



2021

DENVER COUNTY PROPERTY ASSESSMENT STUDY



WILDROSE
APPRAISAL, INCORPORATED
Audit Division



September 15, 2021

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

RE: Final Report for the 2021 Colorado Property Assessment Study

Dear Ms. Mullis:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2021 Colorado Property Assessment Study.

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

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

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

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

A handwritten signature in black ink that reads "Harry J. Fuller". The signature is written in a cursive style.

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

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INTRODUCTION



Colorado

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

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

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

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

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

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

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

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

Wildrose Audit has completed the Property Assessment Study for 2021 and is pleased to report its findings for Denver County in the following report.

Historical Information

Denver County has approximately 153.0 square miles and an estimated population of approximately 727,211 people with 3922.6 people per square mile, according to the U.S. Census Bureau's 2020 estimated census data. This represents a 21.2 percent change from April 1, 2010 to July 1, 2019.

Denver is the capital and the most populous city of the state of Colorado. Denver is a consolidated city-county located in the South Platte River Valley on the High Plains just east of the Front Range of the Rocky Mountains.

Denver City was founded in November 1858 as a mining town during the Pikes Peak Gold Rush in western Kansas Territory. That summer, a group of gold prospectors from Lawrence, Kansas, arrived and established Montana City on the banks of the South Platte River. This was the first settlement in what was later to become the city of Denver. The site faded quickly, however, and was abandoned in favor of Auraria (named after the gold-mining town of Auraria, Georgia) and St. Charles City by the summer of 1859. The Montana City site is now Grant-Frontier Park and includes mining equipment and a log cabin replica.

On November 22, 1858, General William Larimer, a land speculator from eastern Kansas, placed cottonwood logs to stake a claim on the hill overlooking the confluence of the South Platte River and Cherry Creek, across the creek from the existing mining settlement of Auraria. Larimer named the town site Denver City to curry favor with Kansas Territorial Governor James W. Denver. Larimer hoped that the town's name would help make it the county seat of Arapaho County, but ironically Governor Denver had already resigned from office. The location was accessible to existing trails and was across the South Platte River

from the site of seasonal encampments of the Cheyenne and Arapaho. The site of these first towns is now the site of Confluence Park in downtown Denver. Larimer, along with associates in the St. Charles City Land Company, sold parcels in the town to merchants and miners, with the intention of creating a major city that would cater to new emigrants. Denver City was a frontier town, with an economy based on servicing local miners with gambling, saloons, livestock and goods trading. In the early years, land parcels were often traded for grubstakes or gambled away by miners in Auraria.

The Colorado Territory was created on February 28, 1861. Arapahoe County was formed on November 1, 1861 and Denver City was incorporated on November 7, 1861. Denver City served as the Arapahoe County Seat from 1861 until consolidation in 1902. In 1865, Denver City became the Territorial Capital and became the State Capital when Colorado was admitted to the Union.

In 1901 the Colorado General Assembly voted to split Arapahoe County into three parts: a new consolidated City and County of Denver, a new Adams County, and the remainder of the Arapahoe County to be renamed South Arapahoe County. A ruling by the Colorado Supreme Court, subsequent legislation, and a referendum delayed the creation of the City and County of Denver until November 15, 1902.

Denver has hosted the Democratic National Convention twice, during the years of 1908 and again in 2008, taking the opportunity to promote the city's status on the national, political, and socioeconomic stage.

(Wikipedia.org)

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, 2019 through June 30th, 2020. 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
Residential Condominium	Between .95-1.05	Less than 15.99
Residential	Between .95-1.05	Less than 15.99
Vacant Land	Between .95-1.05	Less than 20.99

The results for Denver County are:

Denver County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	476	0.982	1.114	17.6	Compliant
Residential Condo	6,101	1.000	1.003	4.7	Compliant
Residential	19,058	1.001	1.003	4.5	Compliant
Vacant Land	701	0.967	1.105	14.6	Compliant

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

with SBOE, DPT, and Colorado State Statute valuation guidelines.

Recommendations

None



TIME TRENDING VERIFICATION

Methodology

While we recommend that counties use the inverted ratio regression analysis method to account for market (time) trending, some counties have used other IAAO-approved methods, such as the weighted monthly median approach. We are not auditing the methods used, but rather the results of the methods used. Given this range of methodologies used to account for market trending, we concluded that the best validation method was to examine the sale ratios for each class across the appropriate sale period. To be specific, if a county has considered and adjusted correctly for market trending, then the sale ratios should remain stable (i.e. flat) across the sale period. If a residual market trend is detected, then the county may or may not have addressed market

trending adequately, and a further examination is warranted. This validation method also considers the number of sales and the length of the sale period. Counties with few sales across the sale period were carefully examined to determine if the statistical results were valid.

Conclusions

After verification and analysis, it has been determined that Denver County has complied with the statutory requirements to analyze the effects of time on value in their county. Denver County has also satisfactorily applied the results of their time trending analysis to arrive at the time adjusted sales price (TASP).

Recommendations

None

SOLD / UNSOLD ANALYSIS

Methodology

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

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

or if there are other explanations for the observed difference.

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

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

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

Sold/Unsold Results	
Property Class	Results
Commercial/Industrial	Compliant
Residential Condos	Compliant
Residential	Compliant
Vacant Land	Compliant

Conclusions

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

Recommendations

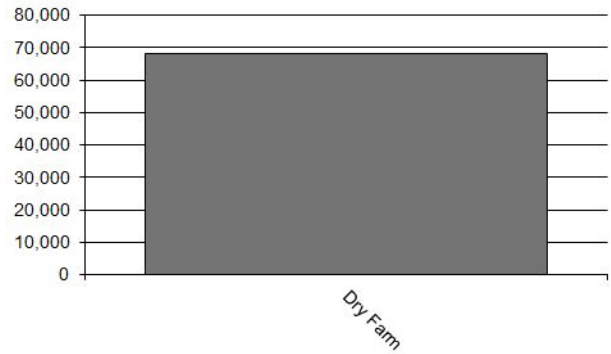
None

AGRICULTURAL LAND STUDY

Acres By Subclass



Value By Subclass



Agricultural Land

County records were reviewed to determine major land categories such as irrigated farm, dry farm, meadow hay, grazing and other lands. In addition, county records were reviewed in order to determine if: Aerial photographs are available and are being used; soil conservation guidelines have been used to classify lands based on productivity; crop rotations have been documented; typical commodities and yields have been determined; orchard lands have been properly classified and valued; expenses reflect a ten year average and are typical landlord expenses; grazing lands have been properly classified and valued; the number of acres in each class and subclass have been determined; the capitalization rate was properly applied. Also, documentation was required for the valuation methods used and any locally developed yields, carrying capacities, and expenses. Records were also checked to ensure that the commodity prices

and expenses, furnished by the Property Tax Administrator (PTA), were applied properly. (See Assessor Reference Library Volume 3 Chapter 5.)

Conclusions

An analysis of the agricultural land data indicates an acceptable appraisal of this property type. Directives, commodity prices and expenses provided by the PTA were properly applied. County yields compared favorably to those published by Colorado Agricultural Statistics. Expenses used by the county were allowable expenses and were in an acceptable range. Grazing lands carrying capacities were in an acceptable range. The data analyzed resulted in the following ratios:

Denver County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4127	Dry Farm	1,360	50.11	68,150	68,150	1.00
Total/Avg		1,360	50.11	68,150	68,150	1.00

Recommendations

None

Agricultural Outbuildings

Methodology

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

Property Taxation for the valuation of agricultural outbuildings.

Recommendations

None

Conclusions

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

Agricultural Land Under Improvements

Methodology

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

Conclusions

Denver 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.:

- Personal Knowledge of Occupants at Assessment Date

Denver 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.:

- Personal Knowledge of Occupants at Assessment Date

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

Recommendations

None

SALES VERIFICATION

According to Colorado Revised Statutes:

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

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

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

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

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

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

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

WRA reviewed the sales verification procedures in 2021 for Denver County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 65 sales listed as unqualified.

All but one of the sales selected in the sample gave reasons that were clear and supportable. One sale 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.

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

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

If 50 percent or more of the sales are qualified, the contractor has reviewed a statistically significant sample of unqualified sales, excluding sales that were disqualified for obvious reasons.

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

Conclusions

Denver County appears to be doing an adequate job of verifying their sales.

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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

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

Recommendations

None

NATURAL RESOURCES

Denver County is exempt from the Natural Resources Study.

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2021 in Denver County. The review showed that subdivisions were discounted pursuant to the Colorado Revised Statutes in Article 39-1-103 (14). Discounting procedures were applied to all subdivisions where less than 80 percent of all sites were sold using the present worth method. The market approach was applied where 80 percent or more of the subdivision sites were sold. An absorption period was estimated for each subdivision that was discounted. An appropriate discount rate was

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

Conclusions

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

Recommendations

None

POSSESSORY INTEREST PROPERTIES

Possessory Interest

Possessory interest property discovery and valuation is described in the Assessor's Reference Library (ARL) Volume 3 section 7 in accordance with the requirements of Chapter 39-1-103 (17)(a) (II) C.R.S. Possessory Interest is defined by the Property Tax Administrator's Publication ARL Volume 3, Chapter 7: A private property interest in government-owned property or the right to the occupancy and use of any benefit in government-owned property that has been granted under lease, permit, license, concession, contract, or other agreement.

Denver County has been reviewed for their procedures and adherence to guidelines when assessing and valuing agricultural and

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

Conclusions

Denver County has implemented a discovery process to place possessory interest properties on the roll. They have also correctly and consistently applied the correct procedures and valuation methods in the valuation of possessory interest properties.

Recommendations

None

PERSONAL PROPERTY AUDIT

Denver 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.

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

- Public Record Documents
- Local Telephone Directories, Newspapers or Other Local Publications
- Personal Observation, Physical Canvassing or Word of Mouth
- Questionnaires, Letters and/or Phone Calls to Buyer, Seller and/or Realtor

The county uses the Division of Property Taxation (DPT) recommended classification and documentation procedures. The DPT's recommended cost factor tables, depreciation tables and level of value adjustment factor tables are also used.

Denver County submitted their personal property written audit plan and was current for the 2021 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
- Accounts with greater than 10% change
- Incomplete or inconsistent declarations
- Accounts with omitted property
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- As part of tax audit



Denver 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

Denver County has employed adequate discovery, classification, documentation,

valuation, and auditing procedures for their personal property assessment and is in statistical compliance with SBOE requirements.

Recommendations

None

WILDROSE AUDITOR STAFF

Harry J. Fuller, *Audit Project Manager*

Suzanne Howard, *Audit Administrative Manager*

Steve Kane, *Audit Statistician*

Carl W. Ross, *Agricultural/Natural Resource Analyst*

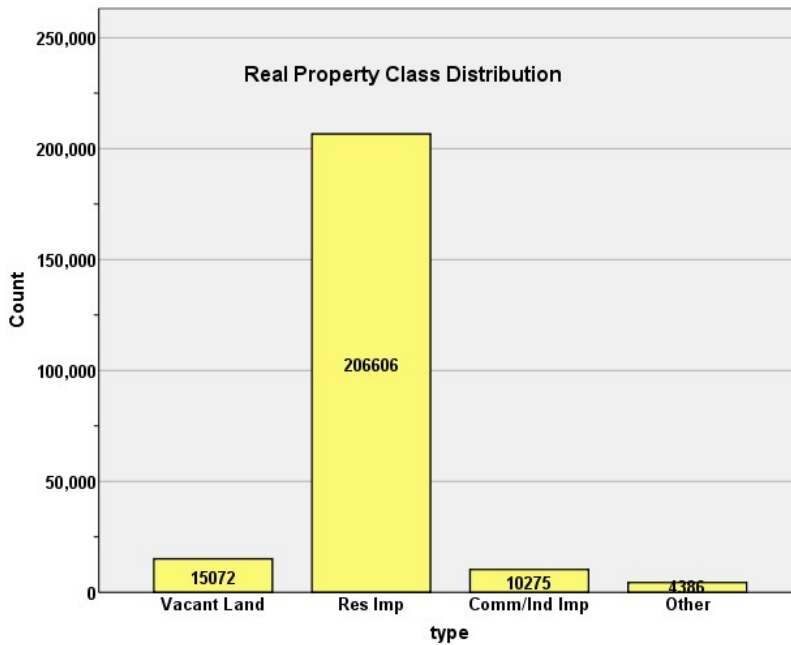
J. Andrew Rodriguez, *Field Analyst*

STATISTICAL APPENDIX

STATISTICAL COMPLIANCE REPORT FOR DENVER COUNTY 2021

I. OVERVIEW

Denver County is an urban county located along Colorado’s Front Range. The county has a total of 236,339 real property parcels, according to data submitted by the county assessor’s office in 2021. 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, 101, 200 and 1112) accounted for 67.2% of all vacant land parcels.

For residential improved properties, single family properties accounted for **77.0%** of all residential properties, while condominiums accounted for **20.1%** of all residential properties. We broke down our residential analysis by both economic area and residential subclass.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 4.3% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2021 Colorado Property Assessment Study. Information was provided by the Denver Assessor’s Office in June 2021. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 25,476 qualified residential sales in the 24 month sale period ending June 30, 2020. We stratified the sales ratio results by residential subclass and economic area, as follows:

SINGLE FAMILY Ratio Statistics for currtot / tasp

N = 19,058

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	1.001	1.002	.027
2.00	1.000	1.002	.036
3.00	1.003	1.003	.044
4.00	1.000	1.005	.051
5.00	1.002	1.005	.048
6.00	1.001	1.002	.031
7.00	1.001	1.005	.055
8.00	1.004	1.005	.059
9.00	1.003	1.006	.058
10.00	1.003	1.005	.054
11.00	1.001	1.004	.059
12.00	.999	1.005	.054
13.00	1.003	1.004	.043
14.00	1.001	1.004	.050
15.00	1.005	1.006	.064
16.00	1.001	1.004	.049
17.00	1.011	1.008	.067
18.00	1.001	1.007	.073
19.00	.999	1.003	.049
20.00	.999	1.009	.063
21.00	1.002	1.003	.035
22.00	.999	1.002	.038
23.00	.998	1.003	.041
24.00	.999	1.004	.040
25.00	1.000	1.002	.040
26.00	1.004	1.007	.057
27.00	.999	1.003	.063
28.00	1.000	1.004	.047
29.00	1.003	1.003	.046
30.00	1.001	1.006	.058
31.00	1.012	1.009	.057
32.00	1.001	1.006	.050
33.00	1.003	1.003	.050
34.00	1.007	1.003	.039
51.00	1.008	1.008	.069
52.00	1.003	1.003	.033
53.00	1.000	1.002	.029
54.00	1.001	1.005	.057
55.00	1.001	1.004	.045
56.00	1.001	1.003	.039
57.00	.999	1.003	.039
58.00	.999	1.003	.038
134.00	1.000	.999	.035
Overall	1.001	1.003	.045

ROWHOUSE/TOWN HOMES Ratio Statistics for currtot / tasp
N = 140

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	.989	1.006	.082

1215 Ratio Statistics for currtot / tasp
N = 65

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1.00	1.002	1.010	.076
2.00	1.061	1.008	.092
Overall	1.015	.999	.087

1220 Ratio Statistics for currtot / tasp
N = 112

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
2.00	1.059	1.013	.078
3.00	.995	.998	.069
Overall	1.052	1.028	.078

1225 Ratio Statistics for currtot / tasp
N = 148

Ratio Statistics for CURTOT / TASP

Median	Price Related Differential	Coefficient of Dispersion
1.005	1.004	.078

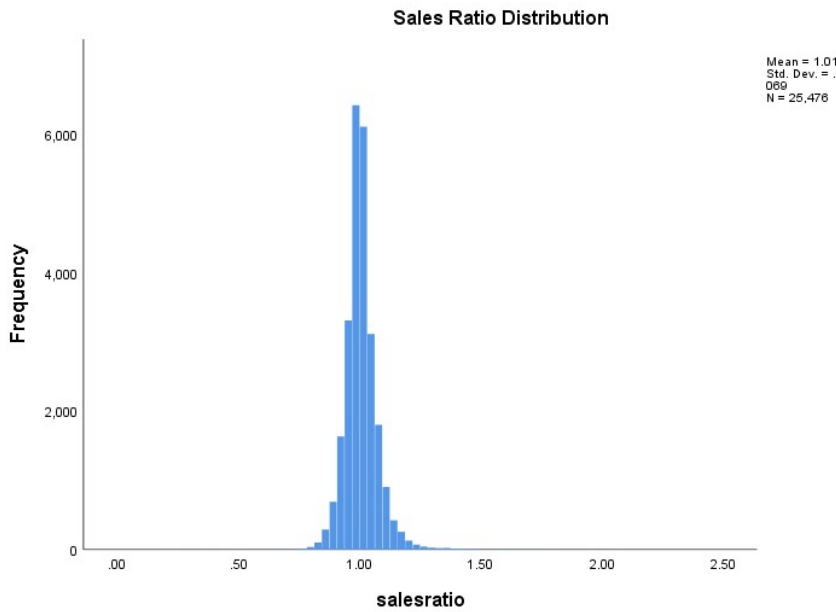
1230 Ratio Statistics for currtot / tasp
N = 6,101

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
37.00	.995	1.003	.061
38.00	1.001	1.004	.044
39.00	1.000	1.003	.054
41.00	1.002	1.003	.042
42.00	.999	1.002	.034
43.00	.998	1.003	.039
44.00	1.001	1.005	.049
45.00	.998	1.003	.048
46.00	.999	1.003	.047
47.00	1.001	1.005	.058
48.00	1.002	1.006	.064
50.00	1.003	1.003	.043
Overall	1.000	1.003	.047

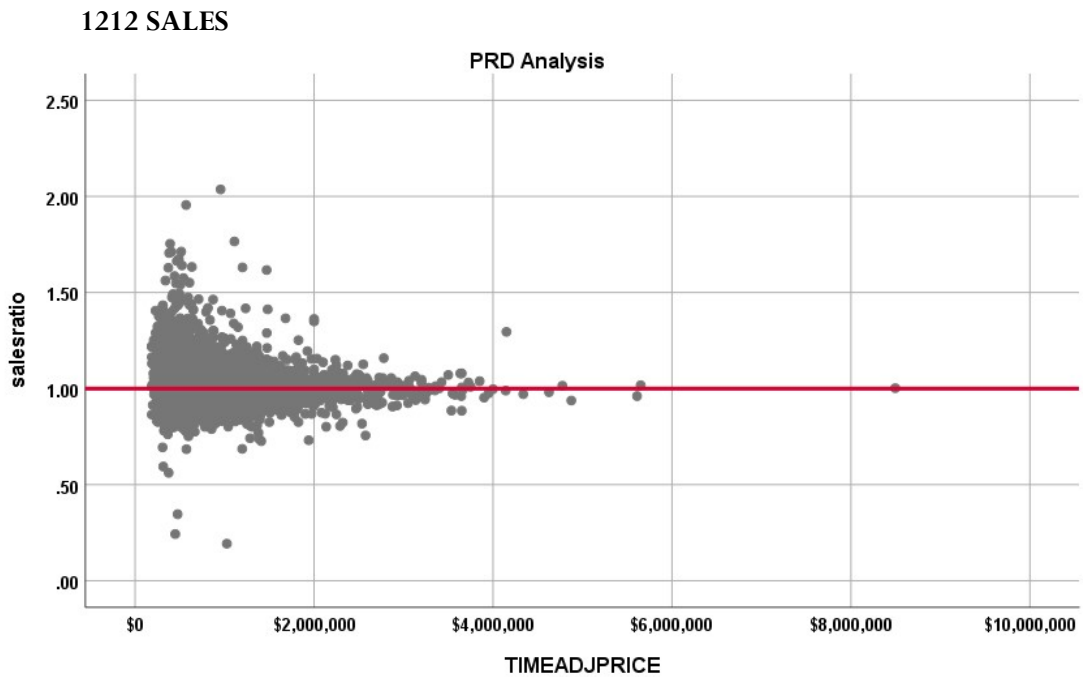
The above ratio statistics were in compliance with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall residential sales. The following graphs describe further the sales ratio distribution for these properties:

The above graph indicates that the distribution of the sale ratios was within state mandated limits.



Subclass 1212 PRD Analysis

We next analyzed residential properties identified as 1212 using the state abstract code system. These include single family residences, town homes and purged manufactured homes. The following indicates the distribution of sales ratios across the sale price spectrum:



The Price-Related Differential (PRD) for 1212 sales is 1.003, which is within IAAO standards for the PRD. We also performed a regression analysis between the sales ratio and the assessor's current value to further test for regressivity or progressivity in the residential sales valuation, as follows:

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.001	.001		1041.687	.000
	CURRTOT	.000000010	.000	.051	7.077	.000

a. Dependent Variable: salesratio

The slope of the line at 0.000000010 indicates that there is virtually no slope in the regression line, which indicates that sales ratios are similar across the entire sale price array. This indicates no regressivity or progressivity in the residential values assigned by the assessor.

Case Processing Summary

SPRec		Count	Percent
	LT \$200K	8	0.0%
	\$200K to \$300K	720	3.8%
	\$300K to \$400K	4534	23.8%
	\$400K to \$500K	3883	20.4%
	\$500K to \$600K	3236	17.0%
	\$600K to \$700K	2245	11.8%
	\$700K to \$800K	1372	7.2%
	\$800K to \$900K	917	4.8%
	\$900K to \$1,000K	563	3.0%
	Over \$1,000K	1580	8.3%
Overall		19058	100.0%
Excluded		0	
Total		19058	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
LT \$200K	1.075	1.001	.107
\$200K to \$300K	1.030	1.001	.051
\$300K to \$400K	1.004	1.000	.040
\$400K to \$500K	1.002	1.000	.045
\$500K to \$600K	1.000	1.000	.043
\$600K to \$700K	.998	1.000	.044
\$700K to \$800K	.995	1.000	.046
\$800K to \$900K	.997	1.000	.049
\$900K to \$1,000K	1.000	1.000	.050
Over \$1,000K	.993	1.000	.055
Overall	1.001	1.003	.045

The above table indicates no regressivity in the sales ratios across sale price categories.

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 subclass and economic area, as follows:

SINGLE FAMILY ANALYSIS

Coefficients^a

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.	1	(Constant)	.998	.054		18.324	.000
		SalePeriod	.003	.004	.150	.859	.397
1.00	1	(Constant)	.994	.003		302.309	.000
		SalePeriod	.001	.000	.128	2.987	.003
2.00	1	(Constant)	.998	.005		216.409	.000
		SalePeriod	.001	.000	.075	1.676	.094
3.00	1	(Constant)	1.011	.007		152.697	.000
		SalePeriod	.000	.001	-.020	-.376	.707
4.00	1	(Constant)	1.003	.007		139.943	.000
		SalePeriod	.000	.001	.011	.202	.840
5.00	1	(Constant)	1.001	.014		70.101	.000
		SalePeriod	.001	.001	.098	.949	.345
6.00	1	(Constant)	.996	.003		373.506	.000
		SalePeriod	.000	.000	.071	2.633	.009
7.00	1	(Constant)	1.003	.007		136.677	.000
		SalePeriod	.001	.001	.075	1.580	.115
8.00	1	(Constant)	1.000	.009		115.256	.000
		SalePeriod	.001	.001	.074	1.531	.126
9.00	1	(Constant)	.986	.010		97.433	.000
		SalePeriod	.002	.001	.149	2.585	.010
10.00	1	(Constant)	1.020	.009		114.805	.000
		SalePeriod	.000	.001	-.026	-.474	.636
11.00	1	(Constant)	.993	.007		143.950	.000
		SalePeriod	.001	.001	.116	2.534	.012
12.00	1	(Constant)	1.016	.009		112.495	.000
		SalePeriod	.000	.001	-.019	-.314	.754
13.00	1	(Constant)	.998	.007		151.062	.000
		SalePeriod	.001	.001	.103	2.079	.038
14.00	1	(Constant)	1.005	.009		105.980	.000
		SalePeriod	.001	.001	.044	.762	.447
15.00	1	(Constant)	.997	.012		80.004	.000
		SalePeriod	.002	.001	.119	1.770	.078
16.00	1	(Constant)	1.001	.007		147.563	.000
		SalePeriod	.000	.000	.045	.970	.333
17.00	1	(Constant)	1.020	.010		101.686	.000
		SalePeriod	.001	.001	.050	.931	.353
18.00	1	(Constant)	.994	.018		56.620	.000
		SalePeriod	.003	.001	.135	2.004	.046
19.00	1	(Constant)	1.017	.006		168.997	.000
		SalePeriod	-.001	.000	-.056	-1.348	.178

20.00	1	(Constant)	1.004	.010		96.352	.000
		SalePeriod	.001	.001	.042	.675	.500
21.00	1	(Constant)	.989	.008		125.321	.000
		SalePeriod	.001	.001	.125	1.577	.117
22.00	1	(Constant)	.996	.003		310.773	.000
		SalePeriod	.001	.000	.097	3.149	.002
23.00	1	(Constant)	.998	.004		247.142	.000
		SalePeriod	.000	.000	.047	1.172	.242
24.00	1	(Constant)	.987	.005		193.917	.000
		SalePeriod	.001	.000	.132	3.158	.002
25.00	1	(Constant)	1.003	.005		188.131	.000
		SalePeriod	.000	.000	.035	.706	.481
26.00	1	(Constant)	1.008	.009		115.025	.000
		SalePeriod	6.427E-5	.001	.006	.098	.922
27.00	1	(Constant)	1.003	.009		109.817	.000
		SalePeriod	.001	.001	.099	1.719	.087
28.00	1	(Constant)	1.000	.007		138.266	.000
		SalePeriod	.001	.001	.065	1.092	.276
29.00	1	(Constant)	1.004	.007		150.623	.000
		SalePeriod	.000	.001	.034	.597	.551
30.00	1	(Constant)	1.004	.008		120.839	.000
		SalePeriod	.000	.001	.021	.376	.707
31.00	1	(Constant)	1.019	.011		94.677	.000
		SalePeriod	.000	.001	.018	.275	.784
32.00	1	(Constant)	1.011	.006		174.737	.000
		SalePeriod	.000	.000	-.018	-.410	.682
33.00	1	(Constant)	.998	.010		100.013	.000
		SalePeriod	.001	.001	.092	1.282	.201
34.00	1	(Constant)	.995	.007		133.125	.000
		SalePeriod	.001	.001	.104	1.408	.161
51.00	1	(Constant)	.997	.012		85.267	.000
		SalePeriod	.001	.001	.094	1.520	.130
52.00	1	(Constant)	.997	.003		302.911	.000
		SalePeriod	.001	.000	.078	2.553	.011
53.00	1	(Constant)	.996	.003		346.052	.000
		SalePeriod	.000	.000	.045	1.208	.227
54.00	1	(Constant)	.998	.008		131.541	.000
		SalePeriod	.001	.001	.064	1.301	.194
55.00	1	(Constant)	1.001	.006		178.671	.000
		SalePeriod	.000	.000	.051	1.002	.317
56.00	1	(Constant)	1.010	.004		243.079	.000
		SalePeriod	-.001	.000	-.061	-1.740	.082
57.00	1	(Constant)	.997	.004		247.193	.000
		SalePeriod	.000	.000	.035	.908	.364
58.00	1	(Constant)	.999	.004		281.863	.000
		SalePeriod	.000	.000	.031	.857	.392
134.00	1	(Constant)	.997	.013		79.394	.000
		SalePeriod	.001	.001	.075	.486	.629

1215 ANALYSIS
Coefficients^a

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1.00	1	(Constant)	.997	.019		52.165	.000
		SalePeriod	4.836E-5	.001	.003	.035	.972

a. Dependent Variable: salesratio

1220 ANALYSIS
Coefficients^a

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1.00	1	(Constant)	.964	.036		27.117	.000
		SalePeriod	.004	.003	.234	1.557	.127
2.00	1	(Constant)	1.007	.054		18.557	.000
		SalePeriod	.008	.004	.393	1.860	.078

a. Dependent Variable: salesratio

1225 ANALYSIS
Coefficients^a

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
2.00	1	(Constant)	.988	.028		35.695	.000
		SalePeriod	.005	.002	.296	2.698	.009
3.00	1	(Constant)	.976	.035		27.524	.000
		SalePeriod	.002	.003	.134	.763	.451

a. Dependent Variable: salesratio

1230 ANALYSIS
Coefficients^a

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.	1	(Constant)	1.145	.010		111.032	.000
		SalePeriod	-.003	.001	-.955	-4.558	.045
37.00	1	(Constant)	1.018	.009		115.107	.000
		SalePeriod	-.001	.001	-.055	-1.101	.272
38.00	1	(Constant)	1.008	.006		181.327	.000
		SalePeriod	.000	.000	-.031	-.658	.511
39.00	1	(Constant)	1.006	.008		130.036	.000
		SalePeriod	.000	.001	-.041	-.734	.464
41.00	1	(Constant)	1.006	.004		226.535	.000
		SalePeriod	.000	.000	-.032	-.796	.427
42.00	1	(Constant)	.996	.004		283.964	.000
		SalePeriod	.001	.000	.104	2.706	.007
43.00	1	(Constant)	.997	.004		228.556	.000
		SalePeriod	.000	.000	.031	.720	.472
44.00	1	(Constant)	1.007	.005		188.910	.000
		SalePeriod	.000	.000	-.023	-.568	.570

45.00	1	(Constant)	1.001	.005		192.503	.000
		SalePeriod	.000	.000	.013	.340	.734
46.00	1	(Constant)	.993	.006		169.146	.000
		SalePeriod	.001	.000	.064	1.571	.117
47.00	1	(Constant)	1.000	.007		150.022	.000
		SalePeriod	.001	.001	.071	1.657	.098
48.00	1	(Constant)	1.010	.009		118.212	.000
		SalePeriod	.000	.001	-.032	-.599	.550
50.00	1	(Constant)	.988	.014		72.931	.000
		SalePeriod	.001	.001	.060	1.029	.304

a. Dependent Variable: salesratio

The above indicates that market trending was insignificant from either a statistical or a relative magnitude perspective for each subclass and economic area. Based on this analysis, we concluded that Denver County adequately addressed market trending.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median 2021 actual value per square foot between sold and unsold groups. The data was analyzed by subclass and economic area, as follows:

OVERALL ANALYSIS

Report

VALSF

sold	N	Median	Mean
UNSOLD	181126	\$359	\$372
SOLD	25434	\$371	\$384

SINGLE FAMILY ANALYSIS

Report

VALSF

ECONAREA	sold	N	Median	Mean
1.00	UNSOLD	4059	\$214	\$218
	SOLD	541	\$226	\$231
2.00	UNSOLD	6500	\$255	\$268
	SOLD	494	\$258	\$275
3.00	UNSOLD	3251	\$413	\$412
	SOLD	352	\$463	\$458
4.00	UNSOLD	3442	\$461	\$466
	SOLD	342	\$496	\$500
5.00	UNSOLD	2114	\$329	\$343
	SOLD	94	\$345	\$348
6.00	UNSOLD	4938	\$194	\$196
	SOLD	1388	\$203	\$209
7.00	UNSOLD	3513	\$470	\$485
	SOLD	448	\$507	\$520
8.00	UNSOLD	3725	\$479	\$488
	SOLD	424	\$495	\$504
9.00	UNSOLD	2329	\$512	\$527
	SOLD	297	\$538	\$557
10.00	UNSOLD	3487	\$437	\$449
	SOLD	346	\$458	\$478

11.00	UNSOLD	5665	\$378	\$382
	SOLD	475	\$408	\$409
12.00	UNSOLD	2724	\$466	\$489
	SOLD	285	\$493	\$524
14.00	UNSOLD	3146	\$527	\$552
	SOLD	308	\$564	\$584
15.00	UNSOLD	2166	\$621	\$627
	SOLD	220	\$612	\$616
16.00	UNSOLD	5353	\$346	\$350
	SOLD	468	\$364	\$360
17.00	UNSOLD	3536	\$472	\$496
	SOLD	346	\$498	\$512
18.00	UNSOLD	2346	\$473	\$474
	SOLD	218	\$477	\$488
19.00	UNSOLD	5090	\$358	\$354
	SOLD	576	\$401	\$399
20.00	UNSOLD	2046	\$364	\$365
	SOLD	262	\$393	\$396
21.00	UNSOLD	1348	\$319	\$328
	SOLD	158	\$322	\$338
22.00	UNSOLD	4442	\$325	\$330
	SOLD	1038	\$324	\$328
23.00	UNSOLD	6740	\$337	\$340
	SOLD	625	\$348	\$354
24.00	UNSOLD	5715	\$321	\$313
	SOLD	565	\$342	\$332
25.00	UNSOLD	3686	\$272	\$280
	SOLD	410	\$283	\$292
26.00	UNSOLD	2861	\$521	\$531
	SOLD	296	\$540	\$545
27.00	UNSOLD	3291	\$473	\$485
	SOLD	303	\$490	\$510
28.00	UNSOLD	3043	\$261	\$277
	SOLD	286	\$282	\$298
29.00	UNSOLD	2629	\$262	\$275
	SOLD	305	\$286	\$295
30.00	UNSOLD	2888	\$396	\$395
	SOLD	335	\$408	\$420
31.00	UNSOLD	2084	\$494	\$503
	SOLD	230	\$471	\$497
32.00	UNSOLD	5234	\$423	\$437
	SOLD	547	\$439	\$456
33.00	UNSOLD	1769	\$397	\$415
	SOLD	193	\$412	\$430
34.00	UNSOLD	1631	\$379	\$383
	SOLD	183	\$430	\$440
51.00	UNSOLD	1632	\$445	\$465
	SOLD	259	\$460	\$470
52.00	UNSOLD	2756	\$285	\$310
	SOLD	1063	\$293	\$302
53.00	UNSOLD	2616	\$281	\$269
	SOLD	730	\$295	\$298
54.00	UNSOLD	2628	\$452	\$458
	SOLD	420	\$463	\$470
55.00	UNSOLD	2896	\$256	\$269
	SOLD	383	\$267	\$279
56.00	UNSOLD	2592	\$360	\$372

	SOLD	825	\$380	\$382
57.00	UNSOLD	1860	\$424	\$448
	SOLD	656	\$418	\$434
58.00	UNSOLD	2358	\$402	\$423
	SOLD	763	\$394	\$410
134.00	UNSOLD	4	\$324	\$351
	SOLD	44	\$307	\$313

1215 ANALYSIS

Report

VALSF

ECONAREA	sold	N	Median	Mean
1.00	UNSOLD	3169	\$310	\$325
	SOLD	140	\$285	\$299

1220 ANALYSIS

Report

VALSF

ECONAREA	sold	N	Median	Mean
1.00	UNSOLD	557	\$269	\$284
	SOLD	44	\$273	\$284
2.00	UNSOLD	349	\$306	\$314
	SOLD	21	\$286	\$311

1225 ANALYSIS

Report

VALSF

ECONAREA	sold	N	Median	Mean
2.00	UNSOLD	1144	\$322	\$327
	SOLD	78	\$340	\$351
3.00	UNSOLD	492	\$313	\$373
	SOLD	34	\$264	\$310

1230 ANALYSIS

Report

VALSF

ECONAREA	sold	N	Median	Mean
37.00	UNSOLD	2563	\$530	\$548
	SOLD	402	\$530	\$541
38.00	UNSOLD	3359	\$395	\$399
	SOLD	444	\$402	\$405
39.00	UNSOLD	2265	\$299	\$296
	SOLD	328	\$304	\$297
41.00	UNSOLD	3846	\$193	\$195
	SOLD	630	\$199	\$199
42.00	UNSOLD	5266	\$222	\$229
	SOLD	674	\$225	\$228
43.00	UNSOLD	3900	\$265	\$271
	SOLD	542	\$272	\$274
44.00	UNSOLD	3746	\$345	\$345
	SOLD	633	\$347	\$350
45.00	UNSOLD	3727	\$389	\$391
	SOLD	640	\$392	\$393
46.00	UNSOLD	2491	\$438	\$439
	SOLD	609	\$445	\$448
47.00	UNSOLD	1835	\$529	\$563

	SOLD	537	\$579	\$625
48.00	UNSOLD	2305	\$163	\$164
	SOLD	361	\$165	\$170
50.00	UNSOLD	32	\$408	\$417
	SOLD	297	\$776	\$796

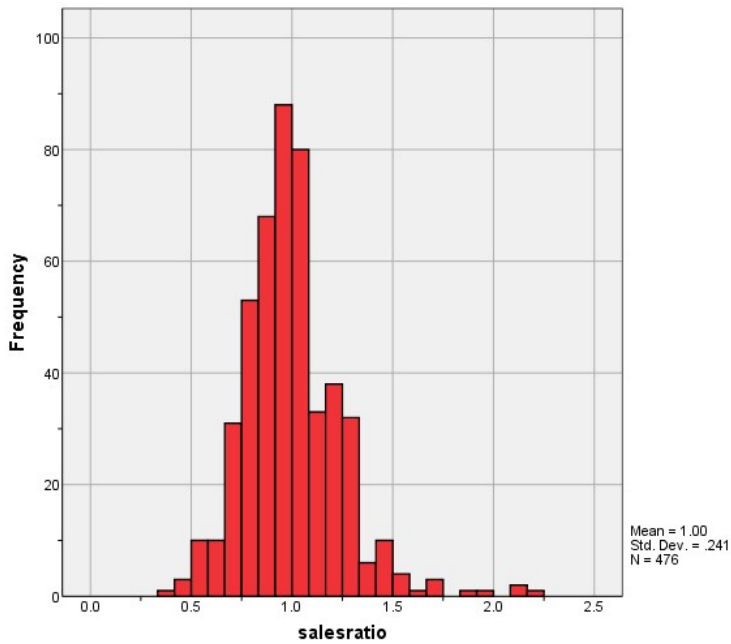
The above results indicate that sold and unsold residential properties were valued in a consistent manner.

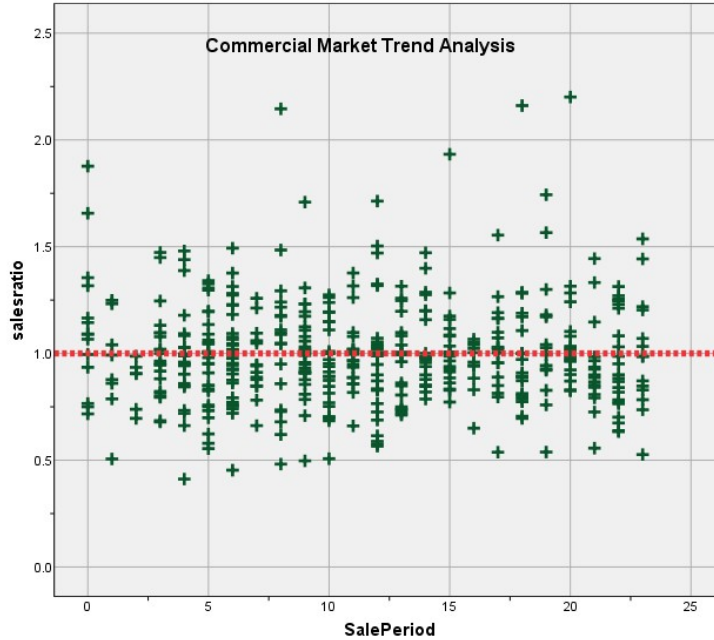
IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 476 qualified commercial/industrial sales in the 24 month sale period ending June 30, 2020. We performed the following sales ratio analysis, as follows:

Median	0.982
Price Related Differential	1.114
Coefficient of Dispersion	17.6

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





There was a statistically significant trend, although the magnitude of that trend, when considering the number of subclasses, was not significant; therefore, 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 change in value between valuation year 2018 and valuation year 2020 for unsold and sold commercial/industrial properties overall and by subclass, as follows:

Report

DIFF			
sold	N	Median	Mean
UNSOLD	9639	1.0769	1.1276
SOLD	469	1.1713	1.1908

Report

DIFF				
ABSTRIMP	sold	N	Median	Mean
2212.00	UNSOLD	1564	.9934	1.0479
	SOLD	65	1.0415	1.1418
2220.00	UNSOLD	2122	1.0186	1.0712
	SOLD	114	1.0279	1.0837
2225.00	UNSOLD	858	1.0709	1.1247
	SOLD	14	1.1333	1.2659
2230.00	UNSOLD	1607	1.0767	1.1202
	SOLD	65	1.0358	1.1201
2235.00	UNSOLD	2151	1.2457	1.2923
	SOLD	131	1.2543	1.3133
2245.00	UNSOLD	922	.9687	1.0208
	SOLD	60	1.0838	1.1658
3215.00	UNSOLD	238	1.2600	1.3135
	SOLD	19	1.2747	1.4313

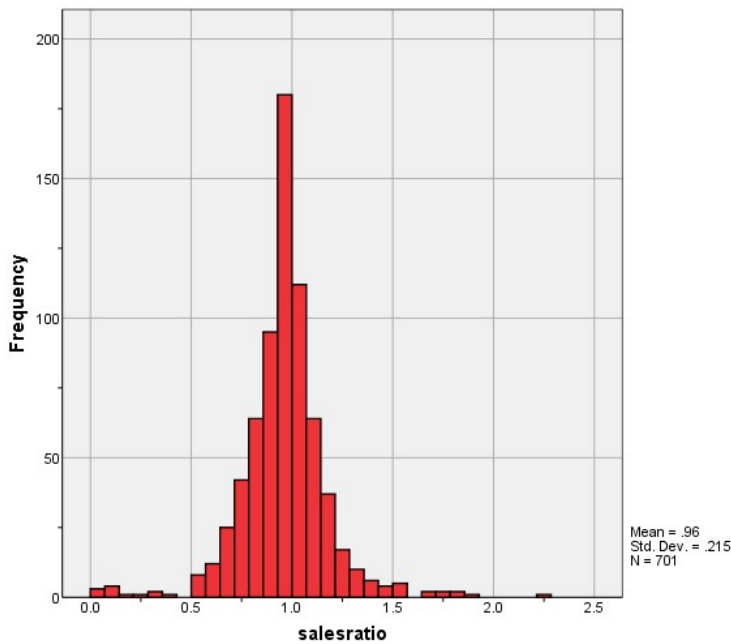
The above results indicated that sold and unsold commercial/industrial properties were valued consistently.

V. VACANT LAND SALE RESULTS

There were 701 qualified vacant land sales in the 24 month sale period ending June 30, 2020. The following sales ratio analysis was performed:

Median	0.967
Price Related Differential	1.105
Coefficient of Dispersion	14.6

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. No sales were trimmed.

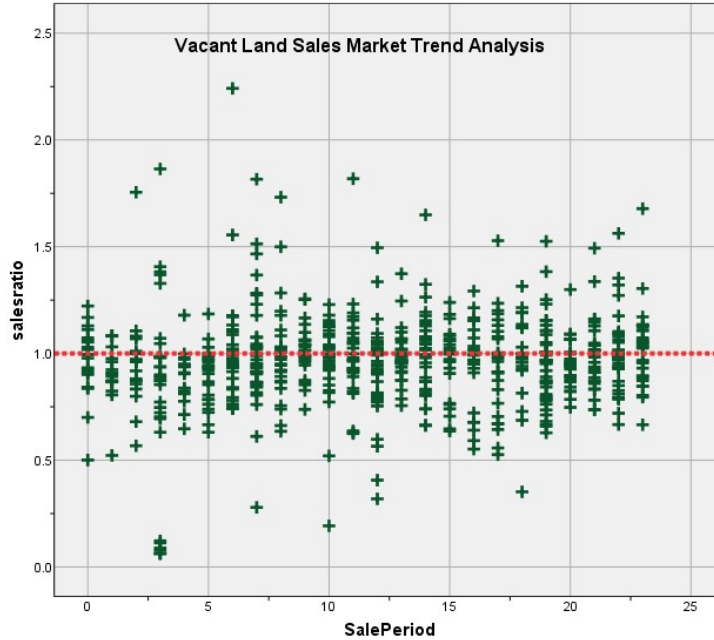
Vacant Land Market Trend Analysis

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

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.927	.017		54.748	.000
	SalePeriod	.003	.001	.091	2.422	.016

a. Dependent Variable: salesratio



While there was a marginally statistically significant trend in the vacant land data, the magnitude of the trend was not significant. We conclude that the assessor has adequately considered market trending in the vacant land sales analysis.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in actual value for valuation year 2018 and valuation year 2020 between each group. We stratified the vacant land properties by subdivisions with at least 10 sales and found overall consistency. The following results present the overall comparison results:

Report

DIFF				
	sold	N	Median	Mean
UN SOLD		13834	1.0000	1.0151
SOLD		572	1.2001	1.2731

Report

DIFF				
NBHD	sold	N	Median	Mean
235	UN SOLD	78	1.0000	1.0448
	SOLD	15	1.1666	1.2354
250	UN SOLD	104	1.0000	1.0252
	SOLD	12	1.0526	1.1419
506	UN SOLD	99	1.0000	1.0419
	SOLD	16	1.0000	1.1037
507	UN SOLD	93	1.0000	1.0321
	SOLD	12	1.2428	1.1762
526	UN SOLD	22	1.0802	1.1069
	SOLD	37	1.1539	1.1639
530	UN SOLD	41	1.0000	1.1175
	SOLD	25	1.2308	1.2249

532	UNSOLD	81	1.0000	1.1272
	SOLD	15	1.2500	1.3245
545	UNSOLD	50	1.0000	1.0499
	SOLD	21	1.2667	1.1974
552	UNSOLD	52	1.0000	.9423
	SOLD	11	1.2048	1.1681
593	UNSOLD	30	1.0000	1.0209
	SOLD	13	1.1502	1.1923

There was a pattern of sold value changing by a greater amount than unsold properties. The county files did not include subdivision numbers, so it was not possible to perform this analysis at the subdivision level. We will contact the assessor to discuss this finding.

V. CONCLUSIONS

Based on this 2021 audit statistical analysis, residential, commercial, and vacant land properties were found to be in compliance with state guidelines.

STATISTICAL ABSTRACT

Residential

Ratio Statistics for CURRTOT / TASP													
PREDUSE	Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
1212	1.007	1.006	1.008	1.001	1.000	1.002	95.0%	1.004	1.003	1.005	1.003	.045	6.8%
1215	.998	.980	1.016	.989	.974	1.010	96.6%	.992	.973	1.011	1.006	.082	10.9%
1220	1.040	1.012	1.069	1.015	.997	1.061	95.4%	1.041	1.011	1.071	.999	.087	11.2%
1225	1.038	1.016	1.059	1.052	1.010	1.067	95.3%	1.009	.984	1.033	1.028	.078	11.0%
1230	1.004	1.002	1.006	1.000	.999	1.001	95.1%	1.001	.998	1.004	1.003	.047	6.7%

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

Commercial Land

Ratio Statistics for CURRTOT / TASP													
Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered	
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound				
.998	.976	1.020	.982	.956	.999	95.1%	.896	.854	.937	1.114	.176	24.2%	

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

Vacant Land

Ratio Statistics for CURRLND / TASP													
Mean	95% Confidence Interval for Mean		Median	95% Confidence Interval for Median			Weighted Mean	95% Confidence Interval for Weighted Mean		Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered	
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound				
.963	.947	.979	.967	.959	.977	95.1%	.871	.789	.953	1.105	.146	22.3%	

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.

Residential Median Ratio Stratification

Improvement Age

Case Processing Summary

PREDUSE			Count	Percent
1212	AgeRec	.00	38	0.2%
		Over 100	2530	13.3%
		75 to 100	2302	12.1%
		50 to 75	4877	25.6%
		25 to 50	1630	8.6%
		5 to 25	3588	18.8%
		5 or Newer	4093	21.5%
	Overall	19058	100.0%	
	Excluded	0		
	Total	19058		
1215	AgeRec	Over 100	20	14.3%
		75 to 100	15	10.7%
		50 to 75	92	65.7%
		25 to 50	6	4.3%
		5 to 25	6	4.3%
		5 or Newer	1	0.7%
	Overall	140	100.0%	
Excluded	0			
Total	140			
1220	AgeRec	Over 100	9	13.8%
		75 to 100	10	15.4%
		50 to 75	41	63.1%
		25 to 50	5	7.7%
		Overall	65	100.0%
	Excluded	0		
Total	65			
1225	AgeRec	Over 100	9	8.0%
		75 to 100	13	11.6%
		50 to 75	51	45.5%
		25 to 50	17	15.2%
		5 to 25	14	12.5%
		5 or Newer	8	7.1%
	Overall	112	100.0%	
Excluded	0			
Total	112			
1230	AgeRec	.00	4	0.1%
		Over 100	414	6.8%
		75 to 100	205	3.4%
		50 to 75	1539	25.2%
		25 to 50	1693	27.7%
		5 to 25	1517	24.9%
		5 or Newer	729	11.9%
	Overall	6101	100.0%	
Excluded	0			
Total	6101			

Ratio Statistics for CURRTOT / TASP

PREDUSE	Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212	.00	1.002	1.018	.138	18.8%
	Over 100	1.001	1.003	.055	8.3%
	75 to 100	1.001	1.004	.054	8.2%
	50 to 75	1.002	1.002	.050	7.6%
	25 to 50	1.002	1.000	.044	6.4%
	5 to 25	1.001	1.001	.039	5.6%
	5 or Newer	1.000	1.004	.033	5.0%
	Overall	1.001	1.003	.045	6.9%
1215	Over 100	1.004	1.000	.092	11.5%
	75 to 100	.993	.999	.076	11.4%
	50 to 75	.985	1.010	.079	10.7%
	25 to 50	.969	.993	.107	16.7%
	5 to 25	1.013	1.011	.095	13.1%
	5 or Newer	.989	1.000	.000	.
	Overall	.989	1.006	.082	11.1%
	1220	Over 100	1.091	1.018	.122
75 to 100		1.053	1.003	.089	13.0%
50 to 75		1.006	.996	.079	10.3%
25 to 50		1.004	1.008	.028	5.3%
Overall		1.015	.999	.087	11.8%
1225	Over 100	1.043	1.028	.084	10.8%
	75 to 100	1.006	1.000	.074	10.8%
	50 to 75	1.064	1.037	.085	13.0%
	25 to 50	1.063	1.081	.075	10.4%
	5 to 25	1.056	.989	.042	5.9%
	5 or Newer	.998	1.021	.056	6.9%
	Overall	1.052	1.028	.078	11.0%
	1230	.00	1.095	1.000	.017
Over 100		.999	1.002	.062	9.2%
75 to 100		.998	1.003	.059	7.8%
50 to 75		1.001	1.003	.051	6.9%
25 to 50		1.001	.997	.045	6.3%
5 to 25		.999	1.004	.044	6.5%
5 or Newer		1.000	1.005	.042	6.0%
Overall		1.000	1.003	.047	6.8%

Improvement Size

Statistics

ImpSFRec			
1212	N	Valid	19058
		Missing	0
1215	N	Valid	140
		Missing	0
1220	N	Valid	65
		Missing	0
1225	N	Valid	112
		Missing	0
1230	N	Valid	6101
		Missing	0

ImpSFRec

PREDUSE			Frequency	Percent	Valid Percent	Cumulative Percent
1212	Valid	.00	38	.2	.2	.2
		LE 500 sf	29	.2	.2	.4
		500 to 1,000 sf	3609	18.9	18.9	19.3
		1,000 to 1,500 sf	6312	33.1	33.1	52.4
		1,500 to 2,000 sf	4483	23.5	23.5	75.9
		2,000 to 3,000 sf	3460	18.2	18.2	94.1
		3,000 sf or Higher	1127	5.9	5.9	100.0
		Total	19058	100.0	100.0	
1215	Valid	500 to 1,000 sf	1	.7	.7	.7
		1,000 to 1,500 sf	22	15.7	15.7	16.4
		1,500 to 2,000 sf	54	38.6	38.6	55.0
		2,000 to 3,000 sf	45	32.1	32.1	87.1
		3,000 sf or Higher	18	12.9	12.9	100.0
		Total	140	100.0	100.0	
1220	Valid	1,500 to 2,000 sf	1	1.5	1.5	1.5
		2,000 to 3,000 sf	19	29.2	29.2	30.8
		3,000 sf or Higher	45	69.2	69.2	100.0
		Total	65	100.0	100.0	
1225	Valid	3,000 sf or Higher	112	100.0	100.0	100.0
1230	Valid	.00	4	.1	.1	.1
		LE 500 sf	220	3.6	3.6	3.7
		500 to 1,000 sf	2944	48.3	48.3	51.9
		1,000 to 1,500 sf	2186	35.8	35.8	87.8
		1,500 to 2,000 sf	541	8.9	8.9	96.6
		2,000 to 3,000 sf	177	2.9	2.9	99.5
		3,000 sf or Higher	29	.5	.5	100.0
		Total	6101	100.0	100.0	

Improvement Quality

Case Processing Summary

PREDUSE			Count	Percent
1212	QUALITY		38	0.2%
		A	492	2.6%
		A-	1	0.0%
		A+	3	0.0%
		B	5421	28.4%
		B-	8	0.0%
		B+	236	1.2%
		C	12637	66.3%
		C-	2	0.0%
		C+	11	0.1%
		D	163	0.9%
		X	46	0.2%
	Overall		19058	100.0%
	Excluded		0	
	Total		19058	
1215	QUALITY	C	131	93.6%
		C-	3	2.1%
		C+	2	1.4%
		D	4	2.9%

	Overall		140	100.0%
	Excluded		0	
	Total		140	
1220	QUALITY	B	1	1.5%
		C	61	93.8%
		C-	1	1.5%
		D	2	3.1%
	Overall		65	100.0%
	Excluded		0	
	Total		65	
1225	QUALITY	A	14	12.5%
		B	8	7.1%
		C	86	76.8%
		X	4	3.6%
	Overall		112	100.0%
	Excluded		0	
	Total		112	
1230	QUALITY		4	0.1%
		A	214	3.5%
		A+	31	0.5%
		B	2043	33.5%
		B-	2	0.0%
		B+	44	0.7%
		C	3635	59.6%
		C+	28	0.5%
		D	86	1.4%
		X	14	0.2%
		Overall		6101
	Excluded		0	
	Total		6101	

Ratio Statistics for CURRTOT / TASP

PREDUSE	Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212		1.002	1.018	.138	18.8%
	A	1.003	1.006	.052	7.5%
	A-	1.155	1.000	.000	.
	A+	.922	1.024	.105	16.5%
	B	1.000	1.002	.044	7.1%
	B-	1.133	.999	.067	9.3%
	B+	1.009	1.004	.046	6.1%
	C	1.001	1.003	.045	6.7%
	C-	1.351	1.015	.174	24.6%
	C+	1.013	.978	.068	12.6%
	D	1.001	1.004	.063	8.8%
	X	.999	1.001	.044	6.7%
Overall		1.001	1.003	.045	6.9%
1215	C	.989	1.005	.079	10.9%
	C-	1.035	.994	.072	14.0%
	C+	.990	.995	.120	17.0%
	D	1.124	1.021	.097	13.4%
	Overall		.989	1.006	.082

1220	B	1.091	1.000	.000	.
	C	1.015	1.000	.090	12.1%
	C-	.989	1.000	.000	.
	D	.980	.990	.051	7.2%
	Overall	1.015	.999	.087	11.8%
1225	A	1.057	.998	.050	7.4%
	B	1.021	1.004	.062	7.8%
	C	1.050	1.061	.085	12.0%
	X	1.029	.998	.041	5.0%
	Overall	1.052	1.028	.078	11.0%
1230		1.095	1.000	.017	2.8%
	A	1.001	1.013	.061	9.8%
	A+	1.065	.998	.113	14.6%
	B	1.000	1.004	.048	7.1%
	B-	1.029	1.001	.027	3.9%
	B+	.990	1.002	.044	5.6%
	C	1.000	1.003	.046	6.2%
	C+	1.009	1.004	.048	6.8%
	D	1.000	1.002	.043	6.0%
	X	1.004	1.018	.105	13.8%
	Overall	1.000	1.003	.047	6.8%

Improvement Condition

Case Processing Summary

PREDUSE		Count	Percent	
1212	CONDITION	1	51	0.3%
		2	399	2.1%
		3	11545	60.7%
		4	6908	36.3%
		5	64	0.3%
		7	45	0.2%
	Overall		19012	100.0%
	Excluded		46	
Total		19058		
1215	Overall		0	100.0%
	Excluded		140	
	Total		140	
1220	Overall		0	100.0%
	Excluded		65	
	Total		65	
1225	Overall		0	100.0%
	Excluded		112	
	Total		112	
1230	CONDITION	1	2	0.0%
		2	21	0.3%
		3	3647	59.8%
		4	2424	39.8%
		5	2	0.0%
	Overall		6096	100.0%
	Excluded		5	
	Total		6101	

Ratio Statistics for CURRTOT / TASP

PREDUSE	Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212	1	.998	1.005	.052	7.4%
	2	1.001	1.003	.059	10.8%
	3	1.001	1.003	.049	7.3%
	4	1.001	1.002	.037	5.6%
	5	.987	1.016	.055	8.4%
	7	.976	1.016	.086	15.2%
	Overall	1.001	1.003	.045	6.8%
1230	1	.983	.987	.048	6.8%
	2	1.001	.999	.047	7.5%
	3	1.001	1.001	.049	6.8%
	4	.999	1.004	.046	6.7%
	5	1.053	1.039	.057	8.1%
	Overall	1.000	1.003	.047	6.8%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	\$50K to \$100K	2	0.4%
	\$100K to \$150K	1	0.2%
	\$150K to \$200K	6	1.3%
	\$200K to \$300K	10	2.1%
	\$300K to \$500K	50	10.5%
	\$500K to \$750K	63	13.2%
	\$750K to \$1,000K	46	9.7%
	Over \$1,000K	298	62.6%
Overall		476	100.0%
Excluded		0	
Total		476	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$50K to \$100K	.969	1.003	.048	6.8%
\$100K to \$150K	.999	1.000	.000	.
\$150K to \$200K	.967	.990	.213	38.2%
\$200K to \$300K	.996	1.004	.194	27.2%
\$300K to \$500K	.982	1.007	.116	16.7%
\$500K to \$750K	1.003	1.001	.156	22.4%
\$750K to \$1,000K	.999	1.004	.190	26.8%
Over \$1,000K	.956	1.107	.190	26.3%
Overall	.982	1.114	.176	24.6%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	.00	1	0.2%
	2212.00	66	13.9%
	2220.00	114	23.9%
	2225.00	14	2.9%
	2230.00	67	14.1%
	2235.00	134	28.2%
	2245.00	61	12.8%
	3215.00	19	4.0%
Overall		476	100.0%
Excluded		0	
Total		476	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.554	1.000	.000	.
2212.00	.983	1.057	.173	21.8%
2220.00	.975	1.130	.167	23.4%
2225.00	1.127	.993	.285	37.7%
2230.00	.966	1.075	.222	27.9%
2235.00	.992	1.031	.183	24.6%
2245.00	.979	.998	.093	18.9%
3215.00	1.027	1.045	.160	19.8%
Overall	.982	1.114	.176	24.6%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	.00	1	0.2%
	Over 100	65	13.7%
	75 to 100	70	14.7%
	50 to 75	170	35.7%
	25 to 50	116	24.4%
	5 to 25	45	9.5%
	5 or Newer	9	1.9%
Overall		476	100.0%
Excluded		0	
Total		476	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.554	1.000	.000	.
Over 100	.951	1.054	.183	25.2%
75 to 100	1.003	1.027	.149	22.8%

50 to 75	.986	1.028	.193	26.0%
25 to 50	.992	1.127	.169	24.2%
5 to 25	.928	1.093	.130	20.2%
5 or Newer	.753	1.046	.271	34.0%
Overall	.982	1.114	.176	24.6%

Improvement Condition

Case Processing Summary

	Count	Percent
QUALITY	1	0.2%
A	14	2.9%
A-	2	0.4%
A+	2	0.4%
B	52	10.9%
B-	5	1.1%
B+	5	1.1%
C	365	76.7%
C-	1	0.2%
C+	20	4.2%
X	5	1.1%
X+	4	0.8%
Overall	476	100.0%
Excluded	0	
Total	476	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.554	1.000	.000	.
A	.866	1.060	.123	14.8%
A-	1.003	.992	.056	8.0%
A+	.873	1.157	.191	27.1%
B	.986	1.020	.137	19.0%
B-	1.063	1.081	.244	36.4%
B+	.953	.994	.190	27.9%
C	.989	1.038	.181	25.4%
C-	.923	1.000	.000	.
C+	.999	1.004	.170	22.6%
X	.829	.892	.090	14.0%
X+	.904	.963	.058	9.7%
Overall	.982	1.114	.176	24.6%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	\$50K to \$100K	6	0.9%
	\$100K to \$150K	19	2.7%
	\$150K to \$200K	14	2.0%

\$200K to \$300K	30	4.3%
\$300K to \$500K	184	26.2%
\$500K to \$750K	162	23.1%
\$750K to \$1,000K	106	15.1%
Over \$1,000K	180	25.7%
Overall	701	100.0%
Excluded	0	
Total	701	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
\$50K to \$100K	1.090	1.010	.166	23.8%
\$100K to \$150K	.987	.999	.110	16.8%
\$150K to \$200K	.966	1.002	.200	28.6%
\$200K to \$300K	.952	.998	.125	18.7%
\$300K to \$500K	1.015	1.006	.111	15.5%
\$500K to \$750K	.961	1.000	.093	12.9%
\$750K to \$1,000K	.990	.999	.153	23.9%
Over \$1,000K	.896	1.042	.210	31.0%
Overall	.967	1.105	.146	22.2%

Subclass

Case Processing Summary

	Count	Percent
ABSTRLND		
.00	166	23.7%
100.00	261	37.2%
101.00	30	4.3%
200.00	71	10.1%
300.00	36	5.1%
510.00	2	0.3%
520.00	2	0.3%
530.00	1	0.1%
1112.00	103	14.7%
1125.00	3	0.4%
2112.00	3	0.4%
2120.00	6	0.9%
2125.00	1	0.1%
2130.00	10	1.4%
2135.00	5	0.7%
4127.00	1	0.1%
Overall	701	100.0%
Excluded	0	
Total	701	

Ratio Statistics for CURRLND / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.964	1.075	.159	25.3%
100.00	.979	1.016	.122	18.1%
101.00	.955	.982	.093	12.1%

200.00	.909	1.211	.186	25.2%
300.00	.952	1.012	.198	29.7%
510.00	.782	1.024	.058	8.2%
520.00	.884	.981	.230	32.6%
530.00	.631	1.000	.000	.
1112.00	.992	1.043	.124	17.3%
1125.00	.823	1.022	.060	11.3%
2112.00	.890	1.032	.160	25.1%
2120.00	.952	1.082	.175	30.6%
2125.00	.950	1.000	.000	.
2130.00	.750	1.244	.254	39.8%
2135.00	.941	.970	.455	81.5%
4127.00	1.111	1.000	.000	.
Overall	.967	1.105	.146	22.2%