



2015  
CUSTER COUNTY  
PROPERTY ASSESSMENT  
STUDY

---



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



September 15, 2015

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

**RE: Final Report for the 2015 Colorado Property Assessment Study**

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2015 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 Custer 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
Vacant Land.....	18
Possessory Interest Properties .....	19
Personal Property Audit .....	20
Wildrose Auditor Staff.....	22
Appendices.....	23

# INTRODUCTION

---



## Colorado

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

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

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

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

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

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

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

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

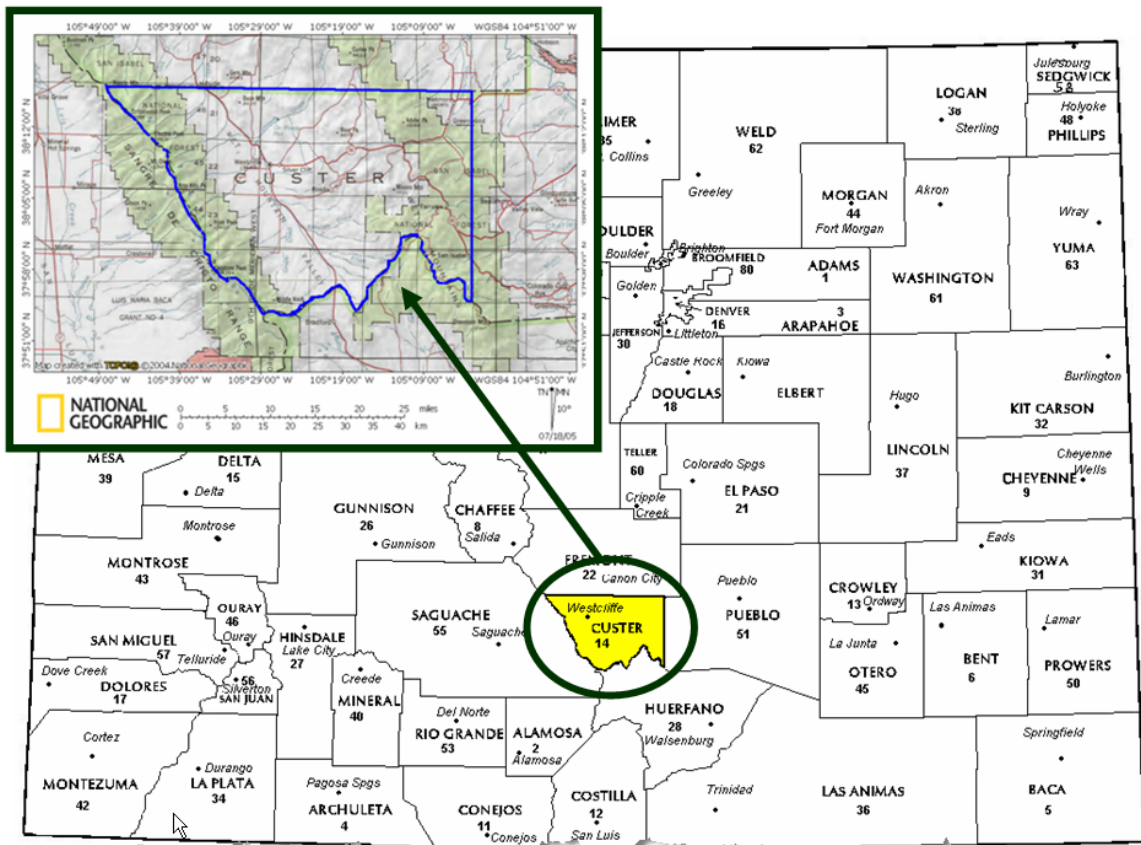
Wildrose Audit has completed the Property Assessment Study for 2015 and is pleased to report its findings for Custer County in the following report.

# REGIONAL/HISTORICAL SKETCH OF CUSTER COUNTY

## Regional Information

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

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



## Historical Information

Custer County has a population of approximately 4,255 people with 5.76 people per square mile, according to the U.S. Census Bureau's 2010 census data. This represents a 21.47 percent change from the 2000 Census.

Custer County was created by the Colorado legislature on March 9, 1877 out of the southern half of Fremont County. Originally set in Ulla, the county seat moved to Rosita in 1878, and to Silver Cliff in 1886 before settling in Westcliffe in 1928. It was named in honor of Lt. Colonel George Armstrong Custer, who had died the previous year.

The county was the site of a silver rush during the 1870s. Thousands of men poured into the county during this time in the hunt for silver. Some of the notable mines include the Geyser Mine (on the north edge of the town of Silver Cliff), the Bassick Mine (near the ghost town of Querida) and the Bull Domingo (north of Silver Cliff).

During the late 1800s a railroad line was connected through the Grape Creek Canyon but was permanently closed after a few disastrous floods. The old railhouse has been turned into a historical landmark in the town of Westcliffe.

After the mines dried up, the population dropped considerably and was replaced by cattle ranchers. An extensive system of irrigation ditches were built throughout the valley. The tradition of ranching in the Wet Mountain Valley continues to this day.

The county is very rugged and would be virtually inaccessible without roads. The lowest point of the county is around 6,000 feet in elevation, but most of the county is rugged and mountainous. The county seat of Westcliffe is about 7,800 feet and along with nearby town Silver Cliff lies in the Wet Mountain Valley which sits at the base of the Sangre de Cristo Mountains. The peaks of the Sangre de Cristo Mountains to the west reach heights in excess of 14,000 feet with Crestone Peak being the highest at 14,294 feet.

A large percentage of the county is National Forest land in the Sangre de Cristo Mountains on the west side and in the Wet Mountains on the east. The only lake of size is the Deweese Reservoir in the north end of the Wet Mountain Valley.

*(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, 2013 and June 30, 2014. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2014 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 Custer County are:

<b>Custer 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	16	1.012	1.096	10.7	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	145	1.002	1.042	12.9	Compliant
Vacant Land	123	1.000	1.031	17.1	Compliant

*\*County Sales Files augmented by 4 supplemental appraisals*

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

Custer 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**

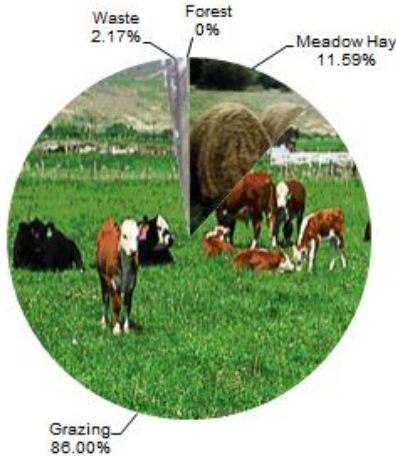
After applying the above described methodologies, it is concluded that Custer County is reasonably treating its sold and unsold properties in the same manner.

**Recommendations**

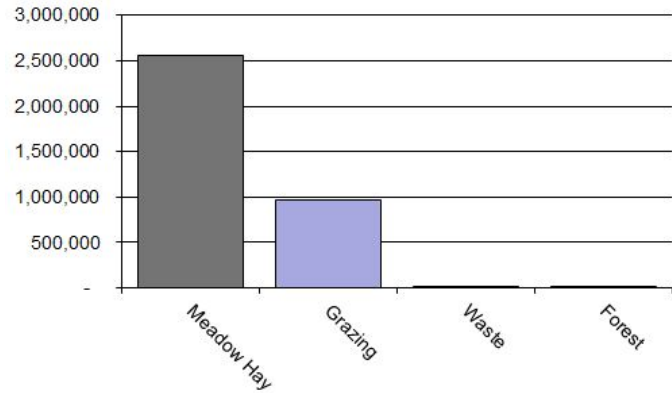
None

# 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>Custer 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>
4137	Meadow Hay	24,710	103.36	2,554,016	2,554,016	1.00
4147	Grazing	183,266	5.29	968,947	968,947	1.00
4177	Forest	506	10.98	5,556	5,556	1.00
4167	Waste	4,630	1.99	9,197	9,197	1.00
<b>Total/Avg</b>		<b>213,112</b>	<b>16.60</b>	<b>3,537,716</b>	<b>3,537,716</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

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

---

## Agricultural Land Under Improvements

---

### Methodology

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

### Conclusions

Custer 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
- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Custer 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
- Personal Knowledge of Occupants at Assessment Date
- Aerial Photography/Pictometry

Custer 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 2015 for Custer County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 32 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.

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

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

If 50 percent or more of the sales are qualified, the contractor has reviewed a statistically significant sample of

unqualified sales, excluding sales that were disqualified for obvious reasons.

Custer County did not qualify for in-depth subclass analysis.

### **Conclusions**

Custer County appears to be doing an excellent 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**

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

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

## **Recommendations**

None

# NATURAL RESOURCES

---

## Earth and Stone Products

---

### **Methodology**

Under the guidelines of the Assessor's Reference Library (ARL), Volume 3, Natural Resource Valuation Procedures, the income approach was applied to determine value for production of earth and stone products. The number of tons was multiplied by an economic royalty rate determined by the Division of Property Taxation to determine income. The income was multiplied by a recommended Hoskold factor to determine the actual value. The Hoskold factor is determined by the life of the reserves or the lease. Value is based on two

variables: life and tonnage. The operator determines these since there is no other means to obtain production data through any state or private agency.

### **Conclusions**

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

### **Recommendations**

None

## VACANT LAND

### **Subdivision Discounting**

Subdivisions were reviewed in 2015 in Custer County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14). Discounting procedures were applied to all subdivisions where less than 80 percent of all sites were sold using the present worth method. The market approach was applied where 80 percent or more of the subdivision sites were sold. An absorption period was estimated for each subdivision that was discounted. An appropriate discount rate was

developed using the summation method. Subdivision land with structures was appraised at full market value.

### **Conclusions**

Custer 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.

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

assessing and valuing agricultural possessory interest properties. The county has also been queried as to their confidence that the possessory interest properties have been discovered and placed on the tax rolls.

## Conclusions

Custer 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

Custer 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.

Custer 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.

Custer County submitted their personal property written audit plan and was current for the 2015 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 \$7,300 actual value exemption status
- Accounts protested with substantial disagreement

### **Conclusions**

Custer 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  
 FOR CUSTER COUNTY  
 2015**

**I. OVERVIEW**

Custer County is located in south central Colorado. The county has a total of 9,134 real property parcels, according to data submitted by the county assessor’s office in 2015. The following provides a breakdown of property classes for this county:



The vacant land class of properties was dominated by residential land. Residential lots (coded 100) accounted for 86.6% of all vacant land parcels.

For residential improved properties, single family properties accounted for nearly 99.3% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 1.7% of all such properties in this county.

## II. DATA FILES

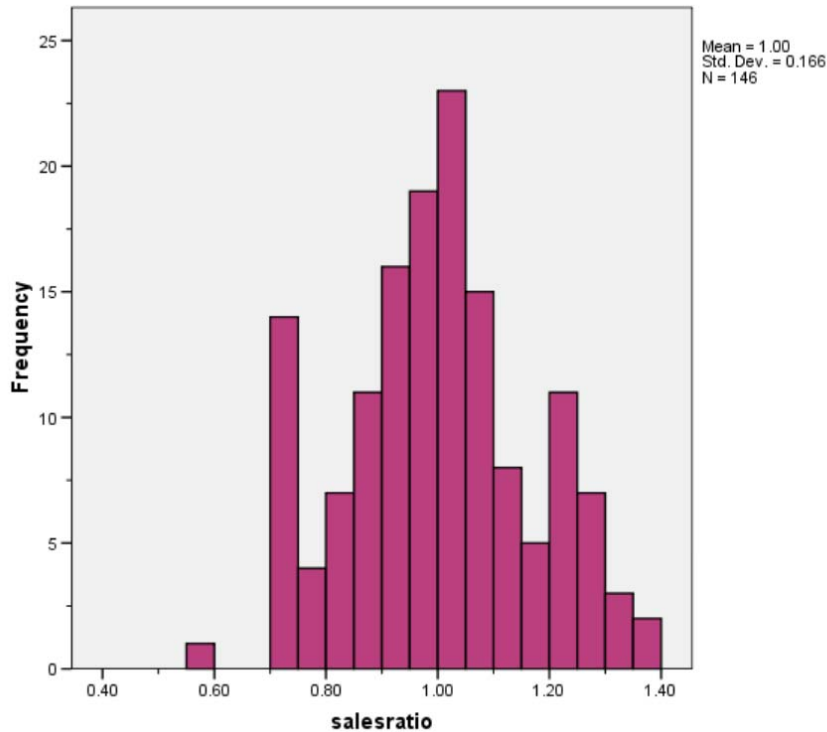
The following sales analyses were based on the requirements of the 2015 Colorado Property Assessment Study. Information was provided by the Custer Assessor’s Office in April 2015. The data included all 5 property record files as specified by the Auditor.

## III. RESIDENTIAL SALES RESULTS

There were 146 qualified residential sales in the 24 month sale period prior to June 30, 2014. There was 1 trimmed sale, resulting in a final qualified sale total of 145 sales. The sales ratio analysis was analyzed as follows:

Median	<b>1.0020</b>
Price Related Differential	<b>1.042</b>
Coefficient of Dispersion	<b>12.9</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:





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. The following indicates that there was no statistically significant residual trend based on the sale ratios:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.001	.027		37.751	.000
	SalePeriod	-9.546E-5	.002	-.004	-.048	.962

a. Dependent Variable: salesratio



The above analysis indicated 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 2015 between each group, as follows:

Group	N	Median	Mean
Unsold	2,718	\$101	\$107
Sold	145	\$109	\$114

### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ValSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.054	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

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

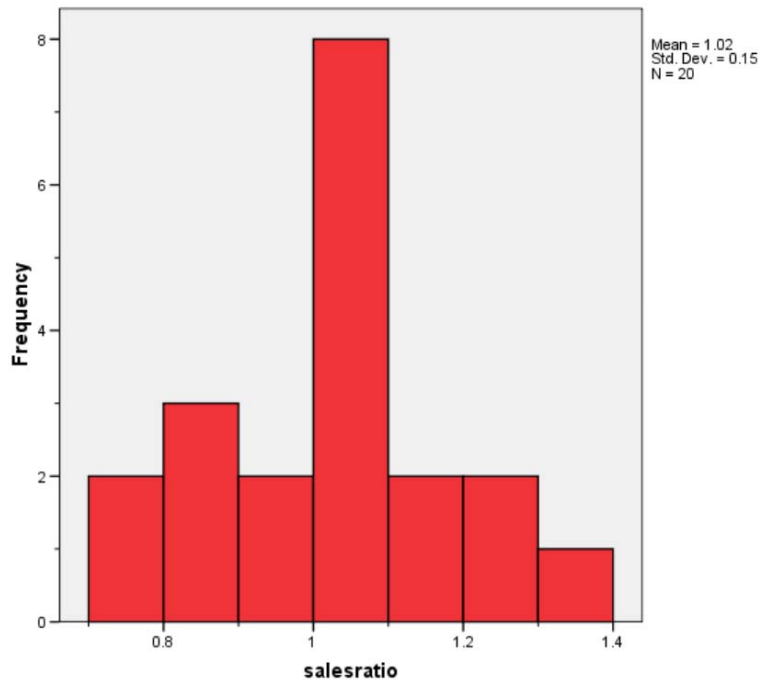
#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 16 qualified residential sales in the 60 month sale period prior to June 30, 2014. Because there were fewer than 20 sales, 4 supplemental appraisals of unsold commercial properties were completed to augment these sales, bringing the total number of commercial/industrial properties analyzed to 20. We used all 20 properties for the sales ratio analysis, while the 16 sales alone were used to analyze market trending and sold/unsold properties.

The sales ratio analysis was as follows:

Median	<b>1.012</b>
Price Related Differential	<b>1.096</b>
Coefficient of Dispersion	<b>10.7</b>

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





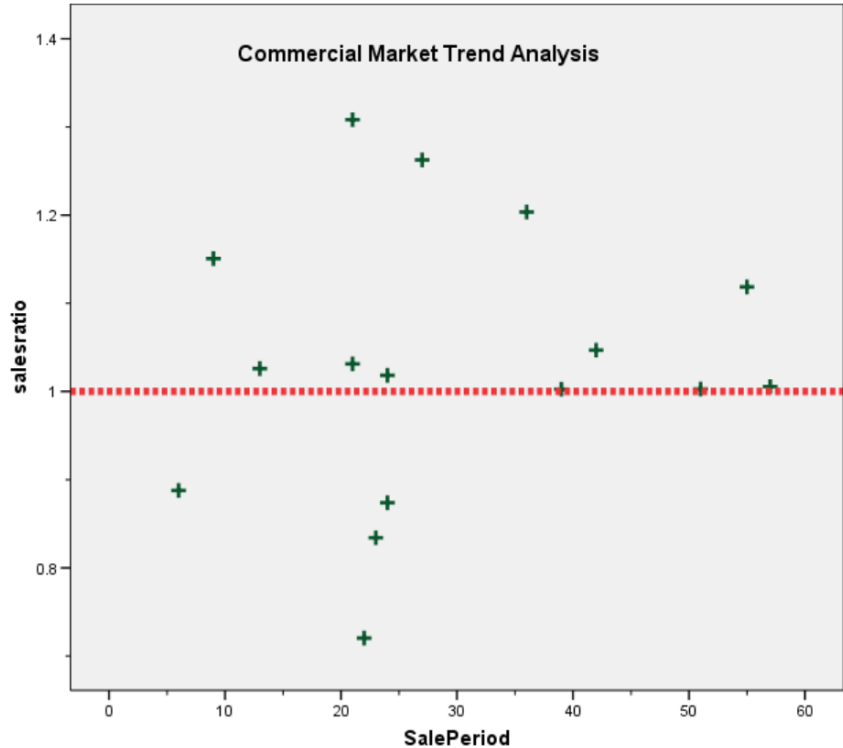
### Commercial Market Trend Analysis

The assessor did not apply any market trend adjustment to the commercial dataset. The commercial sales were analyzed, examining the sale ratios across the 60 month sale period with the following results and stratifying the results by commercial subclass:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.995	.087		11.422	.000
	SalePeriod	.001	.003	.124	.469	.646

a. Dependent Variable: salesratio



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

### Sold/Unsold Analysis

We compared the median and mean actual value per square feet between sold and unsold commercial/industrial properties in Custer County to determine if sold and unsold properties were treated consistently, as follows:

Group	No.	Median SPSF	Mean SPSF
Sold	16	\$73	\$75
Unsold	141	\$57	\$68

### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ValSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.341	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

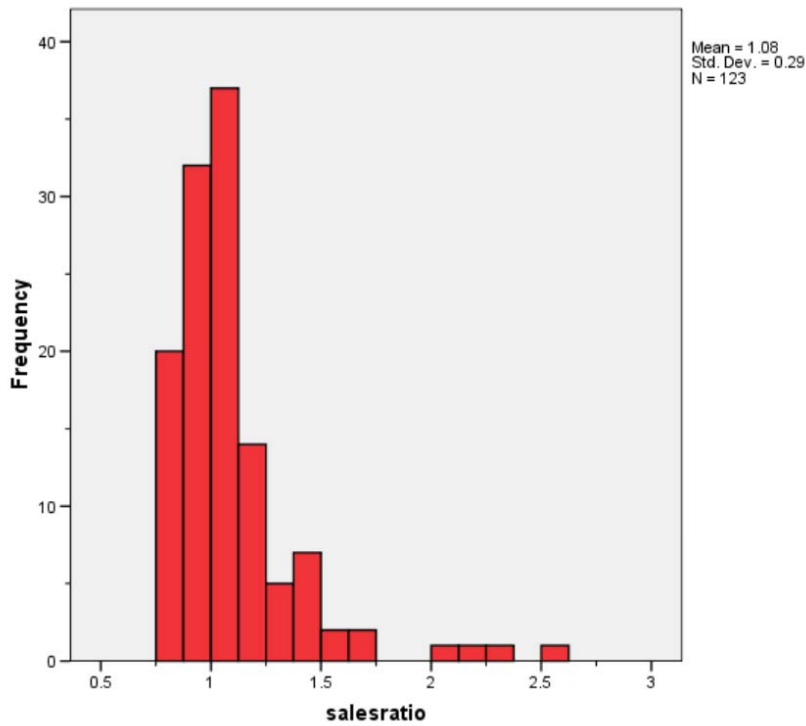
The above results indicate that sold and unsold commercial properties were valued in a consistent manner overall.

**V. VACANT LAND SALE RESULTS**

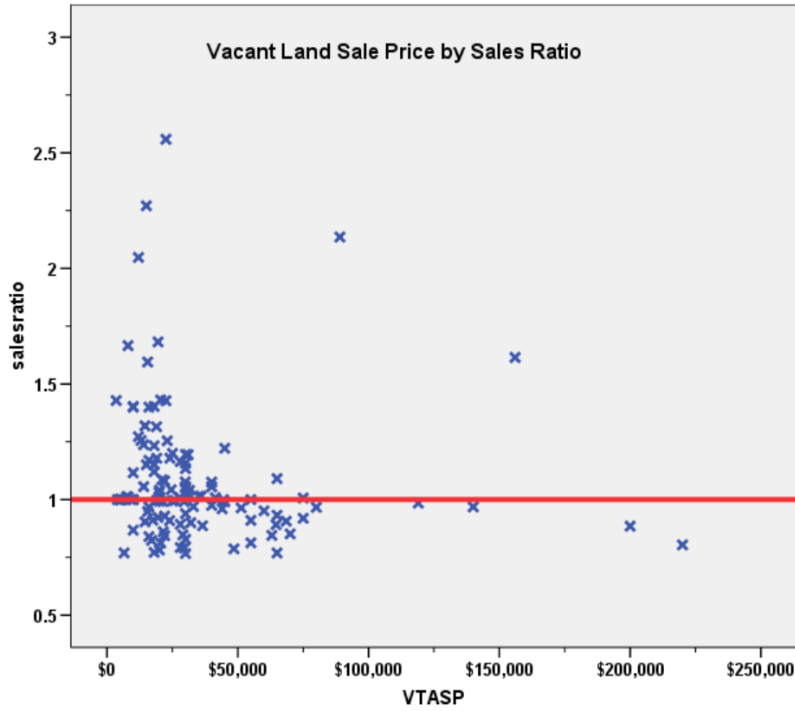
There were 127 qualified vacant land sales in the 24 month sale period prior to June 30, 2014. Four sales were excluded due to their extreme ratios, resulting in a final total of 123 sales. The sales ratio analysis was analyzed as follows:

Median	<b>1.000</b>
Price Related Differential	<b>1.031</b>
Coefficient of Dispersion	<b>17.1</b>

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







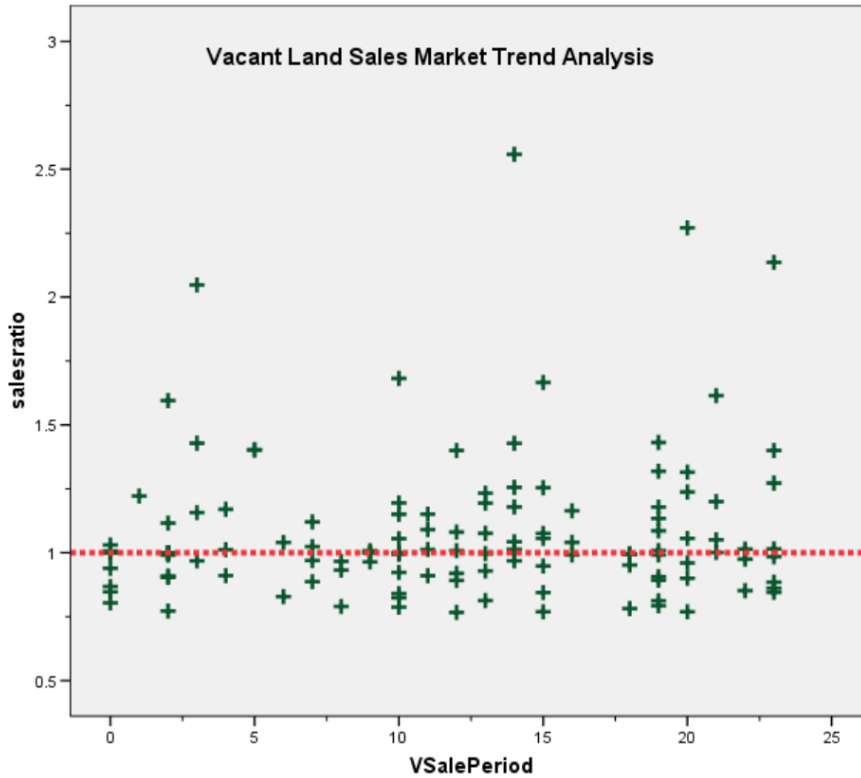
### Vacant Land Market Trend Analysis

The 123 vacant land sales were next analyzed for 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 Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.033	.052		19.973	.000
	VSalePeriod	.004	.004	.099	1.096	.275

a. Dependent Variable: salesratio



The above analysis indicated that no statistically significant market trend was present in the sales ratio for vacant land. We therefore concluded that the assessor considered market trending appropriately for this class of property.

**Sold/Unsold Analysis**

We compared the median change in actual value between 2014 and 2015 for vacant land properties to determine if sold and unsold properties were valued consistently. We performed the analysis stratifying the properties by subdivision, as follows:

Group	No. Props	Median	Mean
Unsold	3,487	1.000	1.023
Sold	112	1.000	1.068

### 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	.018	Retain the null hypothesis.

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

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

#### V. AGRICULTURAL IMPROVEMENTS ANALYSIS

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

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

**Descriptives**

ABSTRIMP			Statistic	Std. Error
<b>ImpValSF</b>	<b>SFR</b>	Mean	\$82.30	\$.621
		95% Confidence Interval for		
		Mean	\$81.08	
			Lower Bound	
			Upper Bound	\$83.52
		5% Trimmed Mean	\$81.52	
		Median	\$80.79	
		Variance	1097.412	
		Std. Deviation	\$33.127	
		Minimum	\$0	
		Maximum	\$231	
		Range	\$231	
		Interquartile Range	\$45	
		Skewness	.393	.046
Kurtosis	.416	.092		
<b>Ag Res</b>		Mean	\$79.43	\$2.134
		95% Confidence Interval for		
		Mean	\$75.23	
			Lower Bound	
			Upper Bound	\$83.62
		5% Trimmed Mean	\$77.79	
		Median	\$75.58	
		Variance	1726.326	
		Std. Deviation	\$41.549	
		Minimum	\$3	
		Maximum	\$329	
		Range	\$326	
		Interquartile Range	\$57	
		Skewness	.994	.125
Kurtosis	3.207	.250		

**VI. CONCLUSIONS**

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

## STATISTICAL ABSTRACT

### Residential

**Ratio Statistics for CURRTOT / TASP**

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.000	.973	1.027	1.002	.964	1.027	96.2%	.959	.924	.995	1.042	.129	16.6%

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/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
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.017	.947	1.087	1.012	.975	1.090	95.9%	.928	.831	1.026	1.096	.107	14.7%

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

### Vacant Land

**Ratio Statistics for CURRLND / VTASP**

Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1.082	1.030	1.134	1.000	.996	1.015	95.3%	1.050	.972	1.128	1.031	.171	26.8%

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

**Residential Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	2	1.4%
	\$25K to \$50K	4	2.7%
	\$50K to \$100K	21	14.4%
	\$100K to \$150K	29	19.9%
	\$150K to \$200K	31	21.2%
	\$200K to \$300K	38	26.0%
	\$300K to \$500K	15	10.3%
	\$500K to \$750K	4	2.7%
	\$750K to \$1,000K	2	1.4%
Overall		146	100.0%
Excluded		0	
Total		146	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	1.163	1.016	.139	19.6%
\$25K to \$50K	1.109	.967	.145	19.7%
\$50K to \$100K	1.067	1.003	.150	18.1%
\$100K to \$150K	1.030	1.001	.101	13.8%
\$150K to \$200K	.961	.998	.134	16.8%
\$200K to \$300K	1.007	1.004	.104	13.7%
\$300K to \$500K	.947	.993	.102	13.8%
\$500K to \$750K	.744	1.001	.103	20.2%
\$750K to \$1,000K	.750	1.007	.233	33.0%
Overall	1.002	1.042	.129	16.5%

**Subclass**

**Case Processing Summary**

	Count	Percent
ABSTRIMP 1212	144	99.3%
1714	1	.7%
Overall	145	100.0%
Excluded	1	
Total	146	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1212	1.002	1.044	.129	16.5%
1714	1.002	1.000	.000	.%
Overall	1.002	1.043	.128	16.4%

Age

**Case Processing Summary**

		Count	Percent
AgeRec	Over 100	8	5.5%
	75 to 100	2	1.4%
	50 to 75	10	6.8%
	25 to 50	43	29.5%
	5 to 25	78	53.4%
	5 or Newer	5	3.4%
Overall		146	100.0%
Excluded		0	
Total		146	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	1.033	1.025	.129	19.4%
75 to 100	.896	1.094	.119	16.8%
50 to 75	.948	1.002	.140	18.8%
25 to 50	1.007	1.039	.151	18.4%
5 to 25	.996	1.048	.117	15.6%
5 or Newer	1.008	.985	.088	12.0%
Overall	1.002	1.042	.129	16.5%



## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	5	3.4%
	500 to 1,000 sf	21	14.4%
	1,000 to 1,500 sf	33	22.6%
	1,500 to 2,000 sf	37	25.3%
	2,000 to 3,000 sf	37	25.3%
	3,000 sf or Higher	13	8.9%
Overall		146	100.0%
Excluded		0	
Total		146	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LE 500 sf	.859	1.028	.110	14.8%
500 to 1,000 sf	1.002	1.036	.130	16.7%
1,000 to 1,500 sf	.961	1.046	.121	16.0%
1,500 to 2,000 sf	1.016	1.030	.123	15.7%
2,000 to 3,000 sf	1.036	1.047	.138	17.5%
3,000 sf or Higher	.983	1.062	.105	16.8%
Overall	1.002	1.042	.129	16.5%

## Improvement Quality

### Case Processing Summary

	Count	Percent
QUALITY	1	.7%
ABOVE AV	14	9.6%
AVERAGE	107	73.3%
BELOW AVG	21	14.4%
FAIR	2	1.4%
GOOD	1	.7%
Overall	146	100.0%
Excluded	0	
Total	146	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
	.719	1.000	.000	.%
ABOVE AV	.921	1.075	.157	20.8%
AVERAGE	1.000	1.016	.122	15.7%
BELOW AVG	1.095	1.039	.117	13.4%
FAIR	.951	1.017	.115	16.2%
GOOD	1.002	1.000	.000	.%
Overall	1.002	1.042	.129	16.5%

## Improvement Condition

### Case Processing Summary

	Count	Percent
CONDITION	1	.7%
ABOVE AV	16	11.0%
AVERAGE	106	72.6%
BELOW AV	18	12.3%
FAIR	3	2.1%
N/A	2	1.4%
Overall	146	100.0%
Excluded	0	
Total	146	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
	.719	1.000	.000	.%
ABOVE AV	.921	1.084	.141	18.1%
AVERAGE	1.001	1.022	.126	16.2%
BELOW AV	1.021	1.037	.127	16.0%
FAIR	1.060	1.034	.147	22.1%
N/A	1.016	1.005	.013	1.9%
Overall	1.002	1.042	.129	16.5%

**Commercial Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

	Count	Percent
SPRec LT \$25K	1	5.0%
\$25K to \$50K	2	10.0%
\$50K to \$100K	4	20.0%
\$100K to \$150K	3	15.0%
\$150K to \$200K	4	20.0%
\$200K to \$300K	2	10.0%
\$300K to \$500K	2	10.0%
\$500K to \$750K	1	5.0%
\$750K to \$1,000K	1	5.0%
Overall	20	100.0%
Excluded	0	
Total	20	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	1.119	1.000	.000	.%
\$25K to \$50K	.993	.999	.010	1.4%
\$50K to \$100K	1.177	.999	.066	9.6%
\$100K to \$150K	1.026	1.008	.141	22.1%
\$150K to \$200K	1.025	.998	.039	4.9%
\$200K to \$300K	.907	1.011	.122	17.3%
\$300K to \$500K	.933	.981	.106	15.0%
\$500K to \$750K	.888	1.000	.000	.%
\$750K to \$1,000K	.720	1.000	.000	.%
Overall	1.012	1.096	.107	14.8%

Subclass

**Case Processing Summary**

		Count	Percent
ABSTRIMP	1212	1	5.0%
	2212	3	15.0%
	2220	6	30.0%
	2223	1	5.0%
	2230	6	30.0%
	2235	2	10.0%
	3215	1	5.0%
Overall		20	100.0%
Excluded		0	
Total		20	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1212	1.031	1.000	.000	.%
2212	.834	1.085	.113	17.2%
2220	1.022	1.007	.061	9.9%
2223	1.308	1.000	.000	.%
2230	.990	1.045	.081	11.2%
2235	1.068	1.061	.182	25.7%
3215	1.119	1.000	.000	.%
Overall	1.012	1.096	.107	14.8%

Age

**Case Processing Summary**

		Count	Percent
AgeRec	Over 100	3	15.0%
	75 to 100	1	5.0%
	50 to 75	4	20.0%
	25 to 50	7	35.0%
	5 to 25	4	20.0%
	5 or Newer	1	5.0%
Overall		20	100.0%
Excluded		0	
Total		20	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	1.047	.998	.028	4.2%
75 to 100	1.026	1.000	.000	.%
50 to 75	1.103	.983	.109	12.8%
25 to 50	1.018	1.056	.127	17.1%
5 to 25	.931	1.007	.076	9.5%
5 or Newer	.720	1.000	.000	.%
Overall	1.012	1.096	.107	14.8%

## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	2	10.0%
	500 to 1,000 sf	2	10.0%
	1,000 to 1,500 sf	2	10.0%
	1,500 to 2,000 sf	1	5.0%
	2,000 to 3,000 sf	7	35.0%
	3,000 sf or Higher	6	30.0%
Overall		20	100.0%
Excluded		0	
Total		20	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LE 500 sf	.993	.999	.010	1.4%
500 to 1,000 sf	1.161	.983	.037	5.2%
1,000 to 1,500 sf	1.016	.996	.010	1.4%
1,500 to 2,000 sf	1.047	1.000	.000	.%
2,000 to 3,000 sf	.975	1.036	.108	13.7%
3,000 sf or Higher	1.025	1.152	.159	21.8%
Overall	1.012	1.096	.107	14.8%

## Improvement Quality

### Case Processing Summary

		Count	Percent
QUALITY	AVERAGE	15	75.0%
	FAIR	1	5.0%
	GOOD	3	15.0%
	LOW COST	1	5.0%
Overall		20	100.0%
Excluded		0	
Total		20	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
AVERAGE	1.003	1.086	.100	13.9%
FAIR	1.308	1.000	.000	.%
GOOD	1.026	1.030	.065	12.3%
LOW COST	1.151	1.000	.000	.%
Overall	1.012	1.096	.107	14.8%



**Vacant Land Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	68	55.3%
	\$25K to \$50K	34	27.6%
	\$50K to \$100K	16	13.0%
	\$100K to \$150K	2	1.6%
	\$150K to \$200K	2	1.6%
	\$200K to \$300K	1	.8%
Overall		123	100.0%
Excluded		0	
Total		123	

**Ratio Statistics for CURRLND / VTASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	1.022	.997	.206	34.4%
\$25K to \$50K	1.004	1.000	.093	12.3%
\$50K to \$100K	.926	.973	.144	34.8%
\$100K to \$150K	.977	1.001	.008	1.2%
\$150K to \$200K	1.250	1.037	.292	41.3%
\$200K to \$300K	.804	1.000	.000	.%
Overall	1.000	1.031	.171	

Subclass

**Case Processing Summary**

		Count	Percent
ABSTRLND	100	91	74.0%
	151	1	.8%
	400	2	1.6%
	520	2	1.6%
	550	1	.8%
	1112	20	16.3%
	1135	1	.8%
	5140	5	4.1%
Overall		123	100.0%
Excluded		0	
Total		123	

**Ratio Statistics for CURRLND /VTASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
100	1.007	1.054	.142	25.8%
151	.923	1.000	.000	.%
400	1.202	.810	.343	48.5%
520	.913	1.054	.110	15.6%
550	.970	1.000	.000	.%
1112	.996	1.087	.312	47.7%
1135	1.431	1.000	.000	.%
5140	.991	1.001	.057	8.9%
Overall	1.000	1.031	.171	30.2%