

PITKIN COUNTY PROPERTY ASSESSMENT STUDY







September 15, 2019

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

RE: Final Report for the 2019 Colorado Property Assessment Study

Dear Ms. Mullis:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2019 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

Harry J. Zulln

Wildrose Appraisal Inc. - Audit Division



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INTRODUCTION



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 subdivision discounting procedures. Valuation methodology for vacant land, improved properties commercial residential and 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.

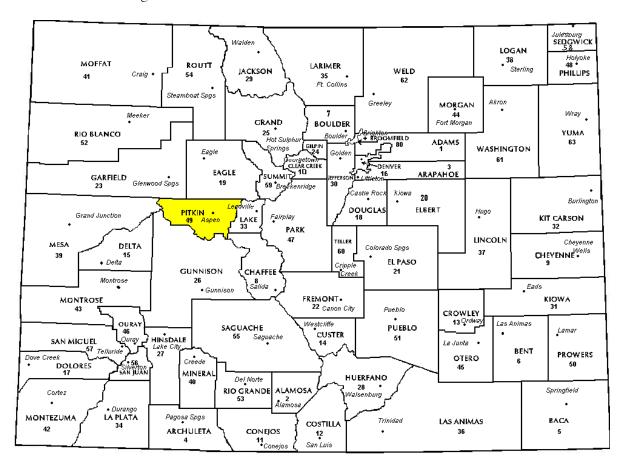
Wildrose Audit has completed the Property Assessment Study for 2019 and is pleased to report its findings for Pitkin County in the following report.



REGIONAL/HISTORICAL SKETCH OF PITKIN COUNTY

Regional Information

Pitkin County is located in the Western Slope region of Colorado. The Western Slope of Colorado refers to the region west of the Rocky Mountains. It includes Archuleta, Delta, Dolores, Eagle, Garfield, Grand, Gunnison, Hinsdale, Jackson, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Juan, San Miguel, and Summit counties.





Historical Information

Pitkin County had an estimated population of approximately 17,752 people with 18.3 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 3.5 percent change from April 1, 2010 to July 1, 2016.

Pitkin County was created in 1881 from a part of Gunnison County. The county was named for Governor Frederick W. Pitkin.

The county seat is Aspen, named by town site surveyor, B. Clark Wheeler, for the quaking aspen trees growing in the area. Originally named Ute City, the community was renamed Aspen in 1880 and in its peak production years of 1891 and 1892 surpassed Leadville as the United States' most productive silver-mining district.

Aspen's development as a ski resort first flickered in the 1930s when investors conceived of a ski area, but the project was interrupted by World War II. Friedl Pfeifer, a member of the 10th Mountain Division who had trained in the area, returned to the area and linked up with industrialist Walter Paepcke and his wife Elizabeth. The Aspen Skiing Corporation was founded in 1946 and the town quickly became a well-known resort.

The city sits along the southeast (upper) end of the Roaring Fork Valley, along the Roaring Fork River, a tributary of the Colorado River. It is surrounded by mountain and wilderness areas on three sides: Red Mountain to the north, Smuggler Mountain to the east, and Aspen Mountain to the south. (www.Wikipedia.org, William Bright, Colorado Place Names, 3rd Edition, Johnson Books, 2004, p. 141 and 11)



RATIO ANALYSIS

Methodology

All significant classes of property were analyzed. Sales were collected for each property class over the eighteen month period from January 1, 2017 through June 30, 2018. Property classes with less than thirty sales had the sales period extended in six month increments up to an additional forty-two months. If this extended sales period did not produce the minimum thirty qualified sales, the Audit performed supplemental appraisals to reach the minimum.

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.

All sixty-four counties were examined for compliance on the economic area level. Where there were sufficient sales data, the neighborhood and subdivision levels were tested for compliance. Although counties are determined to be in or out of compliance at the class level, non-compliant economic areas, neighborhoods and subdivisions (where applicable) were discussed with the Assessor.

Data on the individual economic areas, neighborhoods and subdivisions are found in the STATISTICAL APPENDIX.

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 Pitkin County are:

Pitkin County Ratio Grid							
Number of Unweighted Price Coefficient Qualified Median Related of Time Tree Property Class Sales Ratio Differential Dispersion Analy							
Commercial/Industrial	39	1.000	0.975	6.9	Compliant		
Condominium	486	0.999	1.008	7.9	Compliant		
Single Family	391	0.996	1.028	8.1	Compliant		
Vacant Land	N/A	N/A	N/A	N/A	N/A		

After applying the above described methodologies, it is concluded from the sales ratios that Pitkin County is in compliance with

SBOE, DPT, and Colorado State Statute valuation guidelines.

Recommendations



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 Pitkin County has complied with the statutory requirements to analyze the effects of time on value in their county. Pitkin County has also satisfactorily applied the results of their time trending analysis to arrive at the time adjusted sales price (TASP).

Recommendations



SOLD/UNSOLD ANALYSIS

Methodology

Pitkin 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. 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. determines if the sold/unsold variable is statistically and empirically significant. 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 nonparametric 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 Re	esults
Property Class	Results
Commercial/Industrial	Compliant
Condominium	Compliant
Single Family	Compliant
Vacant Land	N/A

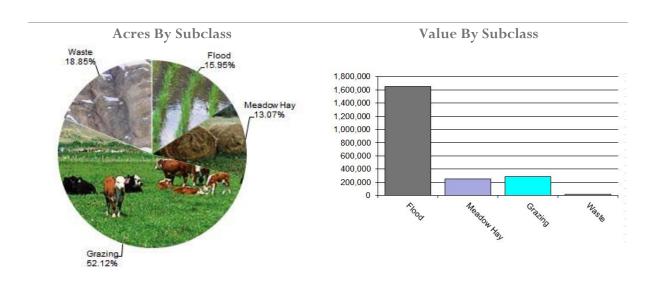
Conclusions

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

Recommendations



AGRICULTURAL LAND STUDY



Agricultural Land

County records were reviewed to determine major land categories such as irrigated farm, dry farm, meadow hay, grazing and other In addition, county records were lands. reviewed in order to determine if: 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 developed any locally yields, 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:



Pitkin County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre T	County Assessed Total Value	WRA Total Value	Ratio
4117	Flood	7,256	227.76	1,652,648	1,599,708	1.03
4137	Meadow Hay	5,945	42.34	251,741	251,741	1.00
4147	Grazing	23,707	12.12	287,440	287,440	1.00
4167	Waste	8,575	2.39	20,458	20,458	1.00
Total/Avg		45,483	48.64	2,212,287	2,159,347	1.02

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

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

Recommendations



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

Pitkin 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

Pitkin 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
- Aerial Photography/Pictometry

Pitkin 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



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 2019 for Pitkin County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 52 sales listed as unqualified.

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

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

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

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 inadequate, fail to reflect typical properties, or have been disqualified for insufficient cause. In addition, the contractor has reviewed disqualified sales by assigned code. If there appears to be any inconsistency in the coding, the contractor has conducted further analysis 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.

Pitkin County did not qualify for indepth subclass analysis.

Conclusions

Pitkin County appears to be doing a good job of verifying their sales. WRA agreed with the county's reason for disqualifying each of the sales selected in the sample. There are no recommendations or suggestions.

Recommendations



ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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



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



VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2019 in Pitkin County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14) and by applying the recommended methodology in ARL Vol 3, Chap 4. Subdivision Discounting in the intervening year can be accomplished by reducing the absorption period by one year.

Conclusions

Pitkin County has implemented proper procedures to adequately estimate absorption periods, discount rates, and lot values for qualifying subdivisions.

Recommendations



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 C.R.S. Chapter 39-1-103 (17)(a)(II)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 under lease, permit, concession, contract, or other agreement.

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

Conclusions

Pitkin 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



PERSONAL PROPERTY AUDIT

Pitkin 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.

Pitkin 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
- 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
- Google
- TD1000
- Business Licenses
- Res Rental Permits

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.

Pitkin County submitted their personal property written audit plan and was current for the 2019 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:

- Accounts with obvious discrepancies
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Same business type or use



- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts Best Information Available
- Accounts close to the \$7,700 actual value exemption status
- Accounts protested with substantial disagreement
- Value not consistent w/property

Conclusions

Pitkin 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



WILDROSE AUDITOR STAFF

Harry J. Fuller, Audit Project Manager

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Carl W. Ross, Agricultural/Natural Resource Analyst

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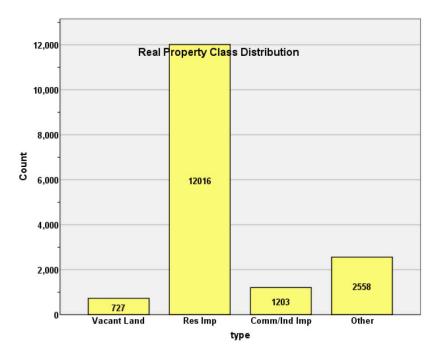
STATISTICAL APPENDIX



STATISTICAL COMPLIANCE REPORT FOR PITKIN COUNTY 2019

I. OVERVIEW

Pitkin County is a mountain resort located in western Colorado. The county has a total of 16,504 real property parcels, according to data submitted by the county assessor's office in 2019. The following provides a breakdown of property classes for this county:



The vacant land class of properties was dominated by residential land. Residential lots (coded 100 and 1212) accounted for 55.3% of all vacant land parcels. Because there are fewer than 1,200 vacant land parcels, this county is exempt from statistical compliance analysis.

For residential improved properties, single family properties accounted for 44.3% of all residential properties. Residential condominiums accounted for 50.9% of all residential improved properties. Based on the guidelines for the state audit statistical compliance analysis, we will analyze residential condominiums separately.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. They accounted for 7.3% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2019 Colorado Property Assessment Study. Information was provided by the Pitkin Assessor's Office in May 2019. The data included all 5 property record files as specified by the Auditor.



III. RESIDENTIAL SALES RESULTS

There were 877 qualified residential sales for the 24 month period prior to June 30, 2018. The sales ratio analysis was analyzed as follows:

Residential Non-Condominiums (391 Sales)

Median	0.996
Price Related Differential	1.028
Coefficient of Dispersion	8.1

Residential Condominiums (486 Sales)

Median	0.999
Price Related Differential	1.008
Coefficient of Dispersion	7.9

We next stratified the above ratio analysis by neighborhood for both residential non-condominiums and residential condominiums with at least 10 sales, as follows:

Non-Condominiums by Neighborhood:

Case Processing Summary

		Count	Percent
NBHD	101001	27	25.0%
	102020	10	9.3%
	104011	12	11.1%
	106011	12	11.1%
	107031	19	17.6%
	107041	17	15.7%
	111026	11	10.2%
Overall		108	100.0%
Excluded		32	
Total		140	

Ratio Statistics for CURRTOT / TASP

		Price Related	Coefficient of
Group	Median	Differential	Dispersion
101001	.952	1.031	.118
102020	.946	1.053	.102
104011	.957	1.042	.082
106011	1.009	1.010	.081
107031	.967	1.029	.109
107041	1.016	1.009	.116
111026	1.014	.975	.123
Overall	.970	1.045	.110



Residential Non-Condominiums by Neighborhood: Case Processing Summary

		Count	Percent
CondoNBHD	402168 - HUNTER CREEK PHASE III	13	8.0%
	403176 - INN AT ASPEN, RESIDENTIAL	13	8.0%
	407113 - CRESTWOOD	14	8.6%
	407177 - INNS OF CRT DBA WOODBRIDGE	11	6.7%
	407284 - SEASONS FOUR	12	7.4%
	407304 - SNOWMASS MTN	11	6.7%
	407339 - WILLOWS AKA ASPENWOODS	13	8.0%
	407389 - TOP OF THE VILLAGE/ ALL BLDGS	10	6.1%
	407658 - CAPITOL PEAK LODGE	11	6.7%
	407684 - VICEROY	42	25.8%
	408471 - VILLAS @ ELK RUN	13	8.0%
Overall		163	100.0%
Excluded		0	
Total		163	

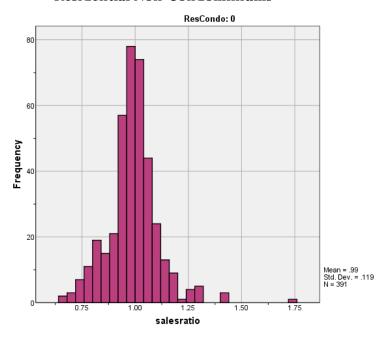
Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
402168 - HUNTER CREEK PHASE III	.994	.997	.063
403176 - INN AT ASPEN, RESIDENTIAL	1.033	1.041	.127
407113 - CRESTWOOD	.999	1.086	.163
407177 - INNS OF CRT DBA WOODBRIDGE	1.001	1.002	.053
407284 - SEASONS FOUR	1.003	.991	.054
407304 - SNOWMASS MTN	.999	1.009	.075
407339 - WILLOWS AKA ASPENWOODS	1.002	1.007	.121
407389 - TOP OF THE VILLAGE/ ALL BLDGS	1.000	.998	.069
407658 - CAPITOL PEAK LODGE	1.000	1.054	.111
407684 - VICEROY	.996	1.100	.136
408471 - VILLAS @ ELK RUN	.988	1.010	.099
Overall	.998	1.029	.107

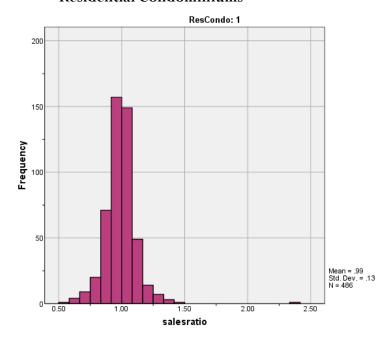
The above ratio statistics were in compliance with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall residential sales. The following graphs describe further the sales ratio distribution for these properties:



Residential Non-Condominiums



Residential Condominiums





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

Residential Market Trend Analysis

We next analyzed the residential dataset using the 24-month sale period for any residual market trending. We stratified the sales by residential non-condominiums and residential condominiums (0 = residential non-condominiums, 1 = residential condominiums), with the following results:

Coefficients^a

ResCondo	Model		Unstandard B	lized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
0	1	(Constant)	.994	.012		83.690	.000
		SalePeriod	.000	.001	022	437	.663
1	1	(Constant)	.995	.011		88.936	.000
		SalePeriod	.000	.001	013	281	.779

a. Dependent Variable: salesratio

Although the above results indicate that residential condominiums had a statistically significant trend, the magnitude of this trend was marginal at best.

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 2019 between each group, stratified by residential non-condominiums and condominiums, as follows:

Report	
VALSF	

V/ (LOI				
ResCondo	SOLD	N	Median	Mean
NON-CONDO	UNSOLD	5521	\$851	\$1,140
	SOLD	389	\$809	\$1,229
CONDO	UNSOLD	5385	\$686	\$929
	SOLD	476	\$779	\$1,005

We next examined the change in actual value from taxable years 2018 to 2019 for each group as follows:

Report

D	I	F	F

ResCondo	SOLD	N	Median	Mean
NON-CONDO	UNSOLD	5579	1.07	1.11
	SOLD	390	1.09	1.14
CONDO	UNSOLD	5498	1.05	1.09
	SOLD	480	1.08	1.09



We next examined the change in value by residential neighborhood for residential non-condominiums and condominiums and found overall consistency. The following table indicates the mean and median change in value for sold/unsold properties for neighborhoods with at least 10 sales:

Residential Non-Condominiums

Report DIFF

DIFF	001.5		la a e	la a
NBHD	SOLD	N	Median	Mean
101001	UNSOLD	304	1.06	1.10
	SOLD	27	1.07	1.07
102020	UNSOLD	98	1.21	1.26
	SOLD	10	1.26	1.23
104011	UNSOLD	74	1.23	1.23
	SOLD	12	1.24	1.34
106011	UNSOLD	114	1.04	1.06
	SOLD	12	1.03	1.06
107031	UNSOLD	173	.98	1.02
	SOLD	19	.98	.99
107041	UNSOLD	186	1.04	1.06
	SOLD	17	1.05	1.10
111026	UNSOLD	33	1.02	1.02
	SOLD	11	1.04	1.06

Residential Condominiums

Report

DIF	Т
Con	c

CondoNBHD	SOLD	N	Median	Mean
402168 - HUNTER CREEK	UNSOLD	117	1.16	1.16
PHASE III	SOLD	13	1.16	1.17
403176 - INN AT ASPEN,	UNSOLD	111	1.50	1.50
RESIDENTIAL	SOLD	13	1.50	1.52
407113 - CRESTWOOD	UNSOLD	122	.95	.95
	SOLD	14	.95	.95
407177 - INNS OF CRT DBA	UNSOLD	73	1.05	1.05
WOODBRIDGE	SOLD	11	1.05	1.06
407284 - SEASONS FOUR	UNSOLD	84	1.03	1.03
	SOLD	12	1.03	1.03
407304 - SNOWMASS MTN	UNSOLD	48	1.00	1.00
	SOLD	11	1.00	1.02
407339 - WILLOWS AKA	UNSOLD	39	1.06	1.06
ASPENWOODS	SOLD	13	1.06	1.06
407389 - TOP OF THE	UNSOLD	100	.87	.90
VILLAGE/ ALL BLDGS	SOLD	10	.88	.91
407658 - CAPITOL PEAK	UNSOLD	71	.96	.98
LODGE	SOLD	11	.96	.99
407684 - VICEROY	UNSOLD	111	.66	.68
	SOLD	42	.72	.71
408471 - VILLAS @ ELK RUN	NUNSOLD	75	1.08	1.10
	SOLD	13	1.08	1.12

Based on the second test results, we concluded that the assessor valued sold and unsold residential properties consistently.



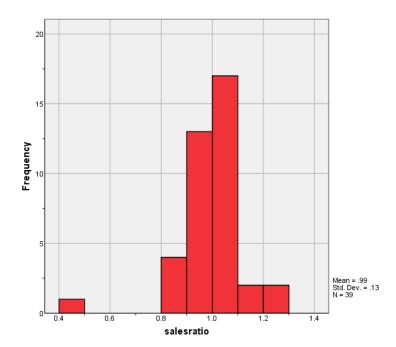
IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 39 qualified commercial and industrial sales in the 24-month sale period ending June 30, 2018.

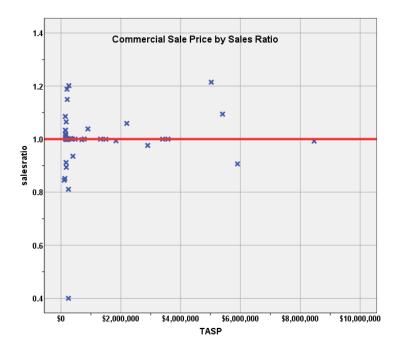
The sales ratio analysis was analyzed as follows:

Median	1.000
Price Related Differential	0.975
Coefficient of Dispersion	6.9

The above table indicates that the Pitkin 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

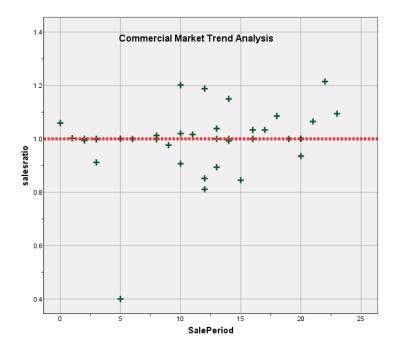
The commercial sales were analyzed, examining the sale ratios across the 24 month sale period with the following results:

Coefficients^a

		Unstandardized		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	.935	.043		21.738	.000
	SalePeriod	.005	.003	.246	1.544	.131

a. Dependent Variable: salesratio





The market trend results indicated no statistically significant trend. We concluded that the assessor has adequately addressed market trending for commercial and industrial sales.

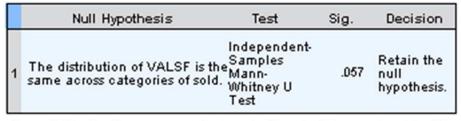
Sold/Unsold Analysis

We compared the 2019 actual value per square foot between sold and unsold commercial properties to determine if the assessor was valuing each group consistently, as follows:

Report VALSF		
sold	N	Me
UNSOLD	809	\$8

sold	N	Median	Mean
UNSOLD	809	\$856	\$1,050
SOLD	27	\$523	\$896

Hypothesis Test Summary



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



We also examined sold and unsold commercial properties by subclass, using the change in taxable value method, to determine if both were valued in a similar manner by the assessor, as follows:

Report DIFF				
ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	37	1.13	1.15
	SOLD	5	1.12	1.24
2220.00	UNSOLD	48	1.07	1.08
	SOLD	3	1.07	1.12
2230.00	UNSOLD	45	1.12	1.15
	SOLD	2	1.13	1.13
2245.00	UNSOLD	879	1.12	1.18
	SOLD	27	1.07	1.16
Total	UNSOLD	1160	1.12	1.17
	SOLD	39	1.09	1.17

Based on the above results, there was no evidence that sold properties were valued consistently higher than unsold properties.

V. VACANT LAND SALE RESULTS

Based on the guidelines of the 2019 audit, vacant land properties were exempt from analysis.

V. CONCLUSIONS

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



STATISTICAL ABSTRACT Residential

Ratio Statistics for CURRTOT / TASP 95% Confidence Interval for 95% Confidence Interval for 95% Confidence Interval for Median Weighted Mean Mean Actual Weighted Price Related Coefficient of Mean Lower Bound Upper Bound Median Lower Bound Upper Bound Coverage Mean Lower Bound Upper Bound Differential Dispersion ResCondo .990 1.002 .997 .988 95.7% .964 .947 .982 1.026 .082 .993 .981 1.004 .999 .996 1.000 95.9% .983 .973 .993 1.010 .081

Commercial

Ratio Statistics for CURRTOT / TASP

	95% Confiden Me	ice Interval for an		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
.993	.951	1.035	1.000	.998	1.016	97.6%	1.019	.965	1.073	.975	.069	13.1%

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.

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 distribution for the ratios.



Residential Median Ratio Stratification

Sale Price (0 = Non-Condominiums, 1 = Condominiums)

Case Processing Summary

ResCondo		,	Count	Percent
0	SPRec	\$150K to \$200K	4	1.0%
		\$200K to \$300K	5	1.3%
		\$300K to \$500K	30	7.7%
		\$500K to \$750K	54	13.8%
		\$750K to \$1,000K	29	7.4%
		Over \$1,000K	269	68.8%
	Overall		391	100.0%
	Excluded		0	
	Total		391	
1	SPRec	\$150K to \$200K	15	3.1%
		\$200K to \$300K	54	11.1%
		\$300K to \$500K	77	15.8%
		\$500K to \$750K	93	19.1%
		\$750K to \$1,000K	58	11.9%
		Over \$1,000K	181	37.2%
		\$50K to \$100K	5	1.0%
		\$100K to \$150K	3	0.6%
	Overall		486	100.0%
	Excluded		0	
	Total		486	

Ratio Statistics for CURRTOT / TASP

					Coefficient of
			Price Related	Coefficient of	Variation
ResCondo	Group	Median	Differential	Dispersion	Median Centered
0	\$150K to \$200K	1.262	1.006	.074	14.5%
	\$200K to \$300K	1.077	1.009	.110	17.4%
	\$300K to \$500K	.976	.997	.083	10.4%
	\$500K to \$750K	.995	1.000	.055	7.7%
	\$750K to \$1,000K	1.004	1.002	.064	10.0%
	Over \$1,000K	.996	1.022	.086	12.5%
	Overall	.997	1.026	.082	11.9%
1	\$150K to \$200K	1.110	1.010	.158	32.6%
	\$200K to \$300K	1.008	1.003	.074	9.6%
	\$300K to \$500K	.997	1.001	.103	14.5%
	\$500K to \$750K	.999	1.002	.068	9.5%
	\$750K to \$1,000K	1.000	.998	.088	13.5%
	Over \$1,000K	.998	.999	.067	10.3%
	\$50K to \$100K	1.004	1.009	.115	15.8%
	\$100K to \$150K	.938	1.003	.049	7.7%
	Overall	.999	1.010	.081	13.0%



Subclass (0 = Non-Condominiums, 1 = Condominiums) Case Processing Summary

ResCon	do	•	Count	Percent
0	ABSTRIMP	.00	1	0.3%
		1212.00	352	90.0%
		1212.75	1	0.3%
		1215.00	2	0.5%
		1220.00	1	0.3%
		1225.00	1	0.3%
		1231.00	32	8.2%
		1235.00	1	0.3%
	Overall	-	391	100.0%
	Excluded		0	
	Total		391	
1	ABSTRIMP	1230.00	486	100.0%
	Overall		486	100.0%
	Excluded		0	
	Total		486	

Ratio Statistics for CURRTOT / TASP

ResCondo	Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.00	1.022	1.000	.000	
	1212.00	.996	1.030	.082	11.8%
	1212.75	.987	1.000	.000	
	1215.00	1.032	.992	.033	4.6%
	1220.00	.962	1.000	.000	
	1225.00	.757	1.000	.000	
	1231.00	.999	.981	.084	13.8%
	1235.00	1.077	1.000	.000	
	Overall	.997	1.026	.082	11.9%
1	1230.00	.999	1.010	.081	13.0%
	Overall	.999	1.010	.081	13.0%

Improvement Age (0 = Non-Condominiums, 1 = Condominiums)

ResCondo		J	Count	Percent
0	AgeRec	0	2	0.5%
		Over 100	15	3.8%
		75 to 100	1	0.3%
		50 to 75	26	6.6%
		25 to 50	156	39.9%
		5 to 25	155	39.6%
		5 or Newer	36	9.2%
	Overall		391	100.0%
	Excluded		0	
	Total		391	
1	AgeRec	Over 100	10	2.1%
		50 to 75	42	8.6%
		25 to 50	328	67.5%
		5 to 25	103	21.2%



	5 or Newer	3	0.6%
Overall		486	100.0%
Excluded		0	
Total		486	

ResCondo	Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	0	.979	1.029	.044	6.2%
	Over 100	.962	.996	.101	13.7%
	75 to 100	.998	1.000	.000	
	50 to 75	.953	1.006	.090	12.6%
	25 to 50	.994	1.025	.086	12.5%
	5 to 25	1.001	1.034	.073	11.2%
	5 or Newer	.993	1.015	.088	12.2%
	Overall	.997	1.026	.082	11.9%
1	Over 100	.964	.997	.052	7.2%
	50 to 75	.999	1.029	.102	23.8%
	25 to 50	.999	1.013	.073	10.6%
	5 to 25	.999	.999	.100	14.4%
	5 or Newer	1.001	.991	.034	5.2%
	Overall	.999	1.010	.081	13.0%

Improved Area (0 = Non-Condominiums, 1 = Condominiums)

ResCo	ondo	,	Count	Percent
0	ImpSFRec	0	1	0.3%
		LE 500 sf	1	0.3%
		500 to 1,000 sf	17	4.3%
		1,000 to 1,500 sf	36	9.2%
		1,500 to 2,000 sf	62	15.9%
		2,000 to 3,000 sf	100	25.6%
		3,000 sf or Higher	174	44.5%
	Overall		391	100.0%
	Excluded		0	
	Total		391	
1	ImpSFRec	LE 500 sf	97	20.0%
		500 to 1,000 sf	173	35.6%
		1,000 to 1,500 sf	132	27.2%
		1,500 to 2,000 sf	37	7.6%
		2,000 to 3,000 sf	32	6.6%
		3,000 sf or Higher	15	3.1%
	Overall		486	100.0%
	Excluded		0	
	Total		486	



					Coefficient of
			Price Related	Coefficient of	Variation
ResCondo	Group	Median	Differential	Dispersion	Median Centered
0	0	1.022	1.000	.000	
	LE 500 sf	.936	1.000	.000	
	500 to 1,000 sf	.959	1.097	.128	17.4%
	1,000 to 1,500 sf	.978	1.014	.102	13.9%
	1,500 to 2,000 sf	.996	1.010	.059	9.4%
	2,000 to 3,000 sf	.995	1.017	.079	12.4%
	3,000 sf or Higher	.999	1.033	.084	11.7%
	Overall	.997	1.026	.082	11.9%
1	LE 500 sf	.998	1.020	.081	10.8%
	500 to 1,000 sf	1.000	1.015	.092	16.1%
	1,000 to 1,500 sf	.999	1.008	.076	11.5%
	1,500 to 2,000 sf	.996	.994	.066	10.4%
	2,000 to 3,000 sf	.999	1.015	.078	11.8%
	3,000 sf or Higher	.999	.999	.037	5.1%
	Overall	.999	1.010	.081	13.0%

Improvement Quality (0 = Non-Condominiums, 1 = Condominiums)

ResCor	ndo	,	Count	Percent
0	QUALITY		2	0.5%
		1 - POOR	1	0.3%
		2 - FAIR	18	4.6%
		23 - DUP CONDO - AVG	4	1.0%
		24 - DUP CONDO - GOOD	8	2.0%
		25 - DUP CONDO - V GOOD	16	4.1%
		26 - DUP CONDO - EXCELLENT	3	0.8%
		3 - AVERAGE	108	27.6%
		3 - FAIR	1	0.3%
		4 - AVERAGE	5	1.3%
		4 - GOOD	76	19.4%
		5 - GOOD	2	0.5%
		5 - V GOOD	86	22.0%
		6 - EXCELLENT	53	13.6%
		7 - SUPERIOR	8	2.0%
	Overall		391	100.0%
	Excluded		0	
	Total		391	
1	QUALITY	10 - POOR	1	0.2%
		20 - FAIR	6	1.2%
		30 - TYPICAL/AVG	129	26.5%
		40 - GOOD	141	29.0%
		50 - VERY GOOD	150	30.9%
		60 - EXCELLENT	49	10.1%
		70 - SUPERIOR	10	2.1%
	Overall		486	100.0%
	Excluded		0	
	Total		486	



D 0 1		A4 - P	Price Related	Coefficient of	Coefficient of Variation
ResCondo	Group	Median	Differential	Dispersion	Median Centered
0		.979	1.029	.044	6.2%
	1 - POOR	.924	1.000	.000	
	2 - FAIR	.989	1.038	.064	9.2%
	23 - DUP CONDO - AVG	.709	1.032	.127	23.7%
	24 - DUP CONDO - GOOD	1.001	.996	.079	14.7%
	25 - DUP CONDO - V GOOD	1.001	1.008	.061	9.4%
	26 - DUP CONDO - EXCELLENT	.998	.992	.042	8.6%
	3 - AVERAGE	.977	1.026	.071	9.7%
	3 - FAIR	.725	1.000	.000	
	4 - AVERAGE	1.077	1.039	.143	18.5%
	4 - GOOD	1.015	1.022	.081	11.8%
	5 - GOOD	1.079	1.014	.070	9.9%
	5 - V GOOD	.999	1.022	.098	14.5%
	6 - EXCELLENT	.997	1.032	.068	10.3%
	7 - SUPERIOR	.981	1.032	.073	9.8%
	Overall	.997	1.026	.082	11.9%
1	10 - POOR	.866	1.000	.000	
	20 - FAIR	.964	1.037	.064	7.5%
	30 - TYPICAL/AVG	1.000	1.002	.086	16.3%
	40 - GOOD	1.000	1.008	.099	14.0%
	50 - VERY GOOD	.999	1.001	.062	9.3%
	60 - EXCELLENT	.997	.990	.064	10.0%
	70 - SUPERIOR	.887	.997	.063	8.4%
	Overall	.999	1.010	.081	13.0%

Commercial Median Ratio Stratification

Sale Price

		Count	Percent
SPRec	\$100K to \$150K	5	12.8%
	\$150K to \$200K	10	25.6%
	\$200K to \$300K	6	15.4%
	\$300K to \$500K	4	10.3%
	\$500K to \$750K	1	2.6%
	\$750K to \$1,000K	2	5.1%
	Over \$1,000K	11	28.2%
Overall		39	100.0%
Excluded		0	
Total		39	



		Price Related	Coefficient of	Coefficient of Variation
Group	Median	Differential	Dispersion	Median Centered
\$100K to \$150K	1.033	.990	.082	12.9%
\$150K to \$200K	1.006	.997	.049	8.0%
\$200K to \$300K	.999	1.006	.191	30.3%
\$300K to \$500K	1.000	1.000	.017	3.7%
\$500K to \$750K	.998	1.000	.000	
\$750K to \$1,000K	1.019	.999	.019	2.6%
Over \$1,000K	1.000	.997	.045	8.2%
Overall	1.000	.975	.069	13.1%

Subclass

Case Processing Summary

	_	_	
		Count	Percent
ABSTRIMP	1723.50	1	2.6%
	2212.00	5	12.8%
	2215.00	1	2.6%
	2220.00	3	7.7%
	2230.00	2	5.1%
	2245.00	27	69.2%
Overall		39	100.0%
Excluded		0	
Total		39	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1723.50	.998	1.000	.000	
2212.00	.994	1.007	.050	7.1%
2215.00	.993	1.000	.000	
2220.00	1.000	1.000	.000	0.0%
2230.00	1.075	.900	.130	18.4%
2245.00	1.000	.982	.080	14.9%
Overall	1.000	.975	.069	13.1%

Improvement Age

		Count	Percent
AgeRec	0	10	25.6%
	Over 100	5	12.8%
	50 to 75	2	5.1%
	25 to 50	13	33.3%
	5 to 25	9	23.1%
Overall		39	100.0%
Excluded		0	
Total		39	



Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.006	1.030	.090	20.7%
Over 100	1.000	.995	.025	4.9%
50 to 75	.973	1.052	.068	9.6%
25 to 50	1.000	.964	.066	11.6%
5 to 25	.998	.996	.075	10.3%
Overall	1.000	.975	.069	13.1%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	17	43.6%
	500 to 1,000 sf	9	23.1%
	1,000 to 1,500 sf	4	10.3%
	1,500 to 2,000 sf	4	10.3%
	2,000 to 3,000 sf	2	5.1%
	3,000 sf or Higher	3	7.7%
Overall		39	100.0%
Excluded		0	
Total		39	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LE 500 sf	1.000	.960	.095	17.8%
500 to 1,000 sf	1.000	1.026	.038	7.7%
1,000 to 1,500 sf	1.030	1.032	.056	7.7%
1,500 to 2,000 sf	.997	.993	.027	4.3%
2,000 to 3,000 sf	.952	1.039	.048	6.8%
3,000 sf or Higher	1.094	.966	.065	9.9%
Overall	1.000	.975	.069	13.1%

Improvement Quality

		Count	Percent
QUALITY		10	25.6%
	3 - AVERAGE	15	38.5%
	4 - GOOD-BASE	12	30.8%
	5 - VERY GOOD	2	5.1%
Overall		39	100.0%
Excluded		0	
Total		39	



Croup	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Group				
	1.006	1.030	.090	20.7%
3 - AVERAGE	.999	.937	.085	11.9%
4 - GOOD-BASE	1.000	1.019	.038	7.5%
5 - VERY GOOD	1.032	1.003	.032	4.6%
Overall	1.000	.975	.069	13.1%