2016
ARAPAHOE COUNTY PROPERTY ASSESSMENT STUDY

WILDROSE
APPRAISAL, INCORPORATED
Audit Division

September 15, 2016

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

RE: Final Report for the 2016 Colorado Property Assessment Study

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2016 Colorado Property Assessment Study.

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

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

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

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

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

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INTRODUCTION

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 2016 and is pleased to report its findings for Arapahoe County in the following report.

REGIONAL/HISTORICAL SKETCH OF ARAPAHOE COUNTY

Regional Information

Arapahoe 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.
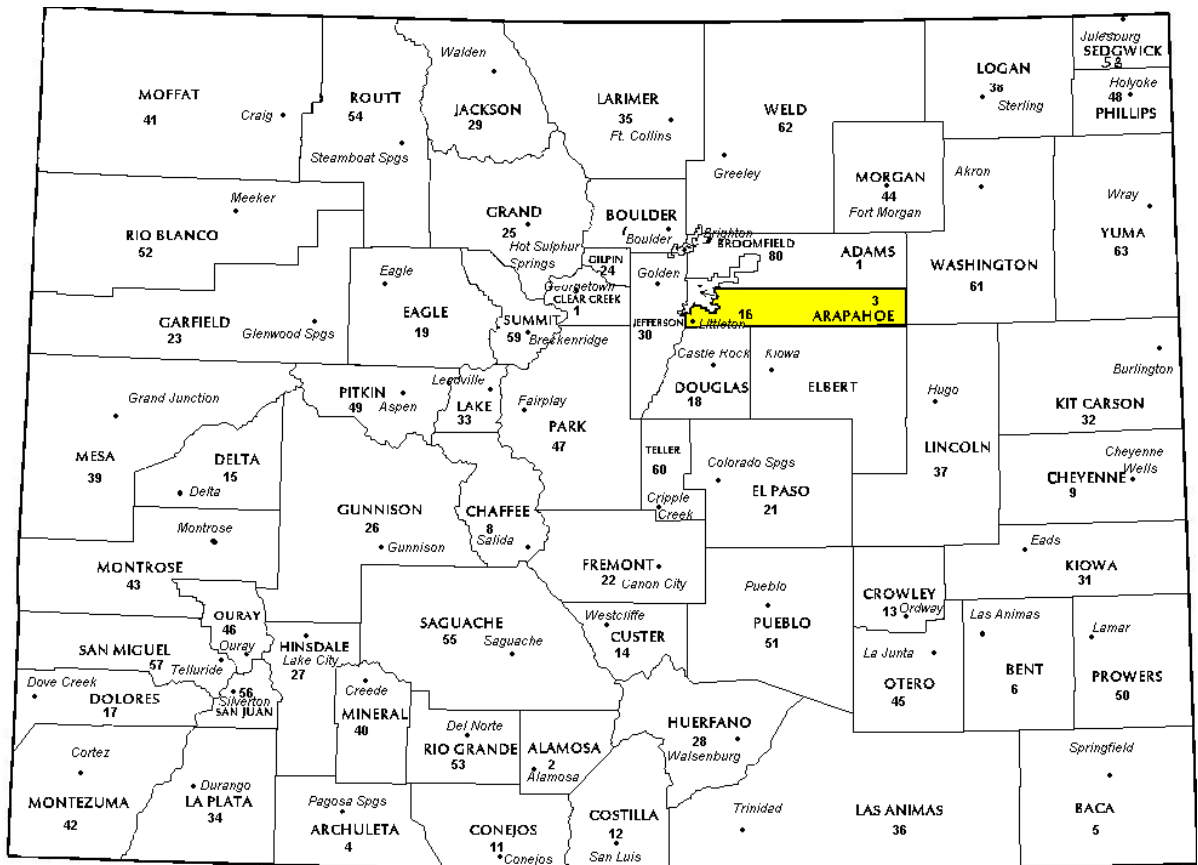
Historical Information

Arapahoe County had an estimated population of approximately 618,821 people with 717 people per square mile, according to the U.S. Census Bureau's 2014 estimated census data. This represents a 8.2 percent change from April 1, 2010 to July 1, 2014.

Arapahoe County is the third most populous of the 64 Colorado counties. The county seat is Littleton and the most populous city is Aurora. Arapahoe County is part of the Denver-Aurora Metropolitan Statistical Area and the Denver-Aurora-Boulder Combined Statistical Area. Arapahoe County calls itself "Colorado's First County" since its origins predate the Pike's Peak Gold Rush.

On August 25, 1855, the Kansas Territorial Legislature created a huge Arapahoe County to govern the entire western portion of the Territory of Kansas. The county was named for the Arapaho Nation of Native Americans that lived in the region.

In July 1858, gold was discovered along the South Platte River in Arapahoe County (in present day Englewood). This discovery precipitated the Pike's Peak Gold Rush. Many residents of the mining region felt disconnected from the remote territorial governments of Kansas and Nebraska, so they voted to form their own Territory of Jefferson on October 24, 1859. The following month, the Jefferson Territorial Legislature organized 12 counties for the new territory, including a new Arapahoe County. Denver City served as the county seat of Arapahoe County.

The Jefferson Territory never received federal sanction, but on February 28, 1861, U.S. President James Buchanan signed an act organizing the Territory of Colorado. On November 1, 1861, the Colorado General Assembly organized the 17 original counties of Colorado including a new Arapahoe County. Arapahoe County originally stretched from the line of present-day Sheridan Boulevard 160 miles east to the Kansas state border, and from the line of present-day County Line Road 30 miles north to the Parallel 40° North (168th Avenue). Denver City served as the county seat of Arapahoe County until 1902.

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 reorganization until November 15, 1902. Governor James Bradley Orman designated Littleton as the temporary county seat of South Arapahoe County. On April 11, 1903, the Colorado General Assembly changed the name of South Arapahoe County back to Arapahoe County. On November 8, 1904, Arapahoe County voters chose Littleton over Englewood by a vote of 1310 to 829 to be the permanent county seat.
(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 2013 and June 2014. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2014 in 6-month increments. If there were still fewer than 30 sales, supplemental appraisals were performed and treated as proxy sales. Residential sales for all counties using this method totaled at least 30 per county. For commercial sales, the total number analyzed was allowed, in some cases, to fall below 30. There were no sale quantity issues for counties requiring vacant land analysis or condominium analysis. Although it was required that we examine the median and coefficient of dispersion for all counties, we also calculated the weighted mean and price-related differential for each class of property. Counties were not passed or failed by these latter measures, but were counseled if there were anomalies noted during our analysis. Qualified sales were based on the qualification code used by each county, which were typically coded as either "Q" or "C." The ratio analysis included all sales. The data was trimmed for counties with obvious outliers using IAAO standards for data analysis. In every case, we examined the loss in data from trimming to ensure that only true outliers were excluded. Any county with a significant portion of sales excluded by this trimming method was examined further. No county was allowed to pass the audit if more than 5% of the sales were "lost" because of trimming. For the largest 11 counties, the residential ratio statistics were broken down by economic area as well.

Conclusions

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

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

The results for Arapahoe County are:

Arapahoe County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
Commercial/Industrial	305	1.000	1.020	6.7	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	21,889	1.001	1.014	6.3	Compliant
Vacant Land	123	0.999	1.051	18.6	Compliant

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1	1.023	1.006	.047
2	1.012	1.009	.067
3	1.001	1.014	.052
4	1.019	1.008	.068
5	1.005	1.017	.081
6	1.026	1.021	.109
7	.997	1.006	.063
8	1.010	1.017	.081
10	.999	1.010	.064
11	1.000	1.005	.049
12	.999	1.010	.046
13	1.000	1.009	.066
14	1.000	1.012	.079
15	1.003	1.013	.078
16	.996	1.014	.044
17	1.004	1.006	.054
18	.999	1.008	.053
19	1.006	1.010	.066
20	1.009	1.009	.057
28	1.022	1.007	.059
Overall	1.001	1.014	.063

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

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

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

or if there are other explanations for the observed difference.

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

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

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

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

Conclusions

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

Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass	Value By Subclass
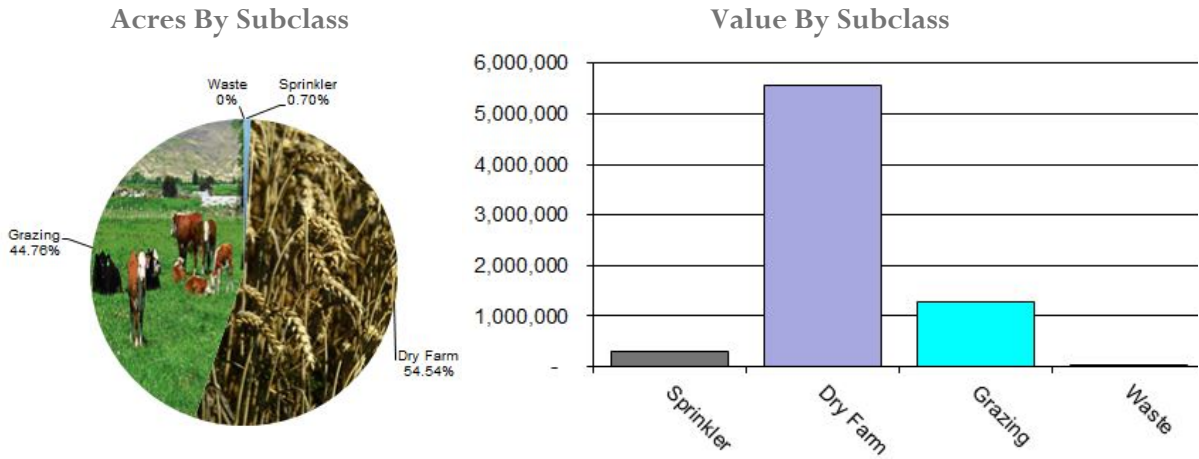
Agricultural Land

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:

Arapahoe County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4107	Sprinkler	2,180	135.19	294,709	308,864	0.95
4127	Dry Farm	169,600	33.99	5,764,091	5,567,856	1.04
4147	Grazing	139,198	9.15	1,273,607	1,273,607	1.00
4167	Waste	1	1.99	2	2	1.00
Total/Avg		310,979	23.58	7,332,408	7,150,328	1.03

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

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

Recommendations

None

Agricultural Land Under Improvements

Methodology

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

Conclusions

Arapahoe 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

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

- Questionnaires
- Field Inspections
- Aerial Photography/Pictometry

Arapahoe 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 2016 for Arapahoe County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 62 sales listed as unqualified.

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

For residential, commercial, and vacant land sales with considerations over $500, the contractor has examined and reported the ratio of qualified sales to total sales by class and performed the following analyses of unqualified sales:

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

> 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

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

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

Arapahoe County has submitted a written narrative describing the economic areas that make up the county's market areas. Arapahoe 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 Arapahoe County has adequately identified homogeneous economic areas comprised of smaller neighborhoods. Each economic area defined is equally subject to a set of economic forces that impact the value of the properties within that geographic area and this has been adequately addressed. Each economic area defined adequately delineates an area that will give "similar values for similar properties in similar areas."

Recommendations

None

NATURAL RESOURCES

Earth and Stone Products

Methodology

Under the guidelines of the Assessor's Reference Library (ARL), Volume 3, Natural Resource Valuation Procedures, the income approach was applied to determine value for production of earth and stone products. The number of tons was multiplied by an economic royalty rate determined by the Division of Property Taxation to determine income. The income was multiplied by a recommended Hoskold factor to determine the actual value. The Hoskold factor is determined by the life of the reserves or the lease. Value is based on two variables: life and tonnage. The operator determines these since there is no other means to obtain production data through any state or private agency.

Conclusions

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

Recommendations

None

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

None

VACANT LAND

Subdivision Discounting

Subdivisions were reviewed in 2016 in Arapahoe 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 was 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

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

Recommendations

None

P OSSESSORY I NTEREST P ROPERTIES

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.

Arapahoe 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

Arapahoe 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

Arapahoe 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.

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

- Public Record Documents
- Chamber of Commerce/Economic Development Contacts
- Personal Observation, Physical Canvassing or Word of Mouth
- Physically verifying all business in TIF locations
- Physically verifying 1/3 of county jurisdiction

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.

Arapahoe County submitted their personal property written audit plan and was current for the 2016 valuation period. The number and listing of businesses audited was also submitted and was in conformance with the written audit plan. The following audit triggers were used by the county to select accounts to be audited:

- Accounts with obvious discrepancies
- New businesses filing for the first time
- Incomplete or inconsistent declarations
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts protested with substantial disagreement

Arapahoe 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

Arapahoe 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

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APPENDICES

STATISTICAL COMPLIANCE REPORT
FOR ARAPAHOE COUNTY
2016

I. OVERVIEW

Arapahoe County is an urban county that is part of the Denver metropolitan area. The county has a total of 209,596 real property parcels, according to data submitted by the county assessor's office in 2016. The following provides a breakdown of property classes for this county:
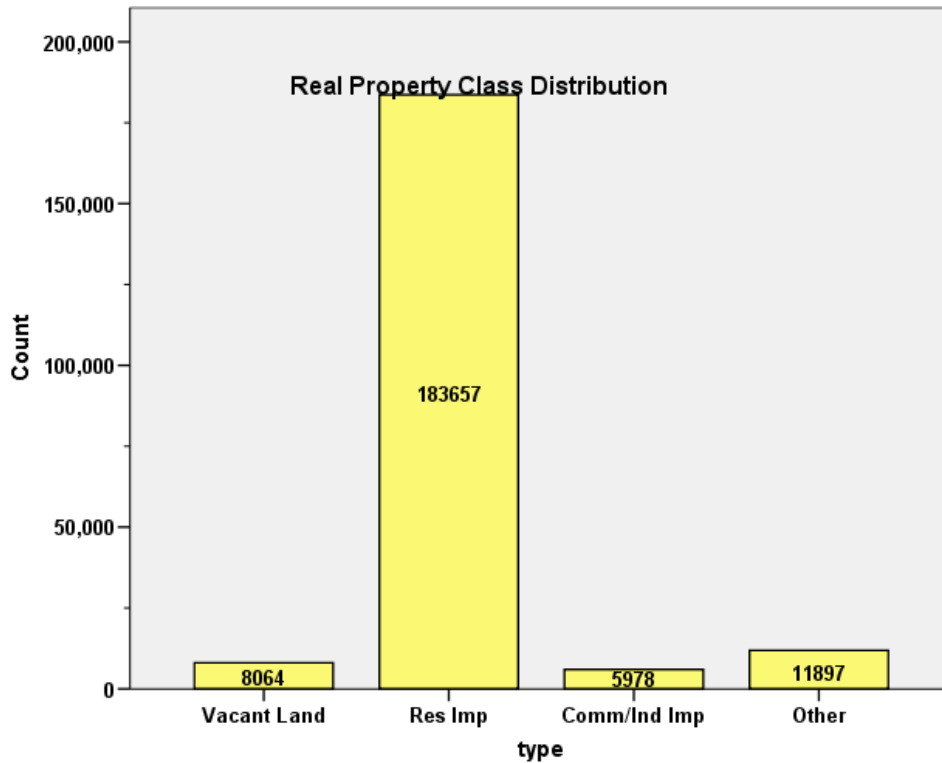
The vacant land class of properties was dominated by residential land. Residential and PUD lots (coded 100 and 400) accounted for 79.7% of all vacant land parcels.

For residential improved properties, single family properties accounted 84.2% of all residential properties. The next significant subclass of properties was condominiums (coded 1230), which accounted for 14.6% of all properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 2.9% of all such properties in this county.

II. DATA FILES

The following sales analyses were based on the requirements of the 2016 Colorado Property Assessment Study. Information was provided by the Arapahoe Assessor's Office in April 2016. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 21,889 qualified residential sales for the 24-month sale period prior to June 30, 2014. The sales ratio analysis was as follows:

Ratio Statistics

Median	1.001
Price Related Differential	1.014
Coefficient of Dispersion	6.3

Case Processing Summary

		Count	Percent
ECONAREA	1	44	0.2%
	2	88	0.4%
	3	608	2.8%
	4	436	2.0%
	5	851	3.9%
	6	912	4.2%
	7	1130	5.2%
	8	2027	9.3%
	10	2678	12.2%
	11	2883	13.2%
	12	532	2.4%
	13	689	3.1%
	14	1125	5.1%
	15	153	0.7%
	16	218	1.0%
	17	475	2.2%
	18	5929	27.1%
	19	110	0.5%
	20	411	1.9%
	28	590	2.7%
Overall		21889	100.0%
Excluded		0	
Total		21889	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion
1	1.023	1.006	.047
2	1.012	1.009	.067
3	1.001	1.014	.052
4	1.019	1.008	.068
5	1.005	1.017	.081
6	1.026	1.021	.109
7	.997	1.006	.063
8	1.010	1.017	.081
10	.999	1.010	.064
11	1.000	1.005	.049
12	.999	1.010	.046
13	1.000	1.009	.066
14	1.000	1.012	.079
15	1.003	1.013	.078
16	.996	1.014	.044
17	1.004	1.006	.054
18	.999	1.008	.053
19	1.006	1.010	.066
20	1.009	1.009	.057
28	1.022	1.007	.059
Overall	1.001	1.014	.063

The above ratio statistics, stratified by economic area, 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 all of these properties:

Residential Sale Price by Sales Ratio
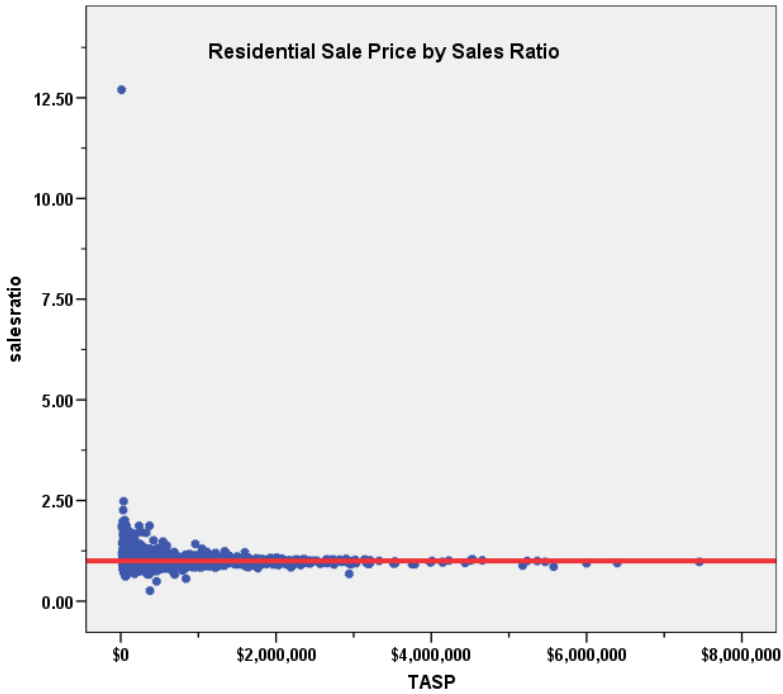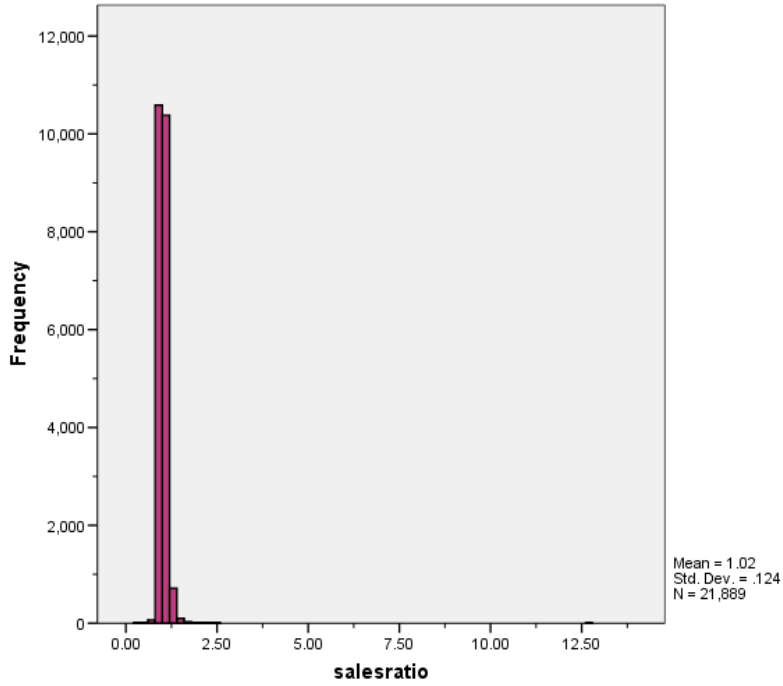
The above histogram indicates that the distribution of the sale ratios was within state mandated limits. No individual sales were trimmed; although all residential properties coded 1235 (mobile homes) were excluded from this analysis.

Residential Market Trend Analysis

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

Coefficients[a]

ECONAREA	Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	1	(Constant)	1.001	.018		55.717	.000
		SalePeriod	.004	.001	.355	2.461	.018
2	1	(Constant)	1.012	.016		62.318	.000
		SalePeriod	.001	.001	.115	1.066	.289
3	1	(Constant)	.996	.005		187.145	.000
		SalePeriod	.001	.000	.140	3.488	.001
4	1	(Constant)	1.012	.008		131.075	.000
		SalePeriod	.002	.001	.164	3.468	.001
5	1	(Constant)	.988	.007		142.082	.000
		SalePeriod	.004	.001	.230	6.884	.000
6	1	(Constant)	.978	.008		116.701	.000
		SalePeriod	.008	.001	.377	12.259	.000
7	1	(Constant)	.986	.005		200.937	.000
		SalePeriod	.002	.000	.131	4.421	.000
8	1	(Constant)	.993	.004		225.499	.000
		SalePeriod	.004	.000	.217	9.996	.000
10	1	(Constant)	1.005	.003		292.766	.000
		SalePeriod	8.955E-5	.000	.007	.339	.735
11	1	(Constant)	1.004	.002		419.051	.000
		SalePeriod	.000	.000	-.017	-.900	.368
12	1	(Constant)	1.017	.006		182.729	.000
		SalePeriod	-.001	.000	-.146	-3.384	.001
13	1	(Constant)	.997	.006		153.583	.000
		SalePeriod	.001	.001	.110	2.906	.004
14	1	(Constant)	1.001	.006		169.000	.000
		SalePeriod	.001	.000	.095	3.183	.001
15	1	(Constant)	.999	.018		55.684	.000
		SalePeriod	.002	.001	.110	1.362	.175
16	1	(Constant)	1.017	.008		134.222	.000
		SalePeriod	-.001	.001	-.154	-2.294	.023
17	1	(Constant)	1.007	.007		152.172	.000
		SalePeriod	.000	.001	.042	.910	.363
18	1	(Constant)	1.001	.002		540.388	.000
		SalePeriod	.001	.000	.057	4.365	.000
19	1	(Constant)	1.016	.015		66.789	.000
		SalePeriod	.001	.001	.052	.541	.590
20	1	(Constant)	.994	.007		146.823	.000
		SalePeriod	.003	.001	.233	4.838	.000
28	1	(Constant)	.995	.007		150.208	.000
		SalePeriod	.004	.001	.319	8.155	.000

a. Dependent Variable: salesratio

The above analysis indicated that no significant residential market trend was present in the sale data within each economic area. Where there was a statistically significant trend within most economic areas, the magnitude of the trends was insignificant. We concluded that the assessor has adequately dealt with market trending for 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 2016 between each group. The following results present the overall results, as well as by economic area, for sold and unsold properties:

Report

ValSF

sold	N	Median	Mean
UNSOLD	161718	$148	$161
SOLD	21884	$155	$177

Report

Variables ValSF

ECONAREA	sold	N	Median	Mean
1	UNSOLD	270	$197	$191
	SOLD	44	$201	$197
2	UNSOLD	939	$210	$211
	SOLD	88	$238	$233
3	UNSOLD	3,443	$141	$157
	SOLD	608	$152	$172
4	UNSOLD	4,927	$134	$135
	SOLD	436	$135	$140
5	UNSOLD	8,365	$117	$121
	SOLD	851	$118	$122
6	UNSOLD	9,117	$89	$96
	SOLD	912	$91	$98
7	UNSOLD	9,222	$125	$128
	SOLD	1,130	$127	$131
8	UNSOLD	17,523	$125	$133
	SOLD	2,027	$130	$136
10	UNSOLD	21,865	$180	$183
	SOLD	2,676	$186	$192
11	UNSOLD	14,434	$171	$176
	SOLD	2,883	$167	$175
12	UNSOLD	4,647	$302	$323
	SOLD	530	$328	$342
13	UNSOLD	5,546	$189	$187
	SOLD	689	$191	$195
14	UNSOLD	8,351	$214	$225
	SOLD	1,124	$232	$423
15	UNSOLD	1,537	$175	$177
	SOLD	153	$205	$208
16	UNSOLD	1,965	$206	$231
	SOLD	218	$224	$239
17	UNSOLD	4,202	$169	$179
	SOLD	475	$176	$182
18	UNSOLD	36,962	$140	$143
	SOLD	5,929	$147	$150
19	UNSOLD	1,122	$145	$146
	SOLD	110	$155	$151
20	UNSOLD	2,103	$197	$213
	SOLD	411	$205	$222
28	UNSOLD	2,391	$148	$152
	SOLD	590	$148	$153

Based on the differences with several grouping comparisons, we also compared the percent change in value from 2014 to 2016 between sold and unsold residential properties, both as a whole and by economic area:

Report

DIFF

sold	N	Median	Mean
UNSOLD	157,213	1.304	1.336
SOLD	21,200	1.330	1.358

		Report			

Variables **DIFF**

ECONAREA	sold	N	Median	Mean
1	UNSOLD	270	1.339	1.370
	SOLD	44	1.347	1.394
2	UNSOLD	937	1.288	1.281
	SOLD	88	1.387	1.393
3	UNSOLD	3,375	1.273	1.288
	SOLD	588	1.313	1.328
4	UNSOLD	4,897	1.576	1.572
	SOLD	415	1.654	1.633
5	UNSOLD	8,093	1.458	1.498
	SOLD	773	1.531	1.551
6	UNSOLD	7,887	1.675	1.671
	SOLD	720	1.712	1.681
7	UNSOLD	9,212	1.373	1.372
	SOLD	1,122	1.424	1.433
8	UNSOLD	17,323	1.426	1.437
	SOLD	1,984	1.464	1.477
10	UNSOLD	21,697	1.229	1.243
	SOLD	2,637	1.285	1.303
11	UNSOLD	13,798	1.205	1.213
	SOLD	2,816	1.219	1.234
12	UNSOLD	4,594	1.175	1.191
	SOLD	528	1.220	1.245
13	UNSOLD	5,532	1.312	1.321
	SOLD	684	1.371	1.388
14	UNSOLD	8,307	1.271	1.285
	SOLD	1,100	1.342	1.365
15	UNSOLD	1,526	1.298	1.294
	SOLD	151	1.363	1.372
16	UNSOLD	1,954	1.139	1.175
	SOLD	218	1.201	1.245
17	UNSOLD	4,198	1.197	1.199
	SOLD	475	1.246	1.262
18	UNSOLD	36,243	1.306	1.326
	SOLD	5,777	1.322	1.341
19	UNSOLD	1,081	1.257	1.289
	SOLD	104	1.307	1.346
20	UNSOLD	2,016	1.154	1.168
	SOLD	386	1.170	1.179
28	UNSOLD	2,376	1.230	1.255
	SOLD	590	1.267	1.292

Based on the above results, we concluded that the assessor has valued sold and unsold residential properties in a similar manner.

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 305 qualified commercial/industrial sales for the 24-month sale period prior to June 30, 2014. The sales ratio analysis was as follows:

Ratio Statistics

Median	1.000
Price Related Differential	1.020
Coefficient of Dispersion	6.7

The above ratio statistics were in compliance overall with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall commercial sales. The following histogram describes further the sales ratio distribution for these properties:
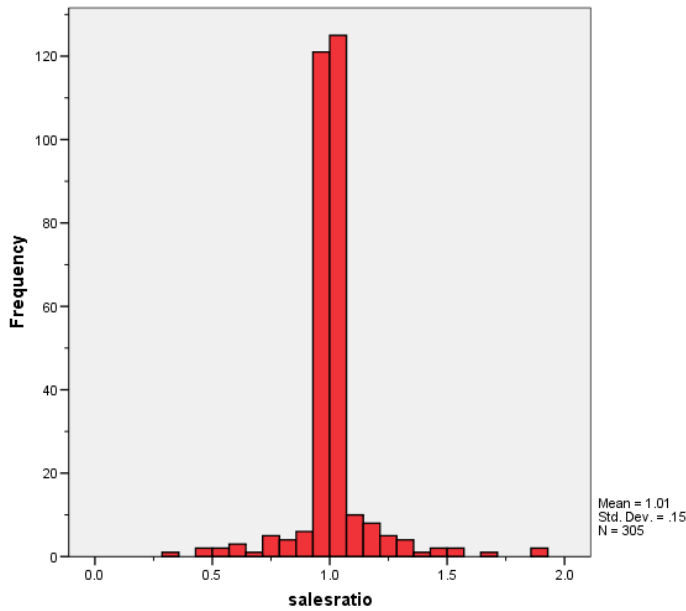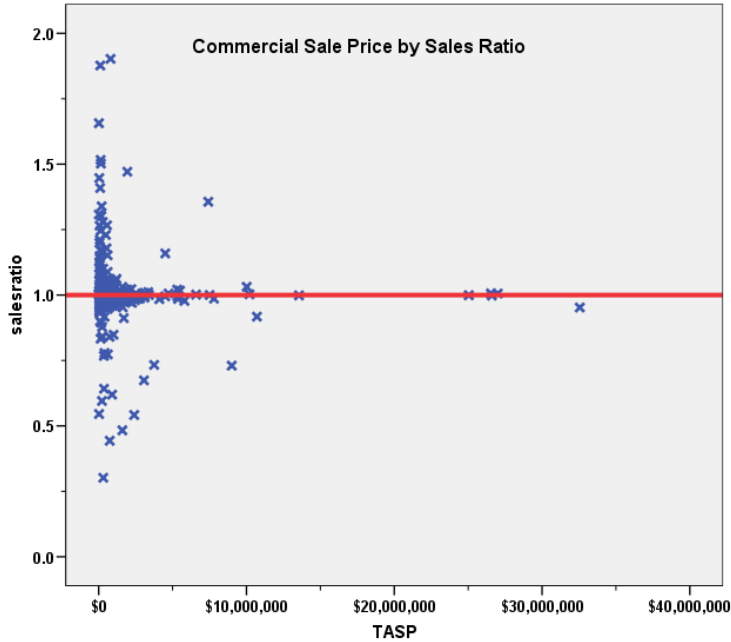
The above histogram indicates that the distribution of the sale ratios was within state mandated limits. No sales were trimmed.

Commercial Market Trend Analysis

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

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.979	.010		95.472	.000
	SalePeriod	.003	.001	.196	3.419	.001

a. Dependent Variable: salesratio

Commercial Market Trend Analysis
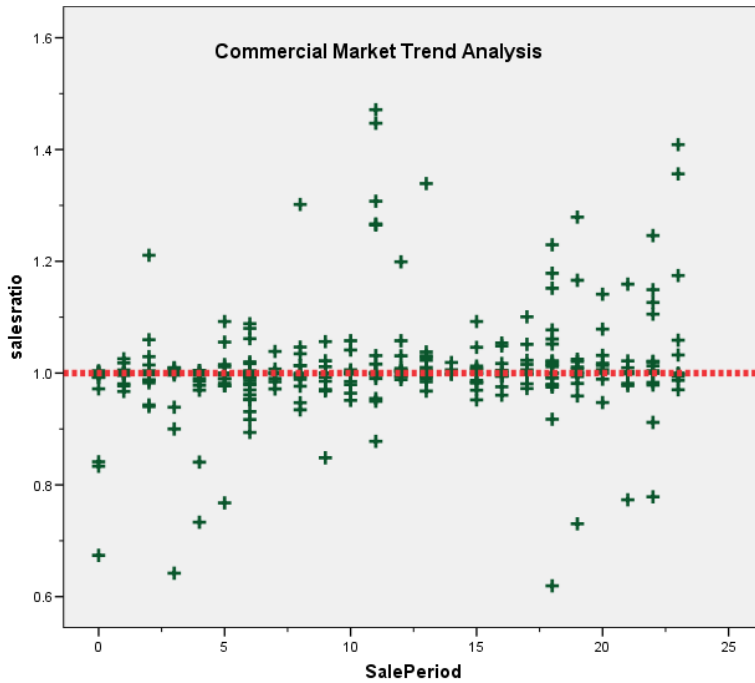
Although there was a marginally significant trend, the magnitude of the trend was not significant.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold commercial properties, we compared the median value per square foot between sold and unsold commercial properties. The following results indicate that the assessor overall has valued sold and unsold commercial properties in a similar manner overall:

Report

ValSF

sold	N	Median	Mean
UNSOLD	5,656	$90.00	$125.79
SOLD	303	$97.26	$118.68

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ValSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.302	Retain the null hypothesis.

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

We also stratified this analysis by subclass, with the following results:

Report

ValSF

ABSTRIMP	sold	N	Median	Mean
2212	UNSOLD	1,019	$98	$119
	SOLD	48	$118	$150
2215	UNSOLD	68	$67	$84
	SOLD	7	$81	$74
2220	UNSOLD	627	$82	$98
	SOLD	55	$105	$122
2230	UNSOLD	1,310	$150	$208
	SOLD	33	$126	$173
2235	UNSOLD	1,033	$68	$73
	SOLD	39	$74	$78
2245	UNSOLD	1,431	$105	$112
	SOLD	120	$105	$106

While four subclasses had higher median values for sold properties, one of these had a higher mean value for unsold properties. The other two subclasses had higher unit values or the same unit values for unsold properties.

We also compared the change in value from 2014 to 2016 for the same set of data with the following results:

Report

DIFF

sold	N	Median	Mean
UNSOLD	5,525	1.092	2.592
SOLD	303	1.137	1.241

Report

DIFF

ABSTRIMP	sold	N	Median	Mean
2212	UNSOLD	969	1.112	1.137
	SOLD	41	1.092	1.195
2215	UNSOLD	67	1.005	1.034
	SOLD	7	1.219	1.174
2220	UNSOLD	614	1.065	1.126
	SOLD	54	1.345	1.362
2230	UNSOLD	1,247	1.064	1.082
	SOLD	32	1.148	1.144
2235	UNSOLD	1,008	1.125	1.157
	SOLD	37	1.277	1.311
2245	UNSOLD	1,359	1.094	1.152
	SOLD	118	1.077	1.100

One of the subject classes (2212) had a greater change in value for unsold properties. Given the mixed results, we concluded that there was no clear pattern of greater unit values for the sold commercial properties.

V. VACANT LAND SALE RESULTS

There were 123 qualified vacant land sales for the 24-month sale period prior to June 30, 2014. Four sales were trimmed for their extreme ratios, resulting in a final set of 86 qualified vacant land sales. The sales ratio analysis was as follows:

Ratio Statistics

Median	0.999
Price Related Differential	1.051
Coefficient of Dispersion	18.6

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:

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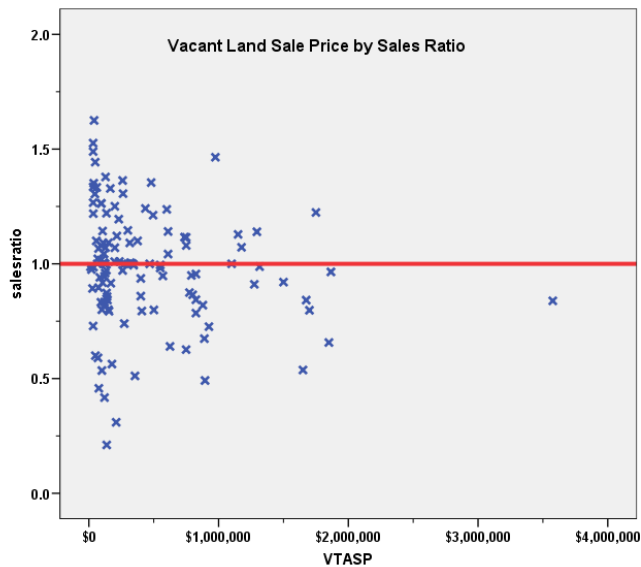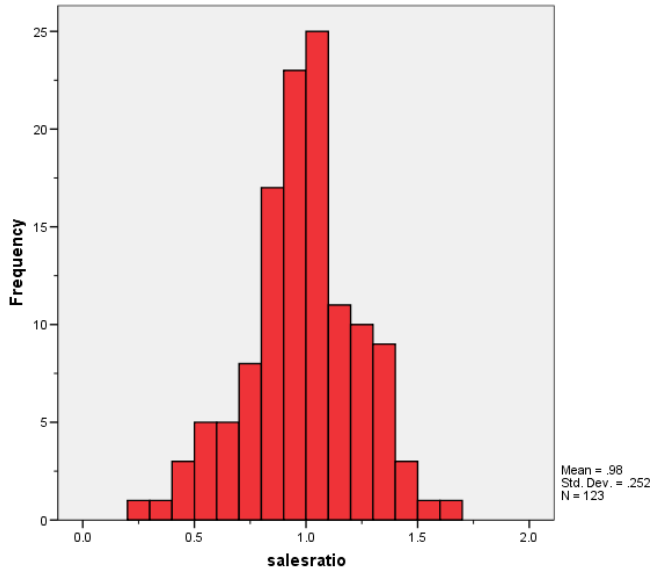
The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits, while the above scatter plot indicated that there was no price related differential issues. No sales were trimmed.

Vacant Land Market Trend Analysis

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

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.947	.036		26.538	.000
	VSalePeriod	.004	.003	.117	1.293	.198

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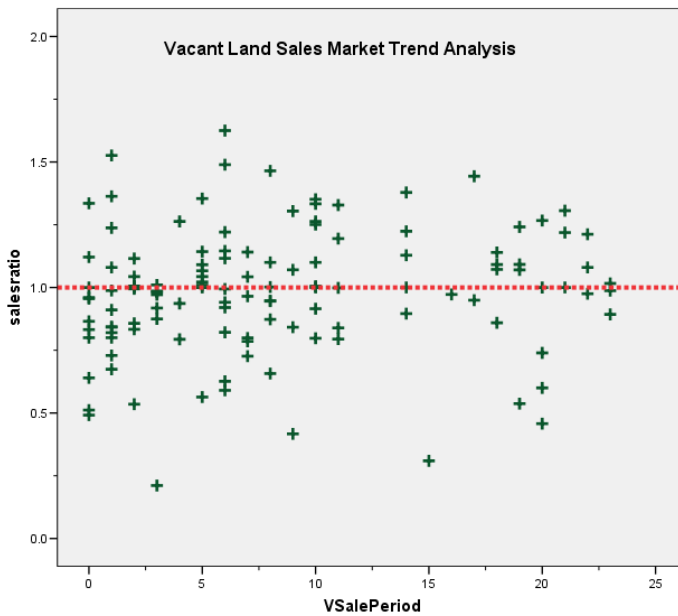
The above analysis indicated that no significant market trending was present in the vacant land sale data. We concluded that the assessor has adequately dealt with market trending for vacant land properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in value between 2014 and 2016 for each group. The following were the results:

Report

DIFF

sold	N	Median	Mean
UNSOLD	5,247	1.016	1.191
SOLD	89	1.075	1.173

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of DIFF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.750	Retain the null hypothesis.

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

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

VI. AGRICULTURAL IMPROVEMENTS ANALYSIS

Based on the parameters of the 2016 Colorado Property Assessment Audit, this county was excluded from the Agricultural Improvement portion of the statistical compliance audit.

VII. CONCLUSIONS

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

STATISTICAL ABSTRACT

Residential

| ECONAREA | Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
		Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
1	1.038	1.017	1.059	1.023	1.005	1.038	95.1%	1.032	1.014	1.051	1.006	.047	6.7%
2	1.027	1.010	1.044	1.011	.997	1.034	96.9%	1.021	1.005	1.036	1.006	.058	7.8%
3	1.012	1.006	1.018	1.001	.998	1.006	95.3%	.998	.992	1.005	1.014	.052	7.2%
4	1.034	1.025	1.042	1.019	1.009	1.029	95.1%	1.025	1.017	1.033	1.008	.068	8.9%
5	1.028	1.021	1.036	1.004	1.000	1.014	95.4%	1.013	1.007	1.019	1.015	.079	11.2%
6	1.063	1.053	1.073	1.026	1.016	1.036	95.7%	1.043	1.034	1.051	1.020	.107	14.5%
7	1.005	.999	1.010	.997	.993	1.000	95.4%	.998	.993	1.003	1.006	.063	8.8%
8	1.030	1.025	1.035	1.010	1.005	1.014	95.5%	1.019	1.015	1.023	1.011	.075	10.7%
10	1.006	1.002	1.009	.999	.996	1.000	95.1%	.996	.993	.999	1.010	.064	9.4%
11	1.002	1.000	1.005	1.000	.997	1.000	95.2%	.997	.995	.999	1.005	.049	6.5%
12	1.001	.996	1.007	1.000	.995	1.000	95.4%	.992	.986	.997	1.010	.045	6.9%
13	1.013	1.006	1.020	1.000	.998	1.006	95.2%	1.005	.998	1.011	1.009	.066	9.2%
14	1.017	1.011	1.024	1.000	.996	1.007	95.1%	1.006	1.000	1.012	1.011	.078	10.8%
15	1.021	1.003	1.038	1.003	.991	1.023	96.5%	1.007	.993	1.022	1.013	.078	10.8%
16	1.002	.994	1.011	.996	.989	1.000	95.1%	.988	.980	.997	1.014	.044	6.1%
17	1.012	1.006	1.019	1.004	1.000	1.013	95.7%	1.006	1.000	1.013	1.006	.054	7.4%
18	1.008	1.006	1.010	.999	.997	1.000	95.0%	1.000	.999	1.002	1.008	.052	7.7%
19	1.023	1.006	1.041	1.006	.996	1.033	95.5%	1.013	.999	1.027	1.010	.066	9.1%
20	1.022	1.014	1.029	1.009	1.003	1.020	95.2%	1.012	1.004	1.021	1.009	.057	7.7%
28	1.041	1.034	1.048	1.022	1.016	1.031	95.6%	1.034	1.028	1.040	1.007	.059	8.7%

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/Industrial

	95% Confidence Interval for Mean			95% Confidence Interval for Median				95% Confidence Interval for Weighted Mean				
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
1.009	.998	1.020	1.000	.999	1.000	95.9%	.994	.974	1.013	1.015	.047	9.4%

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

Vacant Land

Ratio Statistics for CURRLND / VTASP

	95% Confidence Interval for Mean			95% Confidence Interval for Median				95% Confidence Interval for Weighted Mean				
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Mean Centered
.983	.938	1.027	.999	.960	1.010	95.3%	.935	.879	.990	1.051	.186	25.6%

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

Residential Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	7	0.0%
	$25K to $50K	176	0.8%
	$50K to $100K	946	4.3%
	$100K to $150K	2064	9.4%
	$150K to $200K	3479	15.9%
	$200K to $300K	7280	33.3%
	$300K to $500K	5779	26.4%
	$500K to $750K	1350	6.2%
	$750K to $1,000K	349	1.6%
	Over $1,000K	443	2.0%
Overall		21873	100.0%
Excluded		0	
Total		21873	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.114	1.005	.131	16.9%
$25K to $50K	1.124	1.002	.145	18.9%
$50K to $100K	1.057	1.002	.125	17.0%
$100K to $150K	1.030	1.001	.084	11.8%
$150K to $200K	1.016	1.001	.067	9.3%
$200K to $300K	1.000	1.000	.053	7.2%
$300K to $500K	.995	1.001	.049	6.6%
$500K to $750K	.987	1.001	.046	6.4%
$750K to $1,000K	.990	1.000	.042	6.0%
Over $1,000K	.990	1.004	.042	6.1%
Overall	1.000	1.013	.062	9.3%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	1	0.0%
	1212	18149	83.0%
	1215	70	0.3%
	1220	2	0.0%
	1230	3651	16.7%
Overall		21873	100.0%
Excluded		0	
Total		21873	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.679	1.000	.000	.
1212	1.000	1.011	.059	8.7%
1215	.976	1.001	.071	9.4%
1220	1.005	1.002	.009	1.3%
1230	1.007	1.017	.078	11.9%
Overall	1.000	1.013	.062	9.3%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	.00	1	0.0%
	Over 100	80	0.4%
	75 to 100	237	1.1%
	50 to 75	2312	10.6%
	25 to 50	10010	45.8%
	5 to 25	7344	33.6%
	5 or Newer	1889	8.6%
Overall		21873	100.0%
Excluded		0	
Total		21873	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.679	1.000	.000	.
Over 100	.992	1.011	.086	11.3%
75 to 100	.997	1.015	.086	12.2%
50 to 75	1.000	1.010	.070	9.7%
25 to 50	1.003	1.017	.071	10.7%
5 to 25	1.000	1.010	.051	7.5%
5 or Newer	1.003	1.005	.043	5.8%
Overall	1.000	1.013	.062	9.3%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	.00	1	0.0%
	LE 500 sf	23	0.1%
	500 to 1,000 sf	2551	11.7%
	1,000 to 1,500 sf	7109	32.5%
	1,500 to 2,000 sf	5432	24.8%
	2,000 to 3,000 sf	5017	22.9%
	3,000 sf or Higher	1740	8.0%
Overall		21873	100.0%
Excluded		0	
Total		21873	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	.679	1.000	.000	.
LE 500 sf	1.055	1.055	.104	13.2%
500 to 1,000 sf	1.012	1.021	.091	13.5%
1,000 to 1,500 sf	1.003	1.010	.067	9.9%
1,500 to 2,000 sf	1.001	1.007	.057	8.2%
2,000 to 3,000 sf	.999	1.005	.050	7.1%
3,000 sf or Higher	.997	1.006	.044	6.2%
Overall	1.000	1.013	.062	9.3%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY		1	0.0%
	Average	7791	35.6%
	Average Minus	383	1.8%
	Average Plus	3820	17.5%
	Economy	19	0.1%
	Excellent	107	0.5%
	Excellent Minus	170	0.8%
	Excellent Plus	52	0.2%
	Fair	124	0.6%
	Fair Minus	17	0.1%
	Fair Plus	267	1.2%
	Good	2050	9.4%
	Good Minus	2841	13.0%
	Good Plus	2092	9.6%
	Premier	19	0.1%
	Premier Minus	22	0.1%
	Premier Plus	7	0.0%
	Very Good	667	3.0%
	Very Good Minus	952	4.4%
	Very Good Plus	472	2.2%
Overall		21873	100.0%
Excluded		0	
Total		21873	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	.679	1.000	.000	.
Average	1.010	1.012	.076	11.1%
Average Minus	1.028	1.016	.098	13.8%
Average Plus	.999	1.006	.057	8.1%
Economy	1.191	1.015	.158	20.1%
Excellent	.994	1.003	.043	6.1%
Excellent Minus	1.000	1.005	.041	5.7%
Excellent Plus	.996	1.005	.041	5.8%
Fair	1.031	.987	.122	15.7%
Fair Minus	1.033	.985	.093	13.2%
Fair Plus	1.039	1.025	.118	16.3%
Good	.999	1.005	.045	6.3%
Good Minus	.998	1.003	.050	6.9%
Good Plus	1.000	1.006	.046	6.5%
Premier	.986	1.007	.031	3.6%
Premier Minus	.971	1.003	.034	4.3%
Premier Plus	.967	1.042	.093	15.7%
Very Good	.998	1.006	.044	6.4%
Very Good Minus	.993	1.005	.045	6.3%
Very Good Plus	.999	1.009	.045	6.3%
Overall	1.000	1.013	.062	9.3%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	3	1.0%
	$25K to $50K	13	4.4%
	$50K to $100K	37	12.6%
	$100K to $150K	21	7.1%
	$150K to $200K	11	3.7%
	$200K to $300K	23	7.8%
	$300K to $500K	48	16.3%
	$500K to $750K	28	9.5%
	$750K to $1,000K	27	9.2%
	Over $1,000K	83	28.2%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.005	1.028	.102	21.3%
$25K to $50K	1.007	1.004	.065	13.5%
$50K to $100K	1.004	1.002	.065	10.8%
$100K to $150K	1.010	1.003	.044	7.5%
$150K to $200K	1.029	.997	.108	15.0%
$200K to $300K	1.000	.998	.040	7.8%
$300K to $500K	1.000	.998	.034	8.1%
$500K to $750K	1.002	1.003	.050	9.1%
$750K to $1,000K	1.000	1.001	.026	7.7%
Over $1,000K	.996	1.002	.039	9.2%
Overall	1.000	1.015	.047	9.5%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	0	2	0.7%
	2212	47	16.0%
	2215	7	2.4%
	2220	55	18.7%
	2230	28	9.5%
	2235	39	13.3%
	2245	115	39.1%
	3215	1	0.3%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.162	.982	.073	10.3%
2212	.994	1.040	.033	7.3%
2215	1.032	1.041	.148	22.8%
2220	1.000	1.011	.015	4.0%
2230	1.001	1.024	.042	8.4%
2235	.998	1.003	.026	6.6%
2245	1.000	1.025	.067	11.6%
3215	.999	1.000	.000	.
Overall	1.000	1.015	.047	9.5%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	.00	2	0.7%
	Over 100	3	1.0%
	75 to 100	11	3.7%
	50 to 75	22	7.5%
	25 to 50	152	51.7%
	5 to 25	92	31.3%
	5 or Newer	12	4.1%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	1.162	.982	.073	10.3%
Over 100	1.000	1.015	.026	3.9%
75 to 100	1.000	1.003	.009	1.9%
50 to 75	.999	1.040	.059	12.5%
25 to 50	1.000	.995	.034	6.9%
5 to 25	.998	1.040	.058	11.6%
5 or Newer	1.003	1.243	.120	17.5%
Overall	1.000	1.015	.047	9.5%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	.00	2	0.7%
	LE 500 sf	8	2.7%
	500 to 1,000 sf	40	13.6%
	1,000 to 1,500 sf	30	10.2%
	1,500 to 2,000 sf	19	6.5%
	2,000 to 3,000 sf	31	10.5%
	3,000 sf or Higher	164	55.8%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
.00	1.162	.982	.073	10.3%
LE 500 sf	1.007	1.025	.053	11.7%
500 to 1,000 sf	1.004	1.008	.074	12.5%
1,000 to 1,500 sf	1.000	1.004	.039	6.5%
1,500 to 2,000 sf	1.000	1.012	.040	7.9%
2,000 to 3,000 sf	.994	1.069	.077	13.8%
3,000 sf or Higher	1.000	1.006	.035	8.1%
Overall	1.000	1.015	.047	9.5%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY		2	0.7%
	Average	223	75.9%
	Fair	34	11.6%
	Good	30	10.2%
	Very Good	5	1.7%
Overall		294	100.0%
Excluded		0	
Total		294	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
	1.162	.982	.073	10.3%
Average	1.000	1.011	.045	9.2%
Fair	1.000	1.010	.030	7.2%
Good	1.000	.985	.070	12.9%
Very Good	.998	.969	.065	13.6%
Overall	1.000	1.015	.047	9.5%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	2	1.6%
	$25K to $50K	13	10.6%
	$50K to $100K	16	13.0%
	$100K to $150K	23	18.7%
	$150K to $200K	7	5.7%
	$200K to $300K	11	8.9%
	$300K to $500K	14	11.4%
	$500K to $750K	12	9.8%
	$750K to $1,000K	11	8.9%
	Over $1,000K	14	11.4%
Overall		123	100.0%
Excluded		0	
Total		123	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	.981	1.002	.006	0.9%
$25K to $50K	1.304	1.002	.181	25.4%
$50K to $100K	1.008	1.007	.192	26.2%
$100K to $150K	.972	1.005	.161	25.1%
$150K to $200K	1.010	.993	.195	26.1%
$200K to $300K	1.010	.991	.190	28.7%
$300K to $500K	1.001	.988	.136	20.6%
$500K to $750K	1.019	.998	.143	19.6%
$750K to $1,000K	.844	.996	.174	28.6%
Over $1,000K	.943	1.024	.153	20.0%
Overall	.999	1.051	.186	25.3%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	0	8	6.5%
	100	36	29.3%
	200	12	9.8%
	300	2	1.6%
	400	15	12.2%
	540	1	0.8%
	1000	2	1.6%
	1212	37	30.1%
	1225	1	0.8%
	2212	1	0.8%
	2220	2	1.6%
	2230	6	4.9%
Overall		123	100.0%
Excluded		0	
Total		123	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	1.090	.998	.131	18.1%
100	.997	1.060	.151	21.8%
200	.962	1.050	.122	18.3%
300	.780	1.020	.052	7.4%
400	1.091	1.065	.125	16.2%
540	1.016	1.000	.000	.
1000	1.000	1.000	.000	0.0%
1212	.941	1.087	.316	37.5%
1225	.988	1.000	.000	.
2212	.865	1.000	.000	.
2220	.960	1.006	.042	5.9%
2230	.960	.997	.095	17.3%
Overall	.999	1.051	.186	25.3%