



2018

# EAGLE COUNTY PROPERTY ASSESSMENT STUDY

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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 style.

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

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# INTRODUCTION

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## Colorado

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

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

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

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

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

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

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

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

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



## Historical Information

Eagle County had an estimated population of approximately 53,989 people with 32.04, people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 3.4, percent change from April 1, 2010 to July 1, 2016.

Eagle County was created by the Colorado legislature on February 11, 1883, from portions of Summit County. It was named after the Eagle River, which runs through the county. The county seat was originally set in Red Cliff, Colorado, but was moved to the town of Eagle in 1921. The Vail and Beaver Creek ski areas are located in Eagle County.

Much of the county is taken up by White River National Forest, and much of the rest is managed by the Bureau of Land Management. Interstate 70 crosses the county from east to west. The Eagle River rises in the southeastern part of the county. It receives Gore Creek at Dowds Junction, and joins the Colorado River in the west. Fryingpan River and the Roaring

Fork River intersect the southwest corner of the county.

The town of Vail was established in 1966 at the base of Vail Ski Resort, which opened in December 1962. The town is famous for having the second largest single ski mountain in North America and other winter sports in addition to being a year round destination for outdoor activities.

The ski area was founded by Pete Seibert and the local rancher Earl Eaton in 1962, between the town of Eagle and Vail Pass. The pass was named after Charles Vail, the highway engineer that routed U.S. Highway 6 through the valley in 1940. Seibert, a New England native, served in the U.S. Army's 10th Mountain Division during World War II, which trained at Camp Hale, just southeast of Vail. He was seriously wounded in Italy and was told he should become a professional skier when he recovered. He was recognized as the best skier in the world for a short time.

*([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, 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 Eagle County are:

<b>Eagle 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	173	0.993	1.001	7.8	Compliant
Condominium	1,231	0.980	1.013	4.7	Compliant
Single Family	1,697	0.978	1.015	7.3	Compliant
Vacant Land	182	0.973	1.073	12.8	Compliant

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

Eagle 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	Compliant
Single Family	Compliant
Vacant Land	Compliant

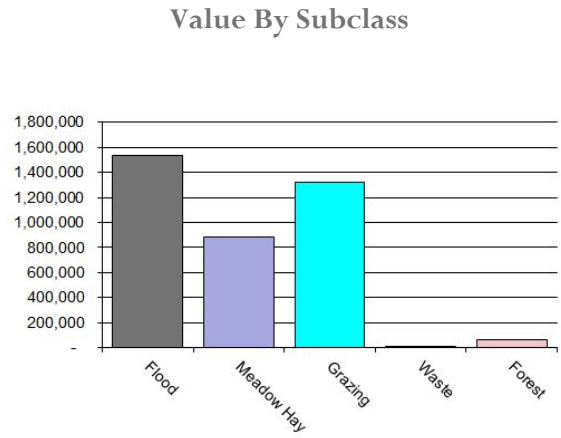
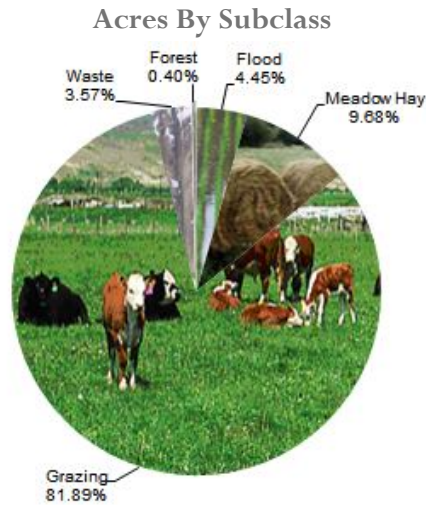
**Conclusions**

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

**Recommendations**

None

# AGRICULTURAL LAND STUDY



## 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>Eagle County Agricultural Land Ratio Grid</b>						
<b>Abstract Code</b>	<b>Land Class</b>	<b>Number Of Acres</b>	<b>County Value Per Acre</b>	<b>County Assessed Total Value</b>	<b>WRA Total Value</b>	<b>Ratio</b>
4117	Flood	6,177	247.83	1,530,862	1,527,059	1.00
4137	Meadow Hay	13,434	65.17	879,735	879,735	1.00
4147	Grazing	113,584	11.59	1,316,773	1,316,773	1.00
4177	Forest	560	119.12	66,706	66,706	1.00
4167	Waste	4,956	2.22	11,011	11,011	1.00
<b>Total/Avg</b>		<b>138,711</b>	<b>27.43</b>	<b>3,805,089</b>	<b>3,801,285</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**

Eagle County has substantially 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

Eagle 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

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

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

Eagle 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 Eagle County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 31 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**

Eagle 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**

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

## VACANT LAND

### **Subdivision Discounting**

Subdivisions were reviewed in 2018 in Eagle 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.

### **Conclusions**

Eagle 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.

Eagle 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

Eagle 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

Eagle 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.

Eagle 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.

Eagle 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 protested with substantial disagreement

### **Conclusions**

Eagle 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 EAGLE COUNTY**  
**2018**

**I. OVERVIEW**

Eagle County is a mountain resort county located in western Colorado. The county has a total of 38,322 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 and 400) accounted for 41.8% of all vacant land parcels.

For residential improved properties, single family properties accounted for 55.6% of all residential properties. Residential condominiums accounted for 42.9% of all residential improved properties. Based on the large number of residential condominiums in this county, they will be analyzed separately from single family residences in the residential ratio analysis section.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 7.5% 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. The data included all 5 property record files as specified by the Auditor.

## III. RESIDENTIAL SALES RESULTS

There were 2,928 qualified residential sales in Eagle County for the 24 month ending June 30, 2016. The sales ratio analysis results were as follows:

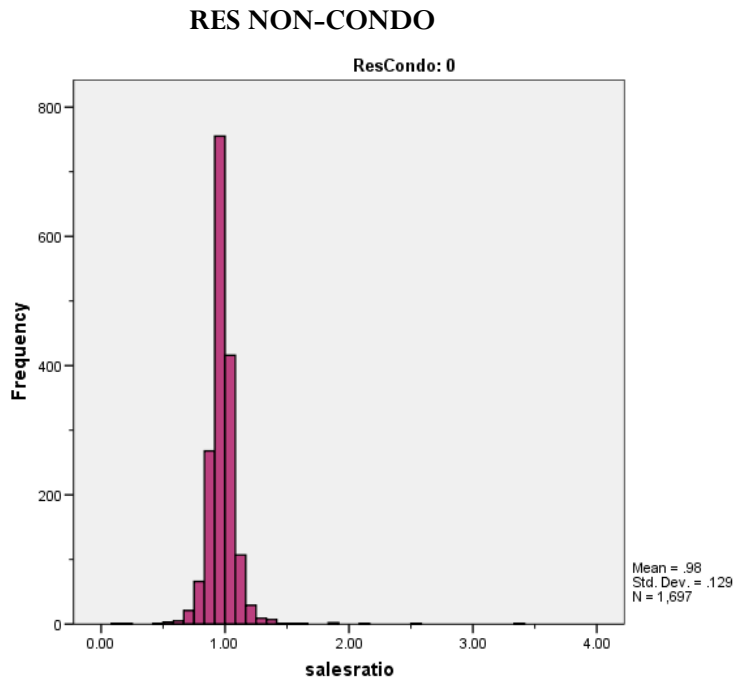
### Residential Non-Condo = 1,697

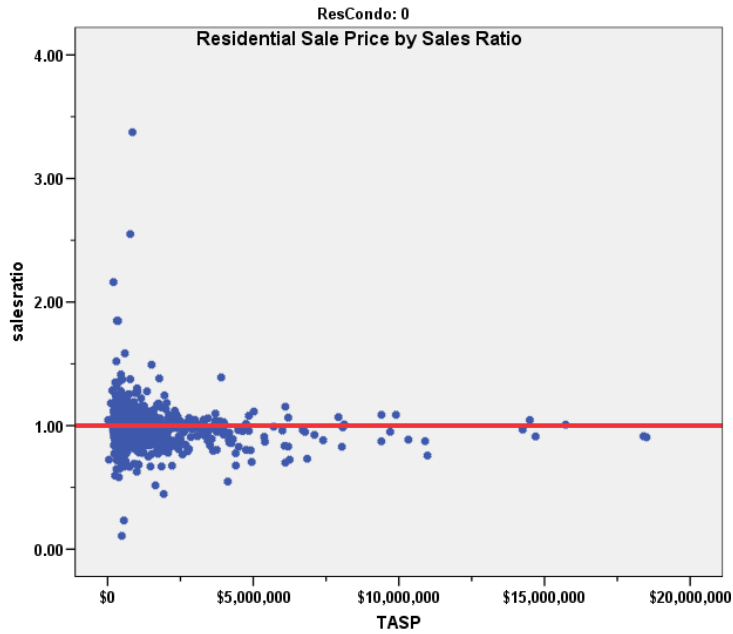
Median	<b>0.978</b>
Price Related Differential	<b>1.015</b>
Coefficient of Dispersion	<b>7.3</b>

### Residential Condo = 1,231

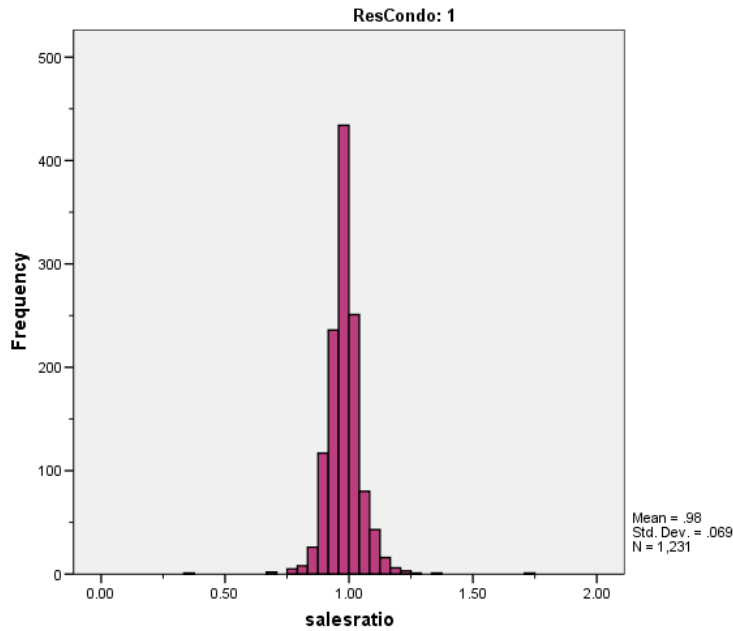
Median	<b>0.980</b>
Price Related Differential	<b>1.013</b>
Coefficient of Dispersion	<b>4.7</b>

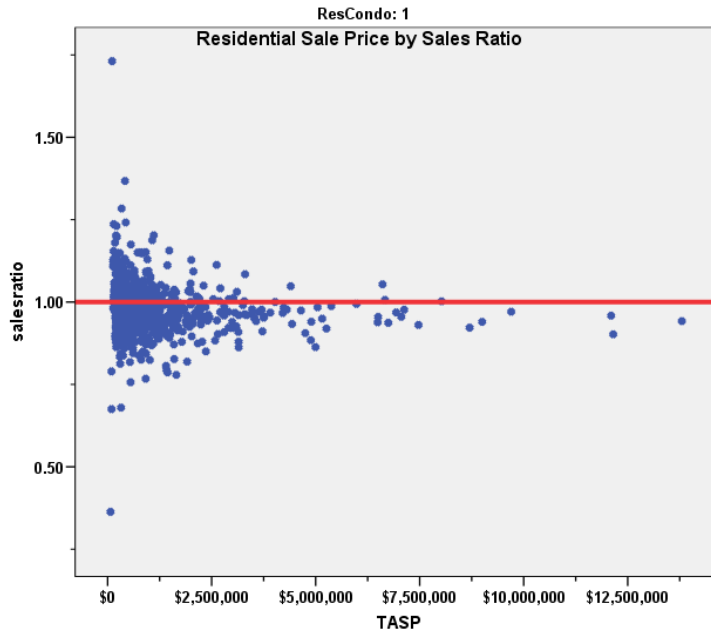
The above ratio statistics were in compliance with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall residential sales. The following graphs describe further the sales ratio distribution for these properties:





## RES CONDO





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. We again stratified the analysis between residential non-condominiums and condominiums, with the following results:

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

ResCondo	Model		Unstandardized Coefficients B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
0	1	(Constant)	.981	.006		173.393	.000
		SalePeriod	.000	.000	-.018	-.758	.448
1	1	(Constant)	.986	.004		275.063	.000
		SalePeriod	-.001	.000	-.068	-2.402	.016

a. Dependent Variable: salesratio

The residential non- condominium analysis indicated no significant market trending across the 24-month period used by the assessor. For the residential condominium market trend analysis, while there was a marginal trend statistically, the magnitude of the trend (at approximately -0.1% per month) was not significant.

## 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 for 2018 between each group stratified by residential non-condominiums and condominiums, as follows:

<b>Report</b>				
VALSF				
ResCondo	sold	N	Median	Mean
NON-CONDO	UNSOLD	14,175	\$341	\$450
	SOLD	1,697	\$327	\$413
CONDO	UNSOLD	10,670	\$458	\$642
	SOLD	1,227	\$437	\$566

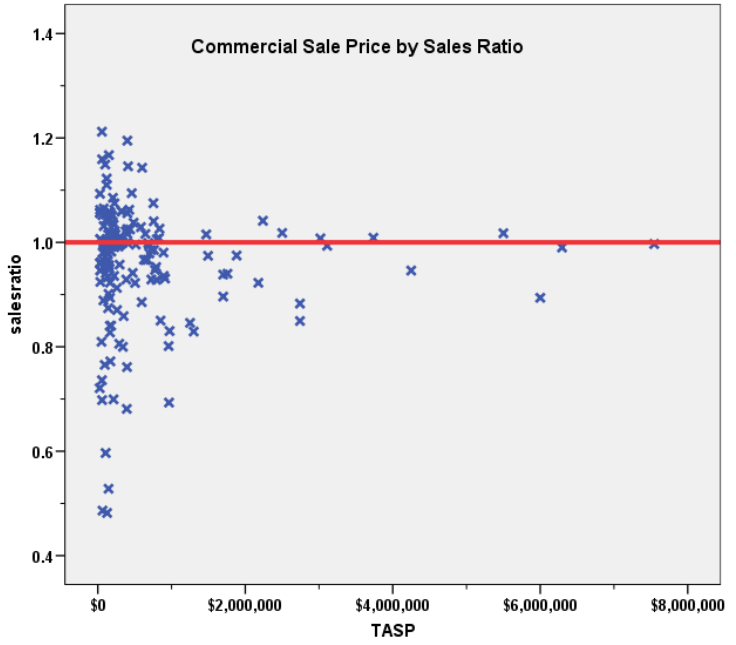
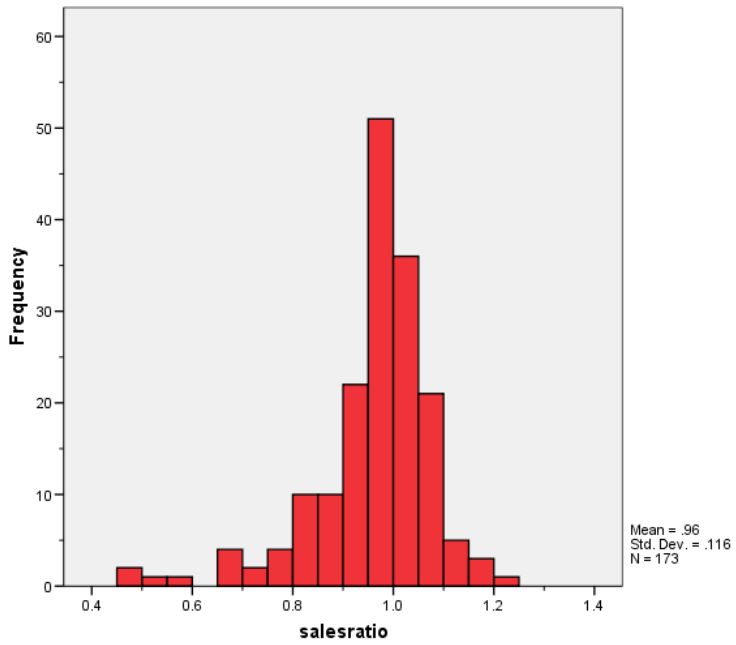
The above results indicate that sold and unsold residential properties were valued in a consistent manner. The mean and median values per square foot were actually higher for unsold residential properties as compared to sold residential properties.

## IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 173 qualified commercial and industrial sales in Eagle County for the 24 month ending June 30, 2016. The sales ratio analysis results were as follows:

Median	<b>0.993</b>
Price Related Differential	<b>1.001</b>
Coefficient of Dispersion	<b>7.8</b>

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



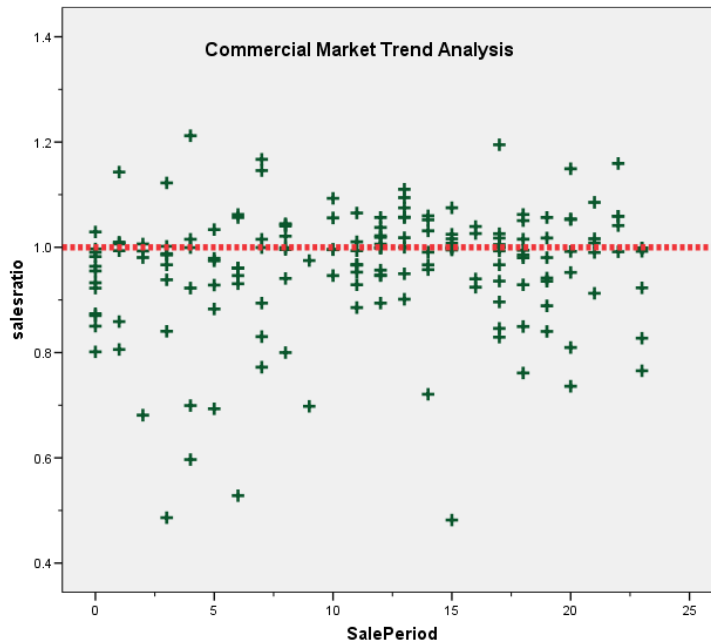
### Commercial Market Trend Analysis

The 173 commercial/industrial sales were next analyzed by subclass for any residual market trending, examining the sale ratios across the 24-month sale period with the following results:

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.936	.017		55.177	.000
	SalePeriod	.002	.001	.139	1.830	.069

a. Dependent Variable: salesratio



The market trend results indicated no significant market trend. We concluded that the assessor adequately considered market trending in their valuation of commercial/industrial properties.

**Sold/Unsold Analysis**

For the sold/unsold analysis of commercial properties, we compared the median change in actual value for taxable years 2016 and 2018 between sold and unsold commercial/industrial properties to determine if the assessor was valuing each group consistently, as follows:

<b>Report</b>			
DIFF			
DIFF	N	Median	Mean
UNSOLD	2,633	1.08	1.21
SOLD	173	1.13	1.21

### 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	.026	Retain the null hypothesis.

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

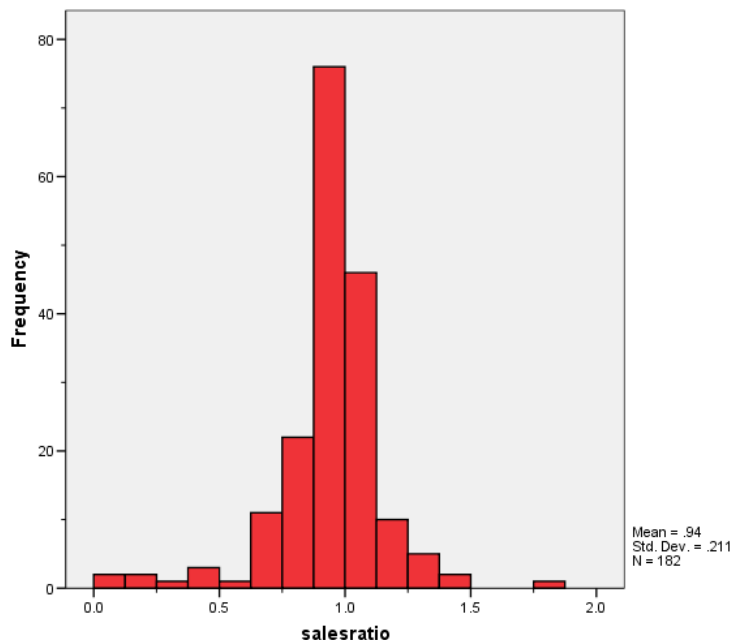
Based on the results of these comparisons, we concluded that the Eagle County assessor was valuing sold and unsold commercial properties consistently.

#### V. VACANT LAND SALE RESULTS

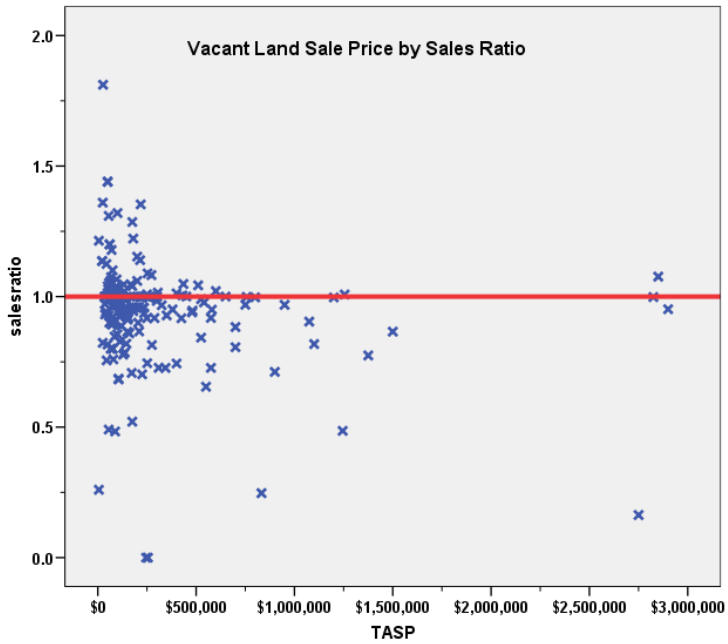
There were 182 qualified vacant land sales in Eagle County for the 24 month period ending June 30, 2014. The sales ratio analysis results were as follows:

Median Sales Ratio	<b>0.973</b>
Price Related Differential	<b>1.073</b>
Coefficient of Dispersion	<b>12.8</b>

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







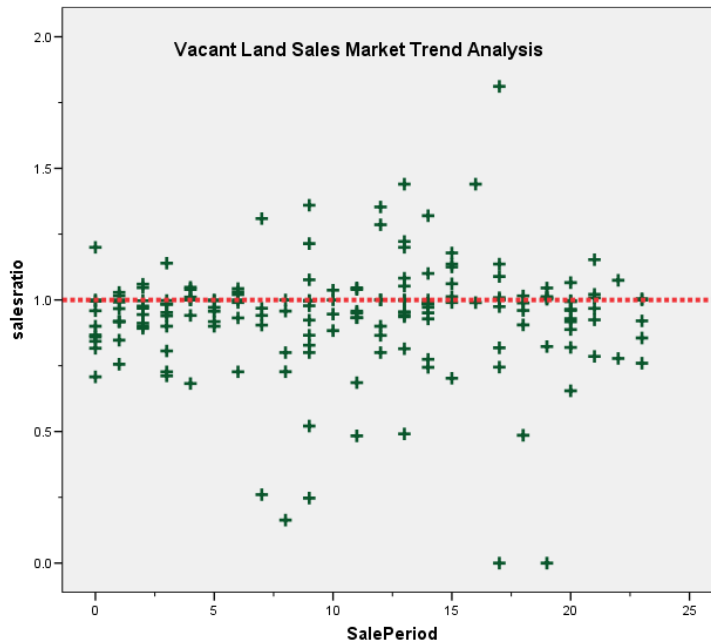
### Vacant Land Market Trend Analysis

The assessor did not apply any market trend adjustments to the vacant land dataset. The 182 vacant land sales were analyzed, examining the sale ratios across the 24-month sale period with the following results:

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

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.932	.029		31.618	.000
	SalePeriod	.001	.002	.024	.328	.744

a. Dependent Variable: salesratio



The market trend results indicated no statistically significant trend. We concluded that the assessor has adequately considered market tending in Eagle County’s vacant land valuation for 2018.

### Sold/Unsold Analysis

We compared the median change in actual value between taxable years 2016 and 2018 for vacant land properties to determine if sold and unsold properties were valued consistently, both overall and by subdivision with at least 3 sales, as follows:

<b>Report</b>			
DIFF			
sold	N	Median	Mean
UNSOLD	3,271	1.09	1.24
SOLD	181	1.17	2.92

The above results indicated that sold and unsold vacant land properties were valued consistently when stratified by subdivision with significant number of sales.

**Report**

DIFF	SUBDIVNO	sold	N	Median	Mean
	414	UNSOLD	7	1.07	1.11
		SOLD	4	1.07	1.10
	538	UNSOLD	14	1.37	23.60
		SOLD	4	1.37	1.37
	1187	UNSOLD	21	1.02	1.05
		SOLD	4	1.09	1.08
	1294	UNSOLD	16	1.50	1.47
		SOLD	4	1.50	1.50
	1337	UNSOLD	6	1.25	1.32
		SOLD	3	2.94	2.40
	1361	UNSOLD	26	1.50	1.50
		SOLD	3	1.50	1.50
	1421	UNSOLD	16	1.61	1.49
		SOLD	3	1.61	1.41
	1583	UNSOLD	40	1.18	1.36
		SOLD	3	1.18	1.15
	1626	UNSOLD	51	.85	.86
		SOLD	14	.85	.85
	1676	UNSOLD	17	1.25	1.22
		SOLD	5	1.48	1.50
	1686	UNSOLD	24	1.59	1.42
		SOLD	9	1.66	1.61
	1768	UNSOLD	19	1.25	1.17
		SOLD	3	1.25	1.25
	1822	UNSOLD	4	1.42	1.45
		SOLD	3	1.42	1.46
	1918	UNSOLD	15	1.00	.94
		SOLD	3	1.00	1.00
	1936	UNSOLD	94	1.60	1.54
		SOLD	6	1.60	1.68
	1994	UNSOLD	24	1.60	1.54
		SOLD	3	1.60	1.60

**VI. AGRICULTURAL IMPROVEMENTS ANALYSIS**

The final statistical verification concerned the assigned actual values for agricultural residential improvements; based on the parameters developed for the 2018 audit. Eagle County was exempt from this analysis.

**VII. CONCLUSIONS**

Based on this statistical analysis, there were no significant compliance issues concluded for Eagle 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 Mean Centered
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
0	.977	.971	.983	.978	.974	.981	95.4%	.963	.954	.972	1.015	.073	13.2%
1	.979	.975	.983	.980	.977	.984	95.4%	.966	.960	.972	1.013	.047	7.1%

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.

**0 = Residential Non-Condominiums, 1 = Residential Condominiums**

**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				
.963	.946	.980	.993	.980	.999	95.2%	.962	.945	.980	1.001	.076	12.1%	

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 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				
.940	.910	.971	.973	.954	.988	95.5%	.877	.795	.959	1.073	.128	22.5%	

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	1	0.0%
	\$25K to \$50K	1	0.0%
	\$50K to \$100K	3	0.1%
	\$100K to \$150K	12	0.4%
	\$150K to \$200K	57	1.9%
	\$200K to \$300K	273	9.3%
	\$300K to \$500K	840	28.7%
	\$500K to \$750K	701	23.9%
	\$750K to \$1,000K	343	11.7%
	Over \$1,000K	697	23.8%
Overall		2928	100.0%
Excluded		0	
Total		2928	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.046	1.000	.000	.
\$25K to \$50K	.725	1.000	.000	.
\$50K to \$100K	.675	.964	.210	34.8%
\$100K to \$150K	1.120	1.010	.091	17.8%
\$150K to \$200K	1.000	.998	.061	17.1%
\$200K to \$300K	.995	1.000	.055	8.3%
\$300K to \$500K	.981	1.001	.058	9.6%
\$500K to \$750K	.979	.999	.055	8.4%
\$750K to \$1,000K	.982	1.001	.066	17.8%
Over \$1,000K	.967	1.008	.067	9.9%
Overall	.979	1.014	.062	11.1%

### Sub Class

#### Case Processing Summary

		Count	Percent
ABSTRIMP	0	4	0.1%
	1212	1671	57.1%
	1215	22	0.8%
	1220	2	0.1%
	1225	1	0.0%
	1230	1227	41.9%
	4277	1	0.0%
	Overall		2928
Excluded		0	
Total		2928	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.561	1.215	.292	35.3%
1212	.978	1.012	.072	13.1%
1215	.958	1.078	.104	14.1%
1220	.964	1.001	.011	1.5%
1225	.960	1.000	.000	.
1230	.981	1.014	.046	6.8%
4277	.670	1.000	.000	.
Overall	.979	1.014	.062	11.1%

### Age

#### Case Processing Summary

AgeRec	Count	Percent
0	4	0.1%
Over 100	16	0.5%
75 to 100	16	0.5%
50 to 75	36	1.2%
25 to 50	1107	37.8%
5 to 25	1566	53.5%
5 or Newer	183	6.3%
Overall	2928	100.0%
Excluded	0	
Total	2928	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.561	1.215	.292	35.3%
Over 100	.931	1.015	.096	14.0%
75 to 100	.966	.991	.104	16.1%
50 to 75	.981	.988	.073	12.9%
25 to 50	.978	1.011	.054	8.2%
5 to 25	.981	1.014	.061	9.7%
5 or Newer	.977	1.038	.098	25.3%
Overall	.979	1.014	.062	11.1%

## Improved Area

### Case Processing Summary

	Count	Percent	
ImpSFRec	0	4	0.1%
	LE 500 sf	28	1.0%
	500 to 1,000 sf	454	15.5%
	1,000 to 1,500 sf	794	27.1%
	1,500 to 2,000 sf	722	24.7%
	2,000 to 3,000 sf	611	20.9%
	3,000 sf or Higher	315	10.8%
Overall	2928	100.0%	
Excluded	0		
Total	2928		

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.561	1.215	.292	35.3%
LE 500 sf	.962	1.003	.072	9.6%
500 to 1,000 sf	.983	1.011	.051	8.3%
1,000 to 1,500 sf	.977	1.006	.053	7.8%
1,500 to 2,000 sf	.979	1.007	.058	9.3%
2,000 to 3,000 sf	.977	1.027	.072	13.6%
3,000 sf or Higher	.980	1.017	.080	17.4%
Overall	.979	1.014	.062	11.1%

### Commercial Median Ratio Stratification

#### Sale Price

### Case Processing Summary

	Count	Percent	
SPRec	LT \$25K	1	0.6%
	\$25K to \$50K	15	8.7%
	\$50K to \$100K	18	10.4%
	\$100K to \$150K	23	13.3%
	\$150K to \$200K	23	13.3%
	\$200K to \$300K	18	10.4%
	\$300K to \$500K	24	13.9%
	\$500K to \$750K	14	8.1%
	\$750K to \$1,000K	16	9.2%
	Over \$1,000K	21	12.1%
Overall	173	100.0%	
Excluded	0		
Total	173		

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	.721	1.000	.000	.
\$25K to \$50K	1.006	1.010	.058	7.5%
\$50K to \$100K	.993	.995	.123	18.7%
\$100K to \$150K	.981	1.000	.106	18.3%
\$150K to \$200K	.999	.999	.058	8.8%
\$200K to \$300K	.993	1.002	.060	10.0%
\$300K to \$500K	1.009	.998	.076	11.7%
\$500K to \$750K	.982	1.000	.040	6.1%
\$750K to \$1,000K	.950	1.007	.076	10.6%
Over \$1,000K	.974	.989	.055	7.0%
Overall	.993	1.001	.076	12.1%

### Sub Class

### Case Processing Summary

	Count	Percent
ABSTRIMP	0	17
	1230	24
	1712	1
	1725	1
	1879	1
	2212	4
	2215	2
	2220	5
	2221	1
	2228	1
	2235	7
	2240	1
	2245	108
Overall	173	100.0%
Excluded	0	
Total	173	



### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.913	1.025	.157	20.6%
1230	.983	1.008	.049	7.0%
1712	.928	1.000	.000	.
1725	.946	1.000	.000	.
1879	1.016	1.000	.000	.
2212	1.018	.992	.032	6.9%
2215	1.011	.999	.015	2.1%
2220	.966	1.077	.099	14.1%
2221	1.094	1.000	.000	.
2228	.829	1.000	.000	.
2235	.979	.969	.068	12.4%
2240	.967	1.000	.000	.
2245	.996	1.010	.071	11.6%
Overall	.993	1.001	.076	12.1%

### Age

#### Case Processing Summary

		Count	Percent
AgeRec	0	17	9.8%
	Over 100	1	0.6%
	50 to 75	6	3.5%
	25 to 50	33	19.1%
	5 to 25	115	66.5%
	5 or Newer	1	0.6%
Overall		173	100.0%
Excluded		0	
Total		173	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.913	1.025	.157	20.6%
Over 100	.928	1.000	.000	.
50 to 75	.957	1.002	.033	4.3%
25 to 50	.992	1.016	.052	7.2%
5 to 25	.996	1.006	.074	11.8%
5 or Newer	1.008	1.000	.000	.
Overall	.993	1.001	.076	12.1%

## Improved Area

### Case Processing Summary

	Count	Percent
ImpSFRec	17	9.8%
0	26	15.0%
LE 500 sf	38	22.0%
500 to 1,000 sf	41	23.7%
1,000 to 1,500 sf	19	11.0%
1,500 to 2,000 sf	13	7.5%
2,000 to 3,000 sf	19	11.0%
3,000 sf or Higher	173	100.0%
Overall	0	
Excluded	173	
Total		

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.913	1.025	.157	20.6%
LE 500 sf	.961	1.010	.100	14.9%
500 to 1,000 sf	.999	1.011	.054	8.3%
1,000 to 1,500 sf	.982	1.024	.078	11.9%
1,500 to 2,000 sf	.999	1.027	.047	7.1%
2,000 to 3,000 sf	1.006	1.008	.039	7.3%
3,000 sf or Higher	.966	.987	.067	9.5%
Overall	.993	1.001	.076	12.1%

### Vacant Land Median Ratio Stratification

#### Sale Price

### Case Processing Summary

	Count	Percent
SPRec	6	3.3%
LT \$25K	16	8.8%
\$25K to \$50K	47	25.8%
\$50K to \$100K	26	14.3%
\$100K to \$150K	18	9.9%
\$150K to \$200K	26	14.3%
\$200K to \$300K	14	7.7%
\$300K to \$500K	13	7.1%
\$500K to \$750K	5	2.7%
\$750K to \$1,000K	11	6.0%
Over \$1,000K	182	100.0%
Overall	0	
Excluded	182	
Total		

### Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	1.136	.918	.219	37.8%
\$25K to \$50K	1.000	1.010	.157	27.9%
\$50K to \$100K	.986	1.000	.103	15.9%
\$100K to \$150K	.954	.997	.072	10.9%
\$150K to \$200K	.979	.995	.123	17.9%
\$200K to \$300K	.972	1.001	.157	31.0%
\$300K to \$500K	.948	.994	.081	11.9%
\$500K to \$750K	.950	1.000	.095	13.4%
\$750K to \$1,000K	.968	1.002	.214	39.6%
Over \$1,000K	.904	1.006	.193	31.5%
Overall	.973	1.073	.128	22.0%

### Sub Class

### Case Processing Summary

	Count	Percent
ABSTRLND	100	67
	200	5
	400	50
	520	1
	530	3
	540	4
	550	9
	1112	37
	1115	1
	1135	3
	2130	1
	2145	1
Overall	182	100.0%
Excluded	0	
Total	182	

### Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100	.957	1.042	.129	20.8%
200	.967	1.051	.099	16.4%
400	.986	1.015	.089	17.2%
520	1.214	1.000	.000	.
530	.997	.996	.019	3.7%
540	.838	1.802	.330	49.6%
550	.928	1.222	.166	25.4%
1112	.983	.993	.108	15.7%
1115	.806	1.000	.000	.
1135	.823	.923	.109	17.1%
2130	.000	.	.	.
2145	.000	.	.	.
Overall	.973	1.073	.128	22.0%