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LOGAN COUNTY
PROPERTY ASSESSMENT
STUDY

East West
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September 15, 2024

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

RE: Final Report for the 2024 Colorado Property Assessment Study

Dear Ms. Castle:

East West Econometrics.-Audit Division is pleased to submit the Final Reports for the 2024 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.

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.

Harry J. Fuller
Project Manager
East West Econometrics. — Audit Division

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INTRODUCTION

The State Board of Equalization (SBOE) reviews assessments for conformance to the Constitution. The SBOE will order revaluations for counties whose valuations do not reflect the proper valuation period level of value.

The statutory basis for the audit is found in C.R.S. 39-1-104 (16)(a)(b) and (c).

The legislative council sets forth two criteria that are the focus of the audit group:

To determine whether each county assessor is applying correctly the constitutional and statutory provisions, compliance requirements of the State Board of Equalization, and the manuals published by the State Property Tax Administrator to arrive at the actual value of each class of property.

To determine if each assessor is applying correctly the provisions of law to the actual values when arriving at valuations for assessment of all locally valued properties subject to the property tax.

The property assessment audit conducts a two-part analysis: A procedural analysis and a statistical analysis.

The procedural analysis includes all classes of property and specifically looks at how the assessor develops economic areas, confirms and qualifies sales, and develops time adjustments. The audit also examines the procedures for adequately discovering, classifying and valuing agricultural outbuildings, discovering subdivision build-out and subdivision discounting procedures. Valuation methodology for vacant land, improved residential properties and commercial properties is examined. Procedures for producing mines, oil and gas leaseholds and lands producing, producing coal mines, producing earth and stone products, severed mineral interests and non-producing patented mining claims are also reviewed.

Statistical analysis is performed on vacant land, residential properties, commercial/industrial properties, agricultural land, and personal property. The statistical study results are compared with State Board of Equalization compliance requirements and the manuals published by the State Property Tax Administrator.

East West Econometrics has completed the Property Assessment Study for 2024 and is pleased to report its findings for Logan County in the following report.

Regional Information

Logan County is located in the Eastern Plains region of Colorado. The Eastern Plains of Colorado refer to the region on the east side of the Rocky Mountain. It is east of the population centers of the Front Range, including Baca, Bent, Cheyenne, Crowley, Elbert, Kiowa, Kit Carson, Lincoln, Logan, Morgan, Otero, Phillips, Prowers, Sedgwick, Washington, and Yuma counties.
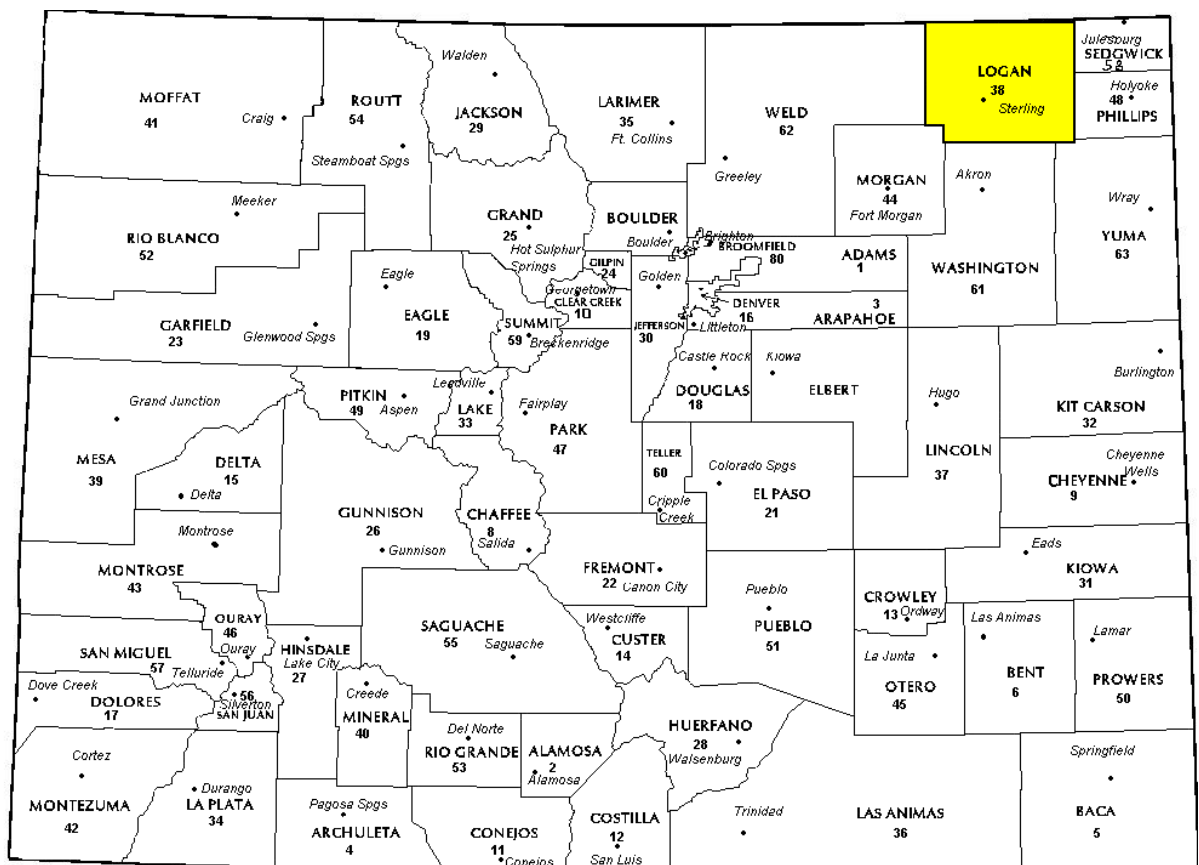
Historical Information

Logan County has approximately 1,838.59 square miles and an estimated population of approximately 22,409 people, according to the U.S. Census Bureau's 2020 estimated census data. This represents a -1.3 percent change from April 1, 2010 to July 1, 2019.

Logan County, located in the northeast corner of Colorado, is a rapidly growing agriculture and industry-based community. The County, created from the eastern portion of Weld County, was established in 1887 and is 1,822 square miles in area. Sterling is the hub city of the county, the largest city in the Northeastern Colorado region and the county seat. It was named for Sterling, Illinois, the hometown of railroad surveyor David Leavitt who established the first post office on his ranch in 1872..

Sterling was named the Best Small Community of the year by the Economic Development Council of Colorado in 2006.

Just a few miles northeast of Sterling is located the North Sterling State Park, situated on the North Sterling Reservoir, a man-made lake fed by waters from the South Platte River. This new state park has three state of the art boat ramps, and three modern camping areas with over 150 camping sites, as well as multiple picnicking sites. The park is famous for its superb swimming, boating, waterskiing, camping, and fishing.

Pheasant, duck, and deer hunting are excellent in the high plains and South Platte River Valley surrounding Sterling.

Sterling is the home of two beautiful golf courses, Riverview Golf Course and the Northeastern Eighteen (the former Sterling Country Club - now owned by Northeastern Junior College), each offering excellent 18-hole courses.

The Overland Trail Museum, located east of Sterling near Interstate 76, houses an eclectic mix of historical items in the main building, which resembles an early fort, as well as a restored local one-room schoolhouse and other restored historical buildings. Museum admission is free, and picnic grounds are adjacent.

The Overland Trail Recreation Area features a 5-acre fishing pond open to all ages as well as biking trails, fishing, picnic tables, BBQ grills, walking path, off road parking, and fishing pier.

Each summer, Sterling hosts the annual Logan County Fair, a typical old-time county fair complete with 4-H animal shows, baked goods competitions, a carnival, music shows, demolition derby, and a rodeo as well as the annual Sugar Beet Days harvest festival in the fall.

(www.logancountyco.gov, www.wikipedia.org.)

RATIO ANALYSIS

Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 2019 through June 30th, 2020. Property classes with less than thirty sales had the sales period extended in six month increments up to an additional forty-two months. If this extended sales period did not produce the minimum thirty qualified sales, the Audit performed supplemental appraisals to reach the minimum.

Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either "Q" or "C." The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were "lost" because of trimming.

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

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

Conclusions

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

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

The results for Logan County are:

	Logan County Ratio Grid				
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	37	0.987	1.022	10.3	Compliant
Single Family	507	0.987	1.008	14.3	Compliant
Vacant Land	N/A	N/A	N/A	N/A	N/A

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

Logan 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
Single Family	Compliant
Vacant Land	N/A

Conclusions

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

Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass	Value By Subclass
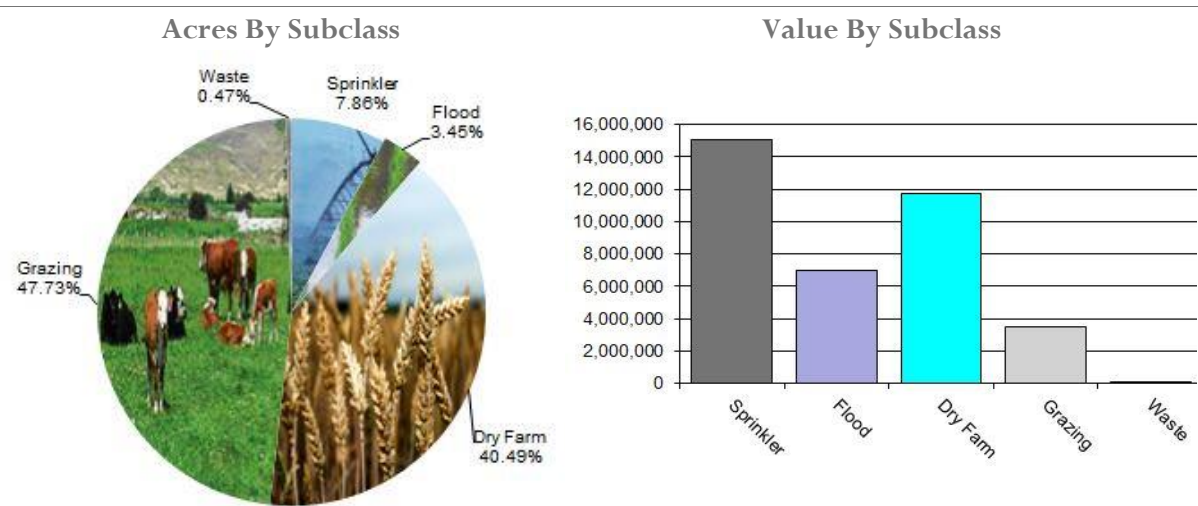
Agricultural Land

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:

Logan County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4107	Sprinkler	77,534	194.47	15,077,884	14,885,005	1.01
4117	Flood	33,988	204.81	6,960,978	7,062,126	0.99
4127	Dry Farm	399,150	29.40	11,734,553	11,969,533	0.98
4147	Grazing	470,519	7.51	3,533,185	3,533,185	1.00
4167	Waste	4,629	2.19	10,129	10,129	1.00
Total/Avg		985,820	37.85	37,316,728	37,459,978	1.00

Recommendations

None

Agricultural Outbuildings

Methodology

Data was collected and reviewed to determine if the guidelines found in the Assessor's Reference Library (ARL) Volume 3, pages 5.74 through 5.77 were being followed.

Conclusions

Logan County has 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

Logan 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

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

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

Logan County has 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 2024 for Logan County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically EWE selected 33 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.

> 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

Logan 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

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

N ATURAL R ESOURCES

Earth and Stone Products

Methodology

Under the guidelines of the Assessor's Reference Library (ARL), Volume 3, Natural Resource Valuation Procedures, the income approach was applied to determine value for production of earth and stone products. The number of tons was multiplied by an economic royalty rate determined by the Division of Property Taxation to determine income. The income was multiplied by a recommended Hoskold factor to determine the actual value. The Hoskold factor is determined by the life of the reserves or the lease. Value is based on two variables: life and tonnage. The operator determines these since there is no other means to obtain production data through any state or private agency.

Conclusions

The County has applied the correct formulas and state guidelines to earth and stone production.

Recommendations

None

Producing Oil and Gas

Methodology

Assessors Reference Library (ARL) Volume 3, Chapter 6: Valuation of Natural Resources

STATUTORY REFERENCES
Section § 39-1-103, C.R.S., specifies that producing oil or gas leaseholds and lands are valued according to article 7 of title 39, C.R.S. Actual value determined - when.

(2) The valuation for assessment of leaseholds and lands producing oil or gas shall be determined as provided in article 7 of this title. § 39-1-103, C.R.S.
Article 7 covers the listing, valuation, and assessment of producing oil and gas leaseholds and lands.

Valuation:
Valuation for assessment.
(1) Except as provided in subsection (2) of this section, on the basis of the information contained in such statement, the assessor shall value such oil and gas leaseholds and lands for assessment, as real property, at an amount equal to eighty-seven and one-half percent of:
(a) The selling price of the oil or gas sold there from during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year;
(b) The selling price of oil or gas sold in the same field area for oil or gas transported from the premises which is not sold during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year.
§ 39-7-102, C.R.S.

Conclusions

The county applied approved appraisal procedures in the valuation of oil and gas.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2024 in Logan County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14) and by applying the recommended methodology in ARL Vol 3, Chap 4. Subdivision Discounting in the intervening year can be accomplished by reducing the absorption period by one year.

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

Logan 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.

Logan 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

Logan 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

Logan 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.

Logan 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
- 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.

Logan County submitted their personal property written audit plan and was current for the 2024 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Accounts with obvious discrepancies
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Non-filing Accounts - Best Information Available
- Accounts close to the $52,000 actual value exemption status
- Accounts protested with substantial disagreement

Conclusions

Logan 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

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A P P E N D I C E S

STATISTICAL COMPLIANCE REPORT
FOR LOGAN COUNTY
2024

I. OVERVIEW

Logan County is an agricultural county located in northeastern Colorado. The county has a total of 11,415 real property parcels, according to data submitted by the county assessor's office in 2024. The following provides a breakdown of property classes for this county:
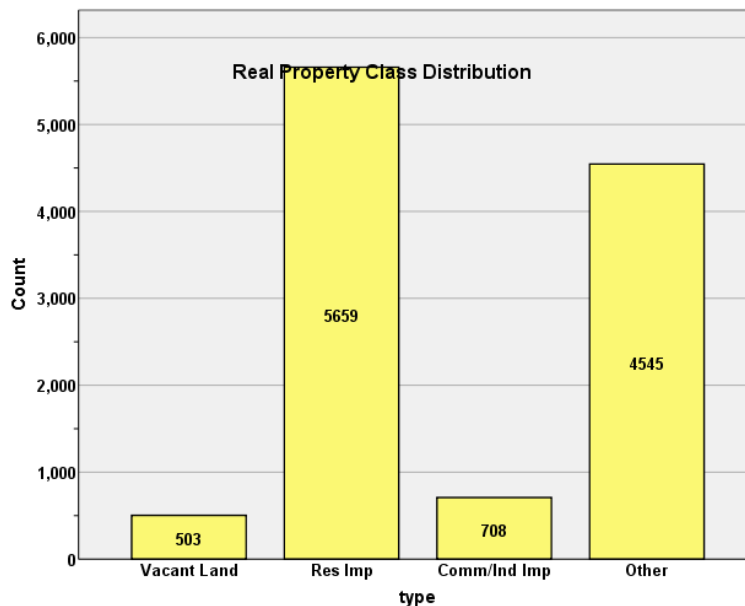
Based on the number of vacant land parcels in Logan County, we were not required to analyze this class of property for audit compliance.

For residential improved properties, single family properties accounted for 94.2% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 6.0% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2024 Colorado Property Assessment Study. Information was provided by the Logan Assessor's Office in May 2024. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 507 qualified sales that sold for the 18-month period ending June 30, 2022. The sales ratio analysis results were as follows:

Median	**0.987**
Price Related Differential	**1.008**
Coefficient of Dispersion	**14.3**

There was only one economic area for residential properties in Logan County, so we next stratified the residential sales ratio analysis by neighborhoods with at least 10 sales, as follows:

Case Processing Summary

		Count	Percent
NBHD	FL1	14	3.6%
	R1	131	33.3%
	R2	41	10.4%
	R3	46	11.7%
	R4	29	7.4%
	R5	35	8.9%
	R6	57	14.5%
	SPT	15	3.8%
	TR1	12	3.1%
	TR2	13	3.3%
Overall		393	100.0%
Excluded		0	
Total		393	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
FL1	.917	1.024	.184
R1	.973	1.011	.126
R2	.925	1.024	.169
R3	1.009	1.010	.080
R4	1.039	1.008	.102
R5	.857	1.021	.144
R6	.910	1.021	.155
SPT	1.117	1.006	.157
TR1	.975	.990	.116
TR2	.859	1.015	.141
Overall	.975	1.009	.138

Six of the ten neighborhoods were out of compliance in terms of the median sales ratio and/or the COD. We have advised the county assessor of this issue and will follow up with them.

The class level 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 all of these properties:

Sales Ratio Distribution

Mean = .99
Std. Dev. = .177
N = 507
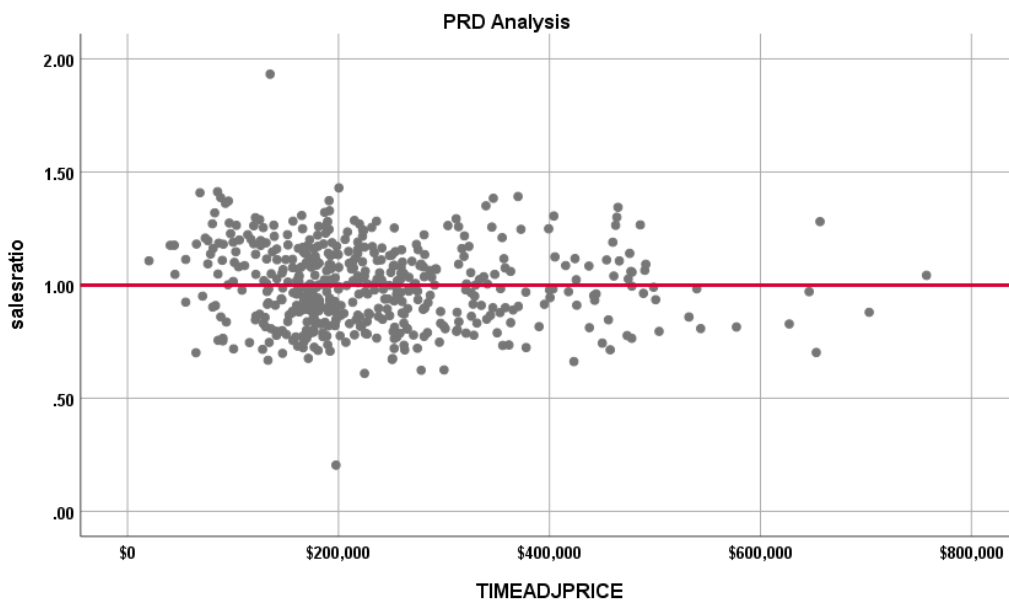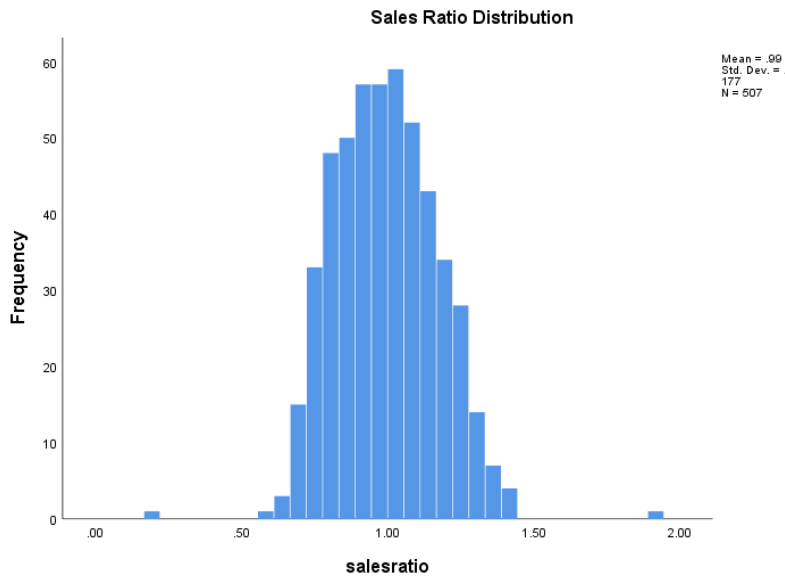
PRD Analysis

The above graphs indicate that the distribution of the sale ratios was within state mandated limits, and that there were no significant price-related differential issues.

Subclass 1212 PRD Analysis

We next analyzed residential properties identified as 1212 using the state abstract code system (Logan County uses the code 1112 for 1212 properties in the sale file). 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
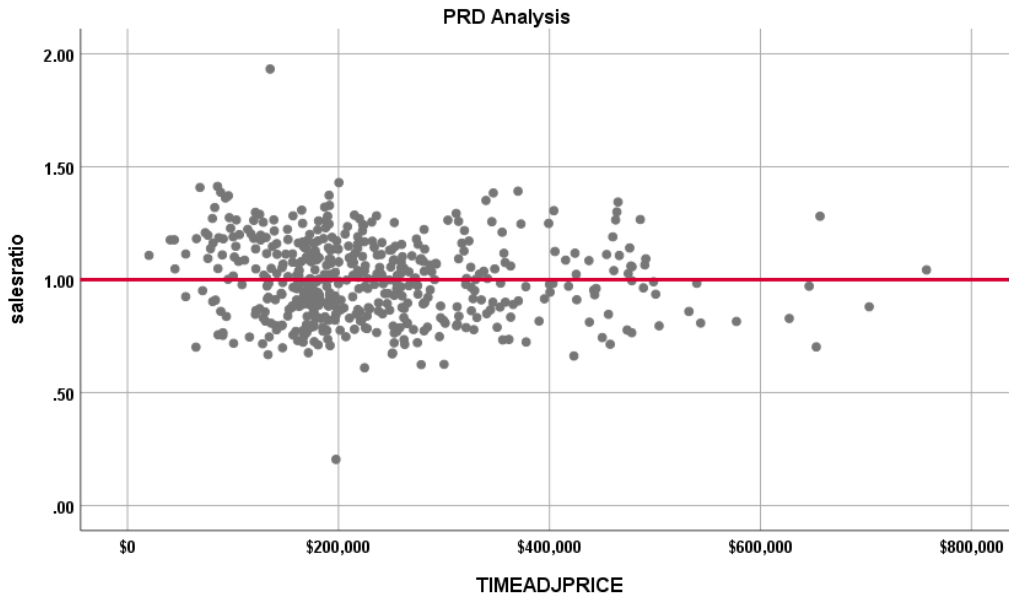
PRD Analysis

The Price-Related Differential (PRD) for 1212 sales is 1.008, 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:

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.910	.017		54.253	.000
	CURRTOT	.000000368	.000	.246	5.678	.000

a. Dependent Variable: salesratio

The slope of the line at 0.000000368 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	35	6.9%
	$100K to $200K	216	42.9%
	$200K to $300K	147	29.2%
	$300K to $400K	57	11.3%
	Over $400K	49	9.7%
Overall		504	100.0%
Excluded		0	
Total		504	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
LT $100K	1.138	.999	.141
$100K to $200K	.982	1.004	.144
$200K to $300K	.999	1.003	.127
$300K to $400K	.969	1.000	.155
Over $400K	.984	1.004	.137
Overall	.990	1.008	.143

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, with the following results:

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.920	.014		65.581	.000
	SalePeriod	.009	.001	.271	6.327	.000

a. Dependent Variable: salesratio
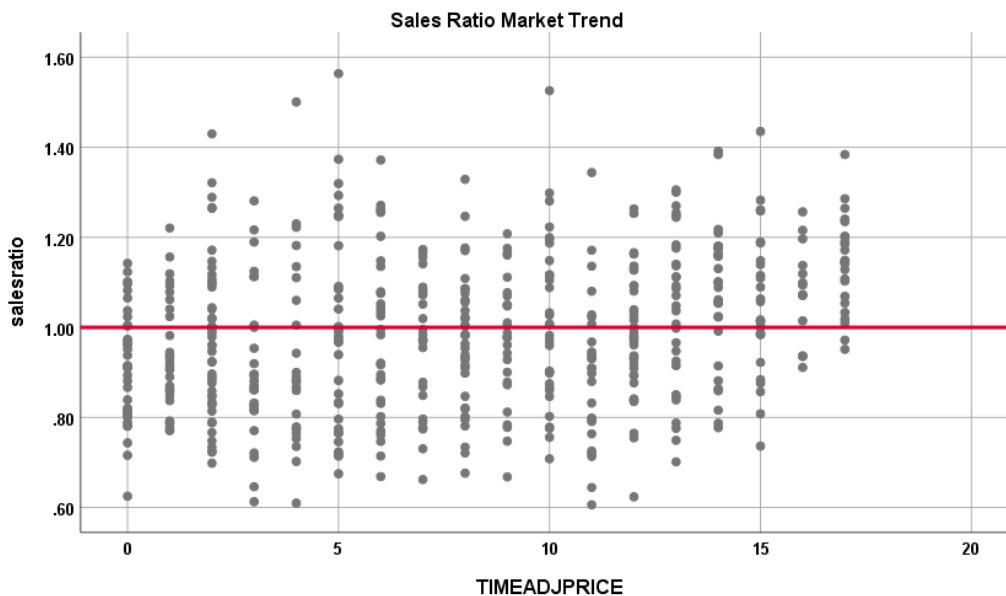
The above analysis indicated that no significant market trend was present in the sale ratio data. We concur with the assessor that no market trend adjustments were warranted.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the 2024 median actual value per square foot between sold and unsold residential properties, as follows;

Report
VALSF

sold	N	Median	Mean
UNSOLD	5151	$132	$135
SOLD	505	$145	$152

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of VALSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

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

We also stratified the comparison analysis by neighborhood (with at least 10 sales), as follows:

Report
VALSF

| NBHD	sold	N	Median	Mean
FL1	UNSOLD	140	$110	$111
	SOLD	14	$140	$149
R1	UNSOLD	1147	$158	$157
	SOLD	131	$161	$173
R2	UNSOLD	391	$109	$109
	SOLD	41	$126	$128
R3	UNSOLD	439	$150	$150
	SOLD	46	$146	$151
R4	UNSOLD	158	$192	$186
	SOLD	29	$191	$187
R5	UNSOLD	435	$101	$103
	SOLD	35	$127	$130
R6	UNSOLD	539	$98	$99
	SOLD	57	$134	$135
SPT	UNSOLD	73	$143	$151
	SOLD	15	$153	$184
TR1	UNSOLD	172	$104	$124
	SOLD	12	$131	$141
TR2	UNSOLD	195	$101	$110
	SOLD	13	$81	$101

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

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 37 qualified sales that sold for the 24 month period ending June 30, 2022. The sales ratio analysis results were as follows:

Median	**0.987**
Price Related Differential	**1.022**
Coefficient of Dispersion	**10.3**

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


Mean = .95
Std. Dev. = .143
N = 37

Commercial Sale Price by Sales Ratio
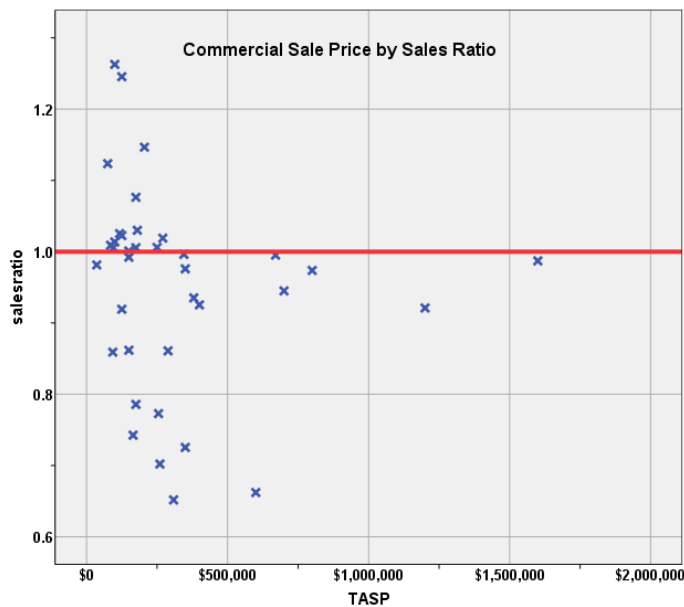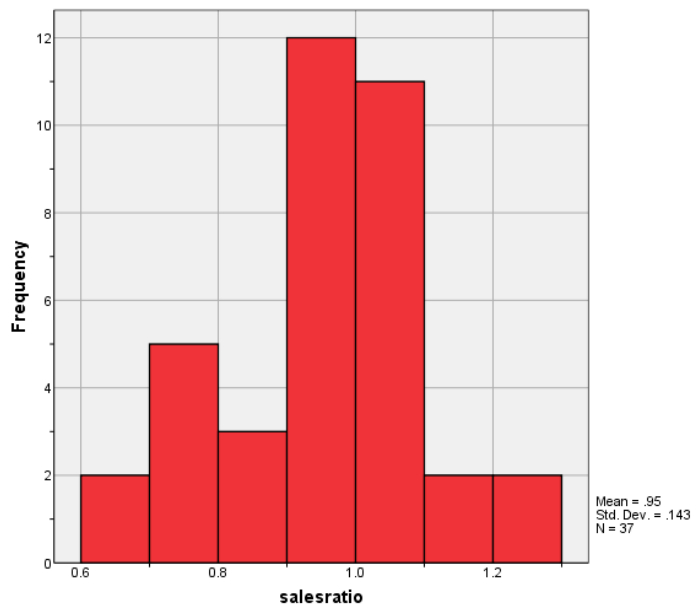
Commercial Market Trend Analysis

The commercial sales were analyzed, examining the sale ratios across the 30 month period with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.949	.049		19.551	.000
	SalePeriod	.000	.004	.006	.037	.971

a. Dependent Variable: salesratio

Commercial Market Trend Analysis
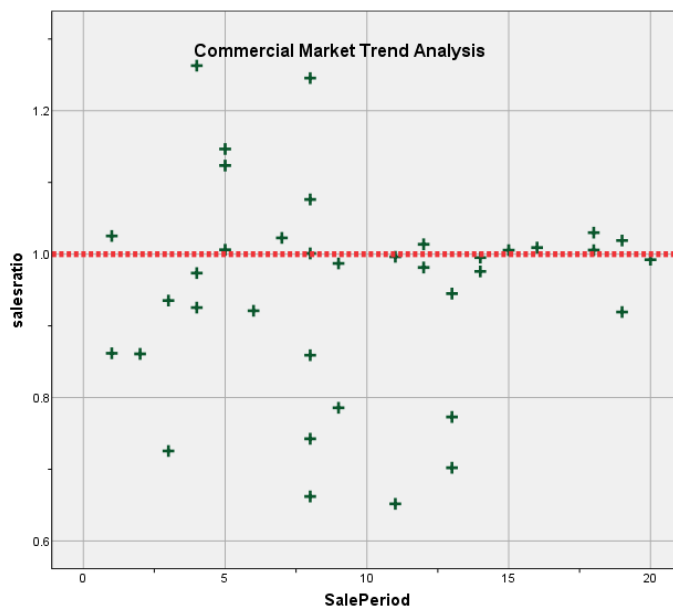
The above results indicate that there was no significant market trend residual in the commercial sale ratios.

Sold/Unsold Analysis

We compared the median actual value per square foot between sold and unsold commercial properties to determine if the assessor was valuing each group consistently. While this is a challenge to prove in this county, given the small number of sales and the overall small number and diversity of commercial/industrial properties in general, the following results indicate that based on the median actual value, both groups were valued in a consistent manner, both by class and sub-class:

Report

VALSF

sold	N	Median	Mean
UNSOLD	669	$33	$63
SOLD	37	$39	$57

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	.092	Retain the null hypothesis.

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

Report
VALSF

ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	94	$37	$52
	SOLD	9	$46	$87
2220.00	UNSOLD	67	$57	$65
	SOLD	4	$117	$124
2230.00	UNSOLD	213	$32	$97
	SOLD	7	$32	$36
2235.00	UNSOLD	174	$27	$28
	SOLD	12	$39	$39
Total	UNSOLD	669	$33	$63
	SOLD	37	$39	$57
	Total	706	$33	$63

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

V. CONCLUSIONS

Based on this statistical analysis, there were no significant compliance issues concluded for Logan County.

STATISTICAL ABSTRACT
Residential

Ratio Statistics for CURRTOT / TASP												
	95% Confidence Interval for Mean			95% Confidence Interval for Median				95% Confidence Interval for Weighted Mean				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
.995	.979	1.010	.987	.971	1.005	95.9%	.987	.970	1.003	1.008	.143	17.8%

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

Commercial/Industrial

Ratio Statistics for CURRTOT / TASP												
	95% Confidence Interval for Mean			95% Confidence Interval for Median				95% Confidence Interval for Weighted Mean				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
.950	.903	.998	.987	.925	1.006	95.3%	.930	.884	.975	1.022	.103	15.0%

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	.00	1	0.2%
	1212.00	501	98.8%
	1215.00	4	0.8%
	1551.33	1	0.2%
Overall		507	100.0%
Excluded		0	
Total		507	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	1.019	1.000	.000	.
1212.00	.990	1.008	.143	17.9%
1215.00	.869	.998	.090	10.9%
1551.33	.795	1.000	.000	.
Overall	.987	1.008	.143	17.9%

Age

Case Processing Summary

		Count	Percent
AgeRec	0	1	0.2%
	Over 100	105	20.7%
	75 to 100	63	12.4%
	50 to 75	159	31.4%
	25 to 50	122	24.1%
	5 to 25	50	9.9%
	5 or Newer	7	1.4%
Overall		507	100.0%
Excluded		0	
Total		507	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.019	1.000	.000	.
Over 100	.894	1.030	.154	21.0%
75 to 100	.930	1.018	.157	19.2%
50 to 75	.995	1.018	.120	14.9%
25 to 50	1.024	1.005	.122	15.3%
5 to 25	1.082	1.032	.158	20.8%
5 or Newer	1.117	.992	.077	11.8%
Overall	.987	1.008	.143	17.9%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	1	0.2%
	LE 500 sf	4	0.8%
	500 to 1,000 sf	85	16.8%
	1,000 to 1,500 sf	211	41.6%
	1,500 to 2,000 sf	99	19.5%
	2,000 to 3,000 sf	73	14.4%
	3,000 sf or Higher	34	6.7%
Overall		507	100.0%
Excluded		0	
Total		507	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.019	1.000	.000	.
LE 500 sf	.784	.993	.059	9.4%
500 to 1,000 sf	.915	1.027	.137	17.9%
1,000 to 1,500 sf	.997	1.017	.135	17.1%
1,500 to 2,000 sf	1.025	1.011	.134	16.4%
2,000 to 3,000 sf	1.055	.997	.149	19.3%
3,000 sf or Higher	.942	1.009	.141	17.0%
Overall	.987	1.008	.143	17.9%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	3	7	1.4%
	4	71	14.0%
	5	406	80.2%
	6	2	0.4%
	7	20	4.0%
Overall		506	100.0%
Excluded		1	
Total		507	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
3	.909	1.103	.142	18.2%
4	.878	1.027	.172	22.9%
5	1.000	1.011	.136	17.0%
6	.901	.983	.136	19.2%
7	1.059	1.008	.108	14.6%
Overall	.987	1.008	.144	17.9%

Improvement Condition

Case Processing Summary

		Count	Percent
CONDITION		24	4.7%
	AV	361	71.2%
	BW	1	0.2%
	FR	55	10.8%
	GD	62	12.2%
	PR	4	0.8%
Overall		507	100.0%
Excluded		0	
Total		507	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.839	1.011	.127	17.8%
AV	1.007	1.004	.136	17.3%
BW	1.275	1.000	.000	.
FR	.900	1.040	.173	21.6%
GD	.980	1.000	.138	16.6%
PR	.986	1.065	.119	15.2%
Overall	.987	1.008	.143	17.9%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$25K to $50K	1	2.7%
	$50K to $100K	6	16.2%
	$100K to $150K	7	18.9%
	$150K to $200K	5	13.5%
	$200K to $300K	6	16.2%
	$300K to $500K	6	16.2%
	$500K to $750K	3	8.1%
	$750K to $1,000K	1	2.7%
	Over $1,000K	2	5.4%
Overall		37	100.0%
Excluded		0	
Total		37	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$25K to $50K	.981	1.000	.000	.
$50K to $100K	1.011	1.000	.087	13.9%
$100K to $150K	1.001	1.005	.074	12.0%
$150K to $200K	1.006	.997	.115	17.4%
$200K to $300K	.933	1.010	.149	18.1%
$300K to $500K	.930	.993	.108	17.1%
$500K to $750K	.945	.990	.118	21.5%
$750K to $1,000K	.974	1.000	.000	.
Over $1,000K	.954	.995	.035	4.9%
Overall	.987	1.022	.103	14.9%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	2212.00	9	24.3%
	2220.00	4	10.8%
	2222.80	1	2.7%
	2230.00	7	18.9%
	2235.00	12	32.4%
	2240.00	1	2.7%
	2972.50	1	2.7%
	3019.00	1	2.7%
	3212.00	1	2.7%
Overall		37	100.0%
Excluded		0	
Total		37	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2212.00	.976	.983	.088	16.5%
2220.00	.861	1.016	.064	10.6%
2222.80	.702	1.000	.000	.
2230.00	1.001	1.066	.114	16.5%
2235.00	1.006	1.023	.092	14.0%
2240.00	.925	1.000	.000	.
2972.50	1.006	1.000	.000	.
3019.00	1.019	1.000	.000	.
3212.00	1.147	1.000	.000	.
Overall	.987	1.022	.103	14.9%

Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	1	2.7%
	75 to 100	4	10.8%
	50 to 75	15	40.5%
	25 to 50	9	24.3%
	5 to 25	5	13.5%
	5 or Newer	3	8.1%
Overall		37	100.0%
Excluded		0	
Total		37	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	1.263	1.000	.000	.
75 to 100	1.012	1.020	.031	5.1%
50 to 75	.992	.999	.086	11.6%
25 to 50	.861	.987	.183	23.1%
5 to 25	.976	.986	.057	12.1%
5 or Newer	1.009	1.001	.007	1.2%
Overall	.987	1.022	.103	14.9%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	500 to 1,000 sf	1	2.7%
	1,000 to 1,500 sf	2	5.4%
	1,500 to 2,000 sf	1	2.7%
	2,000 to 3,000 sf	11	29.7%
	3,000 sf or Higher	22	59.5%
Overall		37	100.0%
Excluded		0	
Total		37	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
500 to 1,000 sf	.862	1.000	.000	.
1,000 to 1,500 sf	.935	1.045	.079	11.2%
1,500 to 2,000 sf	.981	1.000	.000	.
2,000 to 3,000 sf	.995	.987	.068	11.6%
3,000 sf or Higher	.982	1.036	.127	17.5%
Overall	.987	1.022	.103	14.9%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	2	1	2.7%
	3	1	2.7%
	4	10	27.0%
	5	22	59.5%
	6	2	5.4%
	9	1	2.7%
Overall		37	100.0%
Excluded		0	
Total		37	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2	1.009	1.000	.000	.
3	.981	1.000	.000	.
4	1.006	1.108	.119	17.4%
5	.960	1.004	.115	15.5%
6	1.002	1.018	.028	4.0%
9	.995	1.000	.000	.
Overall	.987	1.022	.103	14.9%