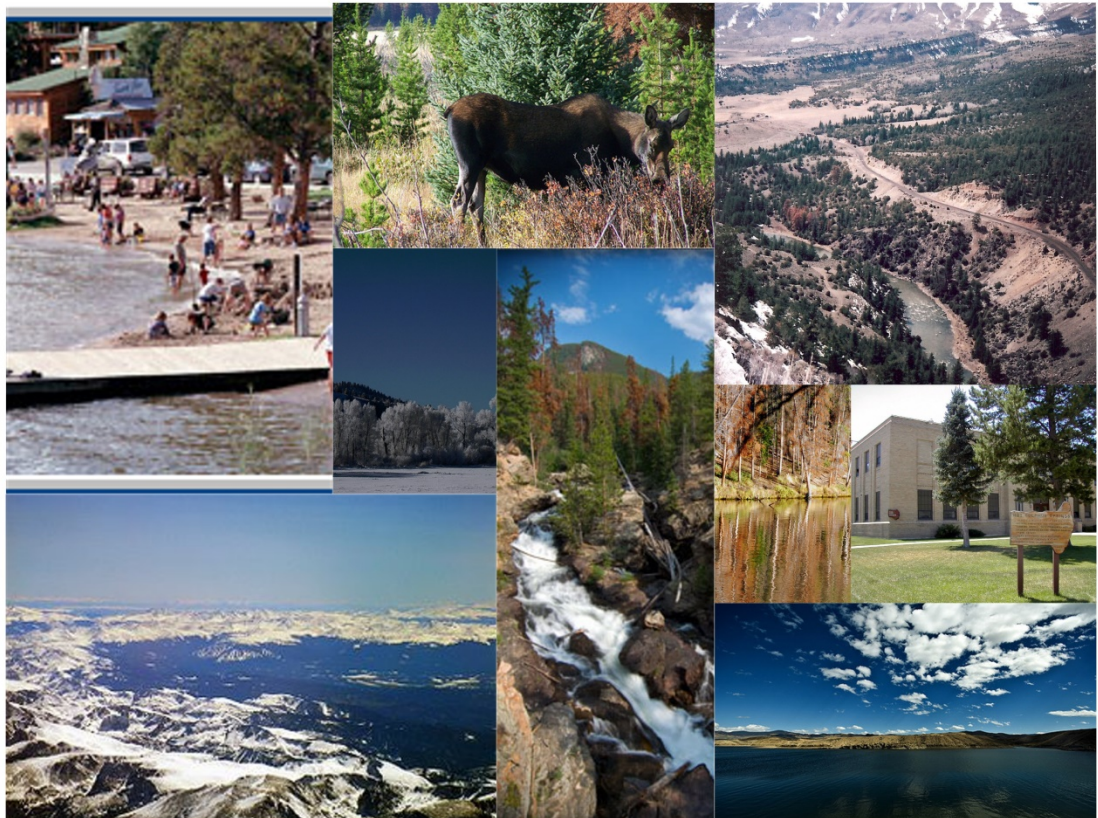




2018
GRAND COUNTY
PROPERTY ASSESSMENT
STUDY



WILDROSE
APPRAISAL, INCORPORATED
Audit Division



September 15, 2018

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

RE: Final Report for the 2018 Colorado Property Assessment Study

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2018 Colorado Property Assessment Study.

These reports are the result of two analyses: A procedural audit and a statistical audit.

The procedural audit examines all classes of property. It specifically looks at how the assessor develops economic areas, confirms and qualifies sales, develops time adjustments and performs periodic physical property inspections. The audit reviews the procedures for determining subdivision absorption and subdivision discounting. Valuation methodology is examined for residential properties and commercial properties. Procedures are reviewed for producing mines, oil and gas leaseholds and lands producing, producing coal mines, producing earth and stone products, severed mineral interests, and non-producing patented mining claims.

Statistical audits are performed on vacant land, residential properties, commercial/industrial properties and agricultural land. A statistical analysis is performed for personal property compliance on the eleven largest counties: Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld. The remaining counties receive a personal property procedural study.

Wildrose Appraisal Inc. – Audit Division appreciates the opportunity to be of service to the State of Colorado. Please contact us with any questions or concerns.

A handwritten signature in black ink that reads "Harry J. Fuller". The signature is written in a cursive, flowing style.

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

TABLE OF CONTENTS

Introduction	3
Regional/Historical Sketch of Grand County	4
Ratio Analysis.....	6
Time Trending Verification	8
Sold/Unsold Analysis	9
Agricultural Land Study	11
<i>Agricultural Land</i>	11
<i>Agricultural Outbuildings</i>	12
<i>Agricultural Land Under Improvements</i>	13
Sales Verification.....	14
Economic Area Review and Evaluation	16
Natural Resources	17
<i>Earth and Stone Products</i>	17
<i>Producing Mines</i>	17
Vacant Land.....	18
Possessory Interest Properties	19
Personal Property Audit	20
Wildrose Auditor Staff.....	22
Appendices.....	23

INTRODUCTION



Colorado

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

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

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

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

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

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

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

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

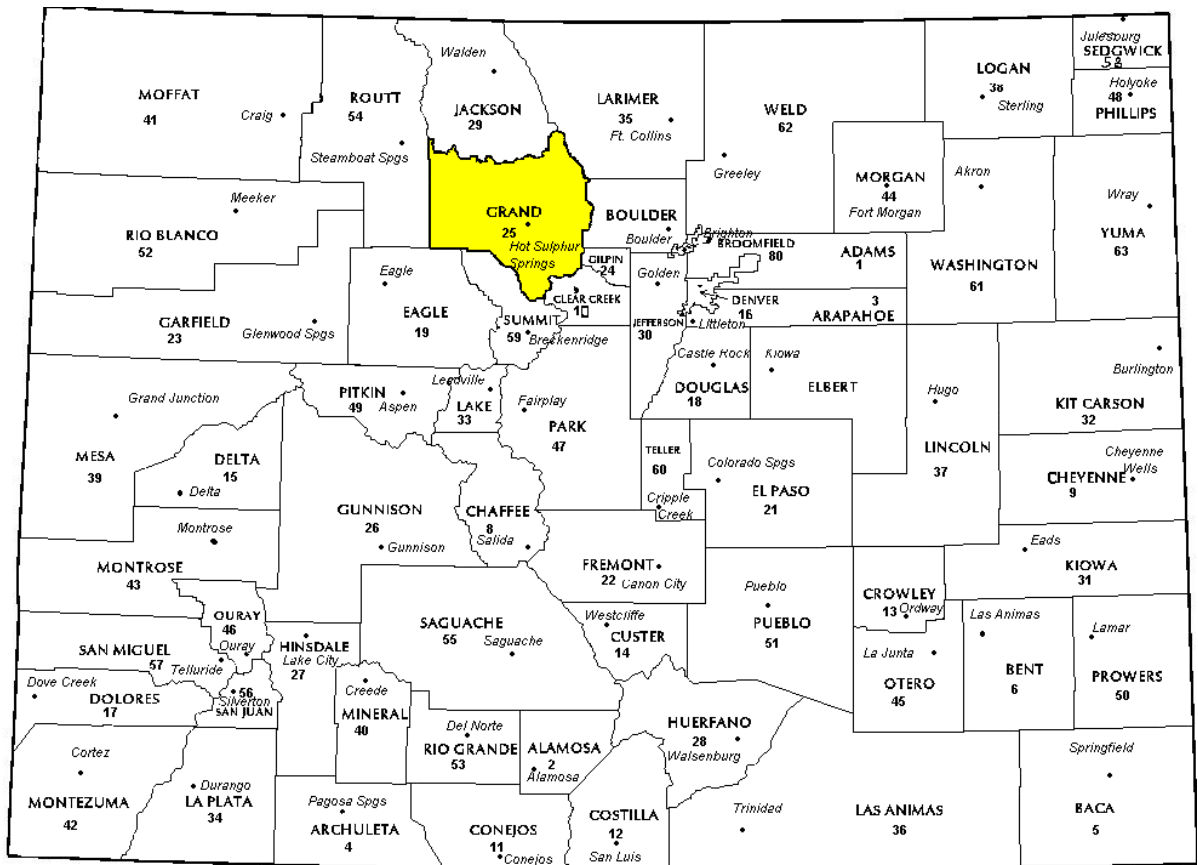
Wildrose Audit has completed the Property Assessment Study for 2018 and is pleased to report its findings for Grand County in the following report.

REGIONAL/HISTORICAL SKETCH OF GRAND COUNTY

Regional Information

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

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



Historical Information

Grand County had an estimated population of approximately 15,008 people with 8.13 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 1.11 percent change from April 1, 2010 to July 1, 2016.

When Grand County was created on February 2, 1874 it was carved out of Summit County and contained land to the western and northern borders of the state, which is now in present day Moffat County and Routt County. It was named after Grand Lake and the Grand River, an old name for the Colorado River, which has its headwaters in the county. On January 29, 1877 Routt County was created and Grand County shrunk down to its current western boundary. When valuable minerals were found in North Park, Grand County claimed the area as part of its county, a claim Larimer County also held. It took a decision by the Colorado Supreme Court in 1886 to declare North Park part of Larimer County, setting Grand County's northern boundary.

Grand Lake is the deepest and largest natural lake in Colorado and the area attracts an impressive diversity of wildlife. Prehistoric peoples, and later Native American Ute, Arapaho and Cheyenne tribes made annual pilgrimages to the area each summer to fish, hunt and reap the bounty of nature's harvest. It

wasn't long before trappers, traders and explorers followed.

In the mid-1800s, European hunting parties discovered Grand Lake. Some hunters constructed summer lodges and hired local mountain men as guides. The area was permanently settled in 1867. Grand Lake Village's first full-time, year-round residents were an intriguing mix of miners (who participated in a brief mining boom) and hunting guides. In the late 1870s, silver was discovered in the rivers and mountains near Grand Lake. Prospectors bought supplies in local stores and established small mountain mining communities. Almost overnight, the town of Grand Lake transformed into a bustling economy.

Winter Park Resort is Colorado's longest continually operated ski resort featuring over 3,000 acres of award-winning terrain including groomers, terrain parks, bumps, steeps, trees, and most definitely deeps. Winter Park Resort averages 329 inches of snow, much in part to its ideal location amidst the Rocky Mountains. Just 67 miles northwest of Denver, Winter Park Resort is the closest major destination resort to Denver International Airport.

(Wikipedia.org, www.grandlakechamber.com & <http://www.winterparkresort.com/>)

RATIO ANALYSIS

Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 1, 2015 and June 30, 2016. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2016 in 6-month increments. If there were still fewer than 30 sales, supplemental appraisals were performed and treated as proxy sales. Residential sales for all counties using this method totaled at least 30 per county. For commercial sales, the total number analyzed was allowed, in some cases, to fall below 30. There were no sale quantity issues for counties requiring vacant land analysis or condominium analysis. Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these

latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either “Q” or “C.” The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were “lost” because of trimming. For the largest 11 counties, the residential ratio statistics were broken down by economic area as well.

Conclusions

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

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

The results for Grand County are:

Grand County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	41	0.976	1.041	9.3	Compliant
Condominium	767	0.998	1.012	7.3	Compliant
Single Family	1,024	0.986	1.016	9.3	Compliant
Vacant Land	409	0.997	1.039	14.5	Compliant

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

Grand County was tested for the equal treatment of sold and unsold properties to ensure that “sales chasing” has not occurred. The auditors employed a multi-step process to determine if sold and unsold properties were valued in a consistent manner.

We test the hypothesis that the assessor has valued unsold properties consistent with what is observed with the sold properties based on several units of comparison and tests. The units of comparison include the actual value per square foot and the change in value from the previous base year period to the current base year. The first test compares the actual value per square foot between sold and unsold properties by class. The median and mean value per square foot is compared and tested for any significant difference. This is tested using non-parametric methods, such as the Mann-Whitney test for differences in the distributions or medians between sold and unsold groups. It is also examined graphically and from an appraisal perspective. Data can be stratified based on location and subclass. The second test compares the difference in the median change in value from the previous base year to the current base year between sold and unsold properties by class. The same combination of non-parametric and appraisal testing is used as with the first test. A third test employing a valuation model testing a sold/unsold binary variable while controlling for property attributes such as location, size, age and other attributes. The model determines if the sold/unsold variable is statistically and empirically significant. If all three tests indicate a significant difference between sold and unsold properties for a given class, the Auditor may meet with the county to determine if sale chasing is actually occurring,

or if there are other explanations for the observed difference.

If the unsold properties have a higher median value per square foot than the sold properties, or if the median change in value is greater for the unsold properties than the sold properties, the analysis is stopped and the county is concluded to be in compliance with sold and unsold guidelines. All sold and unsold properties in a given class are first tested, although properties with extreme unit values or percent changes can be trimmed to stabilize the analysis. The median is the primary comparison metric, although the mean can also be used as a comparison metric if the distribution supports that type of measure of central tendency.

The first test (unit value method) is applied to both residential and commercial/industrial sold and unsold properties. The second test is applied to sold and unsold vacant land properties. The second test (change in value method) is also applied to residential or commercial sold and unsold properties if the first test results in a significant difference observed and/or tested between sold and unsold properties. The third test (valuation modeling) is used in instances where the results from the first two tests indicate a significant difference between sold and unsold properties. It can also be used when the number of sold and unsold properties is so large that the non-parametric testing is indicating a false rejection of the hypothesis that there is no difference between the sold and unsold property values.

These tests were supported by both tabular and graphics presentations, along with written documentation explaining the methodology used.

Sold/Unsold Results	
Property Class	Results
Commercial/Industrial	Compliant
Condominium	Compliant
Single Family	Compliant
Vacant Land	Compliant

Conclusions

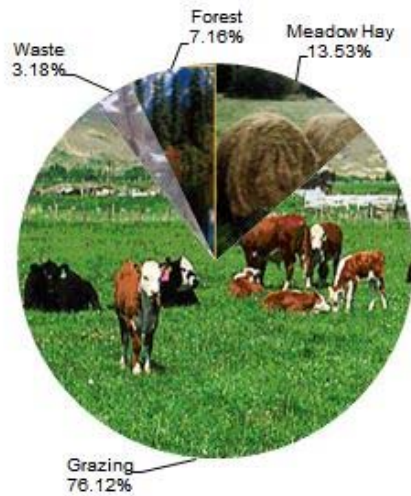
After applying the above described methodologies, it is concluded that Grand County is reasonably treating its sold and unsold properties in the same manner.

Recommendations

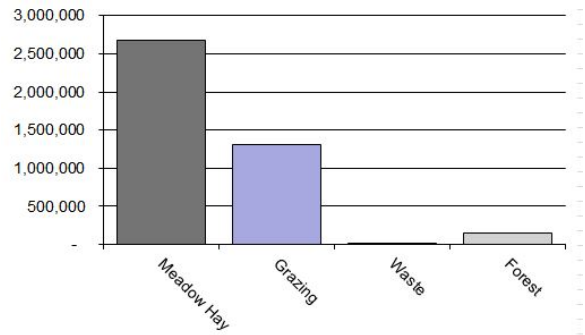
None

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:

Grand County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4137	Meadow Hay	34,315	77.91	2,673,589	2,673,589	1.00
4147	Grazing	193,059	6.78	1,308,957	1,308,957	1.00
4177	Forest	18,167	8.06	146,381	146,381	1.00
4167	Waste	8,068	2.22	17,926	17,926	1.00
Total/Avg		253,609	16.35	4,146,852	4,146,852	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.

Property Taxation for the valuation of agricultural outbuildings.

Recommendations

None

Conclusions

Grand County has substantially complied with the procedures provided by the Division of

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

Grand 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

Grand 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
- Aerial Photography/Pictometry

Grand County has substantially complied with the procedures provided by the Division of Property Taxation for the valuation of land under residential improvements that may or may not be integral to an agricultural operation.

Recommendations

None

SALES VERIFICATION

According to Colorado Revised Statutes:

A representative body of sales is required when considering the market approach to appraisal.

(8) In any case in which sales prices of comparable properties within any class or subclass are utilized when considering the market approach to appraisal in the determination of actual value of any taxable property, the following limitations and conditions shall apply:

(a)(I) Use of the market approach shall require a representative body of sales, including sales by a lender or government, sufficient to set a pattern, and appraisals shall reflect due consideration of the degree of comparability of sales, including the extent of similarities and dissimilarities among properties that are compared for assessment purposes. In order to obtain a reasonable sample and to reduce sudden price changes or fluctuations, all sales shall be included in the sample that reasonably reflect a true or typical sales price during the period specified in section 39-1-104 (10.2). Sales of personal property exempt pursuant to the provisions of sections 39-3-102, 39-3-103, and 39-3-119 to 39-3-122 shall not be included in any such sample.

(b) Each such sale included in the sample shall be coded to indicate a typical, negotiated sale, as screened and verified by the assessor. (39-1-103, C.R.S.)

The assessor is required to use sales of real property only in the valuation process.

(8)(f) Such true and typical sales shall include only those sales which have been determined on an individual basis to reflect the selling price of the real property only or which have been adjusted on an individual basis to reflect the selling price of the real property only. (39-1-103, C.R.S.)

Part of the Property Assessment Study is the sales verification analysis. WRA has used the above-cited statutes as a guide in our study of the county's procedures and practices for verifying sales.

WRA reviewed the sales verification procedures in 2018 for Grand County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 30 sales listed as unqualified.

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

For residential, commercial, and vacant land sales with considerations over \$500, the contractor has examined and reported the ratio of qualified sales to total sales by class and performed the following analyses of unqualified sales:

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

The contractor has reviewed with the assessor any analysis indicating that sales data are inadequate, fail to reflect typical properties, or have been disqualified for insufficient cause. In addition, the contractor has reviewed the disqualified sales by assigned code. If there appears to be any inconsistency in the coding, the contractor has



conducted further analysis to determine if the sales included in that code have been assigned appropriately.

Conclusions

Grand County appears to be doing a good job of verifying their sales. WRA agreed with the

county's reason for disqualifying each of the sales selected in the sample. There are no recommendations or suggestions.

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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

identified homogeneous economic areas comprised of smaller neighborhoods. Each economic area defined is equally subject to a set of economic forces that impact the value of the properties within that geographic area and this has been adequately addressed. Each economic area defined adequately delineates an area that will give "similar values for similar properties in similar areas."

Recommendations

None

NATURAL RESOURCES

Earth and Stone Products

Methodology

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

Conclusions

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

Recommendations

None

Producing Mines

Methodology

Colorado Revised Statutes (CRS) Article 39, Section 6, and the Assessor's Reference Library (ARL), Volume 3 are the basis for valuing producing mine property. The gross value of the ore extracted during the preceding year is determined. All costs of treatment, reduction, transportation and sale are deducted to estimate gross proceeds. The costs of extraction are deducted from the gross proceeds to estimate net proceeds.

The current value for assessment is determined by determining if 25% of the gross proceeds or 100% of the net proceeds is greater, then applying that number as the valuation for assessment.

Conclusions

The County valued the producing mine production using acceptable appraisal procedures.

Recommendations

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2018 in Grand 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

Grand 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.

Grand County has been reviewed for their procedures and adherence to guidelines when assessing and valuing agricultural, commercial

and ski area 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

Grand 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

Grand 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.

Grand 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.

Grand County submitted their personal property written audit plan and was current for the 2018 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Businesses in a selected area
- Accounts with obvious discrepancies
- New businesses filing for the first time
- 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 \$7,400 actual value exemption status
- Lowest or highest quartile of value per square foot
- Accounts protested with substantial disagreement

Conclusions

Grand County has employed adequate discovery, classification, documentation, valuation, and auditing procedures for their personal property assessment and is in statistical compliance with SBOE requirements.

Recommendations

None

WILDROSE AUDITOR STAFF

Harry J. Fuller, *Audit Project Manager*

Suzanne Howard, *Audit Administrative Manager*

Steve Kane, *Audit Statistician*

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

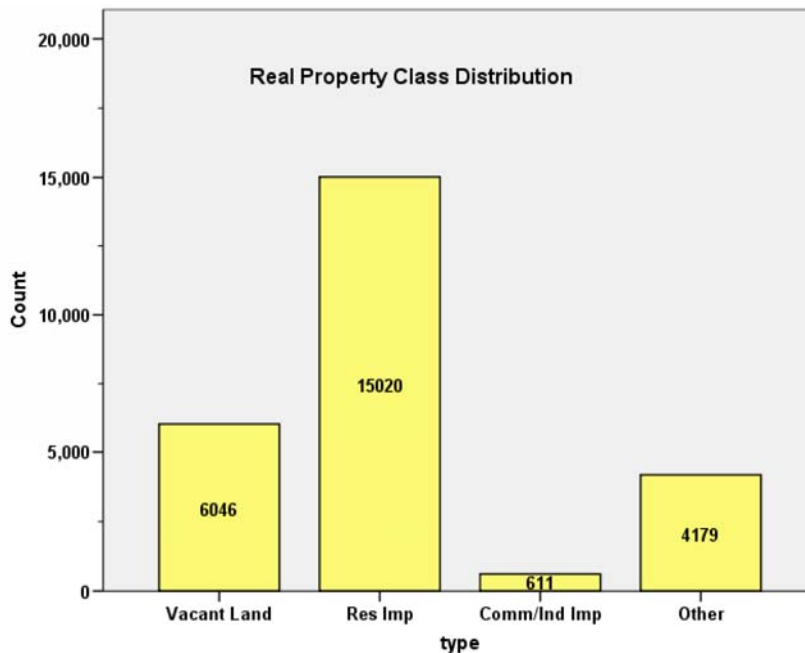
J. Andrew Rodriguez, *Field Analyst*

APPENDICES

STATISTICAL COMPLIANCE REPORT FOR GRAND COUNTY 2018

I. OVERVIEW

Grand County is a mountain resort located in western Colorado. The county has a total of 25,856 real property parcels, according to data submitted by the county assessor's office in 2018. 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) accounted for 85.5% of all vacant land parcels.

For residential improved properties, single family properties accounted for 66.1% of all residential properties. Residential condominiums accounted for 32.0% of all residential improved properties. Based on the guidelines for the state audit statistical compliance analysis, we will analyze residential condominiums separately.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 2.4% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2018 Colorado Property Assessment Study. Information was provided by the Grand Assessor's Office in April 2018. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 1,791 qualified residential sales in the 24-month sale period ending June 30, 2016. The following analysis separated residential condominiums from other residential property types:

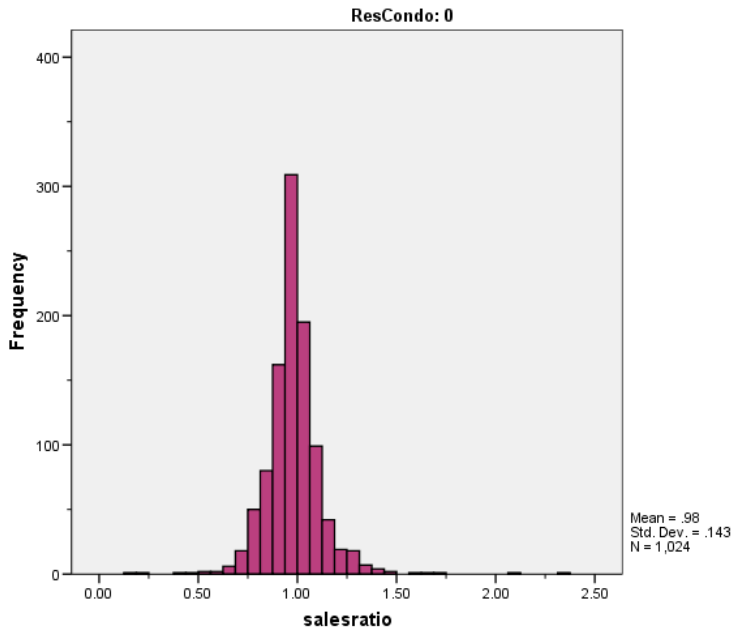
Residential Non-Condominiums (1,024 Sales)

Median	0.986
Price Related Differential	1.016
Coefficient of Dispersion	9.3

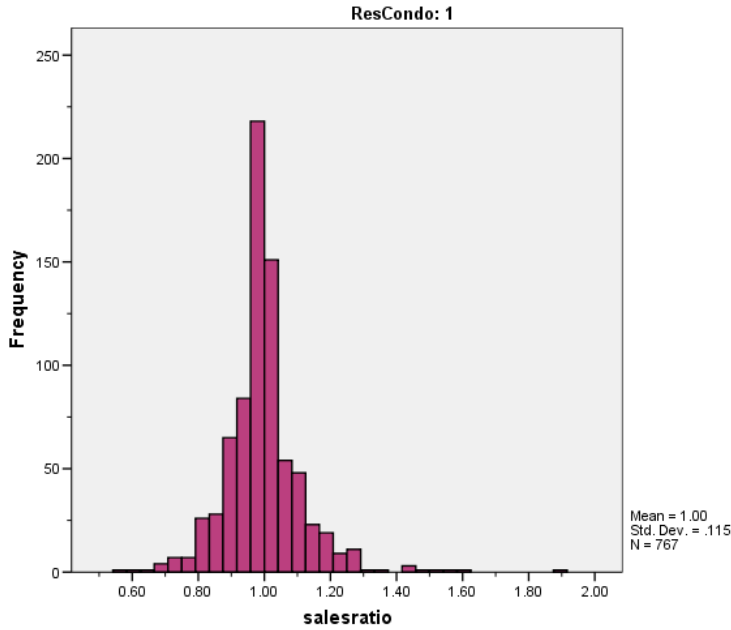
Residential Condominiums (767 Sales)

Median	0.998
Price Related Differential	1.012
Coefficient of Dispersion	7.3

The above ratio statistics were in compliance with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall residential sales. The following graphs describe further the sales ratio distribution for these properties:



Residential Non-Condominiums



Residential Condominiums

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

Residential Market Trend Analysis

We next analyzed the residential dataset using the 24-month sale period for any residual market trending, as follows:

Coefficients^a

ResCondo	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
0	1	(Constant)	.979	.008		116.584	.000
		SalePeriod	.000	.001	.014	.450	.653
1	1	(Constant)	.987	.008		125.426	.000
		SalePeriod	.001	.001	.050	1.395	.164

a. Dependent Variable: salesratio

The above statistical results indicate that both groups of residential properties had no significant trend in their sales ratios. We therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the 2018 median actual value per square foot between each group, stratified by subdivision, as follows:

Report

VALSF

ResCondo	sold	N	Median	Mean
Non-Condo	UNSOLD	9129	\$210	\$237
	SOLD	1021	\$218	\$246
Condo	UNSOLD	3862	\$219	\$227
	SOLD	765	\$215	\$224

NON-RESIDENTIAL CONDOMINIUMS

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of VALSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.005	Retain the null hypothesis.

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

RESIDENTIAL CONDOMINIUMS

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	.273	Retain the null hypothesis.

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

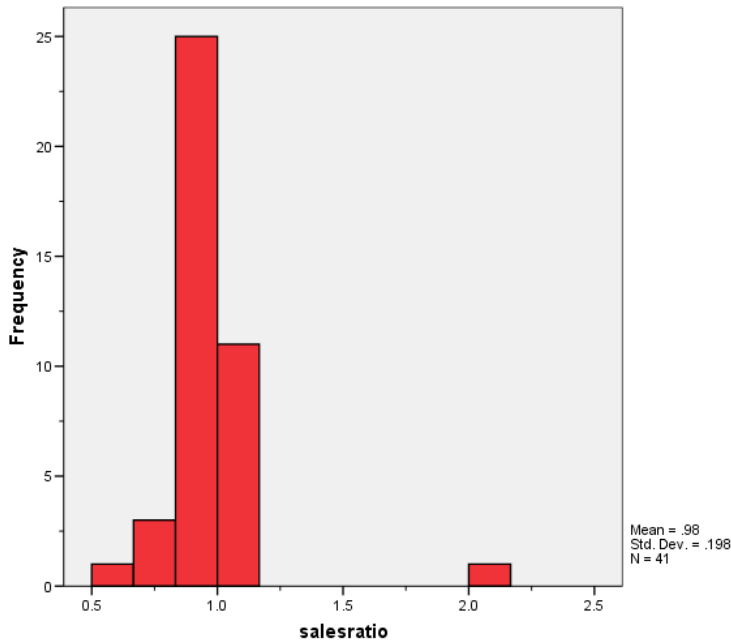
The above results indicate that sold and unsold residential properties were valued in a consistent manner.

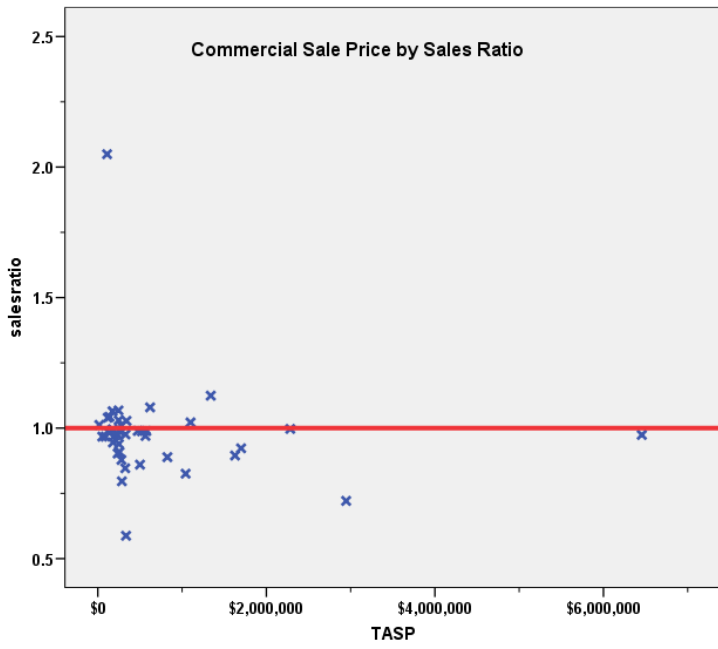
IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 41 qualified commercial and industrial sales in the 24 month sale period ending June 30, 2016. The following analysis separated residential condominiums from other residential property types:

Median	0.976
Price Related Differential	1.041
Coefficient of Dispersion	9.3

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





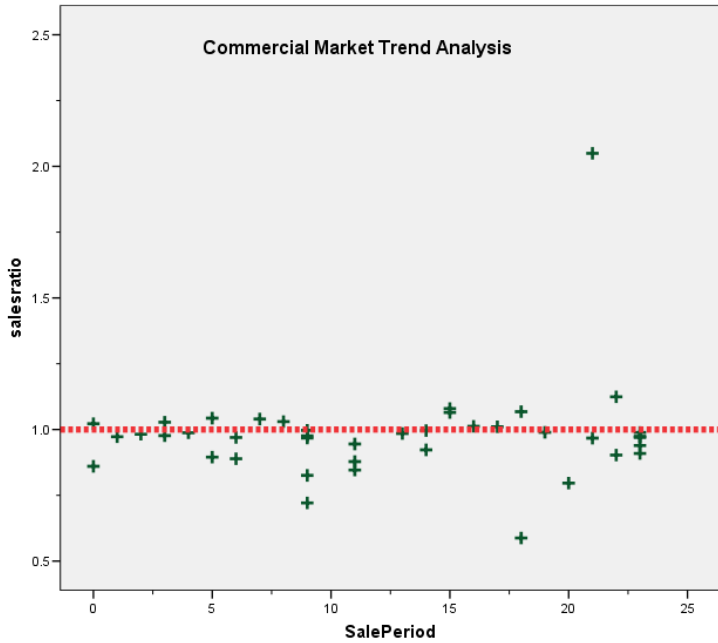
Commercial Market Trend Analysis

The assessor did not apply any market trend adjustment to the commercial dataset. The 41 commercial sales were analyzed, examining the sale ratios across the 24 month sale period with the following results:

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.931	.061		15.361	.000
	SalePeriod	.004	.004	.148	.936	.355

a. Dependent Variable: salesratio



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

Sold/Unsold Analysis

We compared the median and median change in value from 2016 to 2018 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 diversity of commercial/industrial properties across six economic areas, the following results indicate that based on the median and mean actual values, both groups were valued overall in a consistent manner:

Report

VALSF			
sold	N	Median	Mean
UNSOLD	565	\$82	\$102
SOLD	39	\$89	\$110

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	.286	Retain the null hypothesis.

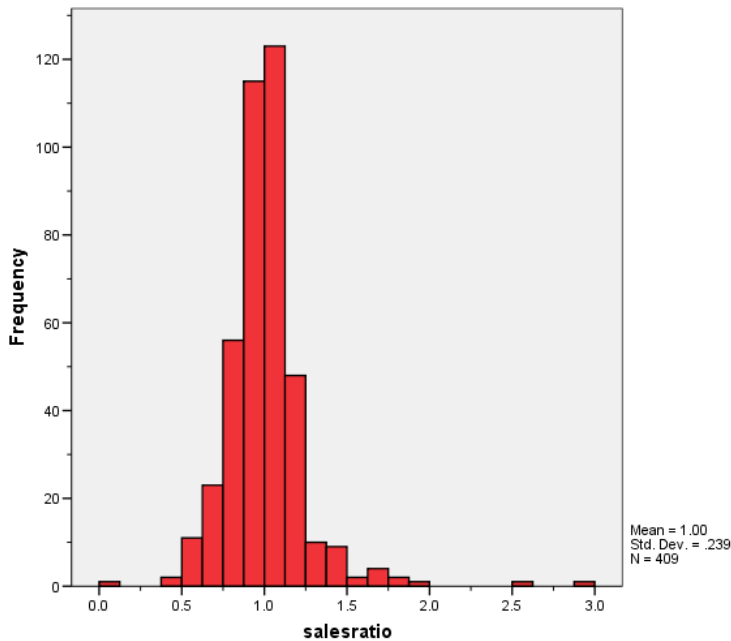
Asymptotic significances are displayed. The significance level is .00.

V. VACANT LAND SALE RESULTS

There were 409 qualified vacant land sales in the 24 month sale period ending June 30, 2014. The following analysis analyzed qualified vacant land sales as follows

Median	0.997
Price Related Differential	1.039
Coefficient of Dispersion	14.5

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





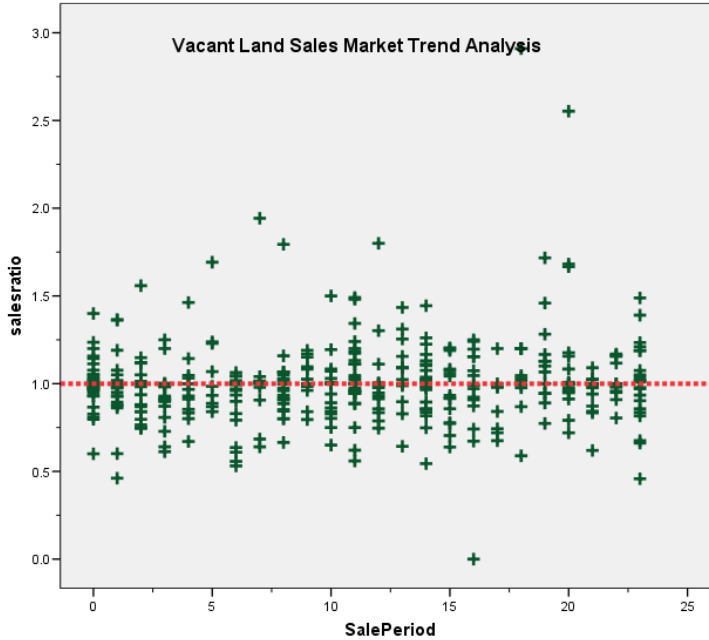
Vacant Land Market Trend Analysis

The 409 vacant land sales were analyzed, examining the sale ratios across the 24-month sale period with the following results:

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.966	.021		45.755	.000
	SalePeriod	.003	.002	.100	2.030	.043

a. Dependent Variable: salesratio



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

Sold/Unsold Analysis

We compared the median and mean change in actual value between taxable years 2016 and 2018 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

Report

DIFF	N	Median	Mean
UNSOLD	5,504	1.00	1.01
SOLD	388	1.00	1.02

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	.716	Retain the null hypothesis.

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

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

VI. AGRICULTURAL IMPROVEMENTS ANALYSIS

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

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

Report

IMPVALSF	N	Median	Mean
1212	331	\$125.37	\$129.06
4277	389	\$136.05	\$144.80

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of IMPVALSF is the same across categories of ABSTRIMP.	Independent-Samples Mann-Whitney U Test	.028	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .02.

VII. CONCLUSIONS

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

STATISTICAL ABSTRACT

Residential

Ratio Statistics for CURRTOT / TASP

ResCondo	Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
0	.982	.974	.991	.986	.978	.991	95.1%	.967	.958	.975	1.016	.093	
1	.997	.989	1.005	.998	.995	.999	95.7%	.985	.978	.993	1.012	.073	

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			
.980	.918	1.043	.976	.945	.996	97.2%	.941	.884	.999	1.041	.093	20.2%

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			
1.001	.978	1.024	.997	.983	1.000	95.2%	.964	.943	.984	1.039	.145	23.9%

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

Residential Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT \$25K	11	0.6%
	\$25K to \$50K	39	2.2%
	\$50K to \$100K	77	4.3%
	\$100K to \$150K	190	10.6%
	\$150K to \$200K	256	14.3%
	\$200K to \$300K	453	25.3%
	\$300K to \$500K	475	26.5%
	\$500K to \$750K	200	11.2%
	\$750K to \$1,000K	55	3.1%
	Over \$1,000K	35	2.0%
Overall		1791	100.0%
Excluded		0	
Total		1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.075	1.003	.077	12.9%
\$25K to \$50K	1.017	1.005	.155	23.2%
\$50K to \$100K	1.021	.992	.149	22.5%
\$100K to \$150K	1.002	1.003	.103	17.3%
\$150K to \$200K	.997	1.000	.087	13.5%
\$200K to \$300K	.994	1.002	.077	11.4%
\$300K to \$500K	.991	1.000	.074	10.9%
\$500K to \$750K	.981	1.003	.062	8.6%
\$750K to \$1,000K	.960	1.000	.072	10.2%
Over \$1,000K	.955	1.019	.079	11.2%
Overall	.994	1.017	.085	13.3%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	3	0.2%
	1212	1004	56.1%
	1214	2	0.1%
	1215	14	0.8%
	1220	1	0.1%
	1230	767	42.8%
Overall		1791	100.0%
Excluded		0	
Total		1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.390	1.103	.289	43.4%
1212	.986	1.017	.091	14.1%
1214	1.288	1.003	.010	1.5%
1215	.975	1.036	.101	13.2%
1220	1.131	1.000	.000	.
1230	.998	1.012	.073	11.5%
Overall	.994	1.017	.085	13.3%

Improvement Age

Case Processing Summary

	Count	Percent
AgeRec 0	3	0.2%
Over 100	5	0.3%
75 to 100	41	2.3%
50 to 75	94	5.2%
25 to 50	713	39.8%
5 to 25	861	48.1%
5 or Newer	74	4.1%
Overall	1791	100.0%
Excluded	0	
Total	1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.390	1.103	.289	43.4%
Over 100	.971	.986	.231	32.7%
75 to 100	.945	1.064	.152	19.8%
50 to 75	.978	1.053	.160	23.5%
25 to 50	.997	1.016	.087	13.6%
5 to 25	.993	1.017	.069	10.2%
5 or Newer	.972	.992	.075	13.2%
Overall	.994	1.017	.085	13.3%

Improved Area

Case Processing Summary

	Count	Percent
ImpSFRec 0	3	0.2%
LE 500 sf	89	5.0%
500 to 1,000 sf	525	29.3%
1,000 to 1,500 sf	613	34.2%
1,500 to 2,000 sf	316	17.6%
2,000 to 3,000 sf	193	10.8%
3,000 sf or Higher	52	2.9%
Overall	1791	100.0%
Excluded	0	
Total	1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.390	1.103	.289	43.4%
LE 500 sf	.999	1.021	.087	12.4%
500 to 1,000 sf	.990	1.015	.092	13.7%
1,000 to 1,500 sf	.995	1.015	.080	12.3%
1,500 to 2,000 sf	.995	1.017	.080	14.5%
2,000 to 3,000 sf	.989	1.025	.078	11.2%
3,000 sf or Higher	.995	1.038	.082	13.6%
Overall	.994	1.017	.085	13.3%

Improvement Quality

Case Processing Summary

	Count	Percent
QUALITY 1	2	0.1%
2	11	0.6%
3	139	7.8%
4	1065	59.6%
5	465	26.0%
6	102	5.7%
7	4	0.2%
Overall	1788	100.0%
Excluded	3	
Total	1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	1.113	1.001	.001	0.1%
2	1.195	1.110	.171	24.3%
3	1.006	1.014	.132	21.3%
4	.994	1.012	.087	13.0%
5	.989	1.012	.062	9.3%
6	.997	1.030	.060	10.2%
7	.859	1.037	.106	13.1%
Overall	.994	1.018	.084	13.0%

Improvement Condition

Case Processing Summary

CONDITION	Count	Percent
0	5	0.3%
1	16	0.9%
2	1288	73.1%
3	452	25.7%
Overall	1761	100.0%
Excluded	30	
Total	1791	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.010	.997	.063	8.6%
1	1.076	1.066	.178	28.3%
2	.996	1.018	.090	13.7%
3	.989	1.011	.061	8.7%
Overall	.994	1.017	.083	12.9%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT \$25K	1	2.4%
	\$50K to \$100K	2	4.9%
	\$100K to \$150K	4	9.8%
	\$150K to \$200K	4	9.8%
	\$200K to \$300K	11	26.8%
	\$300K to \$500K	6	14.6%
	\$500K to \$750K	4	9.8%
	\$750K to \$1,000K	1	2.4%
	Over \$1,000K	8	19.5%
Overall	41	100.0%	
Excluded	0		
Total	41		

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.012	1.000	.000	.
\$50K to \$100K	.967	1.000	.000	0.0%
\$100K to \$150K	1.042	1.026	.257	56.0%
\$150K to \$200K	.983	1.001	.037	5.4%
\$200K to \$300K	.973	1.003	.060	8.2%
\$300K to \$500K	.918	.994	.127	18.1%
\$500K to \$750K	.988	.998	.028	5.4%
\$750K to \$1,000K	.889	1.000	.000	.
Over \$1,000K	.948	1.005	.099	13.2%
Overall	.976	1.041	.093	20.3%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	1	2.4%
	1312	1	2.4%
	1712	1	2.4%
	1721	2	4.9%
	1891	1	2.4%
	1893	1	2.4%
	2212	6	14.6%
	2215	3	7.3%
	2220	2	4.9%
	2230	11	26.8%
	2233	1	2.4%
	2235	1	2.4%
	2240	8	19.5%
	2245	2	4.9%
Overall		41	100.0%
Excluded		0	
Total		41	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.878	1.000	.000	.
1312	.997	1.000	.000	.
1712	.989	1.000	.000	.
1721	.906	1.000	.003	0.5%
1891	.860	1.000	.000	.
1893	.974	1.000	.000	.
2212	.988	1.007	.024	3.6%
2215	.976	1.028	.054	8.4%
2220	1.006	.991	.061	8.6%
2230	.996	1.024	.045	6.6%
2233	1.124	1.000	.000	.
2235	2.050	1.000	.000	.
2240	.955	1.064	.106	17.7%
2245	.811	.990	.018	2.5%
Overall	.976	1.041	.093	20.3%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	0	1	2.4%
	Over 100	1	2.4%
	75 to 100	5	12.2%
	50 to 75	16	39.0%
	25 to 50	7	17.1%
	5 to 25	10	24.4%
	5 or Newer	1	2.4%
Overall		41	100.0%
Excluded		0	
Total		41	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.878	1.000	.000	.
Over 100	1.040	1.000	.000	.
75 to 100	.982	1.009	.032	4.7%
50 to 75	.973	.992	.052	11.2%
25 to 50	.895	1.042	.088	12.1%
5 to 25	.993	.987	.077	10.1%
5 or Newer	2.050	1.000	.000	.
Overall	.976	1.041	.093	20.3%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	0	1	2.4%
	LE 500 sf	2	4.9%
	500 to 1,000 sf	2	4.9%
	1,000 to 1,500 sf	1	2.4%
	1,500 to 2,000 sf	4	9.8%
	2,000 to 3,000 sf	6	14.6%
	3,000 sf or Higher	25	61.0%
Overall		41	100.0%
Excluded		0	
Total		41	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.878	1.000	.000	.
LE 500 sf	.990	1.012	.023	3.2%
500 to 1,000 sf	.994	1.006	.049	7.0%
1,000 to 1,500 sf	.967	1.000	.000	.
1,500 to 2,000 sf	.939	.998	.070	9.8%
2,000 to 3,000 sf	.943	1.033	.129	19.0%
3,000 sf or Higher	.988	1.069	.100	23.6%
Overall	.976	1.041	.093	20.3%

Improvement Quality

Case Processing Summary

	Count	Percent
QUALITY 1	1	2.5%
2	3	7.5%
3	10	25.0%
4	19	47.5%
5	7	17.5%
Overall	40	100.0%
Excluded	1	
Total	41	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.968	1.000	.000	.
2	.939	1.008	.026	4.0%
3	1.001	1.000	.049	6.3%
4	.985	1.047	.108	26.6%
5	.889	1.072	.133	18.1%
Overall	.976	1.043	.093	20.4%

Improvement Condition

Case Processing Summary

	Count	Percent
CONDITION 1	1	2.7%
2	33	89.2%
3	3	8.1%
Overall	37	100.0%
Excluded	4	
Total	41	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.939	1.000	.000	.
2	.977	1.023	.090	21.7%
3	1.030	1.012	.026	3.8%
Overall	.982	1.022	.085	20.4%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

SPRec		Count	Percent
	LT \$25K	95	23.2%
	\$25K to \$50K	101	24.7%
	\$50K to \$100K	101	24.7%
	\$100K to \$150K	54	13.2%
	\$150K to \$200K	28	6.8%
	\$200K to \$300K	20	4.9%
	\$300K to \$500K	6	1.5%
	\$500K to \$750K	3	0.7%
	\$750K to \$1,000K	1	0.2%
Overall		409	100.0%
Excluded		0	
Total		409	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.024	1.009	.201	34.0%
\$25K to \$50K	.985	1.007	.159	21.9%
\$50K to \$100K	1.000	1.008	.105	16.3%
\$100K to \$150K	.991	1.000	.121	19.3%
\$150K to \$200K	.951	.999	.144	24.8%
\$200K to \$300K	.910	.997	.096	15.0%
\$300K to \$500K	.999	.999	.026	4.6%
\$500K to \$750K	1.005	1.006	.041	6.2%
\$750K to \$1,000K	.985	1.000	.000	.
Overall	.997	1.039	.145	24.0%

**Subclass
Case Processing Summary**

		Count	Percent
ABSTR/LND	0	1	0.2%
	100	286	69.9%
	200	6	1.5%
	510	5	1.2%
	520	6	1.5%
	540	4	1.0%
	550	1	0.2%
	1112	94	23.0%
	1125	1	0.2%
	1135	3	0.7%
	2112	2	0.5%
Overall		409	100.0%
Excluded		0	
Total		409	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.000	.	.	.
100	.997	1.044	.141	22.9%
200	1.203	1.154	.118	16.0%
510	.857	1.005	.075	14.4%
520	.978	1.024	.105	14.6%
540	.987	.998	.056	11.0%
550	1.189	1.000	.000	.
1112	1.000	1.030	.137	24.8%
1125	1.074	1.000	.000	.
1135	.640	1.401	.605	128.2%
2112	1.084	1.011	.071	10.0%
Overall	.997	1.039	.145	24.0%