

# 2020 BOULDER COUNTY PROPERTY ASSESSMENT STUDY





WILDROSE Appraisal, Incorporated Audit Division



September 15, 2020

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

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

Dear Ms. Mullis:

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

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

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

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

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

Harry J. Hullon

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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 twopart 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 and discounting procedures. Valuation methodology for vacant land, improved residential properties commercial 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 2020 and is pleased to report its findings for Boulder County in the following report.



# REGIONAL/HISTORICAL SKETCH OF BOULDER COUNTY

## **Regional Information**

Boulder 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**

Boulder County had an estimated population of approximately 322,226 people with 443.8 people per square mile, according to the U.S. Census Bureau's 2016 estimated census data. This represents a 9.38 percent change from April 1, 2010 to July 1, 2016.

Boulder County was one of the original 17 counties created by the Territory of Colorado on January 11,1861. The county was named for Boulder City and Boulder Creek, so named because of the abundance of boulders in the area. Boulder County retains essentially the same borders as in 1861, although a small portion of its southeastern corner became part of the City and County of Broomfield in 2001.

In the early to mid 1800s, the nomadic Southern Arapaho Native American tribe frequently wintered at the base of the foothills in the Boulder area. Chief Niwot and his band called the site their home. Other nomadic tribes included the Utes, Cheyennes, Comanches, and Sioux.

The first recorded European settlers in the area were gold prospectors who arrived in 1858,

when Boulder was part of the Nebraska Territory (The former boundary between Nebraska and Kansas territories is the present Baseline Road in Boulder). The "Boulder City Town Company" was founded on February 10, 1859. Boulder's first school house was built in 1860, followed by the creation of the Colorado Territory in 1861. In 1871 'Boulder City' was incorporated. In 1873 the railroad was extended to Boulder and, in 1890, the Boulder Railroad Depot was constructed to serve as a station for the Union Pacific Railroad. In 1876 Colorado was granted statehood, and in that same year the University of Colorado at Boulder opened.

Mining gold, silver, and coal continued to be a prominent part of the local economy until the mid 1900s. A coal miners strike lasted from 1910 to 1915, causing a military presence in nearby Louisville. Mining's relevance in the local economy declined in the 1940s, when the city began actively recruiting clean industry, such as the National Bureau of Standards, which today is the National Institute of Standards and Technology, home of the atomic clock. *(Wikipedia.org)* 



## **RATIO ANALYSIS**

#### Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 1, 2017 and June 30, 2018. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2018 in 6-month increments. If there were still fewer than 30 sales, supplemental appraisals were performed and treated as proxy sales. Residential sales for all counties using this method totaled at least 30 per county. For commercial sales, the total number analyzed was allowed, in some cases, to fall below 30. There were no sale quantity issues for counties requiring vacant land analysis or condominium analysis. Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and pricerelated 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 Boulder County are:

Boulder County Ratio Grid							
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis		
Commercial/Industrial	211	0.987	1.030	10.1	Compliant		
Condominium	N/A	N/A	N/A	N/A	N/A		
Single Family	9,872	0.989	1.006	6.3	Compliant		
Vacant Land	259	0.981	1.043	19.8	Compliant		

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

Boulder 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 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 Result	S
Property Class	Results
Commercial/Industrial	Compliant
Condominium	N/A
Single Family	Compliant
Vacant Land	Compliant

### Conclusions

### Recommendations

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



## 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: 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:



Boulder County Agricultural Land Ratio Grid						
Abstract		Number Of	County Value	County Assessed	WRA Total	
Code	Land Class	Acres	Per Acre 7	<b>Fotal Value</b>	Value	Ratio
4117	Flood	21,637	328.12	7,099,458	6,911,827	1.03
4127	Dry Farm	4,924	43.00	211,751	215,634	0.98
4137	Meadow Hay	8,515	88.11	750,240	769,122	0.98
4147	Grazing	19,603	10.92	214,036	214,036	1.00
4177	Forest	5,848	4.34	25,387	25,387	1.00
4167	Waste	337	2.39	803	803	1.00
Total/Avg		60,864	136.40	8,301,675	8,136,810	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

Boulder County has 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

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

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

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

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

Boulder 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**



## 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)(1) 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 Boulder County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 57 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

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

Recommendations



# ECONOMIC AREA REVIEW AND EVALUATION

#### Methodology

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

None

Producing Oil and Gas

#### Methodology

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

#### STATUTORY REFERENCES

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

#### Actual value determined - when.

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

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

#### Valuation:

#### Valuation for assessment.

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

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

(b) The selling price of oil or gas sold in the same field area for oil or gas transported from the premises which is not sold during the preceding calendar year, after excluding the selling price of all oil or gas delivered to the United States government or any agency thereof, the state of Colorado or any agency thereof, or any political subdivision of the state as royalty during the preceding calendar year. § 39-7-102, C.R.S.

#### Conclusions

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

#### Recommendations



## VACANT LAND

#### **Subdivision Discounting**

Subdivisions were reviewed in 2020 in Boulder 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

Boulder 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 granted lease, permit, license, concession, contract, or other agreement.

Boulder 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

Boulder 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

Boulder 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.

Boulder County is compliant with the guidelines set forth in ARL Volume 5 regarding discovery procedures, using the following methods to discover personal property accounts in the county:

- Public Record Documents
- MLS Listing and/or Sold Books
- Chamber of Commerce/Economic Development Contacts
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth
- Questionnaires, Letters and/or Phone Calls to Buyer, Seller and/or Realtor
- Secretary of State Business Search
- Leasing Company Information
- Boulder County Business Report
- Web Search by Business Type

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.

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

- Businesses in a selected area
- Accounts with obvious discrepancies
- New businesses filing for the first time



- Accounts with greater than 10% change
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Same business type or use
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts Best Information Available
- Accounts close to the \$7,700 actual value exemption status
- Lowest or highest quartile of value per square foot
- Accounts protested with substantial disagreement

Boulder 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

Boulder 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

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## **A P P E N D I C E S**



#### STATISTICAL COMPLIANCE REPORT FOR BOULDER COUNTY 2020

#### I. OVERVIEW

Boulder County is an urban county located along Colorado's Front Range. The county has a total of 126,573 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, 1110 and 1112) accounted for 73.9% of all vacant land parcels.

For residential improved properties, single family properties accounted for 82.8% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 3.5% 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:

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



Geo Area	Residential	Comm/Ind	Vacant Land
Economic Area	V	V	Ν
Neighborhood	N	N	Ν
Subdivision	N	N	N
Codes	•		ĺ

*V*=*Valid Geographic Level* – *used for modeling* 

*N* = Not used as Geographic Level for modeling

*Note:* Due to a limited number of vacant land sales, vacant land was analyzed county-wide.

### **II. DATA FILES**

The following sales analyses were based on the requirements of the 2020 Colorado Property Assessment Study. Information was provided by the Boulder 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 9,872 qualified residential sales in the 24-month sale period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

Median	0.989
Price Related Differential	1.006
Coefficient of Dispersion	6.3

We next stratified the sale ratio analysis by economic area and neighborhood. The minimum count for the neighborhood stratification is 25 sales. The following are the results of this stratification analysis:

#### **Economic Area Case Processing Summary**

		Count	Percent
ECONAREA	1	1281	13.0%
	2	615	6.2%
	3	335	3.4%
	4	2857	29.0%
	5	2823	28.6%
	30	946	9.6%
	32	508	5.1%
	33	439	4.4%
	40	62	0.6%
Overall		9866	100.0%
Excluded		6	
Total		9872	



Group	Median	Price Related Differential	Coefficient of Dispersion
1	.995	1.005	.060
2	.986	1.022	.103
3	.974	1.014	.096
4	.988	1.005	.058
5	.989	1.005	.060
30	.994	.999	.066
32	.983	1.003	.051
33	.986	1.003	.050
40	.984	1.025	.077
Overall	.989	1.006	.063

## Neighborhoods with at least 25 sales Ratio Statistics for CURRTOT / TASP

		Price Related	Coefficient of
Group	Median	Differential	Dispersion
101	1.000	1.003	.075
102	.996	1.016	.069
105	1.000	1.018	.083
107	.993	1.003	.086
109	1.000	1.001	.059
115	.983	1.018	.075
120	.951	1.001	.061
122	.992	1.007	.061
124	.971	1.000	.065
126	.984	.999	.054
128	.962	1.000	.063
130	.980	1.006	.052
132	1.001	1.015	.078
133	.985	1.008	.065
134	.965	1.000	.050
135	.996	1.002	.063
136	.993	1.005	.076
137	.960	1.002	.052
140	.995	.997	.048
142	.996	1.000	.057
145	.982	1.009	.088
146	.995	1.003	.037
148	.992	.999	.063
150	.990	1.007	.061
155	.987	1.004	.045
158	.995	1.011	.050
159	.989	1.013	.073
160	.990	1.008	.059
164	.994	1.009	.070
170	.997	1.013	.069
172	1.000	1.030	.101
174	1.000	1.006	.066
178	.987	1.021	.104
201	.979	1.015	.089
202	1.009	1.004	.058
203	.983	1.005	.069
204	.941	1.007	.069



205	.995	1.004	.050
223	.998	1.006	.056
241	.984	1.004	.066
242	.993	1.008	.054
255	.979	1.000	.050
256	.977	1.001	.055
257	.979	1.003	.050
401	.997	1.018	.068
405	.994	1.005	.053
410	.998	.999	.045
415	1.001	1.004	.048
420	.984	1.006	.054
425	.990	1.004	.053
430	.982	1.006	.057
440	.991	1.003	.050
445	1.001	1.007	.046
450	.988	1.007	.062
451	.976	1.008	.053
455	.992	1.004	.044
460	.998	1.022	.102
465	.964	1.005	.063
470	.974	1.002	.054
480	.989	.999	.059
501	.978	.997	.064
820	.975	1.013	.102
825	.965	.999	.084
830	.991	1.014	.096
901	.974	1.016	.093
903	.982	1.037	.113
910	.972	1.050	.118
911	.997	1.014	.104
940	1.000	1.017	.108
960	.955	1.012	.105
962	.984	1.004	.085
Overall	.989	1.004	.063

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:



Sales Ratio Distribution





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

#### **Residential Market Trend Analysis**

We next analyzed the residential dataset using the 24-month sale period for any residual market trending and broken down by economic area, as follows:



ECONAREA	Model		Unstandardiz B	ed Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
	1	(Constant)	1.147	.158		7.256	.002
		SalePeriod	016	.014	483	-1.103	.332
1	1	(Constant)	1.003	.005		208.051	.000
		SalePeriod	-2.193E-5	.000	002	061	.952
2	1	(Constant)	.972	.011		85.838	.000
		SalePeriod	.001	.001	.067	1.666	.096
3	1	(Constant)	.982	.015		64.137	.000
		SalePeriod	.000	.001	013	232	.817
4	1	(Constant)	.979	.003		326.666	.000
		SalePeriod	.001	.000	.080	4.270	.000
5	1	(Constant)	.980	.003		308.478	.000
		SalePeriod	.001	.000	.048	2.533	.011
30	1	(Constant)	1.039	.006		172.068	.000
		SalePeriod	003	.000	207	-6.497	.000
32	1	(Constant)	.991	.006		157.820	.000
		SalePeriod	001	.000	076	-1.725	.085
33	1	(Constant)	.972	.008		127.256	.000
		SalePeriod	.001	.001	.117	2.470	.014
40	1	(Constant)	.986	.029		33.842	.000
		SalePeriod	.001	.003	.053	.410	.683

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

a. Dependent Variable: salesratio

There was no significant residual market trending present in the sale ratio data for most economic areas; the two economic areas with statistically significant residual trends were not significant in terms of the magnitude of the trend. We therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

#### Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2020 between each group. The data was analyzed both as a whole and broken down by economic area and by neighborhoods with at least 30 sales, as follows:

Class			
Report			
VALSF			
sold	N	Median	Mean
UNSOLD	95232	\$321	\$544
SOLD	9872	\$310	\$353



## Economic Area

Report

VALSF				
ECONAREA	sold	N	Median	Mean
1	UNSOLD	19348	\$534	\$561
	SOLD	1279	\$546	\$578
2	UNSOLD	7603	\$306	\$323
	SOLD	615	\$335	\$358
3	UNSOLD	5184	\$365	\$387
	SOLD	335	\$375	\$396
4	UNSOLD	24266	\$307	\$321
	SOLD	2857	\$299	\$312
5	UNSOLD	24210	\$241	\$248
	SOLD	2823	\$251	\$261
30	UNSOLD	7700	\$421	\$441
	SOLD	946	\$458	\$492
	Total	8646	\$423	\$447
32	UNSOLD	3283	\$312	\$323
	SOLD	508	\$317	\$327
33	UNSOLD	1869	\$228	\$236
	SOLD	439	\$235	\$247
40	UNSOLD	995	\$325	\$357
	SOLD	62	\$255	\$298

#### Neighborhoods with at least 30 sales **Report** VALSE

VALSE				
NBHD	sold	N	Median	Mean
101	UNSOLD	1194	\$587	\$596
	SOLD	130	\$631	\$650
102	UNSOLD	1175	\$592	\$616
	SOLD	91	\$598	\$634
105	UNSOLD	769	\$653	\$678
	SOLD	59	\$697	\$703
107	UNSOLD	576	\$823	\$846
	SOLD	42	\$813	\$867
109	UNSOLD	913	\$623	\$636
	SOLD	84	\$665	\$694
115	UNSOLD	1410	\$532	\$544
	SOLD	94	\$578	\$600
120	UNSOLD	816	\$526	\$547
	SOLD	45	\$568	\$597
122	UNSOLD	1403	\$467	\$446
	SOLD	112	\$487	\$499
124	UNSOLD	1233	\$400	\$392
	SOLD	109	\$416	\$417
126	UNSOLD	2053	\$348	\$367
	SOLD	216	\$363	\$380
128	UNSOLD	854	\$373	\$371
	SOLD	108	\$381	\$381
130	UNSOLD	599	\$332	\$340
	SOLD	67	\$324	\$329
132	UNSOLD	1246	\$314	\$325
	SOLD	136	\$315	\$332
133	UNSOLD	614	\$312	\$330



	SOLD	41	\$321	\$348
135	UNSOLD	1072	\$457	\$435
	SOLD	138	\$499	\$501
140	UNSOLD	1804	\$409	\$421
	SOLD	161	\$413	\$439
142	UNSOLD	992	\$383	\$402
	SOLD	87	\$394	\$419
145	UNSOLD	965	\$397	\$408
	SOLD	67	\$405	\$433
146	UNSOLD	654	\$460	\$473
	SOLD	44	\$446	\$475
148	UNSOLD	1838	\$405	\$418
	SOLD	182	\$409	\$421
150	UNSOLD	781	\$531	\$533
	SOLD	72	\$496	\$533
155	UNSOLD	3103	\$272	\$275
	SOLD	365	\$276	\$283
158	UNSOLD	1173	\$536	\$586
	SOLD	80	\$512	\$573
159	UNSOLD	189	\$299	\$298
	SOLD	35	\$362	\$360
160	UNSOLD	1900	\$593	\$590
	SOLD	110	\$607	\$610
164	UNSOLD	888	\$510	\$502
	SOLD	48	\$557	\$545
170	UNSOLD	1624	\$660	\$686
	SOLD	145	\$684	\$719
172	UNSOLD	673	\$445	\$465
	SOLD	71	\$501	\$505
174	UNSOLD	1420	\$527	\$532
	SOLD	123	\$535	\$543
178	UNSOLD	828	\$371	\$386
	SOLD	82	\$390	\$416
201	UNSOLD	1715	\$303	\$308
000	SOLD	150	\$324	\$335
202	UNSOLD	2610	\$274	\$276
000	SOLD	282	\$289	\$293
203		2038	\$237	\$242
204	SOLD	252	\$252	\$200
204		1609	\$230 \$250	\$Z43
205		100	\$209 \$210	\$204 ¢212
205		3123	\$210 \$216	φ212 \$220
223		3101	\$216	\$220
220	SOLD	326	\$263	\$263
241		1381	\$253	\$251
271	SOLD	148	\$244	\$256
242		4295	\$263	\$269
	SOLD	671	\$272	\$278
255	UNSOLD	3161	\$223	\$222
	SOLD	386	\$232	\$233
256	UNSOLD	2087	\$225	\$226
	SOLD	289	\$225	\$231
257	UNSOLD	786	\$214	\$220
	SOLD	136	\$228	\$255
401	UNSOLD	489	\$462	\$469
	SOLD	31	\$463	\$478



405	UNSOLD	213	\$400	\$390
	SOLD	42	\$315	\$323
410	UNSOLD	1466	\$366	\$394
	SOLD	101	\$393	\$424
415	UNSOLD	789	\$328	\$335
	SOLD	80	\$331	\$338
420	UNSOLD	1339	\$340	\$366
	SOLD	189	\$381	\$385
425	UNSOLD	1060	\$348	\$364
	SOLD	70	\$360	\$373
430	UNSOLD	1200	\$391	\$395
	SOLD	103	\$408	\$405
440	UNSOLD	3229	\$229	\$231
	SOLD	579	\$221	\$230
445	UNSOLD	375	\$258	\$264
	SOLD	52	\$257	\$261
450	UNSOLD	2295	\$314	\$320
	SOLD	325	\$318	\$324
451	UNSOLD	406	\$284	\$292
	SOLD	45	\$287	\$294
455	UNSOLD	428	\$252	\$252
	SOLD	38	\$257	\$259
460	UNSOLD	745	\$325	\$328
	SOLD	58	\$335	\$332
465	UNSOLD	1341	\$302	\$308
	SOLD	161	\$309	\$312
470	UNSOLD	838	\$355	\$358
	SOLD	83	\$363	\$365
480	UNSOLD	2193	\$284	\$304
	SOLD	376	\$269	\$280
501	UNSOLD	1545	\$343	\$349
	SOLD	171	\$350	\$359
820	UNSOLD	1002	\$339	\$356
	SOLD	74	\$357	\$374
825	UNSOLD	795	\$288	\$308
	SOLD	66	\$283	\$310
830	UNSOLD	1227	\$345	\$373
	SOLD	69	\$358	\$390
901	UNSOLD	1047	\$282	\$295
	SOLD	95	\$322	\$333
903	UNSOLD	676	\$340	\$355
	SOLD	48	\$361	\$382
910	UNSOLD	464	\$319	\$347
	SOLD	48	\$339	\$367
911	UNSOLD	519	\$250	\$259
	SOLD	46	\$263	\$272
940	UNSOLD	653	\$247	\$259
	SOLD	48	\$263	\$283
960	UNSOLD	1069	\$275	\$282
	SOLD	49	\$282	\$300
962	UNSOLD	1069	\$320	\$330
	SOLD	110	\$323	\$334

Although there was some differences seen between sold and unsold residential properties at the neighborhood level, when the second percent change in value test is employed, the difference is



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

#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 211 qualified commercial and industrial sales in the 24 month sale period ending June 30, 2018. The sales ratio analysis was analyzed as follows:

Median	0.987
Price Related Differential	1.030
Coefficient of Dispersion	10.1

#### Subclass Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
2212.00	1.003	1.066	.122
2220.00	1.000	1.050	.116
2230.00	1.000	.959	.097
2234.00	1.011	.991	.077
2235.00	.975	.874	.180
2237.00	1.004	.994	.043
2238.00	.984	.997	.068
2245.00	.978	1.023	.107
3210.00	.984	1.021	.048
3215.00	.977	.989	.102
3230.00	.973	.959	.060

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







#### Commercial/Industrial Market Trend Analysis

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

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

		Unstandardized	Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1 (	(Constant)	.936	.015		60.854	.000
5	SalePeriod	.003	.001	.184	2.620	.009

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 actual value for 2018 and 2020 for sold and unsold commercial properties, as follows:

Report			
DIFF			
sold	N	Median	Mean
UNSOLD	4044	1.0624	1.1977
SOLD	210	1.2000	1.2787



## Hypothesis Test Summary

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

Asymptotic significances are displayed. The significance level is .00.

Report				
ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	555	1.0579	1.1336
	SOLD	29	1.2714	1.4077
2220.00	UNSOLD	483	1.0667	1.1279
	SOLD	31	1.2158	1.2685
2230.00	UNSOLD	122	1.0487	1.1510
	SOLD	7	1.0882	1.2554
2234.00	UNSOLD	196	1.0658	1.1996
	SOLD	13	1.1173	1.3874
2237.00	UNSOLD	103	1.0654	1.3145
	SOLD	7	1.1027	1.1669
2238.00	UNSOLD	98	1.0504	1.1810
	SOLD	7	1.1111	1.4268
2245.00	UNSOLD	773	1.0737	1.1647
	SOLD	51	1.2000	1.2200
3210.00	UNSOLD	162	1.1102	1.4143
	SOLD	9	1.0792	1.1343
	Total	171	1.1086	1.3996
3215.00	UNSOLD	303	1.0683	1.0998
	SOLD	24	1.2309	1.2556
3230.00	UNSOLD	139	1.1069	1.1892
	SOLD	9	1.0582	1.3309

Based on differences observed at certain subclass levels, we will meet with the assessor to determine reasons for these differences.

#### **V. VACANT LAND SALE RESULTS**

There were 259 qualified vacant land sales for the 24 month sale period ending June 30, 2018. The sales ratio was analyzed with the following results:



Median	0.981
Price Related Differential	1.043
<b>Coefficient of Dispersion</b>	19.8

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.

#### Vacant Land Market Trend Analysis

We next analyzed the vacant land dataset using the 24 -month sale period, with the following results:

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

		Unstandardized	Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	.931	.036		25.725	.000
	SalePeriod	.004	.003	.098	1.584	.115

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 value for 2018 and 2020 between each group, as follows:

Report DIFF			
sold	Ν	Median	Mean
UNSOLD	3503	1.0100	1.0186
SOLD	230	1.0833	1.1173



	Null Hypothesis	Test	Sig.	Decision
1	The distribution of DIFF is the same across categories of sold.	Independent- Samples Mann- Whitney U Test	.002	Retain the null hypothesis.

## Hypothesis Test Summary

Asymptotic significances are displayed. The significance level is .00.

We also stratified the analysis by subdivision with more than 5 sales, as follows:

Report				
	a a l al	N	Madian	Maan
SUBDIVINU	SOID	N	wedian	wean
1126	UNSOLD	2	.7852	.7852
	SOLD	21	.7859	.7798
2644	UNSOLD	2	1.0639	1.0639
	SOLD	5	1.1441	1.1435
2734	UNSOLD	28	1.3662	1.2880
	SOLD	6	1.3641	1.3640
3383	UNSOLD	13	1.1400	1.1357
	SOLD	5	1.0833	1.0949
7480	UNSOLD	13	1.1665	1.1318
	SOLD	6	1.1643	1.1439
9914	UNSOLD	58	1.3864	1.2094
	SOLD	6	1.0578	1.0868
9915	UNSOLD	78	1.5448	1.4666
	SOLD	7	1.0910	1.2286
9916	UNSOLD	112	1.0030	1.0386
	SOLD	9	1.0428	1.0010
9918	UNSOLD	104	1.1925	1.1386
	SOLD	11	1.1471	.9735
9942	UNSOLD	144	.9857	.9872
	SOLD	5	1.1278	1.1816
9944	UNSOLD	65	.9954	.9235
	SOLD	9	1.0191	1.2180

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

#### V. CONCLUSIONS

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



#### STATISTICAL ABSTRACT

#### **Residential**

Ratio Statistics for CURRTOT / TASP													
		95% Confider Me	nce interval for ean		95% Confidence Interval for Median			95% Confidence Interval for Weighted Mean					Coefficient of Variation
ECONAREA	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
	.986	.826	1.145	.977	.800	1.160	96.9%	1.006	.875	1.137	.979	.126	15.4%
1	1.003	.998	1.007	.995	.991	.997	95.6%	.998	.993	1.003	1.005	.060	8.6%
2	.988	.977	.999	.986	.972	.995	95.6%	.966	.950	.983	1.022	.103	14.0%
3	.979	.965	.993	.974	.958	.991	95.1%	.966	.950	.981	1.014	.096	13.7%
4	.990	.987	.993	.988	.984	.991	95.3%	.986	.983	.989	1.005	.058	7.8%
5	.987	.984	.990	.989	.985	.992	95.4%	.982	.979	.985	1.005	.060	8.0%
30	1.005	.999	1.011	.994	.992	.999	95.3%	1.005	.997	1.014	.999	.066	9.4%
32	.982	.976	.987	.983	.977	.991	95.4%	.979	.973	.985	1.003	.051	6.7%
33	.989	.982	.996	.986	.979	.991	95.5%	.986	.980	.993	1.003	.050	7.3%
40	.996	.965	1.027	.984	.969	1.000	97.0%	.972	.955	.989	1.025	.077	12.1%

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

#### Commercial Land

#### Ratio Statistics for CURRTOT / TASP

	95% Confiden Me	ce Interval for an		95% Confidence Interval for Median				95% Confiden Weighte	ce Interval for d 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
.995	.974	1.016	.987	.976	1.000	96.1%	.966	.943	.990	1.030	.101	15.3%

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% Confiden Me	ce 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
.980	.943	1.017	.981	.957	1.000	95.3%	.940	.879	1.001	1.043	.198	30.8%

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



#### <u>Residential Median Ratio Stratification</u> Sale Price

#### **Case Processing Summary**

		Count	Percent
SPRec	\$50K to \$100K	8	0.1%
	\$100K to \$150K	31	0.3%
	\$150K to \$200K	52	0.5%
	\$200K to \$300K	859	8.7%
	\$300K to \$500K	3955	40.1%
	\$500K to \$750K	2968	30.1%
	\$750K to \$1,000K	1115	11.3%
	Over \$1,000K	884	9.0%
Overall		9872	100.0%
Excluded		0	
Total		9872	

## Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$50K to \$100K	1.175	1.016	.149	17.6%
\$100K to \$150K	.967	1.001	.126	19.8%
\$150K to \$200K	1.017	.998	.118	17.5%
\$200K to \$300K	.991	1.000	.065	10.0%
\$300K to \$500K	.995	1.000	.059	8.1%
\$500K to \$750K	.986	1.000	.060	8.2%
\$750K to \$1,000K	.985	1.000	.067	9.5%
Over \$1,000K	.974	.999	.075	10.6%
Overall	.989	1.006	.063	8.9%

#### Subclass

		Count	Percent
ABSTRIMP	1212.00	7812	79.1%
	1213.50	3	0.0%
	1215.00	100	1.0%
	1217.50	1	0.0%
	1220.00	46	0.5%
	1221.25	1	0.0%
	1222.50	1	0.0%
	1223.75	1	0.0%
	1225.00	11	0.1%
	1230.00	1894	19.2%
	1245.50	1	0.0%
	1307.83	1	0.0%
Overall		9872	100.0%
Excluded		0	
Total		9872	



		Price Related	Coefficient of	Coefficient of Variation
Group	Median	Differential	Dispersion	Median Centered
1212.00	.989	1.005	.064	8.9%
1213.50	.863	1.000	.125	26.1%
1215.00	.969	.997	.095	12.4%
1217.50	.971	1.000	.000	
1220.00	.993	1.013	.078	12.0%
1221.25	1.023	1.000	.000	
1222.50	1.016	1.000	.000	
1223.75	.971	1.000	.000	
1225.00	.945	.949	.089	14.5%
1230.00	.991	.998	.059	8.4%
1245.50	1.249	1.000	.000	
1307.83	.952	1.000	.000	
Overall	.989	1.006	.063	8.9%

Age

## Case Processing Summary

		Count	Percent
AgeRec	Over 100	211	2.1%
	75 to 100	175	1.8%
	50 to 75	891	9.0%
	25 to 50	3560	36.1%
	5 to 25	3329	33.7%
	5 or Newer	1706	17.3%
Overall		9872	100.0%
Excluded		0	
Total		9872	

## Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.987	.996	.083	12.2%
75 to 100	.974	1.007	.103	14.0%
50 to 75	.984	1.001	.075	10.6%
25 to 50	.985	1.006	.067	9.3%
5 to 25	.998	1.002	.056	7.9%
5 or Newer	.986	1.013	.057	7.7%
Overall	.989	1.006	.063	8.9%



## Improved Area

## **Case Processing Summary**

		Count	Percent
ImpSFRec	LE 500 sf	68	0.7%
	500 to 1,000 sf	1487	15.1%
	1,000 to 1,500 sf	2960	30.0%
	1,500 to 2,000 sf	2130	21.6%
	2,000 to 3,000 sf	2349	23.8%
	3,000 sf or Higher	878	8.9%
Overall		9872	100.0%
Excluded		0	
Total		9872	

## Ratio Statistics for CURRTOT / TASP

0	Maralian.	Price Related	Coefficient of	Coefficient of Variation
Group	iviedian	Differential	Dispersion	Median Centered
LE 500 sf	.984	1.005	.086	13.8%
500 to 1,000 sf	.981	1.004	.066	9.1%
1,000 to 1,500 sf	.986	1.004	.061	8.6%
1,500 to 2,000 sf	.990	1.004	.063	8.9%
2,000 to 3,000 sf	.995	1.007	.060	8.3%
3,000 sf or Higher	.996	1.011	.071	10.5%
Overall	.989	1.006	.063	8.9%

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#### Improvement Quality

### **Case Processing Summary**

		Count	Percent
QUALITY	1	11	0.1%
	2	91	0.9%
	3	4775	48.4%
	4	3970	40.2%
	5	867	8.8%
	6	158	1.6%
Overall		9872	100.0%
Excluded		0	
Total		9872	

## Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.867	1.038	.209	30.3%
2	.960	1.025	.111	15.9%
3	.983	1.003	.063	8.8%
4	.995	1.008	.060	8.3%
5	.997	1.008	.068	9.9%
6	.999	1.005	.073	10.7%
Overall	.989	1.006	.063	8.9%



#### **Commercial Median Ratio Stratification**

Sale Price

## **Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	1	0.5%
	\$100K to \$150K	9	4.3%
	\$150K to \$200K	11	5.2%
	\$200K to \$300K	22	10.4%
	\$300K to \$500K	26	12.3%
	\$500K to \$750K	39	18.5%
	\$750K to \$1,000K	15	7.1%
	Over \$1,000K	88	41.7%
Overall		211	100.0%
Excluded		0	
Total		211	

### **Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT \$25K	.686	1.000	.000	
\$100K to \$150K	1.080	1.009	.174	23.4%
\$150K to \$200K	.913	.999	.108	21.9%
\$200K to \$300K	1.011	1.003	.098	19.1%
\$300K to \$500K	.969	1.006	.101	14.3%
\$500K to \$750K	.977	1.002	.116	16.2%
\$750K to \$1,000K	1.011	.999	.065	10.9%
Over \$1,000K	.988	1.028	.083	12.4%
Overall	.987	1.030	.101	15.5%

#### Subclass

		Count	Percent
ABSTRIMP	2212.00	29	13.7%
	2214.67	2	0.9%
	2215.00	1	0.5%
	2220.00	31	14.7%
	2221.00	6	2.8%
	2222.00	2	0.9%
	2224.50	1	0.5%
	2225.00	1	0.5%
	2230.00	7	3.3%
	2231.00	2	0.9%
	2234.00	13	6.2%
	2235.00	4	1.9%
	2237.00	7	3.3%
	2238.00	7	3.3%
	2239.00	3	1.4%
	2245.00	51	24.2%
	3210.00	9	4.3%



	3215.00	24	11.4%
	3226.67	1	0.5%
	3230.00	9	4.3%
	3621.80	1	0.5%
Overall		211	100.0%
Excluded		0	
Total		211	

				Coefficient of
0		Price Related	Coefficient of	Variation
Group	Median	Differential	Dispersion	Median Centered
2212.00	1.003	1.066	.122	20.8%
2214.67	.991	1.010	.033	4.7%
2215.00	.699	1.000	.000	
2220.00	1.000	1.050	.116	16.3%
2221.00	.953	1.002	.110	16.2%
2222.00	1.011	1.007	.024	3.4%
2224.50	.881	1.000	.000	
2225.00	.966	1.000	.000	
2230.00	1.000	.959	.097	16.6%
2231.00	.968	1.012	.019	2.7%
2234.00	1.011	.991	.077	10.6%
2235.00	.975	.874	.180	27.5%
2237.00	1.004	.994	.043	6.8%
2238.00	.984	.997	.068	8.9%
2239.00	.921	1.011	.095	14.7%
2245.00	.978	1.023	.107	16.0%
3210.00	.984	1.021	.048	7.9%
3215.00	.977	.989	.102	15.6%
3226.67	.971	1.000	.000	
3230.00	.973	.959	.060	11.0%
3621.80	.852	1.000	.000	
Overall	.987	1.030	.101	15.5%

## Age

		Count	Percent
AgeRec	Over 100	18	8.5%
	75 to 100	12	5.7%
	50 to 75	18	8.5%
	25 to 50	74	35.1%
	5 to 25	75	35.5%
	5 or Newer	14	6.6%
Overall		211	100.0%
Excluded		0	
Total		211	



Creation	Madian	Price Related	Coefficient of	Coefficient of Variation
Group	Median	Dillerential	Dispersion	Median Centered
Over 100	.986	1.012	.105	15.1%
75 to 100	1.002	1.109	.155	22.6%
50 to 75	.936	1.084	.150	28.2%
25 to 50	1.000	1.031	.083	12.6%
5 to 25	.996	1.025	.090	12.7%
5 or Newer	.937	.998	.117	21.9%
Overall	.987	1.030	.101	15.5%

### Improvement Quality

#### **Case Processing Summary**

		Count	Percent
QUALITY	0	1	0.5%
	1	11	5.2%
	2	2	0.9%
	3	174	82.5%
	4	23	10.9%
Overall		211	100.0%
Excluded		0	
Total		211	

## **Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.686	1.000	.000	
1	1.000	1.140	.125	17.5%
2	.837	1.094	.097	13.7%
3	.988	1.035	.102	15.8%
4	.992	1.008	.069	10.5%
Overall	.987	1.030	.101	15.5%

### Improvement Condition

		Count	Percent
CONDITION		21	10.0%
	1	4	1.9%
	2	7	3.3%
	3	138	65.4%
	4	41	19.4%
Overall		211	100.0%
Excluded		0	
Total		211	



Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered	
	.984	1.054	.074	11.3%	
1	.940	.951	.093	16.5%	
2	.925	1.022	.097	13.8%	
3	.988	1.030	.111	17.1%	
4	.998	1.021	.080	11.4%	
Overall	.987	1.030	.101	15.5%	

## Vacant Land Median Ratio Stratification

#### Sale Price

## **Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	9	3.5%
	\$25K to \$50K	13	5.0%
	\$50K to \$100K	35	13.5%
	\$100K to \$150K	32	12.4%
	\$150K to \$200K	28	10.8%
	\$200K to \$300K	73	28.2%
	\$300K to \$500K	46	17.8%
	\$500K to \$750K	5	1.9%
	\$750K to \$1,000K	8	3.1%
	Over \$1,000K	10	3.9%
Overall		259	100.0%
Excluded		0	
Total		259	

## Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered	
LT \$25K	1.182	.983	.103	13.5%	
\$25K to \$50K	1.168	1.020	.263	36.4%	
\$50K to \$100K	1.025	1.007	.165	23.4%	
\$100K to \$150K	.921	.998	.204	29.3%	
\$150K to \$200K	.906	.998	.245	35.8%	
\$200K to \$300K	1.000	.999	.188	34.7%	
\$300K to \$500K	.931	.996	.142	17.2%	
\$500K to \$750K	.929	.999	.041	6.2%	
\$750K to \$1,000K	.979	1.007	.275	46.6%	
Over \$1,000K	.985	1.002	.261	41.7%	
Overall	.981	1.043	.198	30.8%	



## Subclass

## **Case Processing Summary**

		Count	Percent
ABSTRLND	100.00	79	30.5%
	200.00	9	3.5%
	300.00	14	5.4%
	400.00	3	1.2%
	510.00	2	0.8%
	520.00	22	8.5%
	530.00	13	5.0%
	540.00	9	3.5%
	550.00	10	3.9%
	1112.00	88	34.0%
	1125.00	1	0.4%
	1140.00	1	0.4%
	1230.00	1	0.4%
	1442.33	1	0.4%
	1779.67	2	0.8%
	2115.00	2	0.8%
	2130.00	1	0.4%
	3110.00	1	0.4%
Overall		259	100.0%
Excluded		0	
Total		259	

## Ratio Statistics for CURRLND / TASP

				Coefficient of
		Price Related	Coefficient of	Variation
Group	Median	Differential	Dispersion	Median Centered
100.00	.972	1.050	.189	27.2%
200.00	.993	1.005	.034	4.8%
300.00	1.035	1.246	.150	23.8%
400.00	1.119	1.025	.138	27.1%
510.00	.887	1.035	.176	24.9%
520.00	1.000	1.015	.153	22.8%
530.00	.986	1.039	.208	30.2%
540.00	.981	1.053	.147	21.1%
550.00	1.043	1.038	.172	27.6%
1112.00	.939	.975	.243	40.3%
1125.00	.531	1.000	.000	
1140.00	1.210	1.000	.000	
1230.00	.000			
1442.33	.878	1.000	.000	
1779.67	1.005	1.000	.008	1.2%
2115.00	.925	1.041	.114	16.1%
2130.00	.782	1.000	.000	
3110.00	1.099	1.000	.000	
Overall	.981	1.043	.198	30.8%