



2020  
WELD COUNTY  
PROPERTY ASSESSMENT  
STUDY

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**WILDROSE**  
APPRAISAL, INCORPORATED  
**Audit Division**



September 15, 2020

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

**RE: Final Report for the 2020 Colorado Property Assessment Study**

Dear Ms. Mullis:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2020 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 style.

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

## TABLE OF CONTENTS

Introduction .....	3
Regional/Historical Sketch of Weld 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 Oil and Gas</i> .....	17
Vacant Land.....	18
Possessory Interest Properties .....	19
Personal Property Audit .....	20
Wildrose Auditor Staff.....	22
Appendices.....	23

# INTRODUCTION

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## Colorado

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

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

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

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

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

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

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

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

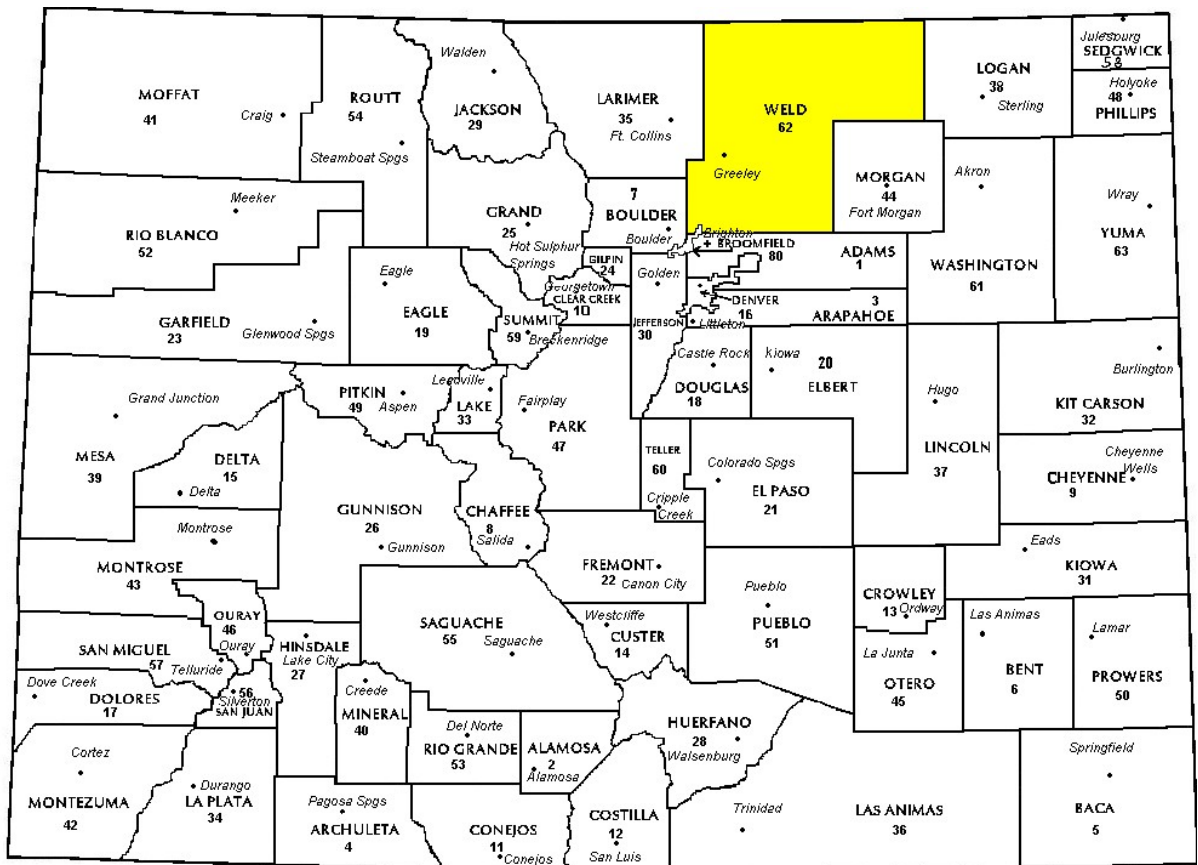
Wildrose Audit has completed the Property Assessment Study for 2020 and is pleased to report its findings for Weld County in the following report.

# REGIONAL/HISTORICAL SKETCH OF WELD COUNTY

## Regional Information

Weld County is located in the Front Range region of Colorado. The Colorado Front Range is a colloquial geographic term for the populated areas of the State that are just east of the foothills of the Front Range. It includes

Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Pueblo, and Weld counties.



## Historical Information

Weld County had an estimated population of approximately 294,932 people with 73.97 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 16.65 percent change from April 1, 2010 to July 1, 2016.

Weld County covers an area of 4,004 square miles in north central Colorado. It is bordered on the north by Wyoming and Nebraska and on the south by the Denver metropolitan area. The third largest county in Colorado, Weld County has an area greater than that of Rhode Island, Delaware and the District of Columbia combined.

Major Stephen H. Long made an expedition to the area now known as Weld County in 1821. In 1835 a government expedition came through the general area; the next year a member of that party, Lt. Lancaster Lupton, returned to establish a trading post located just north of the present town of Fort Lupton. In 1837 Colonel Ceran St. Vrain established Fort St. Vrain; Fort Vasquez was built south of Platteville about 1840. The latter was rebuilt in the 1930's by the State Historical Society.

The county seat is Greeley which began as the Union Colony, which was founded in 1869 as an experimental utopian community of "high moral standards" by Nathan C. Meeker, a newspaper reporter from New York City. Meeker purchased a site at the confluence of the Cache la Poudre and South Platte Rivers (that included the area of Latham, an Overland Trail station), halfway between Cheyenne and Denver along the tracks of the Denver Pacific Railroad formerly known as the "Island Grove Ranch." The name Union Colony was later changed to Greeley in honor of Horace Greeley, who was Meeker's editor at the New York Tribune, and popularized the phrase "Go West, young man."

Weld County's cultural assets include Centennial Village, an authentic recreation of pioneer life on the Colorado plains. The Meeker Museum in Greeley is a national historic site. Fort Vasquez in southern Weld County has an exciting history as an early Colorado trading post. The Greeley Philharmonic Orchestra is one of the oldest symphony orchestra west of the Mississippi. The University of Northern Colorado's Little Theatre of the Rockies is one of America's premier college dramatic organizations.

*([www.co.weld.co.us](http://www.co.weld.co.us), [www.wikipedia.org](http://www.wikipedia.org))*

# RATIO ANALYSIS

## Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 1, 2017 and June 30, 2018. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2018 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 Weld County are:

<b>Weld County Ratio Grid</b>					
<b>Property Class</b>	<b>Number of Qualified Sales</b>	<b>Unweighted Median Ratio</b>	<b>Price Related Differential</b>	<b>Coefficient of Dispersion</b>	<b>Time Trend Analysis</b>
Commercial/Industrial	290	1.000	1.025	8.2	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	10,875	0.972	1.006	5.6	Compliant
Vacant Land	353	0.989	1.014	12.8	Compliant

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

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

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

or if there are other explanations for the observed difference.

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

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

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

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

### **Conclusions**

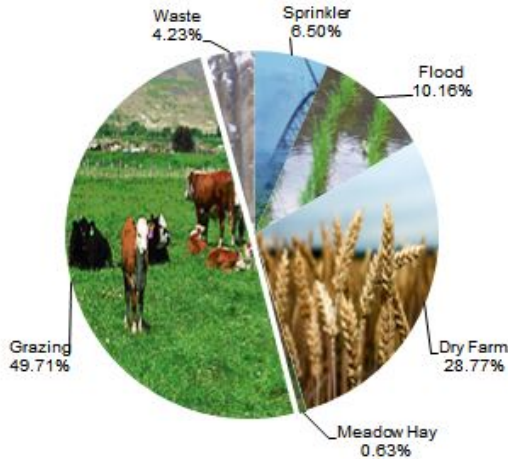
After applying the above described methodologies, it is concluded that Weld County is reasonably treating its sold and unsold properties in the same manner.

### **Recommendations**

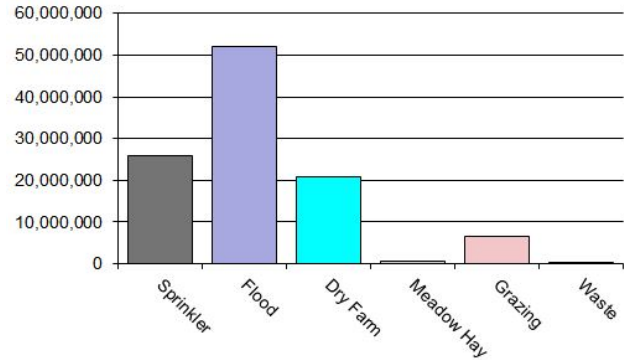
None

# AGRICULTURAL LAND STUDY

Acres By Subclass



Value By Subclass



## Agricultural Land

County records were reviewed to determine major land categories such as irrigated farm, dry farm, meadow hay, grazing and other lands. In addition, county records were reviewed in order to determine if: Aerial photographs are available and are being used; soil conservation guidelines have been used to classify lands based on productivity; crop rotations have been documented; typical commodities and yields have been determined; orchard lands have been properly classified and valued; expenses reflect a ten year average and are typical landlord expenses; grazing lands have been properly classified and valued; the number of acres in each class and subclass have been determined; the capitalization rate was properly applied. Also, documentation was required for the valuation methods used and any locally developed yields, carrying capacities, and expenses. Records were also checked to ensure that the commodity prices and expenses, furnished by the Property Tax

Administrator (PTA), were applied properly. (See Assessor Reference Library Volume 3 Chapter 5.)

### Conclusions

An analysis of the agricultural land data indicates an acceptable appraisal of this property type. Directives, commodity prices and expenses provided by the PTA were properly applied. County yields compared favorably to those published by Colorado Agricultural Statistics. Expenses used by the county were allowable expenses and were in an acceptable range. Grazing lands carrying capacities were in an acceptable range. The data analyzed resulted in the following ratios:

<b>Weld County Agricultural Land Ratio Grid</b>						
<b>Abstract Code</b>	<b>Land Class</b>	<b>Number Of Acres</b>	<b>County Value Per Acre</b>	<b>County Assessed Total Value</b>	<b>WRA Total Value</b>	<b>Ratio</b>
4107	Sprinkler	126,457	204.68	25,883,669	25,590,164	1.01
4117	Flood	197,686	262.74	51,939,915	51,996,530	1.00
4127	Dry Farm	559,765	36.97	20,695,400	20,470,463	1.01
4137	Meadow Hay	12,167	45.50	553,654	553,654	1.00
4147	Grazing	967,149	6.95	6,723,365	6,723,365	1.00
4167	Waste	82,397	2.39	196,583	196,583	1.00
<b>Total/Avg</b>		<b>1,945,621</b>	<b>54.48</b>	<b>105,992,587</b>	<b>105,530,759</b>	<b>1.00</b>

### Recommendations

None

## Agricultural Outbuildings

### Methodology

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

Property Taxation for the valuation of agricultural outbuildings.

### Recommendations

None

### Conclusions

Weld County has complied with the procedures provided by the Division of

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## Agricultural Land Under Improvements

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### Methodology

Data was collected and reviewed to determine if the guidelines found in the Assessor's Reference Library (ARL) Volume 3, pages 5.19 and 5.20 were being followed.

### Conclusions

Weld 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

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

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

Weld 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.

WRA reviewed the sales verification procedures in 2020 for Weld County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 60 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**

Weld 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**

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

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

## **Recommendations**

None

# NATURAL RESOURCES

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## Earth and Stone Products

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### Methodology

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

### Conclusions

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

### Recommendations

None

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## Producing Oil and Gas

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### Methodology

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

### STATUTORY REFERENCES

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

### Actual value determined - when.

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

Article 7 covers the listing, valuation, and assessment of producing oil and gas leaseholds and lands.

### Valuation:

#### Valuation for assessment.

(1) Except as provided in subsection (2) of this section, on the basis of the information contained in such statement, the assessor shall value such oil and gas leaseholds and lands for assessment, as real property, at an amount equal to eighty-seven and one-half percent of:

(a) The selling price of the oil or gas sold there from during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year;

(b) The selling price of oil or gas sold in the same field area for oil or gas transported from the premises which is not sold during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year.

§ 39-7-102, C.R.S.

### Conclusions

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

### Recommendations

None

# VACANT LAND

## **Subdivision Discounting**

Subdivisions were reviewed in 2020 in Weld 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**

Weld 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.

Weld 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

Weld 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

Weld 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.

Weld 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.

Weld County submitted their personal property written audit plan and was current for the 2020 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 \$7,700 actual value exemption status
- Accounts protested with substantial disagreement

Weld County's median ratio is 1.00. This is in compliance with the State Board of Equalization (SBOE) compliance requirements

which range from .90 to 1.10 with no COD requirements.

### **Conclusions**

Weld 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*

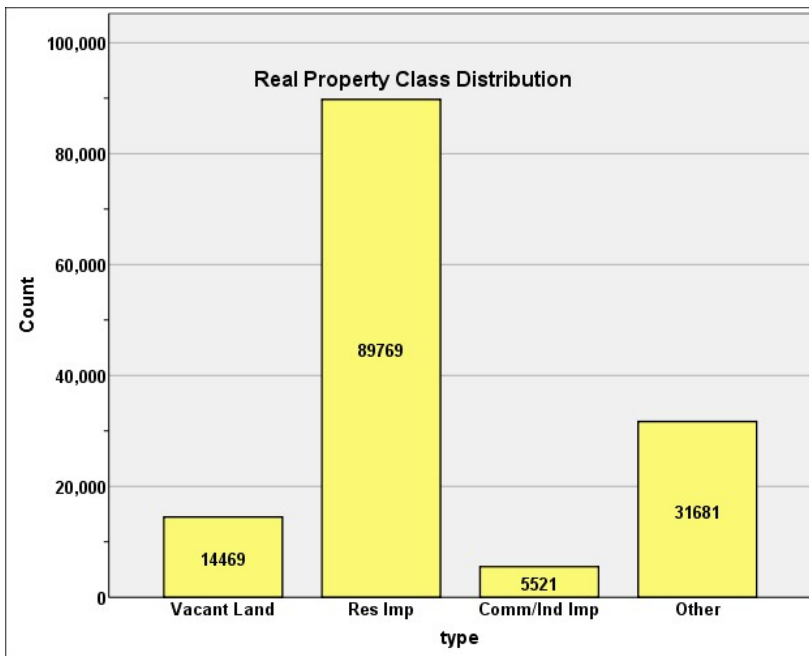
# APPENDICES



**STATISTICAL COMPLIANCE REPORT  
FOR WELD COUNTY  
2020**

**I. OVERVIEW**

Weld County is an urban county located along Colorado’s Front Range. The county has a total of 141,440 real property parcels, according to data submitted by the county assessor’s office in 2020. The following provides a breakdown of property classes for this county:



The vacant land class of properties was dominated by residential land. Residential lots (coded 100 and 1112) accounted for 84.7% of all vacant land parcels.

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

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 3.9% of all such properties in this county.

Based on the Audit questionnaire filled out by the assessor (see below), the following geographic levels were used by the assessor to value residential, commercial and vacant land properties:

Geo Area	Residential	Comm/Ind	Vacant Land
Economic Area	V	V	V
Neighborhood	V	N	V
Subdivision	V	N	V

*Codes*

*V=Valid Geographic Level – used for modeling*

*N = Not used as Geographic Level for modeling*

## II. DATA FILES

The following sales analyses were based on the requirements of the 2020 Colorado Property Assessment Study. Information was provided by the Weld Assessor’s Office in April 2020. The data included all 5 property record files as specified by the Auditor.

## III. RESIDENTIAL SALES RESULTS

There were 10,875 qualified residential sales that occurred in the 18-month sale period ending June 30, 2018. The sales ratio analysis results were as follows:

Median	<b>0.972</b>
Price Related Differential	<b>1.006</b>
Coefficient of Dispersion	<b>5.6</b>

We next stratified the sale ratio analysis by economic area and neighborhood. The minimum count for the neighborhood stratification is 20 sales. The following are the results of this stratification analysis:

### Economic Area Case Processing Summary

		Count	Percent
ECONAREA	.00	1021	9.4%
	2.00	3450	31.8%
	3.00	2673	24.7%
	4.00	772	7.1%
	5.00	136	1.3%
	6.00	1769	16.3%
	7.00	47	0.4%
	8.00	54	0.5%
	9.00	372	3.4%
	99.00	544	5.0%
Overall		10838	100.0%
Excluded		37	
Total		10875	

**Ratio Statistics for currtot / tasp**

Group	Median	Price Related Differential	Coefficient of Dispersion
.00	.975	1.001	.047
2.00	.973	1.005	.050
3.00	.969	1.004	.051
4.00	.979	1.006	.052
5.00	.963	1.014	.109
6.00	.970	1.011	.082
7.00	.970	1.012	.114
8.00	.952	1.013	.085
9.00	.973	1.007	.055
99.00	.968	.999	.042
Overall	.972	1.006	.056

NOTE: Econ Area 99 = Condominiums

**Neighborhoods with at least 25 sales**

**Ratio Statistics for currtot / tasp**

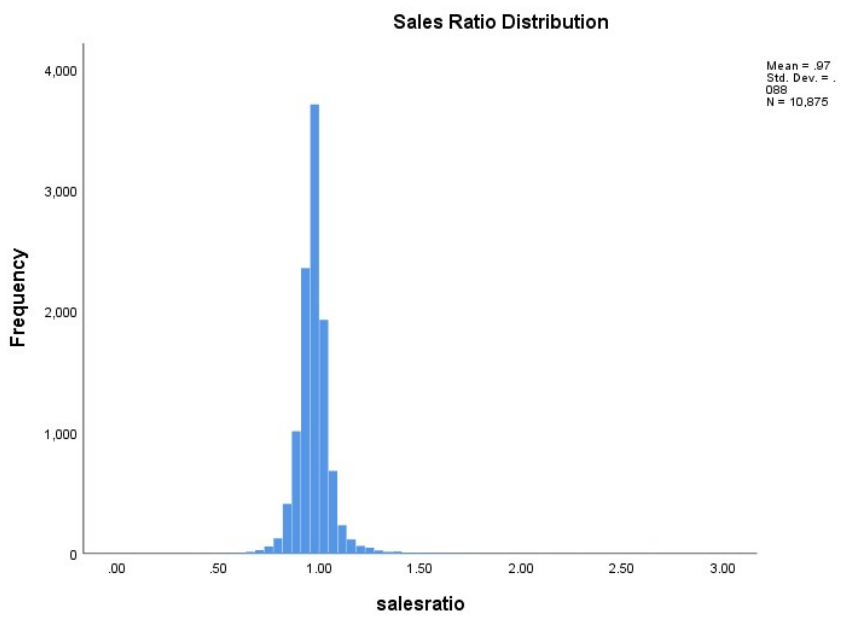
Group	Median	Price Related Differential	Coefficient of Dispersion
71	.976	1.002	.040
72	.968	1.001	.031
75	.982	1.000	.109
77	.975	1.004	.055
78	.979	1.000	.029
79	.980	1.004	.040
81	.970	1.000	.034
83	.975	1.000	.039
171	.968	1.002	.047
173	.993	1.004	.069
174	.981	1.001	.039
177	.962	1.004	.073
2002	.973	1.002	.040
2003	.968	1.007	.074
2005	.973	1.002	.051
2006	.971	1.003	.039
2007	.962	1.003	.071
2011	.980	1.016	.069
2013	.974	1.005	.047
2016	.979	1.002	.037
2018	.971	1.011	.062
2019	.973	1.008	.049
2020	.984	1.002	.028
2060	.975	1.005	.067
2061	.971	1.001	.043
2100	.965	1.003	.048
2101	.984	1.003	.048
2102	.961	1.003	.051
2103	.965	.999	.042
2105	.964	1.005	.067
2106	.971	1.002	.040
2107	.993	1.003	.043
2108	.964	1.002	.043
2110	.973	1.005	.050
2111	.957	1.002	.052

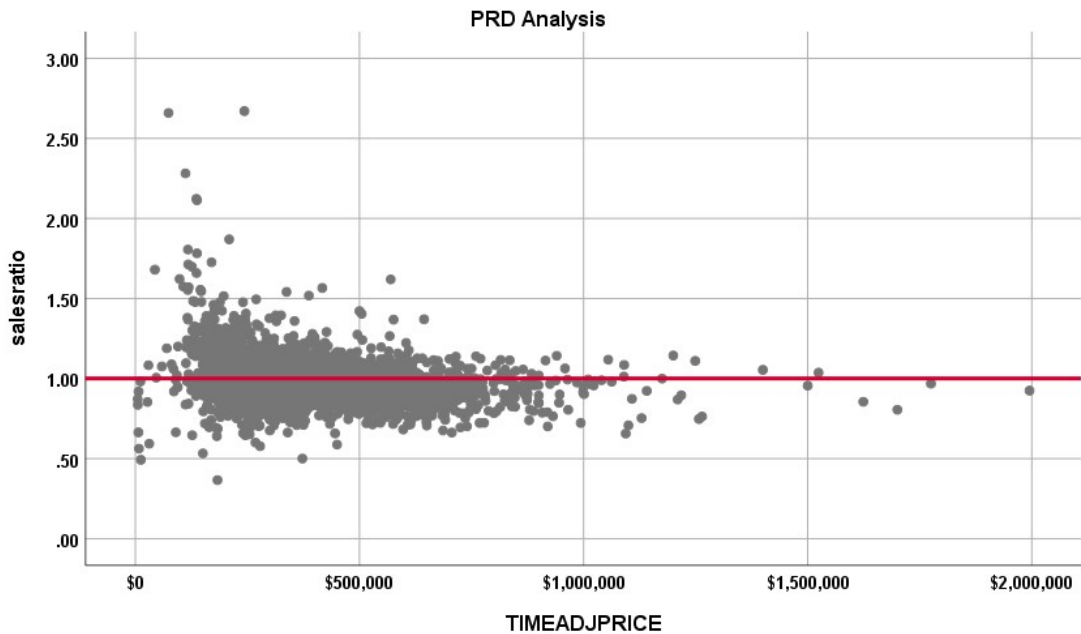
2112	.967	1.004	.059
2115	.972	1.004	.036
2117	.966	1.001	.035
2118	.973	1.000	.032
2120	.982	1.007	.052
2121	.958	1.008	.064
2124	.977	1.001	.035
2125	.969	1.002	.043
2151	.970	1.003	.043
2152	.981	1.000	.018
2252	.977	1.007	.080
2657	.979	1.002	.030
3000	.977	1.003	.044
3001	.968	1.017	.088
3003	.967	.999	.036
3004	.977	1.001	.029
3008	.966	1.008	.054
3009	.968	1.003	.101
3010	.968	1.000	.038
3012	.972	1.001	.038
3013	.972	1.007	.061
3014	.971	1.000	.045
3017	.952	1.011	.063
3024	.962	1.001	.031
3025	.979	1.001	.049
3026	.966	1.001	.047
3027	.963	1.002	.042
3030	.973	1.001	.039
3031	.967	.996	.074
3032	.977	1.001	.044
3033	.978	1.002	.046
3034	.969	1.004	.051
3037	.974	1.000	.038
3038	.961	1.000	.044
3042	.974	1.002	.052
3055	.968	.998	.055
3057	.978	1.000	.023
3058	.965	1.006	.047
3122	.965	1.000	.032
3664	.952	1.002	.034
4000	.977	1.000	.026
4002	.975	1.001	.028
4004	.984	1.000	.033
4102	.975	1.000	.042
4103	.974	1.003	.053
4104	.993	1.001	.055
4105	.981	1.024	.128
4123	.977	1.009	.048
5001	.975	1.010	.092
5009	.961	1.006	.086
6003	.966	1.009	.093
6021	.966	1.001	.059
6023	.964	1.004	.088
6025	.966	1.014	.100
6027	.971	1.015	.066
6029	.974	1.004	.064
6030	.970	1.003	.080

6031	.966	1.002	.050
6032	.964	1.024	.079
6033	.999	1.029	.136
6034	.971	1.008	.084
6035	.968	1.004	.059
6037	.964	1.013	.118
6038	.974	1.002	.078
6045	.952	1.071	.124
6050	.961	1.016	.080
6051	.984	1.002	.030
6062	.975	1.002	.050
6207	.969	.990	.132
7004	.993	1.013	.147
9007	.976	1.009	.054
9008	.978	1.002	.044
9009	.968	1.022	.101
9010	.971	1.005	.048
9014	.983	1.004	.038
9046	.954	.996	.068
9999	.968	.999	.042
<b>Overall</b>	<b>.972</b>	<b>1.006</b>	<b>.053</b>

**NOTE: NBHD 9999 = Condominiums**

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





NOTE: Sales over \$2,000,000 excluded for graphic clarity

The above graphs indicate that the distribution of the sale ratios was within state mandated limits.

### Residential Market Trend Analysis

We next analyzed the residential dataset using the 18-month sale period for any residual market trending and broken down by economic area, as follows:

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

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.	1	(Constant)	.973	.033		29.704	.000
		SalePeriod	.001	.003	.038	.222	.826
.00	1	(Constant)	.982	.004		258.374	.000
		SalePeriod	-.001	.000	-.046	-1.461	.144
2.00	1	(Constant)	.969	.002		453.438	.000
		SalePeriod	.000	.000	.019	1.141	.254
3.00	1	(Constant)	.967	.003		370.948	.000
		SalePeriod	.000	.000	.019	.995	.320
4.00	1	(Constant)	.981	.006		151.245	.000
		SalePeriod	-2.530E-5	.001	-.001	-.039	.969
5.00	1	(Constant)	.959	.029		32.571	.000
		SalePeriod	.004	.003	.121	1.413	.160
6.00	1	(Constant)	.989	.006		171.473	.000
		SalePeriod	.000	.001	-.013	-.542	.588
7.00	1	(Constant)	.935	.040		23.558	.000
		SalePeriod	.005	.004	.206	1.410	.165

8.00	1	(Constant)	.921	.028		33.351	.000
		SalePeriod	.006	.003	.252	1.876	.066
9.00	1	(Constant)	.985	.008		122.967	.000
		SalePeriod	-.001	.001	-.074	-1.419	.157
99.00	1	(Constant)	.973	.005		184.991	.000
		SalePeriod	-.001	.001	-.045	-1.045	.296

a. Dependent Variable: salesratio

There was no residual market trending present in the sale ratio data for any of the economic areas; we therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

### Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2020 between each group. The data was analyzed both as a whole and broken down by economic area, as follows:

#### Report

VALSF

sold	N	Median	Mean
UNSOLD	78212	\$199	\$197
SOLD	10874	\$202	\$203

#### Report

VALSF

ECONAREA	sold	N	Median	Mean
0	UNSOLD	6203	\$210.25	\$208.79
	SOLD	1021	\$210.25	\$209.17
2	UNSOLD	22647	\$202.83	\$202.30
	SOLD	3450	\$205.18	\$205.92
3	UNSOLD	16942	\$196.67	\$201.75
	SOLD	2673	\$198.69	\$205.71
4	UNSOLD	6357	\$184.50	\$185.85
	SOLD	772	\$187.75	\$192.24
5	UNSOLD	1278	\$163.07	\$167.24
	SOLD	136	\$199.73	\$197.26
6	UNSOLD	17005	\$206.88	\$200.14
	SOLD	1768	\$212.19	\$208.16
7	UNSOLD	797	\$93.99	\$106.28
	SOLD	47	\$131.01	\$130.65
8	UNSOLD	710	\$149.07	\$149.75
	SOLD	54	\$166.78	\$166.25
9	UNSOLD	2589	\$205.90	\$196.71
	SOLD	372	\$213.31	\$204.32
99	UNSOLD	3427	\$174.05	\$165.10
	SOLD	544	\$176.60	\$180.53

NOTE: Econ Area 99 = Condominiums

Please note that economic areas with significant differences based on the actual value per square foot comparison were also tested using the percent change in value method; in each case, those economic

areas showed no significant difference between sold and unsold residential properties using this second method.

We also stratified this analysis by residential neighborhoods with at least 30 sales, as follows:

<b>Report</b>				
VALSF				
NBHD	sold	N	Median	Mean
71	UNSOLD	560	\$227	\$224
	SOLD	103	\$223	\$217
72	UNSOLD	321	\$208	\$209
	SOLD	56	\$206	\$207
75	UNSOLD	399	\$255	\$249
	SOLD	34	\$244	\$253
77	UNSOLD	323	\$233	\$228
	SOLD	42	\$234	\$224
78	UNSOLD	239	\$199	\$203
	SOLD	39	\$194	\$196
79	UNSOLD	329	\$169	\$177
	SOLD	43	\$173	\$180
81	UNSOLD	331	\$207	\$204
	SOLD	51	\$204	\$202
83	UNSOLD	632	\$165	\$170
	SOLD	94	\$169	\$172
171	UNSOLD	814	\$228	\$224
	SOLD	109	\$236	\$229
174	UNSOLD	480	\$200	\$198
	SOLD	209	\$209	\$204
177	UNSOLD	260	\$233	\$224
	SOLD	30	\$248	\$237
2002	UNSOLD	615	\$225	\$223
	SOLD	38	\$215	\$216
2003	UNSOLD	412	\$246	\$243
	SOLD	35	\$220	\$245
2005	UNSOLD	821	\$243	\$237
	SOLD	85	\$245	\$239
2006	UNSOLD	356	\$211	\$213
	SOLD	50	\$211	\$214
2007	UNSOLD	644	\$228	\$228
	SOLD	56	\$234	\$237
2011	UNSOLD	451	\$204	\$212
	SOLD	135	\$197	\$206
2013	UNSOLD	581	\$199	\$204
	SOLD	175	\$207	\$210
2016	UNSOLD	301	\$171	\$170
	SOLD	159	\$172	\$172
2018	UNSOLD	9	\$227	\$218
	SOLD	122	\$191	\$192
2019	UNSOLD	14	\$185	\$194
	SOLD	100	\$200	\$208
2020	UNSOLD	3	\$156	\$163
	SOLD	46	\$180	\$179
2060	UNSOLD	498	\$223	\$215
	SOLD	65	\$229	\$223
2061	UNSOLD	280	\$215	\$205
	SOLD	87	\$217	\$210



2100	UNSOLD	697	\$193	\$192
	SOLD	67	\$198	\$201
2101	UNSOLD	382	\$220	\$218
	SOLD	46	\$224	\$219
2102	UNSOLD	527	\$211	\$209
	SOLD	82	\$212	\$207
2103	UNSOLD	502	\$178	\$182
	SOLD	61	\$183	\$186
2105	UNSOLD	497	\$193	\$195
	SOLD	51	\$205	\$210
2106	UNSOLD	179	\$198	\$201
	SOLD	66	\$210	\$207
2107	UNSOLD	656	\$200	\$200
	SOLD	122	\$197	\$199
2108	UNSOLD	307	\$194	\$200
	SOLD	38	\$208	\$201
2110	UNSOLD	994	\$210	\$210
	SOLD	116	\$213	\$211
2111	UNSOLD	2330	\$204	\$204
	SOLD	212	\$215	\$210
2112	UNSOLD	906	\$180	\$181
	SOLD	78	\$181	\$184
2115	UNSOLD	210	\$214	\$214
	SOLD	31	\$216	\$213
2117	UNSOLD	126	\$176	\$178
	SOLD	33	\$189	\$188
2118	UNSOLD	457	\$214	\$212
	SOLD	69	\$213	\$207
2120	UNSOLD	486	\$200	\$199
	SOLD	92	\$205	\$204
2121	UNSOLD	278	\$229	\$230
	SOLD	46	\$231	\$232
2124	UNSOLD	101	\$195	\$197
	SOLD	42	\$188	\$196
2125	UNSOLD	204	\$209	\$206
	SOLD	31	\$218	\$211
2151	UNSOLD	582	\$220	\$216
	SOLD	89	\$221	\$219
2152	UNSOLD	110	\$218	\$203
	SOLD	95	\$184	\$198
2657	UNSOLD	148	\$208	\$210
	SOLD	46	\$212	\$214
3000	UNSOLD	239	\$179	\$183
	SOLD	83	\$199	\$191
3003	UNSOLD	285	\$194	\$193
	SOLD	95	\$196	\$196
3004	UNSOLD	18	\$233	\$228
	SOLD	34	\$186	\$187
3008	UNSOLD	276	\$184	\$191
	SOLD	202	\$183	\$188
3012	UNSOLD	583	\$196	\$202
	SOLD	56	\$198	\$200
3013	UNSOLD	1258	\$195	\$203
	SOLD	168	\$199	\$209
3017	UNSOLD	149	\$192	\$190
	SOLD	105	\$198	\$198
3024	UNSOLD	256	\$189	\$195

	SOLD	46	\$183	\$192
3025	UNSOLD	528	\$235	\$232
	SOLD	180	\$208	\$222
3026	UNSOLD	1343	\$200	\$204
	SOLD	162	\$199	\$202
3027	UNSOLD	326	\$209	\$209
	SOLD	60	\$215	\$213
3030	UNSOLD	346	\$177	\$185
	SOLD	102	\$177	\$184
3031	UNSOLD	558	\$253	\$249
	SOLD	54	\$255	\$248
3032	UNSOLD	312	\$204	\$212
	SOLD	43	\$205	\$214
3033	UNSOLD	989	\$182	\$189
	SOLD	179	\$186	\$192
3034	UNSOLD	14	\$194	\$206
	SOLD	48	\$197	\$218
3037	UNSOLD	634	\$188	\$194
	SOLD	124	\$198	\$203
3038	UNSOLD	954	\$193	\$195
	SOLD	117	\$189	\$194
3055	UNSOLD	333	\$193	\$200
	SOLD	50	\$190	\$198
3057	UNSOLD	205	\$197	\$207
	SOLD	32	\$194	\$205
3058	UNSOLD	186	\$182	\$189
	SOLD	30	\$189	\$196
3122	UNSOLD	283	\$205	\$212
	SOLD	68	\$211	\$215
3664	UNSOLD	141	\$222	\$222
	SOLD	31	\$218	\$222
4000	UNSOLD	284	\$188	\$195
	SOLD	127	\$173	\$170
4002	UNSOLD	413	\$189	\$191
	SOLD	88	\$189	\$191
4004	UNSOLD	484	\$169	\$179
	SOLD	177	\$181	\$182
4102	UNSOLD	177	\$189	\$188
	SOLD	48	\$176	\$180
4103	UNSOLD	602	\$234	\$235
	SOLD	46	\$242	\$243
4104	UNSOLD	79	\$228	\$221
	SOLD	40	\$225	\$223
4105	UNSOLD	729	\$227	\$219
	SOLD	55	\$232	\$223
5001	UNSOLD	347	\$168	\$176
	SOLD	47	\$201	\$195
6003	UNSOLD	363	\$222	\$215
	SOLD	37	\$224	\$217
6021	UNSOLD	722	\$225	\$220
	SOLD	69	\$227	\$221
6025	UNSOLD	812	\$200	\$201
	SOLD	76	\$200	\$206
6027	UNSOLD	334	\$225	\$221
	SOLD	46	\$226	\$224
6029	UNSOLD	946	\$229	\$224
	SOLD	116	\$241	\$234

6030	UNSOLD	767	\$195	\$197
	SOLD	78	\$209	\$208
6031	UNSOLD	1720	\$208	\$202
	SOLD	150	\$204	\$203
6033	UNSOLD	728	\$188	\$186
	SOLD	71	\$198	\$192
6034	UNSOLD	1428	\$223	\$216
	SOLD	157	\$227	\$223
6035	UNSOLD	1284	\$213	\$206
	SOLD	142	\$197	\$201
6037	UNSOLD	1300	\$190	\$189
	SOLD	132	\$195	\$196
6038	UNSOLD	1230	\$216	\$203
	SOLD	124	\$229	\$223
6045	UNSOLD	765	\$217	\$211
	SOLD	80	\$226	\$218
6050	UNSOLD	582	\$219	\$209
	SOLD	39	\$219	\$218
6051	UNSOLD	142	\$203	\$205
	SOLD	52	\$199	\$198
6062	UNSOLD	825	\$225	\$220
	SOLD	166	\$222	\$221
6207	UNSOLD	599	\$136	\$147
	SOLD	35	\$129	\$142
9008	UNSOLD	177	\$233	\$226
	SOLD	36	\$215	\$210
9009	UNSOLD	395	\$202	\$198
	SOLD	37	\$204	\$198
9010	UNSOLD	524	\$209	\$206
	SOLD	79	\$213	\$208
9014	UNSOLD	4	\$178	\$187
	SOLD	53	\$209	\$201
9046	UNSOLD	281	\$197	\$196
	SOLD	30	\$220	\$201
9999	UNSOLD	3394	\$174	\$165
	SOLD	533	\$177	\$182

NOTE: Econ Area 9999 = Condominiums

We also examined the overall median and mean change in actual value for taxable years 2018 and 2020 for residential sold and unsold properties, as follows:

<b>Report</b>				
DIFF				
		N	Median	Mean
UNSOLD		72472	1.2124	1.2256
SOLD		9995	1.1930	1.2064

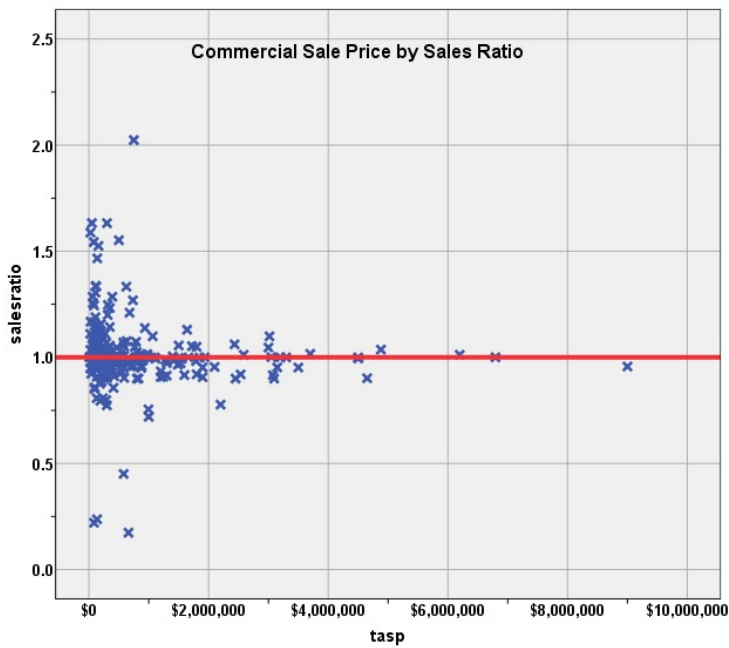
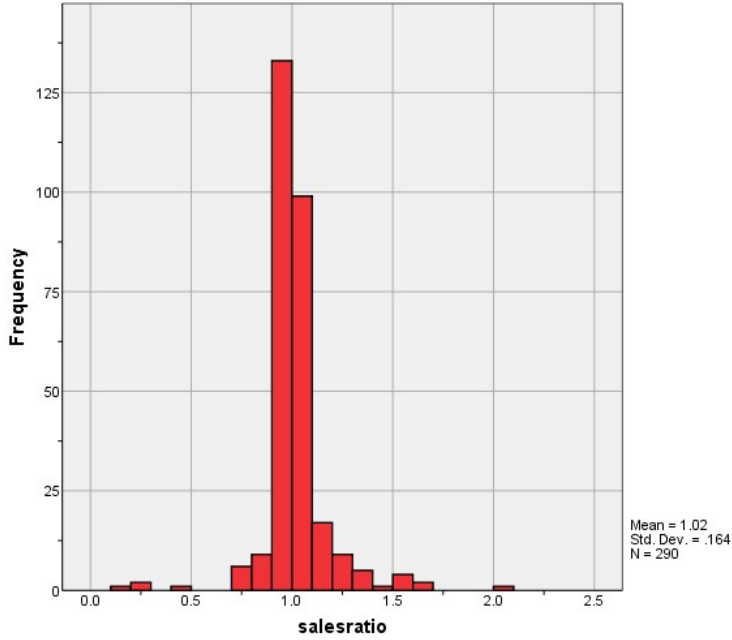
The above results indicate that sold and unsold residential properties were valued in a consistent manner.

#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 290 qualified residential sales that occurred in the 18 month sale period ending June 30, 2018. The sales ratio analysis results were as follows:

Median	<b>1.000</b>
Price Related Differential	<b>1.025</b>
Coefficient of Dispersion	<b>8.2</b>

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



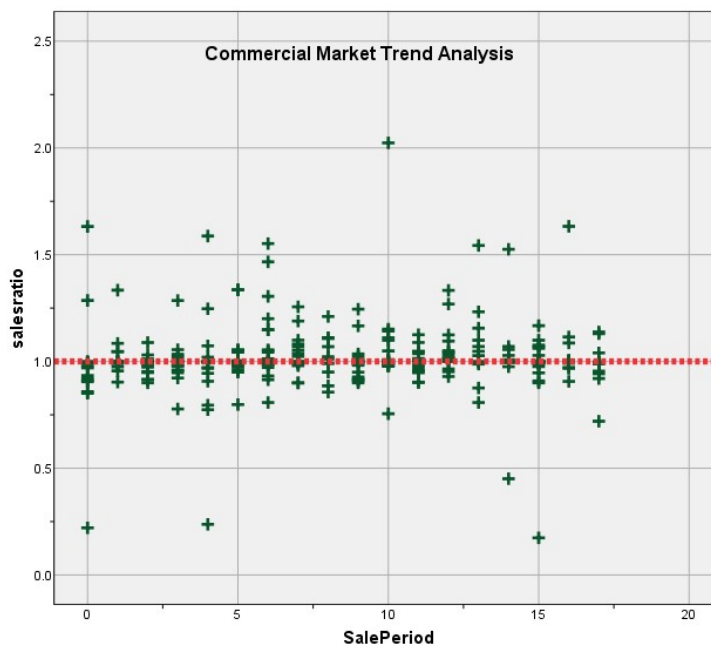
## Commercial/Industrial Market Trend Analysis

The commercial/industrial sales were next analyzed, examining the sale ratios across the 18-month sale period with the following results:

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

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta		
1	(Constant)	1.004	.018		54.727	.000
	SalePeriod	.002	.002	.046	.784	.434

a. Dependent Variable: salesratio



There was no residual market trending present in the commercial sale ratios. We concluded that the assessor has adequately considered market trending adjustments as part of the commercial/industrial valuation.

### Sold/Unsold Analysis

We compared the median actual value per square foot for 2020 between sold and unsold groups to determine if sold and unsold properties were valued consistently. Based on the number of subclasses for commercial and industrial properties, we chose only major subclasses with at least 10 sales for this analysis: i.e. those with improved abstract codes of 2212, 2220, 2230, 2235, 2245, and 3215. The following analysis was then performed:

**Report**

VALSF				
ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	673	\$95	\$132
	SOLD	34	\$110	\$166
2220.00	UNSOLD	385	\$120	\$135
	SOLD	33	\$140	\$142
2230.00	UNSOLD	766	\$105	\$161
	SOLD	38	\$158	\$220
2235.00	UNSOLD	1001	\$55	\$68
	SOLD	37	\$75	\$82
2245.00	UNSOLD	983	\$105	\$109
	SOLD	112	\$120	\$124
3215.00	UNSOLD	221	\$70	\$73
	SOLD	8	\$96	\$99

Given that there was a statistically significant difference using the non-parametric Mann Whitney U test, we next compared the percent change in actual value between taxable years 2018 and 2020 for sold and unsold commercial properties in Weld County, as follows:

**Report**

DIFF				
ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	616	1.2493	1.3007
	SOLD	30	1.4226	1.4244
2220.00	UNSOLD	341	1.1325	1.2115
	SOLD	30	1.3957	1.3862
2230.00	UNSOLD	681	1.1531	1.2298
	SOLD	29	1.3210	1.3667
2235.00	UNSOLD	829	1.2029	1.2516
	SOLD	28	1.2377	1.3135
2245.00	UNSOLD	866	1.1765	1.1938
	SOLD	77	1.2529	1.3565
3215.00	UNSOLD	203	1.2308	1.2777
	SOLD	7	1.3908	1.4409

Given that both of these comparisons indicated a statistical difference between sold and unsold commercial/industrial properties, we next developed an econometric model that used the assessor’s actual value as the predicted variable. A total of 3,621 commercial/industrial properties were analyzed. Commercial/industrial property subclasses included the following:

**ABSTRIMP**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2212.00	646	17.3	17.3	17.3
	2220.00	371	9.9	9.9	27.2
	2230.00	710	19.0	19.0	46.2
	2235.00	857	22.9	22.9	69.1
	2245.00	943	25.2	25.2	94.4
	3215.00	210	5.6	5.6	100.0
	Total	3737	100.0	100.0	

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

To do this, we included a binary variable for sold/unsold status. For the model, sold properties were coded “1” and unsold properties were coded “0.” Other variables tested included improved area, age, economic area, and commercial/industrial subclass. The dependent variable is the 2020 current value. The stepwise regression analysis adds variables to the model based on their contributory strength, as measured by their t or p values (depending on the test). Due to the number of sales, we used a p value of 0.02 as the tolerance threshold. At each step, a variable is added, and variables already in the model are re-evaluated to determine if they should remain in the model. After it is determined that adding additional variables will not improve the model’s predicative or explanatory power, the process stops. Variables not included at this point are determined to not be significant. In this analysis, our primary focus was the sold/unsold variable previously described.

After 7 iterations, the following results were generated by the model:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.775 <sup>a</sup>	.600	.600	1281979.112
2	.786 <sup>b</sup>	.618	.618	1252500.714
3	.794 <sup>c</sup>	.631	.631	1231937.939
4	.796 <sup>d</sup>	.634	.634	1226833.682
5	.797 <sup>e</sup>	.636	.635	1223896.613
6	.798 <sup>f</sup>	.637	.637	1221396.698
7	.799 <sup>g</sup>	.638	.637	1220413.133

- a. Predictors: (Constant), LIVEAREA
- b. Predictors: (Constant), LIVEAREA, EA2
- c. Predictors: (Constant), LIVEAREA, EA2, EA3
- d. Predictors: (Constant), LIVEAREA, EA2, EA3, v2235
- e. Predictors: (Constant), LIVEAREA, EA2, EA3, v2235, age
- f. Predictors: (Constant), LIVEAREA, EA2, EA3, v2235, age, v2245
- g. Predictors: (Constant), LIVEAREA, EA2, EA3, v2235, age, v2245, v2230

The following coefficients were included in the model at Step 7:

7	(Constant)	443598.707	46428.455		9.554	.000
	LIVEAREA	47.400	.638	.745	74.246	.000
	EA2	821252.651	66158.604	.131	12.413	.000
	EA3	625508.591	65589.812	.099	9.537	.000
	v2235	-397118.562	55301.928	-.082	-7.181	.000
	age	-2155.965	405.413	-.054	-5.318	.000
	v2245	-276515.730	58211.669	-.059	-4.750	.000
	v2230	-153036.098	57781.797	-.030	-2.649	.008

a. Dependent Variable: currtot

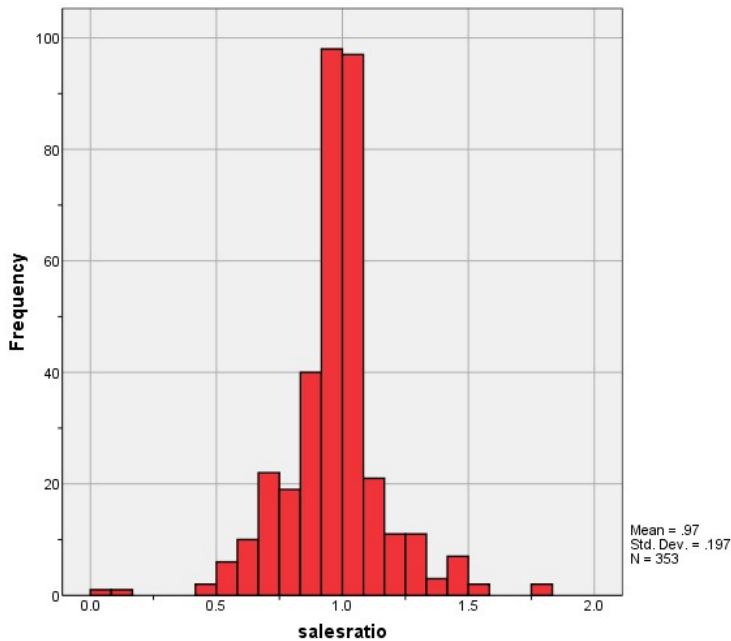
The model at Step 7 did not include the Sold/Unsold variable, indicating that it did not make a significant difference in the model whether the properties were sold or unsold. Based on this finding, we concluded that the assessor valued sold and unsold commercial properties consistently in 2020.

**V. VACANT LAND SALE RESULTS**

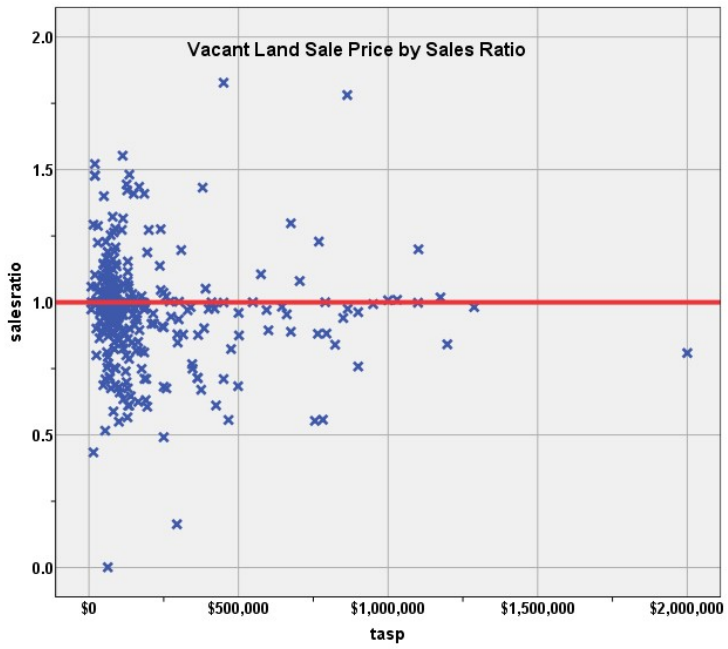
There were 353 qualified residential sales that occurred in the 18-month sale period ending June 30, 2018. The sales ratio analysis results were as follows:

<b>Median</b>	<b>0.989</b>
<b>Price Related Differential</b>	<b>1.014</b>
<b>Coefficient of Dispersion</b>	<b>12.8</b>

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







The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits. No sales were trimmed.

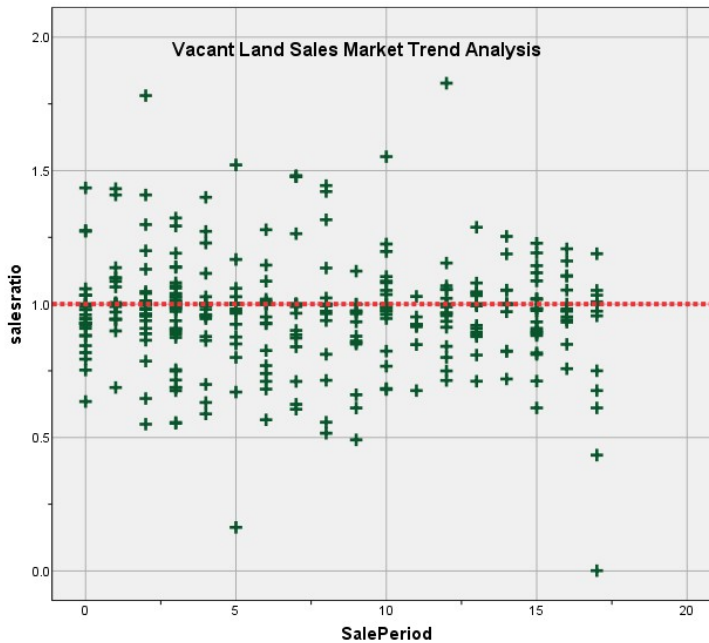
### Vacant Land Market Trend Analysis

We next analyzed the vacant land dataset using the 18-month sale period, with the following results:

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

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.986	.018		55.474	.000
	SalePeriod	-.003	.002	-.068	-1.279	.202

a. Dependent Variable: salesratio



The above analysis indicated that no significant market trending was present in the vacant land sale data. We concluded that the assessor has adequately dealt with market trending for vacant land properties.

### Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in actual value for taxable years 2018 and 2020 between each group. We stratified the vacant land properties by subdivision and found overall consistency. The following results present the overall comparison results:

#### Report

DIFF				
	sold	N	Median	Mean
UNSOLD		4587	1.0829	1.0798
SOLD		290	1.1818	1.1918

We also compared sold and unsold changes in value by subdivision with at least 6 sales, as follows:

#### Report

DIFF						
subdivno	first	1	sold	N	Median	Mean
2528	UNSOLD			52	.8923	.8977
	SOLD			15	.9511	.9397
2925	UNSOLD			24	1.1111	1.1065
	SOLD			8	1.1111	1.1111
3062	UNSOLD			3	1.2466	1.1644
	SOLD			9	1.2466	1.2466
3372	UNSOLD			7	1.3000	1.3000
	SOLD			10	1.3000	1.3000
4396	UNSOLD			8	1.0000	1.1402

	SOLD	11	1.0818	1.1456
4584	UNSOLD	12	1.2931	1.1853
	SOLD	7	1.2931	1.2931
5192	UNSOLD	20	1.4000	1.2600
	SOLD	9	1.4000	1.4000
6460	UNSOLD	3	1.1143	1.0762
	SOLD	6	1.1143	1.1143
6659	UNSOLD	1	1.0000	1.0000
	SOLD	6	1.3571	1.3571
6663	UNSOLD	23	1.0000	1.1174
	SOLD	8	1.3000	1.4706

Overall, we concluded that the county assessor valued sold and unsold vacant properties consistently.

## V. CONCLUSIONS

Based on this 2020 audit statistical analysis, residential, commercial and vacant land properties were found to be in compliance with state guidelines.

## STATISTICAL ABSTRACT

### Residential

Ratio Statistics for currtot / tasp													
ECONAREA	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			
.	.979	.940	1.019	.953	.931	.971	95.3%	.973	.935	1.010	1.007	.075	12.0%
.00	.977	.973	.981	.975	.971	.978	95.5%	.976	.972	.980	1.001	.047	6.8%
2.00	.971	.969	.973	.973	.971	.975	95.4%	.966	.963	.969	1.005	.050	7.2%
3.00	.969	.966	.972	.969	.967	.972	95.2%	.965	.962	.968	1.004	.051	7.3%
4.00	.980	.974	.987	.979	.974	.982	95.2%	.974	.968	.980	1.006	.052	9.6%
5.00	.993	.959	1.026	.963	.932	.988	95.2%	.979	.953	1.006	1.014	.109	19.9%
6.00	.986	.980	.992	.970	.966	.974	95.4%	.976	.967	.984	1.011	.082	13.1%
7.00	.982	.938	1.025	.970	.947	1.003	96.0%	.970	.922	1.018	1.012	.114	15.1%
8.00	.964	.933	.995	.952	.929	.977	96.0%	.951	.922	.981	1.013	.085	11.7%
9.00	.976	.967	.985	.973	.966	.978	95.7%	.969	.961	.976	1.007	.055	9.0%
99.00	.968	.962	.973	.968	.965	.972	95.6%	.969	.964	.973	.999	.042	6.6%

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

### Commercial Land

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				
1.016	.997	1.035	1.000	.997	1.000	96.0%	.991	.975	1.007	1.025	.082	16.1%	

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 currind / 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				
.968	.947	.988	.989	.973	.998	95.7%	.955	.917	.992	1.014	.128	20.3%	

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

**Residential Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	7	0.1%
	\$25K to \$50K	5	0.0%
	\$50K to \$100K	13	0.1%
	\$100K to \$150K	79	0.7%
	\$150K to \$200K	350	3.2%
	\$200K to \$300K	2722	25.0%
	\$300K to \$500K	6547	60.2%
	\$500K to \$750K	1016	9.3%
	\$750K to \$1,000K	100	0.9%
	Over \$1,000K	36	0.3%
Overall		10875	100.0%
Excluded		0	
Total		10875	

**Ratio Statistics for currtot / tasp**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	.836	1.023	.180	24.5%
\$25K to \$50K	1.006	.958	.262	40.2%
\$50K to \$100K	1.060	1.013	.243	48.1%
\$100K to \$150K	1.140	1.004	.200	27.9%
\$150K to \$200K	1.004	1.001	.108	15.4%
\$200K to \$300K	.970	1.001	.061	9.5%
\$300K to \$500K	.974	1.000	.044	6.3%
\$500K to \$750K	.944	1.001	.070	9.5%
\$750K to \$1,000K	.929	1.001	.086	10.7%
Over \$1,000K	.967	.985	.091	12.6%
Overall	.972	1.006	.056	9.1%

**Subclass**

**Case Processing Summary**

		Count	Percent
ABSTRIMP	.00	1	0.0%
	1212.00	10138	93.2%
	1213.50	2	0.0%
	1214.00	2	0.0%
	1215.00	122	1.1%
	1216.00	1	0.0%
	1217.50	2	0.0%
	1220.00	38	0.3%
	1221.75	1	0.0%
	1223.75	1	0.0%
	1224.29	1	0.0%
	1224.44	1	0.0%
	1225.00	9	0.1%
	1230.00	544	5.0%

	1553.00	1	0.0%
	1894.00	2	0.0%
	1979.25	1	0.0%
	2212.00	2	0.0%
	2220.00	2	0.0%
	9210.00	1	0.0%
	9250.00	1	0.0%
	9270.00	2	0.0%
Overall		10875	100.0%
Excluded		0	
Total		10875	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.593	1.000	.000	.
1212.00	.972	1.006	.056	9.0%
1213.50	1.105	1.025	.213	30.1%
1214.00	1.021	.997	.029	4.0%
1215.00	.960	1.019	.100	15.1%
1216.00	.798	1.000	.000	.
1217.50	.981	1.000	.023	3.3%
1220.00	.963	.995	.096	13.4%
1221.75	.708	1.000	.000	.
1223.75	1.037	1.000	.000	.
1224.29	1.154	1.000	.000	.
1224.44	.904	1.000	.000	.
1225.00	1.002	1.026	.055	7.8%
1230.00	.968	.999	.042	6.6%
1553.00	.981	1.000	.000	.
1894.00	1.111	.945	.279	39.5%
1979.25	.805	1.000	.000	.
2212.00	.981	1.002	.029	4.1%
2220.00	.825	.983	.080	11.4%
9210.00	1.869	1.000	.000	.
9250.00	.947	1.000	.000	.
9270.00	.785	.865	.177	25.1%
Overall	.972	1.006	.056	9.1%

### Age

#### Case Processing Summary

	Count	Percent
AgeRec		
.00	1	0.0%
Over 100	252	2.3%
75 to 100	253	2.3%
50 to 75	652	6.0%
25 to 50	1179	10.8%
5 to 25	4335	39.9%
5 or Newer	4203	38.6%
Overall	10875	100.0%
Excluded	0	
Total	10875	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.593	1.000	.000	.
Over 100	.971	1.028	.132	21.5%
75 to 100	.959	1.027	.116	17.3%
50 to 75	.965	1.008	.089	12.7%
25 to 50	.966	1.001	.073	12.1%
5 to 25	.968	1.003	.051	7.9%
5 or Newer	.979	1.007	.044	6.3%
Overall	.972	1.006	.056	9.1%

### Improved Area

#### Case Processing Summary

	Count	Percent
ImpSFRec	1	0.0%
LE 500 sf	13	0.1%
500 to 1,000 sf	741	6.8%
1,000 to 1,500 sf	3421	31.5%
1,500 to 2,000 sf	3434	31.6%
2,000 to 3,000 sf	2608	24.0%
3,000 sf or Higher	657	6.0%
Overall	10875	100.0%
Excluded	0	
Total	10875	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.593	1.000	.000	.
LE 500 sf	.872	.946	.195	24.6%
500 to 1,000 sf	.952	1.013	.088	15.3%
1,000 to 1,500 sf	.971	1.005	.055	9.4%
1,500 to 2,000 sf	.973	1.005	.048	7.1%
2,000 to 3,000 sf	.978	1.005	.051	7.5%
3,000 sf or Higher	.966	1.007	.081	12.3%
Overall	.972	1.006	.056	9.1%

## Improvement Quality

### Case Processing Summary

	Count	Percent
QUALITY	1	0.0%
1	128	1.2%
2	2208	20.3%
3	7888	72.5%
4	585	5.4%
5	60	0.6%
6	5	0.0%
Overall	10875	100.0%
Excluded	0	
Total	10875	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.593	1.000	.000	.
1	.959	1.039	.146	22.8%
2	.966	1.010	.081	13.3%
3	.973	1.004	.047	7.0%
4	.976	1.008	.066	8.9%
5	.972	1.011	.079	12.9%
6	.989	1.010	.072	10.3%
Overall	.972	1.006	.056	9.1%

## Improvement Condition

### Case Processing Summary

	Count	Percent
CONDITION	1	0.0%
1	7	0.1%
2	27	0.2%
3	10826	99.5%
4	14	0.1%
Overall	10875	100.0%
Excluded	0	
Total	10875	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.593	1.000	.000	.
1	1.017	1.073	.233	36.1%
2	.950	1.017	.177	22.5%
3	.972	1.006	.056	9.0%
4	.997	1.029	.089	12.5%
Overall	.972	1.006	.056	9.1%



## Commercial Median Ratio Stratification

### Sale Price

#### Case Processing Summary

		Count	Percent
SPRec	LT \$25K	6	2.1%
	\$25K to \$50K	4	1.4%
	\$50K to \$100K	24	8.3%
	\$100K to \$150K	57	19.7%
	\$150K to \$200K	31	10.7%
	\$200K to \$300K	33	11.4%
	\$300K to \$500K	33	11.4%
	\$500K to \$750K	26	9.0%
	\$750K to \$1,000K	25	8.6%
	Over \$1,000K	51	17.6%
Overall		290	100.0%
Excluded		0	
Total		290	

#### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.018	.984	.132	25.7%
\$25K to \$50K	1.057	.988	.220	33.4%
\$50K to \$100K	1.022	1.007	.130	22.4%
\$100K to \$150K	1.000	1.002	.082	16.0%
\$150K to \$200K	1.000	1.001	.059	11.9%
\$200K to \$300K	.994	.997	.070	13.8%
\$300K to \$500K	.997	.998	.076	14.1%
\$500K to \$750K	.997	.990	.150	30.4%
\$750K to \$1,000K	1.000	1.003	.047	8.9%
Over \$1,000K	.994	1.000	.046	6.4%
Overall	1.000	1.025	.082	16.5%

### Subclass

#### Case Processing Summary

		Count	Percent
ABSTRIMP	.00	3	1.0%
	1212.00	1	0.3%
	1225.00	1	0.3%
	2212.00	34	11.7%
	2215.00	4	1.4%
	2220.00	33	11.4%
	2221.00	1	0.3%
	2223.50	2	0.7%
	2225.00	2	0.7%
	2227.50	1	0.3%
	2230.00	41	14.1%
	2232.50	2	0.7%
	2235.00	39	13.4%
	2245.00	112	38.6%

	3212.00	2	0.7%
	3215.00	8	2.8%
	9259.00	3	1.0%
	9279.00	1	0.3%
Overall		290	100.0%
Excluded		0	
Total		290	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.221	1.120	.096	15.9%
1212.00	1.002	1.000	.000	.
1225.00	1.130	1.000	.000	.
2212.00	1.000	1.008	.045	8.2%
2215.00	.959	.979	.107	14.3%
2220.00	1.000	.998	.103	24.0%
2221.00	.987	1.000	.000	.
2223.50	1.307	1.215	.249	35.2%
2225.00	.987	.994	.013	1.9%
2227.50	1.000	1.000	.000	.
2230.00	.992	1.031	.065	9.8%
2232.50	1.033	.982	.041	5.8%
2235.00	.999	1.058	.085	16.4%
2245.00	1.000	1.014	.072	12.3%
3212.00	1.256	1.151	.215	30.4%
3215.00	.996	.999	.026	4.0%
9259.00	1.108	1.047	.045	7.2%
9279.00	.999	1.000	.000	.
Overall	1.000	1.025	.082	16.5%

### Age

#### Case Processing Summary

		Count	Percent
AgeRec	.00	3	1.0%
	Over 100	12	4.1%
	75 to 100	20	6.9%
	50 to 75	21	7.2%
	25 to 50	52	17.9%
	5 to 25	102	35.2%
	5 or Newer	80	27.6%
Overall		290	100.0%
Excluded		0	
Total		290	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.221	1.120	.096	15.9%
Over 100	1.001	1.022	.078	12.3%
75 to 100	.993	.934	.100	24.7%
50 to 75	1.000	1.015	.045	7.7%
25 to 50	.999	1.034	.071	13.2%
5 to 25	1.000	1.033	.082	16.2%
5 or Newer	1.000	1.032	.066	11.2%
Overall	1.000	1.025	.082	16.5%

### Improved Area

#### Case Processing Summary

	Count	Percent
ImpSFRec		
.00	3	1.0%
LE 500 sf	12	4.1%
500 to 1,000 sf	42	14.5%
1,000 to 1,500 sf	44	15.2%
1,500 to 2,000 sf	31	10.7%
2,000 to 3,000 sf	30	10.3%
3,000 sf or Higher	128	44.1%
Overall	290	100.0%
Excluded	0	
Total	290	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.221	1.120	.096	15.9%
LE 500 sf	1.018	1.000	.110	17.9%
500 to 1,000 sf	.997	1.000	.056	9.8%
1,000 to 1,500 sf	.999	1.033	.077	16.3%
1,500 to 2,000 sf	.998	1.020	.079	10.9%
2,000 to 3,000 sf	1.000	1.030	.080	14.4%
3,000 sf or Higher	.999	1.024	.073	15.5%
Overall	1.000	1.025	.082	16.5%

### Improvement Quality

#### Case Processing Summary

	Count	Percent
QUALITY		
1	18	6.2%
2	18	6.2%
3	194	66.9%
4	56	19.3%
Overall	290	100.0%
Excluded	0	
Total	290	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.229	1.670	1.189	256.8%
1	1.000	1.089	.086	15.4%
2	1.009	1.033	.063	12.4%
3	.997	1.025	.079	15.8%
4	1.000	1.026	.054	9.2%
Overall	1.000	1.025	.082	16.5%

### Improvement Condition

#### Case Processing Summary

	Count	Percent
CONDITION	3	1.0%
1	1	0.3%
2	4	1.4%
3	282	97.2%
Overall	290	100.0%
Excluded	0	
Total	290	

### Ratio Statistics for currtot / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.221	1.120	.096	15.9%
1	1.168	1.000	.000	.
2	1.043	1.022	.111	17.5%
3	1.000	1.030	.073	14.4%
Overall	1.000	1.025	.082	16.5%

### Vacant Land Median Ratio Stratification

#### Sale Price

#### Case Processing Summary

	Count	Percent
SPRec		
LT \$25K	16	4.5%
\$25K to \$50K	23	6.5%
\$50K to \$100K	162	45.9%
\$100K to \$150K	49	13.9%
\$150K to \$200K	28	7.9%
\$200K to \$300K	19	5.4%
\$300K to \$500K	24	6.8%
\$500K to \$750K	11	3.1%
\$750K to \$1,000K	14	4.0%
Over \$1,000K	7	2.0%
Overall	353	100.0%
Excluded	0	
Total	353	

### Ratio Statistics for currLnd / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.004	.997	.180	28.1%
\$25K to \$50K	1.020	1.000	.097	14.4%
\$50K to \$100K	.999	1.001	.087	15.1%
\$100K to \$150K	.981	1.000	.173	23.9%
\$150K to \$200K	.959	1.000	.157	21.9%
\$200K to \$300K	.920	1.010	.165	26.9%
\$300K to \$500K	.890	1.003	.213	31.2%
\$500K to \$750K	.971	.995	.084	13.0%
\$750K to \$1,000K	.952	.994	.190	31.2%
Over \$1,000K	.998	1.019	.085	13.1%
Overall	.989	1.014	.128	20.0%

### Subclass

### Case Processing Summary

	Count	Percent
ABSTRLND		
100.00	58	16.4%
200.00	16	4.5%
300.00	3	0.8%
520.00	1	0.3%
550.00	2	0.6%
1112.00	224	63.5%
1115.00	3	0.8%
1120.00	1	0.3%
1125.00	4	1.1%
1135.00	2	0.6%
2112.00	7	2.0%
2120.00	6	1.7%
2130.00	12	3.4%
2135.00	12	3.4%
3115.00	1	0.3%
4147.00	1	0.3%
Overall	353	100.0%
Excluded	0	
Total	353	

**Ratio Statistics for currInd / tasp**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100.00	.988	1.018	.130	19.1%
200.00	.976	1.085	.181	25.9%
300.00	.993	.982	.024	4.6%
520.00	.811	1.000	.000	.
550.00	.819	1.006	.075	10.7%
1112.00	.993	1.054	.111	17.6%
1115.00	.719	.951	.182	34.6%
1120.00	.611	1.000	.000	.
1125.00	1.400	1.062	.305	35.5%
1135.00	.900	1.006	.111	15.7%
2112.00	.982	.986	.133	21.0%
2120.00	.991	1.140	.184	29.9%
2130.00	.928	1.014	.099	13.8%
2135.00	.999	.981	.111	16.5%
3115.00	1.229	1.000	.000	.
4147.00	.001	1.000	.000	.
Overall	.989	1.014	.128	20.0%