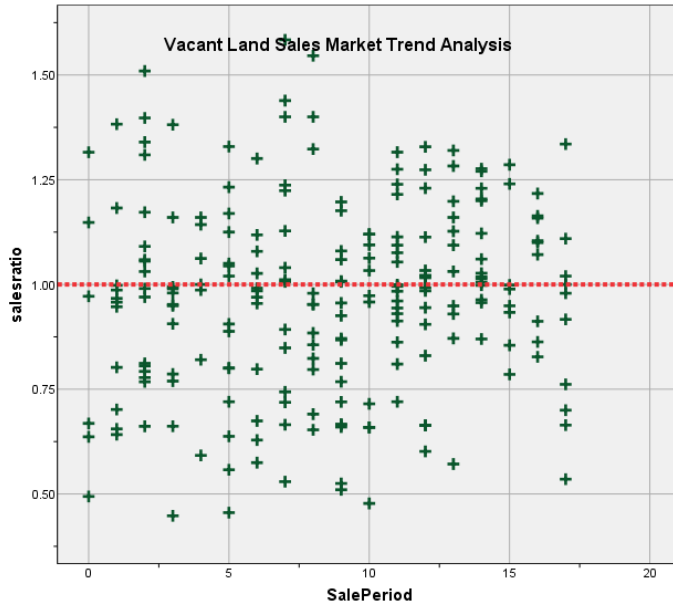
Median	<b>0.987</b>
Price Related Differential	<b>1.060</b>
Coefficient of Dispersion	<b>17.9</b>

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



### Vacant Land Market Trend Analysis

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



The results indicated that there was no significant market trending present in the sales ratios across the sale period. We concluded that the assessor has applied market trending adjustments in an appropriate manner.

### Sold/Unsold Analysis

We compared the median change in actual value for taxable year 2020 and taxable year 2022 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

#### Report

DIFF				
	DIFF	N	Median	Mean
UNSOLD	4426	1.00	1.72	
SOLD	223	1.29	2.11	

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

#### Report

DIFF				
SUBDIVNO	DIFF	N	Median	Mean
1778	UNSOLD	20	.88	.88
	SOLD	7	.88	1.03
5562	UNSOLD	26	1.06	1.06
	SOLD	7	1.06	1.06
5563	UNSOLD	70	1.43	1.44
	SOLD	9	1.43	1.39
5580	UNSOLD	238	1.45	1.46
	SOLD	17	1.45	1.42
5590	UNSOLD	365	.95	.95
	SOLD	25	.95	.92
5600	UNSOLD	85	1.62	2.11
	SOLD	5	1.62	1.37



5610	UNSOLD	140	1.56	1.61
	SOLD	12	1.56	1.56
5635	UNSOLD	59	1.38	1.38
	SOLD	6	1.38	1.38
5670	UNSOLD	78	1.40	1.40
	SOLD	15	1.40	1.34
5710	UNSOLD	69	2.13	2.16
	SOLD	7	2.13	2.30
5740	UNSOLD	114	1.13	1.14
	SOLD	16	1.13	1.07

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

## V. CONCLUSIONS

Based on this statistical analysis, there were no significant compliance issues concluded for Las Animas 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			
.970	.948	.991	.964	.938	.980	95.5%	.944	.926	.962	1.027	.141	20.7%

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.

### 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			
.914	.874	.955	.949	.911	.975	95.9%	.897	.827	.968	1.019	.084	12.8%

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

### Vacant Land

Ratio Statistics for CURRLND / TASP												
Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			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			
.971	.941	1.001	.987	.958	1.005	95.6%	.916	.879	.954	1.060	.179	23.4%

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.

## Residential Median Ratio Stratification

### Subclass

#### Case Processing Summary

		Count	Percent
ABSTRIMP	1212.00	337	99.1%
	1215.00	2	0.6%
	1225.00	1	0.3%
Overall		340	100.0%
Excluded		0	
Total		340	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212.00	.963	1.031	.142	20.9%
1215.00	.939	1.008	.027	3.9%
1225.00	1.004	1.000	.000	.
Overall	.964	1.027	.141	20.8%

### Improvement Age

#### Case Processing Summary

		Count	Percent
AgeRec	Over 100	161	47.4%
	75 to 100	41	12.1%
	50 to 75	37	10.9%
	25 to 50	43	12.6%
	5 to 25	48	14.1%
	5 or Newer	10	2.9%
Overall		340	100.0%
Excluded		0	
Total		340	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.983	1.034	.139	19.0%
75 to 100	.965	1.009	.109	13.5%
50 to 75	.905	.959	.130	15.3%
25 to 50	.979	1.064	.181	34.6%
5 to 25	.913	1.011	.129	15.1%
5 or Newer	.936	.989	.191	24.4%
Overall	.964	1.027	.141	20.8%

## Improvement Size

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	1	0.3%
	500 to 1,000 sf	10	2.9%
	1,000 to 1,500 sf	42	12.4%
	1,500 to 2,000 sf	69	20.3%
	2,000 to 3,000 sf	111	32.6%
	3,000 sf or Higher	107	31.5%
Overall		340	100.0%
Excluded		0	
Total		340	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LE 500 sf	.772	1.000	.000	.
500 to 1,000 sf	.822	1.151	.202	32.1%
1,000 to 1,500 sf	.906	1.061	.186	25.5%
1,500 to 2,000 sf	.950	1.032	.135	15.9%
2,000 to 3,000 sf	.958	1.051	.149	25.0%
3,000 sf or Higher	.990	1.019	.109	16.8%
Overall	.964	1.027	.141	20.8%

## Improvement Quality

### Case Processing Summary

		Count	Percent
QUALITY	0 - Poor	2	0.6%
	1 - Low	13	3.8%
	11 - Excellent	1	0.3%
	3 - Fair	38	11.2%
	5 - Average	227	66.8%
	7 - Good	48	14.1%
	9 - Very Good	11	3.2%
Overall		340	100.0%
Excluded		0	
Total		340	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0 - Poor	1.112	.963	.093	13.2%
1 - Low	.972	1.038	.164	23.4%
11 - Excellent	.780	1.000	.000	.
3 - Fair	1.039	1.013	.097	14.1%
5 - Average	.962	1.014	.137	18.5%
7 - Good	.910	1.041	.175	34.2%
9 - Very Good	.890	.986	.098	12.4%
Overall	.964	1.027	.141	20.8%



## Improvement Condition

### Case Processing Summary

		Count	Percent
QUALITY	0 - Poor	2	0.6%
	1 - Low	13	3.8%
	11 - Excellent	1	0.3%
	3 - Fair	38	11.2%
	5 - Average	227	66.8%
	7 - Good	48	14.1%
	9 - Very Good	11	3.2%
Overall		340	100.0%
Excluded		0	
Total		340	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0 - Poor	1.112	.963	.093	13.2%
1 - Low	.972	1.038	.164	23.4%
11 - Excellent	.780	1.000	.000	.
3 - Fair	1.039	1.013	.097	14.1%
5 - Average	.962	1.014	.137	18.5%
7 - Good	.910	1.041	.175	34.2%
9 - Very Good	.890	.986	.098	12.4%
Overall	.964	1.027	.141	20.8%

### Commercial Median Ratio Stratification

#### Sale Price

### Case Processing Summary

		Count	Percent
SPRec	\$25K to \$50K	2	5.7%
	\$50K to \$100K	2	5.7%
	\$100K to \$150K	4	11.4%
	\$200K to \$300K	13	37.1%
	\$300K to \$500K	9	25.7%
	\$750K to \$1,000K	2	5.7%
	Over \$1,000K	3	8.6%
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
\$25K to \$50K	.891	.982	.074	10.5%
\$50K to \$100K	.945	.998	.017	2.3%
\$100K to \$150K	.947	.997	.100	16.6%
\$200K to \$300K	.953	1.002	.060	9.3%
\$300K to \$500K	.975	1.010	.089	15.9%
\$750K to \$1,000K	.807	1.009	.162	23.0%
Over \$1,000K	.842	.934	.115	17.3%
Overall	.949	1.019	.084	12.9%

### Subclass

#### Case Processing Summary

	Count	Percent
ABSTRIMP	1721.00	1
	1725.00	2
	1892.33	1
	2215.00	1
	2220.00	1
	2225.00	2
	2230.00	20
	2235.00	3
	3215.00	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
1721.00	1.002	1.000	.000	.
1725.00	.962	1.079	.233	33.0%
1892.33	.949	1.000	.000	.
2215.00	.938	1.000	.000	.
2220.00	.929	1.000	.000	.
2225.00	.961	.999	.020	2.8%
2230.00	.949	1.015	.085	13.4%
2235.00	.854	1.038	.057	11.2%
3215.00	.975	.959	.078	17.3%
Overall	.949	1.019	.084	12.9%

## Vacant Land Median Ratio Stratification

### Sale Price

#### Case Processing Summary

		Count	Percent
SPRec	LT \$25K	66	29.6%
	\$25K to \$50K	74	33.2%
	\$50K to \$100K	65	29.1%
	\$100K to \$150K	12	5.4%
	\$150K to \$200K	4	1.8%
	\$200K to \$300K	2	0.9%
Overall		223	100.0%
Excluded		0	
Total		223	

#### Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.039	1.018	.162	21.3%
\$25K to \$50K	1.000	.992	.194	23.7%
\$50K to \$100K	.952	1.005	.140	19.0%
\$100K to \$150K	.799	.994	.257	35.8%
\$150K to \$200K	.831	1.003	.099	14.4%
\$200K to \$300K	.611	.998	.088	12.4%
Overall	.987	1.060	.179	23.1%

### Subclass

#### Case Processing Summary

		Count	Percent
ABSTRLND	.00	5	2.2%
	100.00	67	30.0%
	200.00	3	1.3%
	300.00	1	0.4%
	510.00	1	0.4%
	520.00	3	1.3%
	530.00	4	1.8%
	540.00	4	1.8%
	550.00	133	59.6%
	1112.00	2	0.9%
	Overall		223
Excluded		0	
Total		223	

### Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.952	1.124	.198	29.5%
100.00	.987	1.019	.161	20.9%
200.00	.665	1.068	.135	20.7%
300.00	.905	1.000	.000	.
510.00	.636	1.000	.000	.
520.00	.801	1.070	.277	42.3%
530.00	1.168	1.024	.179	23.2%
540.00	1.035	.990	.180	27.9%
550.00	.990	1.054	.178	23.1%
1112.00	1.160	.891	.140	19.8%
Overall	.987	1.060	.179	23.1%