# 2020
# PUEBLO COUNTY
# PROPERTY ASSESSMENT
# STUDY


WILDROSE
APPRAISAL, INCORPORATED
Audit Division

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APPRAISAL, INCORPORATED
Audit Division

September 15, 2020

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

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

Dear Ms. Mullis:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2020 Colorado Property Assessment Study.

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

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

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

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

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

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# 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.

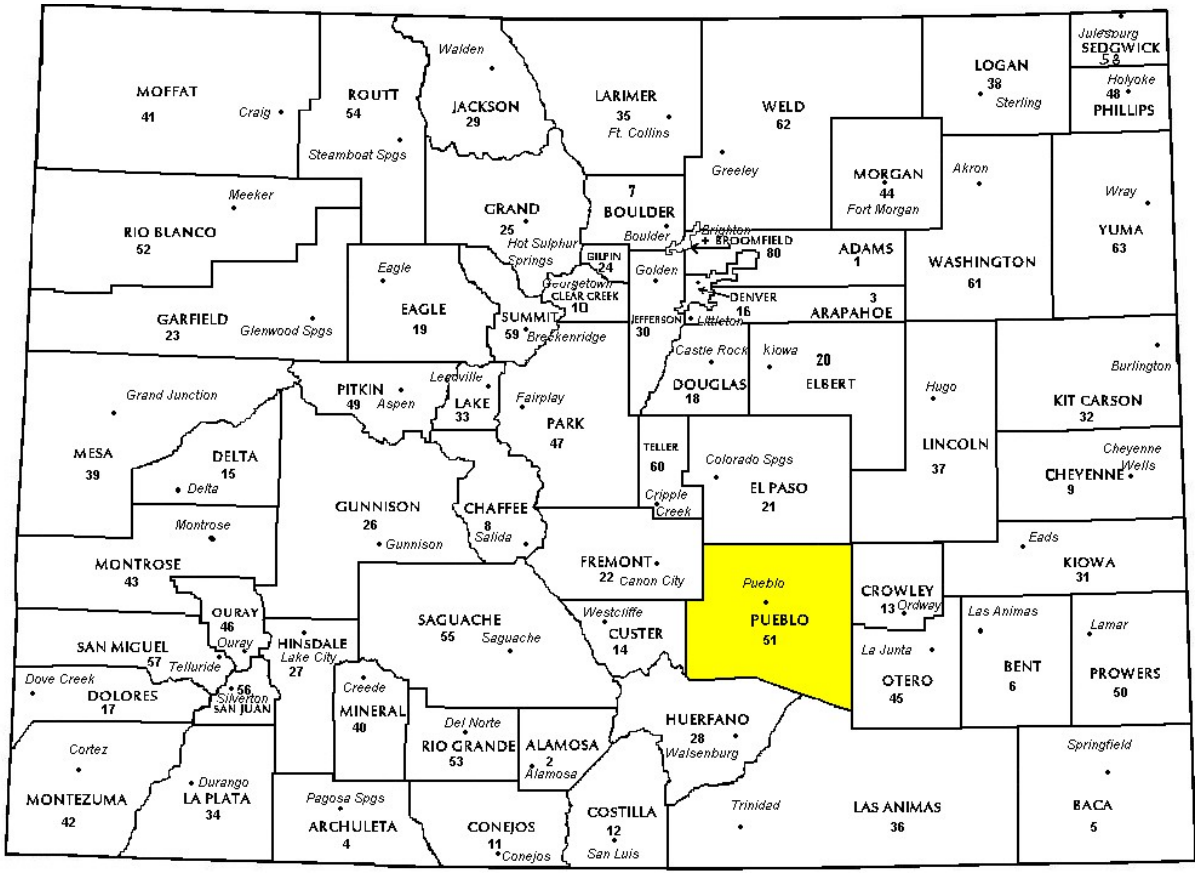
Statistical analysis is performed on vacant land, residential properties, commercial/industrial properties, agricultural land, and personal property. The statistical study results are compared with State Board of Equalization compliance requirements and the manuals published by the State Property Tax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

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

# REGIONAL / HISTORICAL SKETCH OF PUEBLO COUNTY

## Regional Information

Pueblo County is located in the Front Range region of Colorado. The Colorado Front Range is a colloquial geographic term for the populated areas of the State that are just east of the foothills of the Front Range. It includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Pueblo, and Weld counties.



## Historical Information

Pueblo County had an estimated population of approximately 165,123 people with 69.1 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 3.8 percent change from April 1, 2010 to July 1, 2016.

Pueblo County, one of the seventeen original territorial counties, was established in 1861 with an area of 2,405 square miles. The county was named for its county seat, Pueblo, Spanish for 'town' or 'village.' Originally called Independence, it had been a settlement for many years, occupied at times by Spaniards, trappers, Indian traders, and Mexicans.

Pueblo is a Home Rule Municipality and is the county seat and the most populous city of Pueblo County. It is situated at the confluence of the Arkansas River and Fountain Creek. The area is considered to be semi-arid with approximately 14 inches of precipitation annually; however with its location in the "banana belt," Pueblo tends to get less snow than the other major cities in Colorado. Pueblo is one of the largest steel-producing cities in the United States. Because of this, Pueblo is referred to as the "Steel City." Many consider Pueblo to be the economic hub of south eastern Colorado. Due to this some people call Pueblo "Colorado's second city" even though Pueblo is the state's ninth most populous city. It is now home to a number of electronics and aviation companies. The Historic Arkansas River Project (HARP) is a beautiful river walk that graces the historic Union Avenue district. It shows the history of the Pueblo Flood.

Pueblo is also the home to Colorado's largest single event, the Colorado State Fair and the largest parade, the state fair parade. Pueblo also hosts an annual Chili Festival and the Wild West Fest.

*(www.Wikipedia.org, William Bright, Colorado Place Names, 3rd Edition, Johnson Books, 2004, p. 143)*

# RATIO ANALYSIS

## Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 1, 2017 and June 30, 2018. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2018 in 6-month increments. If there were still fewer than 30 sales, supplemental appraisals were performed and treated as proxy sales. Residential sales for all counties using this method totaled at least 30 per county. For commercial sales, the total number analyzed was allowed, in some cases, to fall below 30. There were no sale quantity issues for counties requiring vacant land analysis or condominium analysis. Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either "Q" or "C." The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were "lost" because of trimming. For the largest 11 counties, the residential ratio statistics were broken down by economic area as well.

## Conclusions

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

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

The results for Pueblo County are:

| Pueblo County Ratio Grid | | | | | |
|---|---|---|---|---|---|
| Property Class | Number of Qualified Sales | Unweighted Median Ratio | Price Related Differential | Coefficient of Dispersion | Time Trend Analysis |
| Commercial/Industrial | 56 | 0.966 | 1.010 | 12.7 | Compliant |
| Condominium | N/A | N/A | N/A | N/A | N/A |
| Single Family | 2,939 | 0.953 | 1.005 | 8.8 | Compliant |
| Vacant Land | 746 | 0.970 | 1.104 | 20.5 | Compliant |

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

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

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

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

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

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

| Sold/Unsold Results | |
|---|---|
| **Property Class** | **Results** |
| Commercial/Industrial | Compliant |
| Condominium | N/A |
| Single Family | Compliant |
| Vacant Land | Compliant |

## Conclusions

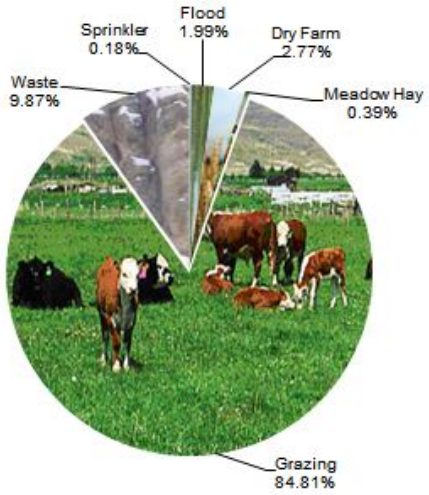
After applying the above described methodologies, it is concluded that Pueblo County is reasonably treating its sold and unsold properties in the same manner.

## Recommendations

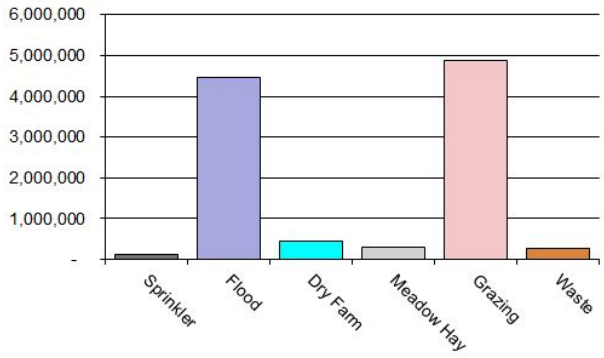
None

# 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:

| Pueblo County Agricultural Land Ratio Grid | | | | | | |
|---|---|---|---|---|---|---|
| Abstract Code | Land Class | Number Of Acres | County Value Per Acre | County Assessed Total Value | WRA Total Value | Ratio |
| 4107 | Sprinkler | 2,055 | 65.73 | 135,081 | 137,631 | 0.98 |
| 4117 | Flood | 23,306 | 191.63 | 4,466,041 | 4,551,867 | 0.98 |
| 4127 | Dry Farm | 32,407 | 13.97 | 452,830 | 456,625 | 0.99 |
| 4137 | Meadow Hay | 4,607 | 62.46 | 287,767 | 287,767 | 1.00 |
| 4147 | Grazing | 841,839 | 5.22 | 4,398,418 | 4,398,418 | 1.00 |
| 4167 | Waste | 115,567 | 2.39 | 275,721 | 275,721 | 1.00 |
| **Total/Avg** | | **1,019,781** | **9.82** | **10,015,858** | **10,108,029** | **0.99** |

### Recommendations

None

## Agricultural Outbuildings

### Methodology

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

### Conclusions

Pueblo County has complied with the procedures provided by the Division of Property Taxation for the valuation of agricultural outbuildings.

### Recommendations

None

# Agricultural Land Under Improvements

## Methodology

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

## Conclusions

Pueblo 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

Pueblo 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.:

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

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

## Recommendations

None

# SALES VERIFICATION

According to Colorado Revised Statutes:

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

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

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

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

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

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

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

WRA reviewed the sales verification procedures in 2020 for Pueblo County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 56 sales listed as unqualified.

All but four of the sales selected in the sample gave reasons that were clear and supportable. Four sales had insufficient reason for disqualification.

For residential, commercial, and vacant land sales with considerations over $100,000, the contractor has examined and reported the ratio of qualified sales to total sales by class and performed the following analyses of unqualified sales:

> The contractor has examined the manner in which sales have been classified as qualified or unqualified, including a listing of each step in the sales verification process, any adjustment procedures, and the county official responsible for making the final decision on qualification.
>
> The contractor has reviewed with the assessor any analysis indicating that sales data are inadequate, fail to reflect typical properties, or have been disqualified for insufficient cause. In addition, the contractor has reviewed the disqualified sales by assigned code.

If there appears to be any inconsistency in the coding, the contractor has conducted further analysis to determine if the sales included in that code have been assigned appropriately.

## Conclusions

Pueblo County appears to be doing a good job of verifying their sales.

## Recommendations

None

# ECONOMIC AREA REVIEW AND EVALUATION

## Methodology

Pueblo County has submitted a written narrative describing the economic areas that make up the county's market areas. Pueblo 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 Pueblo 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 2020 in Pueblo County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14) and by applying the recommended methodology in ARL Vol 3, Chap 4. Subdivision Discounting in the intervening year can be accomplished by reducing the absorption period by one year.

In instances where the number of sales within an approved plat was less than the absorption rate per year calculated for the plat, the absorption period was left unchanged.

## Conclusions

Pueblo 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.

Pueblo County has been reviewed for their procedures and adherence to guidelines when assessing and valuing agricultural and commercial possessory interest properties. The county has also been queried as to their confidence that the possessory interest properties have been discovered and placed on the tax rolls.

## Conclusions

Pueblo 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

Pueblo 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.

Pueblo 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
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth

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.

Pueblo County submitted their personal property written audit plan and was current for the 2020 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Businesses in a selected area
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Same business type or use
- Non-filing Accounts - Best Information Available
- Accounts close to the $7,700 actual value exemption status
- Accounts protested with
- substantial disagreement

Pueblo County's median ratio is 1.00. This is in compliance with the State Board of Equalization (SBOE) compliance requirements which range from .90 to 1.10 with no COD requirements.

## Conclusions

Pueblo 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*

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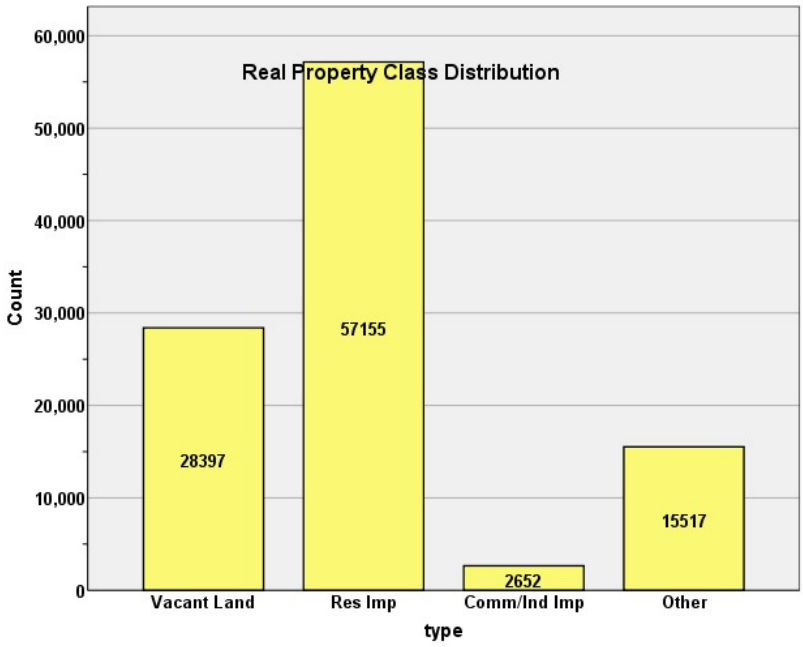
# APPENDICES

**STATISTICAL COMPLIANCE REPORT**
**FOR PUEBLO COUNTY**
**2020**

## I. OVERVIEW

Pueblo County is located along the southern portion of Colorado's Front Range urban corridor. The county had a total of 103,721 real property parcels, according to data submitted by the county assessor's office in 2020. The following provides a breakdown of property classes for this county:




The vacant land class of properties was dominated by residential land. Residential lots (coded 100) accounted for 80.8% of all vacant land parcels.

For residential improved properties, single family properties accounted for 94.3% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 2.6% of all such properties in this county.

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

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

*Codes*
***V**=Valid Geographic Level – used for modeling*
***N** = Not used as Geographic Level for modeling*

## II. DATA FILES

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

## III. RESIDENTIAL SALES RESULTS

There were 2,939 qualified residential sales that occurred in the 18-month sale period ending June 30, 2018. The sales ratio analysis results were as follows:

| | |
|---|---|
| Median | **0.953** |
| Price Related Differential | **1.005** |
| Coefficient of Dispersion | **8.8** |

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

**Economic Area**

**Case Processing Summary**

| | | Count | Percent |
|---|---|---|---|
| ECONAREA | 1.00 | 117 | 4.0% |
| | 2.00 | 258 | 8.8% |
| | 3.00 | 382 | 13.0% |
| | 4.00 | 108 | 3.7% |
| | 5.00 | 274 | 9.3% |
| | 6.00 | 236 | 8.0% |
| | 7.00 | 292 | 9.9% |
| | 8.00 | 616 | 21.0% |
| | 9.00 | 235 | 8.0% |
| | 10.00 | 83 | 2.8% |
| | 11.00 | 61 | 2.1% |
| | 12.00 | 84 | 2.9% |
| | 13.00 | 192 | 6.5% |
| Overall | | 2938 | 100.0% |
| Excluded | | 1 | |
| Total | | 2939 | |

## Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion |
|---|---|---|---|
| 1.00 | .984 | 1.030 | .150 |
| 2.00 | .960 | 1.002 | .090 |
| 3.00 | .947 | .999 | .083 |
| 4.00 | .978 | 1.008 | .111 |
| 5.00 | .957 | 1.011 | .106 |
| 6.00 | .955 | 1.001 | .071 |
| 7.00 | .952 | 1.001 | .077 |
| 8.00 | .949 | .997 | .069 |
| 9.00 | .959 | 1.017 | .127 |
| 10.00 | .955 | 1.001 | .072 |
| 11.00 | .959 | 1.031 | .064 |
| 12.00 | .946 | 1.017 | .113 |
| 13.00 | .940 | .994 | .063 |
| Overall | .953 | 1.005 | .088 |

### Neighborhoods with at least 25 sales

## Ratio Statistics for CURRTOT / TASP

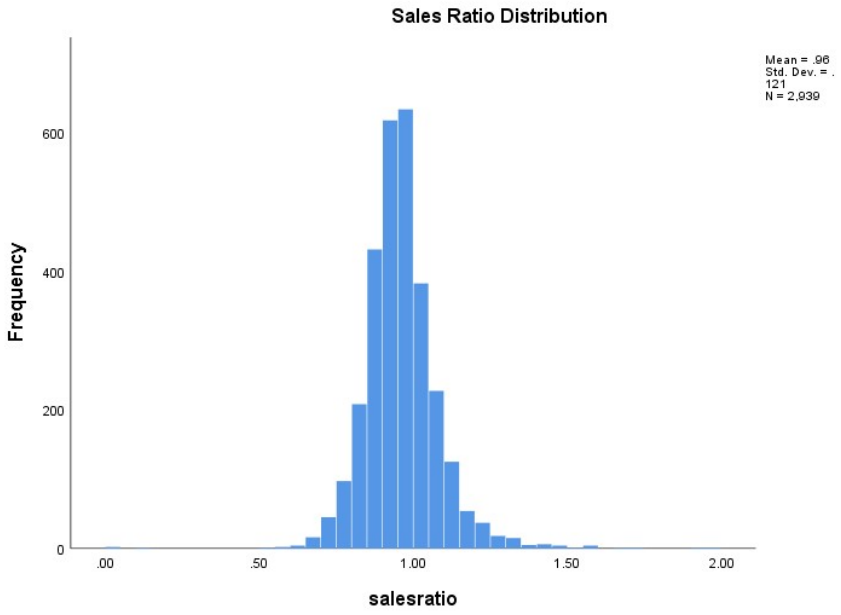
| Group | Median | Price Related Differential | Coefficient of Dispersion |
|---|---|---|---|
| 10 | 1.027 | 1.020 | .147 |
| 110 | .979 | 1.011 | .114 |
| 120 | .971 | 1.004 | .084 |
| 126 | .948 | .996 | .067 |
| 127 | .957 | 1.000 | .059 |
| 128 | .962 | .999 | .073 |
| 129 | .950 | .998 | .050 |
| 133 | .996 | 1.006 | .124 |
| 135 | .992 | 1.005 | .103 |
| 150 | .956 | 1.001 | .060 |
| 151 | .948 | .996 | .086 |
| 153 | .947 | 1.003 | .078 |
| **162** | **.940** | **.994** | **.063** |
| 166 | .962 | .994 | .074 |
| 167 | .992 | 1.001 | .104 |
| **169** | **.927** | **.995** | **.080** |
| 171 | .978 | .992 | .083 |
| **172** | **.925** | **.999** | **.084** |
| 174 | .951 | .994 | .061 |
| **177** | **.924** | **1.000** | **.046** |
| 178 | .959 | .996 | .050 |
| 180 | .948 | .998 | .058 |
| **187** | **.936** | **.992** | **.067** |
| 191 | .966 | 1.006 | .110 |
| 20 | .959 | .998 | .091 |
| 200 | .942 | 1.006 | .138 |
| 204 | .988 | 1.076 | .235 |
| 210 | .957 | 1.008 | .098 |
| 25 | .959 | 1.003 | .078 |
| 30 | .974 | 1.001 | .087 |
| 35 | .957 | .997 | .063 |
| **36** | **.927** | **.989** | **.089** |
| **40** | **.921** | **1.008** | **.089** |

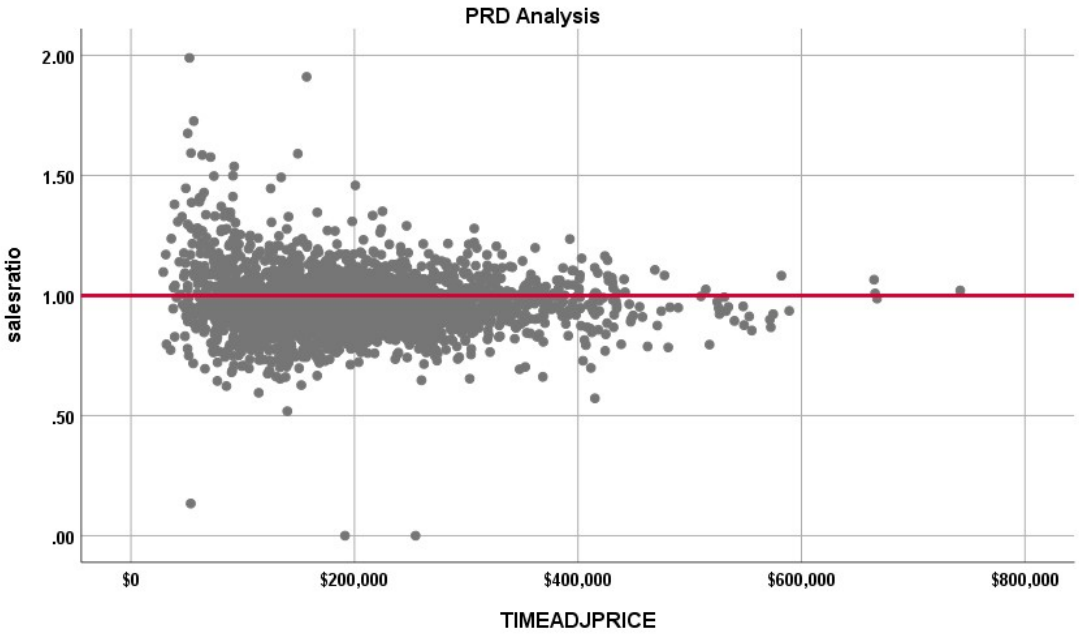
| | | | |
|---|---|---|---|
| 60 | .943 | .996 | .105 |
| 63 | .950 | 1.005 | .096 |
| **70** | **.924** | **1.028** | **.133** |
| 86 | .968 | 1.010 | .127 |
| **95** | **.937** | **1.004** | **.108** |
| Overall | .955 | 1.004 | .091 |

The above results when stratified by economic area had several economic areas with low median sales ratios although after rounding to two digits, they were in compliance at the lower SBOE threshold of 0.95 for the median sales ratio. The COD results were all in compliance.

In terms of residential neighborhoods with at least 25 sales, there were 9 out of 38 neighborhoods with median sales ratios less than the 0.95 lower threshold, even after rounding (red highlighted). The Audit met with the assessor to discuss these outlier neighborhoods to determine reasons for these results. Several reasons including limitations in the residential valuation system used by the assessor was discussed. The assessor is in the process of switching to a new data processing and modeling system in 2020, which will allow for statistical modeling of residential property valuation for the upcoming base year.

The following graphs describe further the sales ratio distribution for these properties:






### Residential Market Trend Analysis

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

### Coefficients[a]

| ECONAREA | Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|---|
| 1.00 | 1 | (Constant) | .928 | .042 | | 22.040 | .000 |
| | | SalePeriod | .010 | .004 | .228 | 2.508 | .014 |
| 2.00 | 1 | (Constant) | .979 | .014 | | 68.984 | .000 |
| | | SalePeriod | -.001 | .001 | -.055 | -.879 | .380 |
| 3.00 | 1 | (Constant) | .958 | .013 | | 74.292 | .000 |
| | | SalePeriod | -.001 | .001 | -.023 | -.439 | .661 |
| 4.00 | 1 | (Constant) | 1.039 | .035 | | 29.647 | .000 |
| | | SalePeriod | -.005 | .003 | -.138 | -1.436 | .154 |
| 5.00 | 1 | (Constant) | .989 | .022 | | 45.900 | .000 |
| | | SalePeriod | -.003 | .002 | -.078 | -1.288 | .199 |
| 6.00 | 1 | (Constant) | .986 | .014 | | 70.459 | .000 |
| | | SalePeriod | -.002 | .001 | -.112 | -1.721 | .087 |
| 7.00 | 1 | (Constant) | .946 | .014 | | 67.501 | .000 |
| | | SalePeriod | .001 | .001 | .055 | .931 | .352 |
| 8.00 | 1 | (Constant) | .950 | .008 | | 115.575 | .000 |
| | | SalePeriod | .000 | .001 | .019 | .473 | .636 |
| 9.00 | 1 | (Constant) | .970 | .028 | | 34.815 | .000 |
| | | SalePeriod | .000 | .003 | .012 | .178 | .859 |
| 10.00 | 1 | (Constant) | .928 | .019 | | 49.672 | .000 |
| | | SalePeriod | .003 | .002 | .190 | 1.745 | .085 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11.00 | 1 | (Constant) | .937 | .024 | | 38.930 | .000 |
| | | SalePeriod | .001 | .002 | .046 | .350 | .727 |
| 12.00 | 1 | (Constant) | .958 | .035 | | 27.543 | .000 |
| | | SalePeriod | -.003 | .003 | -.092 | -.834 | .407 |
| 13.00 | 1 | (Constant) | .933 | .011 | | 83.556 | .000 |
| | | SalePeriod | .001 | .001 | .062 | .863 | .389 |

a. Dependent Variable: salesratio

There were no economic areas with statistically significant trends; we therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

### Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2020 between each group, as follows:

**Report**

VALSF

| sold | N | Median | Mean |
|---|---|---|---|
| UNSOLD | 53844 | $119 | $119 |
| SOLD | 2938 | $134 | $136 |

**Hypothesis Test Summary**

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

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

Given that there was a statistically significant difference using the non-parametric Mann Whitney U test, we next compared the percent change in actual value between taxable years 2018 and 2020 for sold and unsold residential properties. The data was analyzed both as a whole and broken down by economic area, as follows:

**Report**

DIFF

| sold | N | Median | Mean |
|---|---|---|---|
| UNSOLD | 52770 | 1.1800 | 1.1971 |
| SOLD | 2936 | 1.1647 | 1.1778 |

**Report**
DIFF

| ECONAREA | sold | N | Median | Mean |
|---|---|---|---|---|
| 1.00 | UNSOLD | 4433 | 1.3088 | 1.3211 |
| | SOLD | 115 | 1.2828 | 1.2976 |
| 2.00 | UNSOLD | 3800 | 1.2245 | 1.2007 |
| | SOLD | 258 | 1.2281 | 1.2065 |
| 3.00 | UNSOLD | 4891 | 1.1340 | 1.1590 |
| | SOLD | 382 | 1.1215 | 1.1397 |
| 4.00 | UNSOLD | 3303 | 1.2309 | 1.2487 |
| | SOLD | 108 | 1.2207 | 1.2432 |
| 5.00 | UNSOLD | 5465 | 1.1956 | 1.2082 |
| | SOLD | 274 | 1.1912 | 1.1951 |
| 6.00 | UNSOLD | 4016 | 1.1684 | 1.1668 |
| | SOLD | 236 | 1.1490 | 1.1580 |
| 7.00 | UNSOLD | 5166 | 1.1811 | 1.1697 |
| | SOLD | 292 | 1.1793 | 1.1708 |
| 8.00 | UNSOLD | 7742 | 1.1424 | 1.1577 |
| | SOLD | 616 | 1.1489 | 1.1575 |
| 9.00 | UNSOLD | 7474 | 1.1772 | 1.1961 |
| | SOLD | 234 | 1.1923 | 1.2045 |
| 10.00 | UNSOLD | 880 | 1.0773 | 1.0846 |
| | SOLD | 83 | 1.1048 | 1.1161 |
| 11.00 | UNSOLD | 650 | 1.1282 | 1.1564 |
| | SOLD | 61 | 1.1569 | 1.1797 |
| 12.00 | UNSOLD | 2290 | 1.2617 | 1.2748 |
| | SOLD | 84 | 1.2162 | 1.2450 |
| 13.00 | UNSOLD | 1937 | 1.1402 | 1.1552 |
| | SOLD | 192 | 1.1416 | 1.1492 |

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

**Report**
DIFF

| NBHD | sold | N | Median | Mean |
|---|---|---|---|---|
| 10 | UNSOLD | 3043 | 1.3079 | 1.3314 |
| | SOLD | 76 | 1.2931 | 1.3212 |
| 110 | UNSOLD | 2333 | 1.2079 | 1.2398 |
| | SOLD | 116 | 1.2032 | 1.2317 |
| 120 | UNSOLD | 1314 | 1.1907 | 1.2032 |
| | SOLD | 88 | 1.1931 | 1.1997 |
| 126 | UNSOLD | 437 | 1.1333 | 1.1471 |
| | SOLD | 36 | 1.1257 | 1.1380 |
| 127 | UNSOLD | 635 | 1.1062 | 1.1130 |
| | SOLD | 37 | 1.1155 | 1.1175 |
| 128 | UNSOLD | 1095 | 1.1961 | 1.2055 |
| | SOLD | 61 | 1.1975 | 1.2041 |
| 129 | UNSOLD | 470 | 1.0813 | 1.0976 |
| | SOLD | 33 | 1.0856 | 1.0853 |
| 133 | UNSOLD | 892 | 1.2151 | 1.2520 |
| | SOLD | 39 | 1.2192 | 1.2328 |
| 150 | UNSOLD | 1126 | 1.2006 | 1.2105 |
| | SOLD | 41 | 1.2052 | 1.2165 |
| 151 | UNSOLD | 377 | 1.1364 | 1.1433 |
| | SOLD | 36 | 1.1382 | 1.1488 |

| | | | | |
|---|---|---|---|---|
| 153 | UNSOLD | 470 | 1.1651 | 1.1709 |
| | SOLD | 30 | 1.1721 | 1.1734 |
| 162 | UNSOLD | 1937 | 1.1402 | 1.1552 |
| | SOLD | 192 | 1.1416 | 1.1492 |
| 166 | UNSOLD | 1258 | 1.1721 | 1.1838 |
| | SOLD | 104 | 1.1732 | 1.1891 |
| 167 | UNSOLD | 534 | 1.3406 | 1.3560 |
| | SOLD | 31 | 1.3440 | 1.3622 |
| 171 | UNSOLD | 491 | 1.1779 | 1.1853 |
| | SOLD | 32 | 1.1818 | 1.1907 |
| 172 | UNSOLD | 309 | 1.1074 | 1.1122 |
| | SOLD | 34 | 1.1085 | 1.0876 |
| 174 | UNSOLD | 542 | 1.1360 | 1.1508 |
| | SOLD | 45 | 1.1406 | 1.1469 |
| 178 | UNSOLD | 732 | 1.1537 | 1.1607 |
| | SOLD | 75 | 1.1562 | 1.1642 |
| 180 | UNSOLD | 1229 | 1.1167 | 1.1295 |
| | SOLD | 106 | 1.1199 | 1.1375 |
| 187 | UNSOLD | 336 | 1.0647 | 1.0799 |
| | SOLD | 33 | 1.0668 | 1.0739 |
| 191 | UNSOLD | 2539 | 1.1728 | 1.1876 |
| | SOLD | 79 | 1.1856 | 1.2086 |
| 20 | UNSOLD | 2239 | 1.2371 | 1.2473 |
| | SOLD | 149 | 1.2433 | 1.2500 |
| 200 | UNSOLD | 1286 | 1.1061 | 1.1381 |
| | SOLD | 42 | 1.1027 | 1.1139 |
| 210 | UNSOLD | 774 | 1.2127 | 1.2602 |
| | SOLD | 53 | 1.2147 | 1.2492 |
| 25 | UNSOLD | 393 | 1.1457 | 1.1542 |
| | SOLD | 32 | 1.1516 | 1.1679 |
| 30 | UNSOLD | 591 | 1.1422 | 1.1490 |
| | SOLD | 40 | 1.1468 | 1.1489 |
| 35 | UNSOLD | 966 | 1.1114 | 1.1202 |
| | SOLD | 118 | 1.1110 | 1.1175 |
| 36 | UNSOLD | 206 | 1.0887 | 1.0891 |
| | SOLD | 35 | 1.0930 | 1.0913 |
| 40 | UNSOLD | 588 | 1.1479 | 1.1575 |
| | SOLD | 35 | 1.1506 | 1.1254 |
| 60 | UNSOLD | 1606 | 1.1378 | 1.1711 |
| | SOLD | 90 | 1.1401 | 1.1502 |
| 63 | UNSOLD | 875 | 1.1922 | 1.2318 |
| | SOLD | 58 | 1.1917 | 1.2391 |
| 70 | UNSOLD | 1451 | 1.2658 | 1.2802 |
| | SOLD | 51 | 1.2162 | 1.2485 |
| 86 | UNSOLD | 1709 | 1.2078 | 1.2397 |
| | SOLD | 52 | 1.2121 | 1.2351 |
| 95 | UNSOLD | 1009 | 1.1001 | 1.1313 |
| | SOLD | 54 | 1.0807 | 1.1153 |

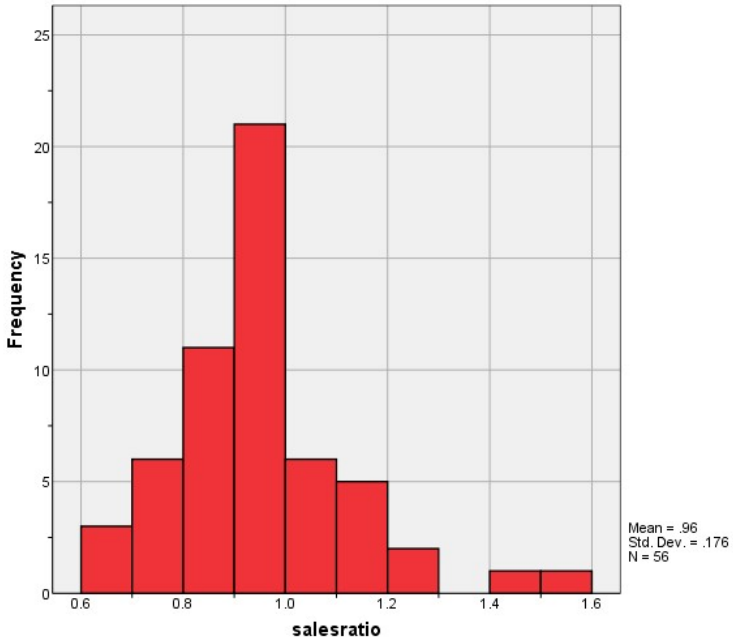
Based on the above analyses, we concluded that there was no evidence of sold properties being valued differently from unsold properties.

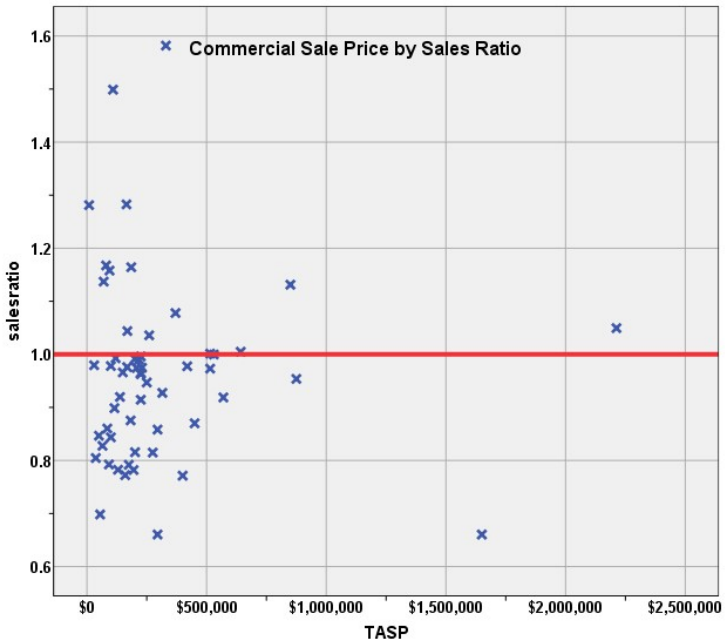
## IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 56 qualified commercial/industrial sales for the 18 month period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

| | |
|---|---|
| Median | **0.966** |
| Price Related Differential | **1.010** |
| Coefficient of Dispersion | **12.7** |

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





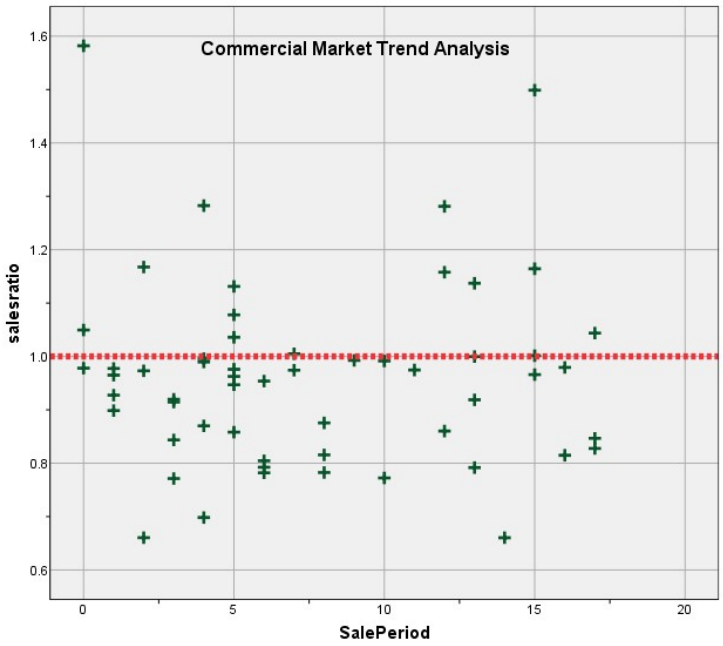

## Commercial/Industrial Market Trend Analysis

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

### Coefficients[a]

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .963 | .042 | | 22.946 | .000 |
| | SalePeriod | -5.609E-5 | .005 | -.002 | -.012 | .990 |

a. Dependent Variable: salesratio




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

### Sold/Unsold Analysis

We compared the median and mean change in value from taxable years 2018 to 2020 between sold and unsold commercial/industrial properties to determine if sold and unsold properties were valued consistently, as follows:

**Report**

DIFF

| sold | N | Median | Mean |
|---|---|---|---|
| UNSOLD | 2575 | 1.0213 | 1.1735 |
| SOLD | 56 | 1.0597 | 1.2690 |

**Report**
DIFF

| ABSTRIMP | sold | N | Median | Mean |
|---|---|---|---|---|
| 2212.00 | UNSOLD | 409 | 1.0321 | 1.1017 |
| | SOLD | 10 | 1.0876 | 1.1778 |
| 2220.00 | UNSOLD | 213 | 1.0000 | 1.0626 |
| | SOLD | 4 | 1.2976 | 1.2866 |
| 2225.00 | UNSOLD | 69 | 1.0312 | 1.1134 |
| | SOLD | 5 | 1.1227 | 1.1364 |
| 2230.00 | UNSOLD | 1137 | 1.0182 | 1.1379 |
| | SOLD | 20 | 1.2269 | 1.3719 |
| 2235.00 | UNSOLD | 147 | 1.0250 | 1.0199 |
| | SOLD | 6 | 1.0354 | 1.1235 |
| 2245.00 | UNSOLD | 111 | 1.0053 | 1.0803 |
| | SOLD | 5 | 1.0640 | 1.0925 |
| 3212.00 | UNSOLD | 167 | 1.0146 | 1.0160 |
| | SOLD | 5 | 1.0495 | 1.3415 |

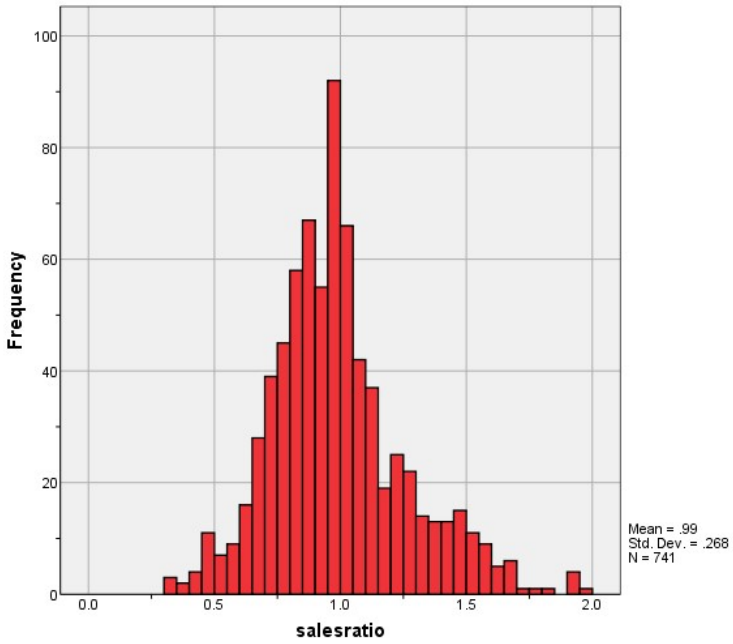
Based on the above analysis, while there was some differences noted between sold and unsold commercial properties at the subclass level, the differences were less when compared to the other comparison test. The above results indicated sold and unsold commercial/industrial properties were valued consistently.

## V. VACANT LAND SALE RESULTS

There were 746 qualified vacant land sales for the 18 month period ending June 30, 2018. We trimmed 5 sales using IAAO standards, resulting in a total of 746 sales. The sales ratio analysis was analyzed as follows:

| | |
|---|---|
| **Median** | **0.970** |
| **Price Related Differential** | **1.104** |
| **Coefficient of Dispersion** | **20.5** |

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





The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits, while the above scatter plot indicated that there were no price related differential issues. No sales were trimmed.

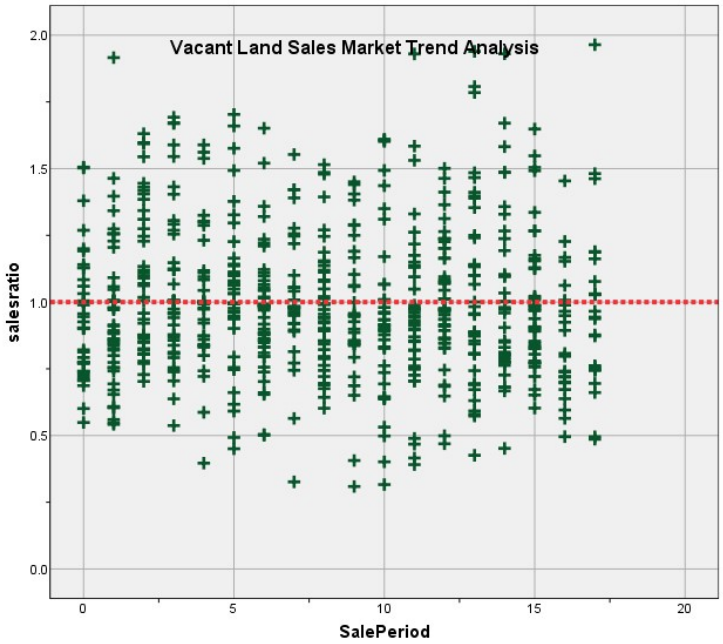
## Vacant Land Market Trend Analysis

We next analyzed the vacant land dataset using the 18-month sale period and stratified by economic area, with the following results:

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 1.006 | .018 | | 54.415 | .000 |
| | SalePeriod | -.002 | .002 | -.039 | -1.065 | .287 |

a. Dependent Variable: salesratio




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

## Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in actual value for 2018 and 2020 between each group, as follows:

**Report**

DIFF

| sold | N | Median | Mean |
|---|---|---|---|
| UNSOLD | 27612 | 1.0000 | 1.2309 |
| SOLD | 741 | 1.1706 | 1.2751 |

We also performed this comparison analysis by subdivision. The following table indicates that sold and unsold properties were valued in a similar manner for subdivisions with at least 15 sales:

**Report**
DIFF

| NBHD | sold | N | Median | Mean |
|---|---|---|---|---|
| 0 | UNSOLD | 1971 | 1.0000 | .9758 |
| | SOLD | 26 | 1.0000 | 1.0749 |
| 162 | UNSOLD | 2594 | 1.4545 | 1.4514 |
| | SOLD | 239 | 1.5833 | 1.5386 |
| 166 | UNSOLD | 235 | 1.0000 | 1.0801 |
| | SOLD | 23 | 1.0000 | 1.0769 |
| 171 | UNSOLD | 240 | 1.3571 | 1.2390 |
| | SOLD | 19 | 1.3571 | 1.2636 |
| 176 | UNSOLD | 38 | 1.0000 | 1.1546 |
| | SOLD | 16 | 1.2917 | 1.2984 |
| 178 | UNSOLD | 63 | 1.3500 | 1.3195 |
| | SOLD | 22 | 1.3500 | 1.3088 |
| 180 | UNSOLD | 355 | 1.2000 | 1.1998 |
| | SOLD | 73 | 1.2000 | 1.2419 |
| 187 | UNSOLD | 134 | 1.0000 | 1.0281 |
| | SOLD | 17 | 1.0000 | 1.1403 |
| 191 | UNSOLD | 193 | 1.0000 | 4.3455 |
| | SOLD | 18 | 1.0000 | 1.3413 |
| 210 | UNSOLD | 14625 | 1.0000 | 1.0012 |
| | SOLD | 28 | 1.0000 | 1.1071 |
| 35 | UNSOLD | 593 | 1.0000 | 2.7494 |
| | SOLD | 54 | 1.0271 | 1.0845 |
| 72 | UNSOLD | 8 | 1.0000 | .8000 |
| | SOLD | 24 | 1.1667 | 1.2011 |

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

## V. CONCLUSIONS

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

# STATISTICAL ABSTRACT

## Residential

**Ratio Statistics for CURRTOT / TASP**

| ECONAREA | Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lower Bound | Upper Bound | | Lower Bound | Upper Bound | Actual Coverage | | Lower Bound | Upper Bound | | | Mean Centered |
| . | .985 | . | . | .985 | . | . | . | .985 | . | . | 1.000 | .000 | . |
| 1.00 | 1.024 | .988 | 1.060 | .984 | .955 | 1.028 | 95.8% | .994 | .961 | 1.028 | 1.030 | .150 | 19.2% |
| 2.00 | .968 | .954 | .981 | .960 | .945 | .977 | 96.0% | .966 | .952 | .979 | 1.002 | .090 | 11.2% |
| 3.00 | .953 | .941 | .964 | .947 | .936 | .956 | 95.4% | .953 | .942 | .965 | .999 | .083 | 11.9% |
| 4.00 | .994 | .963 | 1.024 | .978 | .960 | .997 | 95.7% | .986 | .960 | 1.013 | 1.008 | .111 | 16.1% |
| 5.00 | .963 | .947 | .980 | .957 | .941 | .978 | 95.4% | .953 | .937 | .969 | 1.011 | .106 | 14.3% |
| 6.00 | .965 | .952 | .977 | .955 | .945 | .967 | 95.7% | .964 | .952 | .976 | 1.001 | .071 | 9.7% |
| 7.00 | .958 | .947 | .969 | .952 | .942 | .963 | 96.0% | .956 | .945 | .968 | 1.001 | .077 | 9.8% |
| 8.00 | .953 | .946 | .960 | .949 | .942 | .957 | 95.2% | .956 | .949 | .963 | .997 | .069 | 9.8% |
| 9.00 | .975 | .951 | .998 | .959 | .941 | .982 | 96.3% | .959 | .940 | .978 | 1.017 | .127 | 18.9% |
| 10.00 | .957 | .937 | .976 | .955 | .922 | .970 | 95.2% | .956 | .935 | .977 | 1.001 | .072 | 9.2% |
| 11.00 | .944 | .921 | .967 | .959 | .921 | .973 | 96.0% | .916 | .874 | .957 | 1.031 | .064 | 9.3% |
| 12.00 | .932 | .903 | .961 | .946 | .897 | .986 | 96.2% | .916 | .889 | .942 | 1.017 | .113 | 14.4% |
| 13.00 | .942 | .931 | .953 | .940 | .928 | .956 | 96.4% | .948 | .937 | .959 | .994 | .063 | 8.0% |

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

## Commercial Land

**Ratio Statistics for CURRTOT / TASP**

| Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lower Bound | Upper Bound | | Lower Bound | Upper Bound | Actual Coverage | | Lower Bound | Upper Bound | | | Mean Centered |
| .963 | .916 | 1.010 | .966 | .915 | .979 | 95.6% | .953 | .880 | 1.027 | 1.010 | .127 | 18.3% |

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

## Vacant Land

**Ratio Statistics for CURRLND / TASP**

| | 95% Confidence Interval for Mean | | | 95% Confidence Interval for Median | | | | 95% Confidence Interval for Weighted Mean | | | | Coefficient of Variation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | Lower Bound | Upper Bound | Median | Lower Bound | Upper Bound | Actual Coverage | Weighted Mean | Lower Bound | Upper Bound | Price Related Differential | Coefficient of Dispersion | Mean Centered |
| .989 | .970 | 1.008 | .970 | .950 | .980 | 95.3% | .896 | .856 | .935 | 1.104 | .205 | 27.1% |

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.

## Residential Median Ratio Stratification

### Sale Price

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| SPRec | $25K to $50K | 24 | 0.8% |
| | $50K to $100K | 300 | 10.2% |
| | $100K to $150K | 591 | 20.1% |
| | $150K to $200K | 648 | 22.0% |
| | $200K to $300K | 1011 | 34.4% |
| | $300K to $500K | 342 | 11.6% |
| | $500K to $750K | 23 | 0.8% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| $25K to $50K | 1.060 | .997 | .138 | 17.4% |
| $50K to $100K | .996 | 1.006 | .140 | 19.9% |
| $100K to $150K | .955 | 1.000 | .097 | 12.8% |
| $150K to $200K | .947 | 1.000 | .081 | 11.7% |
| $200K to $300K | .945 | 1.000 | .072 | 10.0% |
| $300K to $500K | .965 | 1.001 | .072 | 9.9% |
| $500K to $750K | .948 | .997 | .057 | 7.3% |
| Overall | .953 | 1.005 | .088 | 12.7% |

### Subclass

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| ABSTRIMP | 1212.00 | 2871 | 97.7% |
| | 1215.00 | 2 | 0.1% |
| | 1216.00 | 1 | 0.0% |
| | 1217.00 | 1 | 0.0% |
| | 1229.00 | 1 | 0.0% |
| | 1230.00 | 60 | 2.0% |
| | 9228.00 | 2 | 0.1% |
| | 9281.00 | 1 | 0.0% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| 1212.00 | .953 | 1.005 | .088 | 12.4% |
| 1215.00 | .973 | 1.022 | .094 | 13.3% |
| 1216.00 | .134 | 1.000 | .000 | . |
| 1217.00 | 1.095 | 1.000 | .000 | . |
| 1229.00 | .985 | 1.000 | .000 | . |
| 1230.00 | .961 | 1.031 | .064 | 9.4% |
| 9228.00 | .490 | 1.308 | 1.000 | 141.4% |
| 9281.00 | .000 | . | . | . |
| Overall | .953 | 1.005 | .088 | 12.7% |

## Improvement Age

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| AgeRec | Over 100 | 210 | 7.1% |
| | 75 to 100 | 187 | 6.4% |
| | 50 to 75 | 707 | 24.1% |
| | 25 to 50 | 527 | 17.9% |
| | 5 to 25 | 1244 | 42.3% |
| | 5 or Newer | 64 | 2.2% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| Over 100 | .980 | 1.029 | .130 | 18.4% |
| 75 to 100 | .970 | 1.017 | .115 | 16.8% |
| 50 to 75 | .952 | 1.008 | .102 | 14.3% |
| 25 to 50 | .959 | 1.004 | .080 | 10.8% |
| 5 to 25 | .947 | .997 | .072 | 10.3% |
| 5 or Newer | .976 | .997 | .072 | 9.5% |
| Overall | .953 | 1.005 | .088 | 12.7% |

## Improved Area

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| ImpSFRec | LE 500 sf | 3 | 0.1% |
| | 500 to 1,000 sf | 619 | 21.1% |
| | 1,000 to 1,500 sf | 1261 | 42.9% |
| | 1,500 to 2,000 sf | 720 | 24.5% |
| | 2,000 to 3,000 sf | 306 | 10.4% |
| | 3,000 sf or Higher | 30 | 1.0% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| LE 500 sf | .913 | 1.122 | .352 | 62.0% |
| 500 to 1,000 sf | .934 | 1.016 | .106 | 15.2% |
| 1,000 to 1,500 sf | .944 | 1.011 | .084 | 12.2% |
| 1,500 to 2,000 sf | .963 | 1.010 | .079 | 12.0% |
| 2,000 to 3,000 sf | .992 | 1.007 | .072 | 9.5% |
| 3,000 sf or Higher | 1.015 | 1.010 | .082 | 10.1% |
| Overall | .953 | 1.005 | .088 | 12.7% |

## Improvement Quality

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| QUALITY | 3 | 2 | 0.1% |
| | 4 | 199 | 6.8% |
| | 5 | 2577 | 87.7% |
| | 7 | 79 | 2.7% |
| | 8 | 82 | 2.8% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| 3 | .785 | 1.001 | .015 | 2.1% |
| 4 | .956 | 1.025 | .140 | 19.9% |
| 5 | .953 | 1.004 | .083 | 11.8% |
| 7 | .975 | 1.018 | .128 | 17.3% |
| 8 | .984 | 1.003 | .080 | 10.3% |
| Overall | .953 | 1.005 | .088 | 12.7% |

## Improvement Condition

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| CONDITION | | 1 | 0.0% |
| | AV | 2938 | 100.0% |
| Overall | | 2939 | 100.0% |
| Excluded | | 0 | |
| Total | | 2939 | |

## Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| | .985 | 1.000 | .000 | . |
| AV | .953 | 1.005 | .088 | 12.7% |
| Overall | .953 | 1.005 | .088 | 12.7% |

## Commercial Median Ratio Stratification

### Sale Price

## Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| SPRec | LT $25K | 1 | 1.8% |
| | $25K to $50K | 3 | 5.4% |
| | $50K to $100K | 9 | 16.1% |
| | $100K to $150K | 6 | 10.7% |
| | $150K to $200K | 9 | 16.1% |
| | $200K to $300K | 13 | 23.2% |
| | $300K to $500K | 6 | 10.7% |
| | $500K to $750K | 5 | 8.9% |
| | $750K to $1,000K | 2 | 3.6% |
| | Over $1,000K | 2 | 3.6% |
| Overall | | 56 | 100.0% |
| Excluded | | 0 | |
| Total | | 56 | |

## Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| LT $25K | 1.281 | 1.000 | .000 | . |
| $25K to $50K | .847 | 1.011 | .069 | 11.6% |
| $50K to $100K | .860 | .992 | .165 | 22.7% |
| $100K to $150K | .943 | 1.013 | .151 | 27.7% |
| $150K to $200K | .976 | 1.002 | .144 | 18.4% |
| $200K to $300K | .963 | 1.007 | .074 | 11.8% |
| $300K to $500K | .952 | 1.017 | .187 | 31.6% |
| $500K to $750K | 1.000 | 1.000 | .023 | 4.3% |
| $750K to $1,000K | 1.043 | 1.001 | .085 | 12.0% |
| Over $1,000K | .855 | .968 | .228 | 32.2% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Subclass

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| ABSTRIMP | 1717.50 | 1 | 1.8% |
| | 2212.00 | 10 | 17.9% |
| | 2220.00 | 4 | 7.1% |
| | 2225.00 | 5 | 8.9% |
| | 2230.00 | 20 | 35.7% |
| | 2235.00 | 6 | 10.7% |
| | 2245.00 | 5 | 8.9% |
| | 3212.00 | 5 | 8.9% |
| Overall | | 56 | 100.0% |
| Excluded | | 0 | |
| Total | | 56 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| 1717.50 | .816 | 1.000 | .000 | . |
| 2212.00 | .966 | 1.173 | .103 | 15.2% |
| 2220.00 | .968 | .993 | .017 | 2.9% |
| 2225.00 | .979 | .966 | .072 | 11.9% |
| 2230.00 | .964 | .956 | .132 | 19.9% |
| 2235.00 | .897 | 1.002 | .198 | 26.2% |
| 2245.00 | 1.044 | 1.035 | .183 | 27.4% |
| 3212.00 | .919 | .942 | .087 | 11.7% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Improvement Age

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| AgeRec | Over 100 | 10 | 17.9% |
| | 75 to 100 | 2 | 3.6% |
| | 50 to 75 | 10 | 17.9% |
| | 25 to 50 | 17 | 30.4% |
| | 5 to 25 | 17 | 30.4% |
| Overall | | 56 | 100.0% |
| Excluded | | 0 | |
| Total | | 56 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| Over 100 | .946 | 1.009 | .114 | 15.4% |
| 75 to 100 | .862 | .963 | .067 | 9.4% |
| 50 to 75 | .975 | .940 | .095 | 13.1% |
| 25 to 50 | .975 | 1.012 | .100 | 14.7% |
| 5 to 25 | .963 | 1.076 | .179 | 26.2% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Improved Area

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| ImpSFRec | LE 500 sf | 1 | 1.8% |
| | 500 to 1,000 sf | 1 | 1.8% |
| | 1,000 to 1,500 sf | 8 | 14.3% |
| | 1,500 to 2,000 sf | 11 | 19.6% |
| | 2,000 to 3,000 sf | 5 | 8.9% |
| | 3,000 sf or Higher | 30 | 53.6% |
| Overall | | 56 | 100.0% |
| Excluded | | 0 | |
| Total | | 56 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| LE 500 sf | .979 | 1.000 | .000 | . |
| 500 to 1,000 sf | 1.281 | 1.000 | .000 | . |
| 1,000 to 1,500 sf | .845 | .983 | .061 | 9.4% |
| 1,500 to 2,000 sf | .992 | 1.016 | .150 | 21.9% |
| 2,000 to 3,000 sf | .974 | 1.008 | .080 | 13.6% |
| 3,000 sf or Higher | .959 | 1.003 | .124 | 18.5% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Improvement Quality

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| QUALITY | 3 | 9 | 16.1% |
| | 4 | 5 | 8.9% |
| | 5 | 39 | 69.6% |
| | 6 | 1 | 1.8% |
| | 7 | 2 | 3.6% |
| Overall | | 56 | 100.0% |
| Excluded | | 0 | |
| Total | | 56 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| 3 | .847 | 1.036 | .140 | 21.6% |
| 4 | 1.000 | .999 | .082 | 13.8% |
| 5 | .973 | 1.046 | .123 | 18.7% |
| 6 | .947 | 1.000 | .000 | . |
| 7 | 1.090 | 1.017 | .037 | 5.3% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Improvement Condition

### Case Processing Summary

| | Count | Percent |
|---|---|---|
| CONDITION | 56 | 100.0% |
| Overall | 56 | 100.0% |
| Excluded | 0 | |
| Total | 56 | |

### Ratio Statistics for CURRTOT / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| | .966 | 1.010 | .127 | 18.3% |
| Overall | .966 | 1.010 | .127 | 18.3% |

## Vacant Land Median Ratio Stratification

## Sale Price

### Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| SPRec | LT $25K | 532 | 71.8% |
| | $25K to $50K | 151 | 20.4% |
| | $50K to $100K | 44 | 5.9% |
| | $100K to $150K | 5 | 0.7% |
| | $150K to $200K | 2 | 0.3% |
| | $200K to $300K | 1 | 0.1% |
| | $300K to $500K | 4 | 0.5% |
| | $500K to $750K | 2 | 0.3% |
| Overall | | 741 | 100.0% |
| Excluded | | 0 | |
| Total | | 741 | |

## Ratio Statistics for CURRLND / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| LT $25K | .988 | 1.046 | .222 | 28.9% |
| $25K to $50K | .973 | .993 | .126 | 19.6% |
| $50K to $100K | .817 | 1.015 | .154 | 23.4% |
| $100K to $150K | .564 | 1.011 | .290 | 41.6% |
| $150K to $200K | .610 | 1.008 | .178 | 25.2% |
| $200K to $300K | .846 | 1.000 | .000 | . |
| $300K to $500K | .855 | 1.021 | .233 | 33.7% |
| $500K to $750K | .995 | 1.005 | .235 | 33.2% |
| Overall | .970 | 1.104 | .205 | 27.8% |

### Subclass

## Case Processing Summary

| | | Count | Percent |
|---|---|---|---|
| ABSTRLND | 100.00 | 272 | 36.7% |
| | 200.00 | 23 | 3.1% |
| | 300.00 | 2 | 0.3% |
| | 510.00 | 1 | 0.1% |
| | 520.00 | 3 | 0.4% |
| | 540.00 | 2 | 0.3% |
| | 550.00 | 4 | 0.5% |
| | 1107.00 | 1 | 0.1% |
| | 1112.00 | 396 | 53.4% |
| | 1114.00 | 27 | 3.6% |
| | 1135.00 | 3 | 0.4% |
| | 2112.00 | 1 | 0.1% |
| | 2125.50 | 1 | 0.1% |
| | 2130.00 | 5 | 0.7% |
| Overall | | 741 | 100.0% |
| Excluded | | 0 | |
| Total | | 741 | |

## Ratio Statistics for CURRLND / TASP

| Group | Median | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation Median Centered |
|---|---|---|---|---|
| 100.00 | .982 | 1.095 | .207 | 27.6% |
| 200.00 | .770 | .797 | .195 | 28.2% |
| 300.00 | .689 | 1.137 | .273 | 38.6% |
| 510.00 | .469 | 1.000 | .000 | . |
| 520.00 | .537 | .933 | .384 | 59.5% |
| 540.00 | .762 | .838 | .454 | 64.3% |
| 550.00 | .727 | 1.178 | .541 | 76.4% |
| 1107.00 | .762 | 1.000 | .000 | . |
| 1112.00 | .967 | 1.077 | .195 | 26.9% |
| 1114.00 | 1.006 | 1.086 | .210 | 27.4% |
| 1135.00 | .900 | .995 | .042 | 7.4% |
| 2112.00 | .859 | 1.000 | .000 | . |
| 2125.50 | .846 | 1.000 | .000 | . |
| 2130.00 | .744 | .960 | .288 | 36.7% |
| Overall | .970 | 1.104 | .205 | 27.8% |