CITY & COUNTY OF
Broomfield
COLORADO

2015
BROOMFIELD COUNTY
PROPERTY ASSESSMENT
STUDY

WILDROSE
APPRAISAL, INCORPORATED
Audit Division

September 15, 2015

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

RE: Final Report for the 2015 Colorado Property Assessment Study

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2015 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

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

TABLE OF CONTENTS

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 2015 and is pleased to report its findings for Broomfield County in the following report.

REGIONAL/HISTORICAL SKETCH OF BROOMFIELD COUNTY

Regional Information

Broomfield 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.
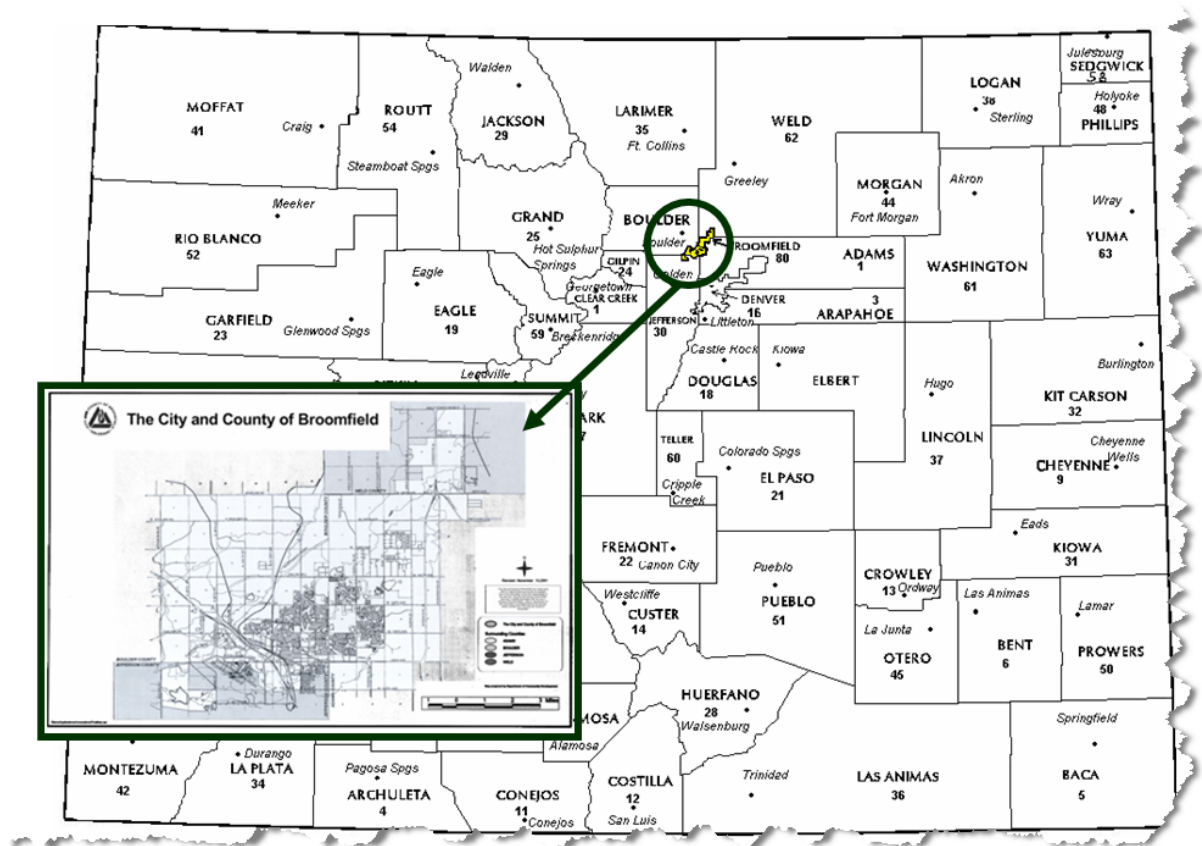
Historical Information

Broomfield County has a population of approximately 28,298 people with 1691.9 people per square mile, according to the U.S. Census Bureau's 2010 census data. This represents a 46.031 percent change from the 2000 Census.

Broomfield was brought into the United States in 1803 as part of the Louisiana Purchase. The area was successively recognized as part of the Missouri Territory, Nebraska and Kansas until 1861 when the Colorado Territory was created. In 1876, the Broomfield area officially joined the union when Colorado became a state.

The municipality of Broomfield was incorporated in 1961 in the southeastern corner of Boulder County. It received its name from the broomcorn grown in the area. Over the next three decades, the city grew through annexations, many of which crossed the county line into four adjacent counties: Adams, Boulder, Jefferson, and Weld. In the 1990s, city leaders began to push for the creation of a separate county to avoid the inefficiencies of dealing with four separate court districts, four different county seats (each a considerable distance away), and four separate county sales tax bases. It also had longstanding political differences with Boulder County, which impelled it to separate. Broomfield reasoned that it could provide services more responsively under its own county government, and sought an amendment to the Colorado State Constitution to create a new county. The amendment passed in 1998, after which a three-year transition period followed. On November 15, 2001, Broomfield County became the 64th and the newest and smallest county of Colorado.

Broomfield has an extensive trail system that connects the various lakes and parks. A spectacular trail connects Stearns Lake and Josh's Pond on the west side of town. Broomfield also has a 9/11 memorial containing a piece of the steel beam from one of the towers.

Broomfield is home to many youth sports programs including, Broomfield Blitz Youth Football a non profit 501c organization dedicated to providing great exercise and athletic development. Broomfield also has a skate park with many different and varying features, such as bowls, a large half pipe and several "street" obstacles.

(www.ci.broomfield.co.us; www.wikipedia.org)

R A T I O A N A L Y S I S

Methodology

All significant classes of properties were analyzed. Sales were collected for each property class over the appropriate sale period, which was typically defined as the 18-month period between January 1, 2013 and June 30, 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 Broomfield County are:

Broomfield County Ratio Grid					
Property Class	Number of Qualified Sales	Unweighted Median Ratio	Price Related Differential	Coefficient of Dispersion	Time Trend Analysis
*Commercial/Industrial	29	0.991	0.996	7	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	2,558	0.984	1.005	5.5	Compliant
Vacant Land	49	1.047	0.863	14.6	Compliant

County Sales Files augmented by one supplemental appraisal

After applying the above described methodologies, it is concluded from the sales ratios that Broomfield County is in compliance with SBOE, DPT, and Colorado State Statute valuation guidelines.

Recommendations

None

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

Recommendations

None

Methodology

Broomfield 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 Broomfield County is reasonably treating its sold and unsold properties in the same manner.
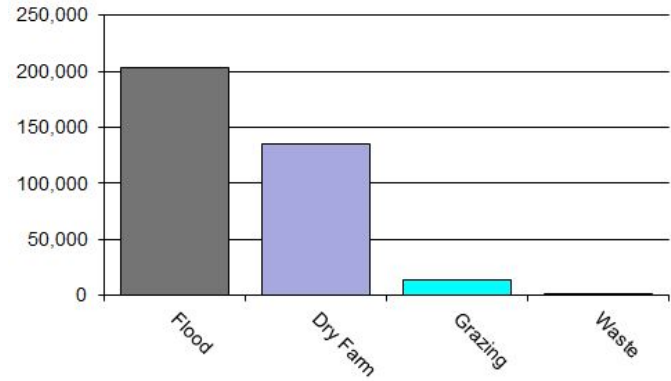
Recommendations

None

AGRICULTURAL LAND STUDY

Acres By Subclass
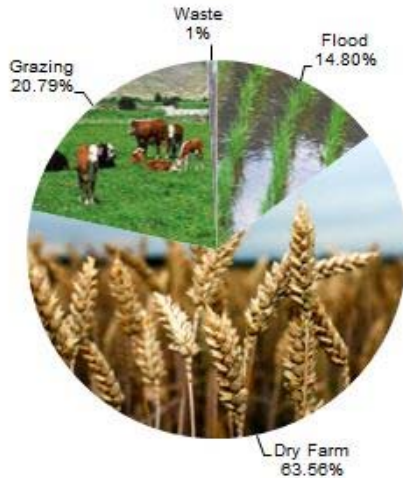
Value By Subclass

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:

Broomfield County Agricultural Land Ratio Grid						
Abstract Code	Land Class	Number Of Acres	County Value Per Acre	County Assessed Total Value	WRA Total Value	Ratio
4117	Flood	690	295.00	203,780	203,780	0.00
4127	Dry Farm	2,963	46.00	135,150	135,150	1.00
4147	Grazing	969	14.00	13,590	13,590	1.00
4167	Waste	40	2.00	80	80	1.00
Total/Avg		4,662	76.00	352,600	352,600	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.

Conclusions

Broomfield 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

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

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

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

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

Broomfield 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 2015 for Broomfield County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 60 sales listed as unqualified.

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

For residential, commercial, and vacant land sales with considerations over $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.

> 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.

The following subclasses were analyzed for Broomfield County:

0100 Residential Lots

0200 Commercial Lots

2112 Merchandising

2130 Special Purpose

2212 Merchandising

2220 Offices

3112 Contract/Service

3115 Manufacturing/Processing

3215 Manufacturing/Processing

Conclusions

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

Recommendations

None

ECONOMIC AREA REVIEW AND EVALUATION

Methodology

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

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 2015 in Broomfield 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

Broomfield 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.

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

Broomfield 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

Broomfield 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.

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

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

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.

Broomfield County submitted their personal property written audit plan and was current for the 2015 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
- Accounts protested with substantial disagreement

Conclusions

Broomfield 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

W I L D R O S E   A U D I T O R   S T A F F

Harry J. Fuller, *Audit Project Manager*

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STATISTICAL COMPLIANCE REPORT
FOR BROOMFIELD COUNTY
2015

I. OVERVIEW

Broomfield County is located in the Denver metropolitan area. The county has a total of 23,047 real property parcels, according to data submitted by the county assessor's office in 2015. The following provides a breakdown of property classes for this county:
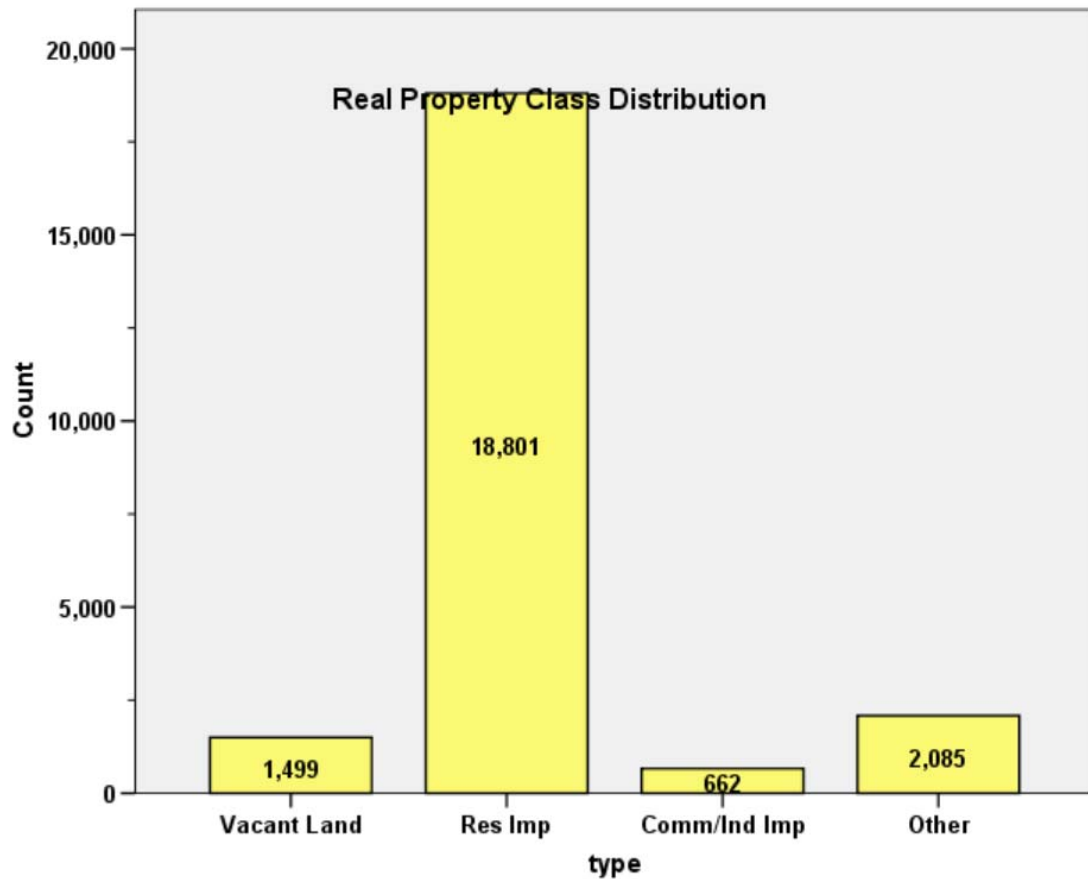
The vacant land class of properties was dominated by residential land. Residential lots (coded 100 and 200) accounted for 90.3% of all vacant land parcels.

For residential improved properties, single family properties accounted for 90.6% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties 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 2015 Colorado Property Assessment Study. The data included all 5 property record files as specified by the Auditor.

III. RESIDENTIAL SALES RESULTS

There were 2,558 qualified residential sales in the 24 month period prior to June 30, 2014. The sales ratio analysis was analyzed as follows:

Median	0.984
Price Related Differential	1.005
Coefficient of Dispersion	5.5

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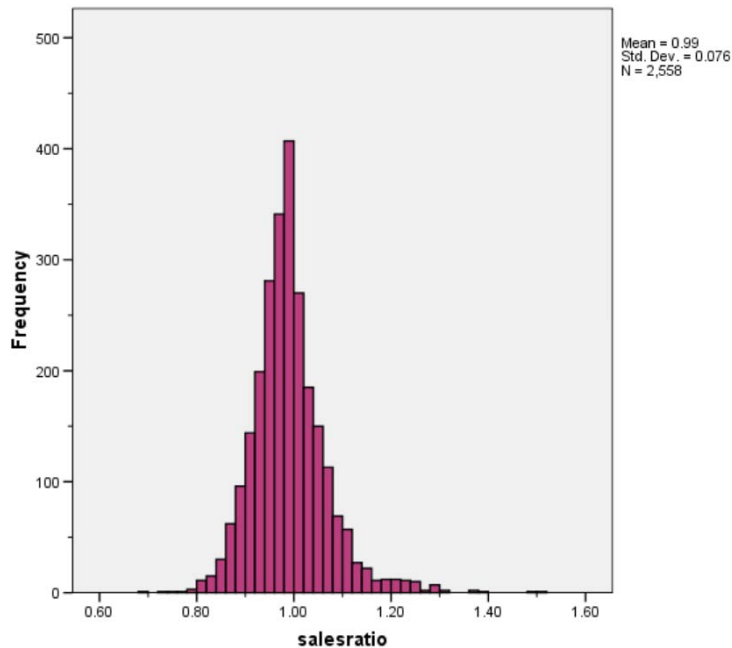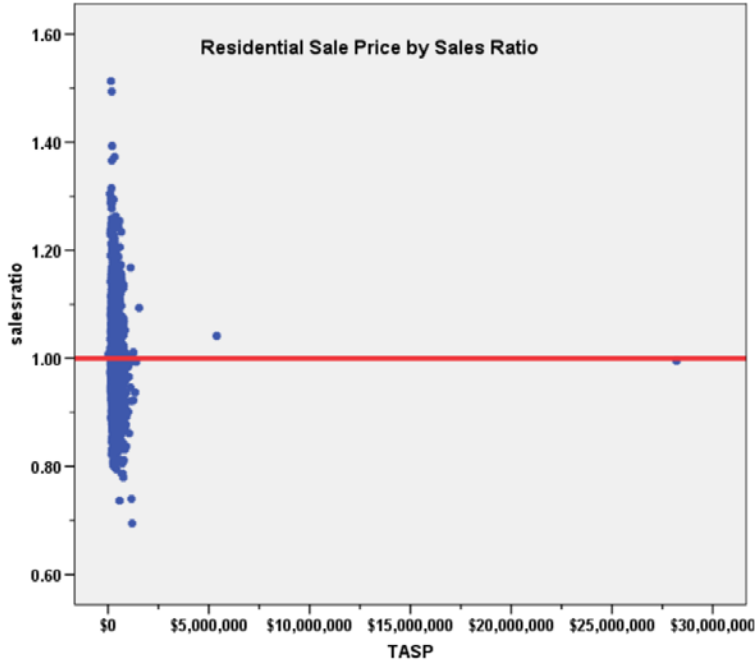
The above graphs indicate that the distribution of the residential sale ratios was within state mandated limits.

Residential Market Trend Analysis

We next analyzed the residential dataset using the 24-month sale period for any residual market trending, as follows:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.990	.003		359.058	.000
	SalePeriod	6.411E-5	.000	.006	.297	.767

a. Dependent Variable: salesratio

Residential Sale Price Market Trend
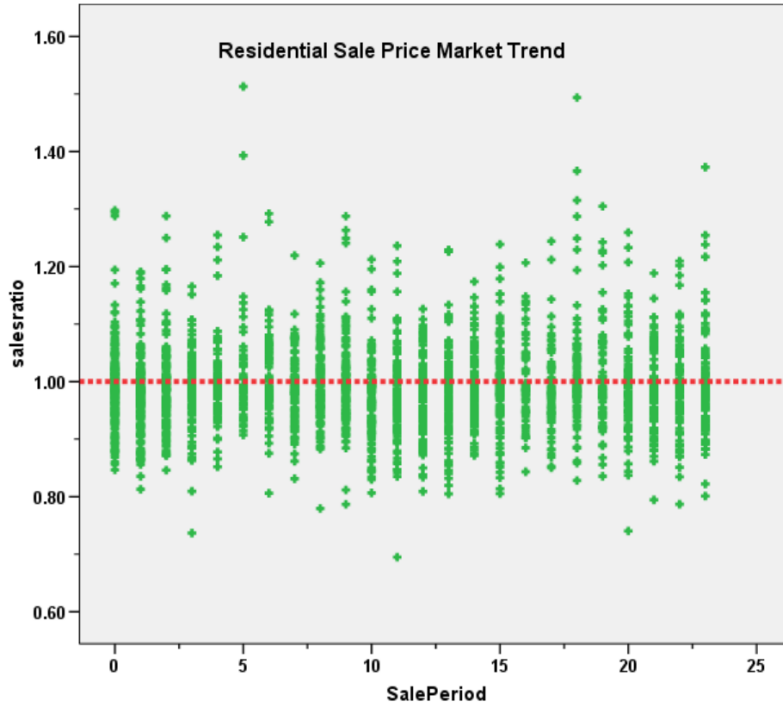
While there was a statistically significant trend, the magnitude of that trend was marginal. We therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2015 between each group, as follows:

Group	No. Props	Median Val/SF	Mean Val/SF
Unsold	15,658	$172	$176
Sold	2,490	$179	$184

Hypothesis Test Summary

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

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

Given that there was a statistically significant difference using the non-parametric Mann Whitney U test, we next compared the percent change in value between 2014 and 2015 for sold and unsold residential properties in Mesa County, as follows:

Group	N	Median Chg Val	Mean Chg Val
Unsold	15,713	1.18	1.18
Sold	2,491	1.19	1.21

The median and mean change in value between sold and unsold residential properties was closer than the value per square foot comparison.

As a final check, we developed an econometric model that used the assessor's actual value as the predicted variable. A total of 18,204 residential properties were analyzed. Residential property subclasses included the following:

ABSTRIMP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1212	16483	90.5	90.5	90.5
	1215	27	.1	.1	90.7
	1220	11	.1	.1	90.8
	1225	45	.2	.2	91.0
	1230	1638	9.0	9.0	100.0
	Total	18204	100.0	100.0	

We developed a stepwise regression model to test whether sold and unsold properties were valued differently by the assessor.

To do this, we included a binary variable for sold/unsold status. For the model, sold properties were coded "1" and unsold properties were coded "0." Other variables tested included living area, age, economic area, and residential property type. The stepwise regression analysis adds variables to the model based on their contributory strength, as measured by their t or p values (depending on the test). At each step, a variable is added, and variables already in the model are re-evaluated to determine if they should remain in the model. After it is determined that adding additional variables will not improve the model's predicative or explanatory power, the process stops. Variables not included at this point are determined to not be significant. In this analysis, our primary focus was the sold/unsold variable previously described.

After 5 iterations, the following results were generated by the model:

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.737[a]	.544	.544	852280.429
2	.771[b]	.595	.595	803173.918
3	.773[c]	.598	.598	800299.348
4	.774[d]	.598	.598	799525.827
5	.774[e]	.599	.599	799206.441

a. Predictors: (Constant), LIVEAREA

b. Predictors: (Constant), LIVEAREA, T1225

c. Predictors: (Constant), LIVEAREA, T1225, AGE

d. Predictors: (Constant), LIVEAREA, T1225, AGE, ECON2

e. Predictors: (Constant), LIVEAREA, T1225, AGE, ECON2, T1230

f. Dependent Variable: CURRTOT

Ratio Statistics for Unstandardized Predicted Value / CURRTOT

Median	Price Related Differential	Coefficient of Dispersion
1.032	1.043	.166

The COD at 16.6 and the median ratio at 1.032 were close to or within IAAO standards for residential properties. For the purposes of this model (i.e. testing the significance of the sold/unsold variable), the results were sufficient.

The model at Step 5 did not include the Sold/Unsold variable, indicating that it did not make a significant difference in the model whether the properties were sold or unsold. Based on this finding, we concluded that the assessor valued sold and unsold residential properties consistently in 2015.

IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 29 qualified commercial and industrial sales in the 24 month period prior to June 30, 2014. Because there was less than 30 sales, we performed one supplemental appraisal to bring the total number of commercial/industrial properties to 30. We used the 29 sales for the market trending and sold/unsold analysis. The sales ratio analysis was analyzed as follows:

Median	0.991
Price Related Differential	0.996
Coefficient of Dispersion	7.0

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

Residential Sale Price by Sales Ratio
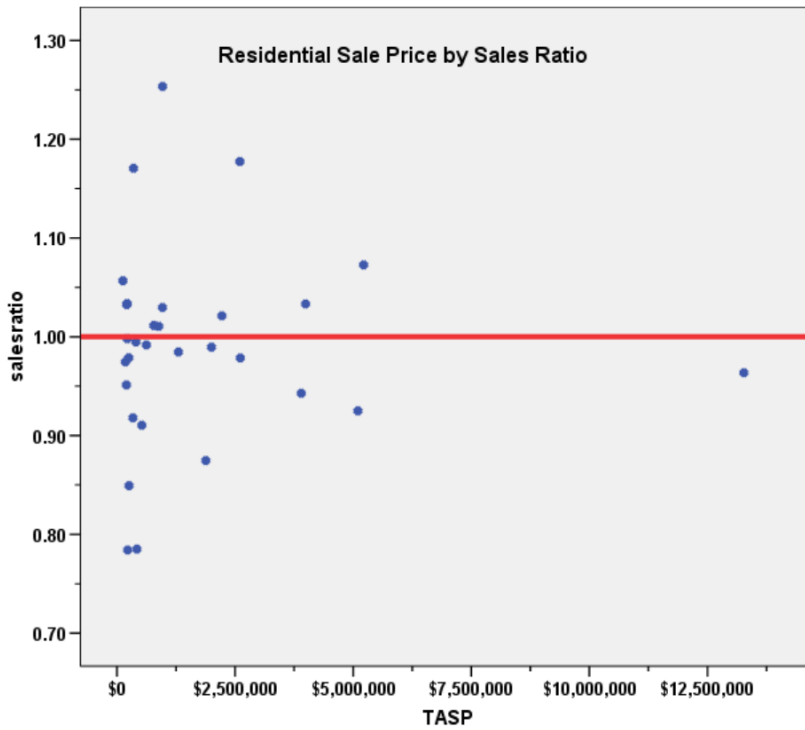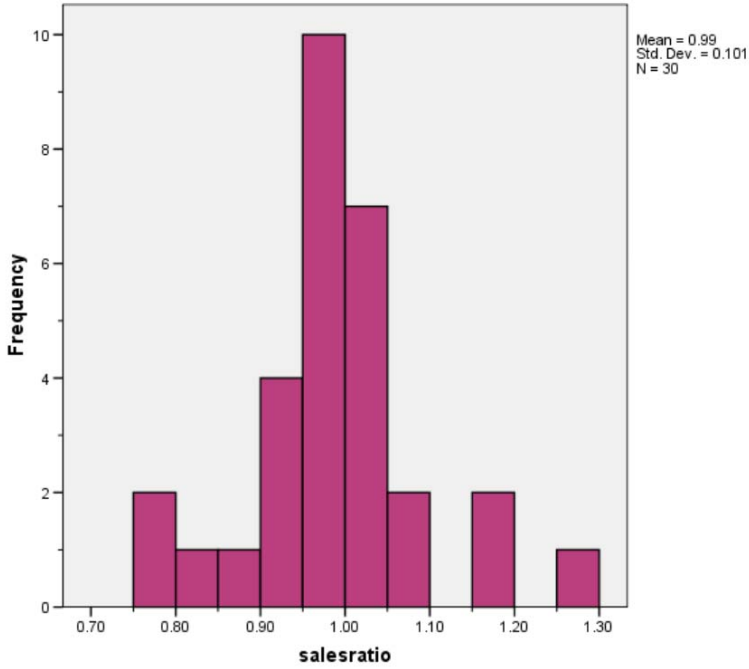
Commercial/Industrial Market Trend Analysis

The 29 commercial/industrial sales were analyzed, examining the sale ratios across the 18 month sale period with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.982	.034		28.965	.000
	SalePeriod	.001	.004	.070	.365	.718

a. Dependent Variable: salesratio

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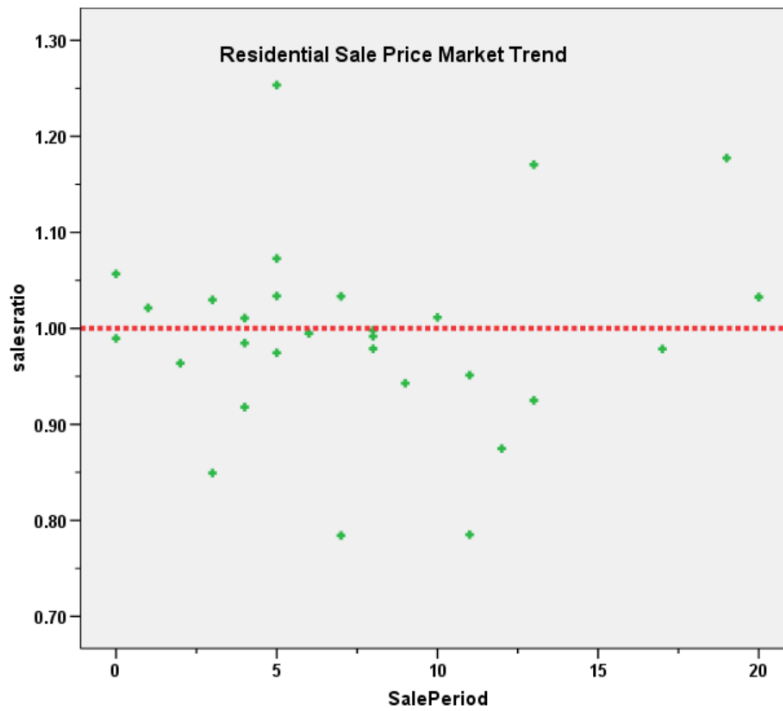
There was no residual market trending present in the commercial/industrial sale ratios. We concluded that the assessor has adequately considered market trending adjustments as part of the commercial/industrial valuation.

Sold/Unsold Analysis

We compared the median and mean value per square foot between sold and unsold commercial/industrial properties to determine if they were valued consistently, as follows:

Group	No. Props	Median Val/SF	Mean Val/SF
UNSOLD	627	$60	$79
SOLD	29	$45	$67

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	.522	Retain the null hypothesis.

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

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

V. VACANT LAND SALE RESULTS

There were 49 qualified vacant land sales for the 24 month period prior to June 30, 2014. The sales ratio analysis was analyzed as follows:

Median	1.047
Price Related Differential	0.863
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:

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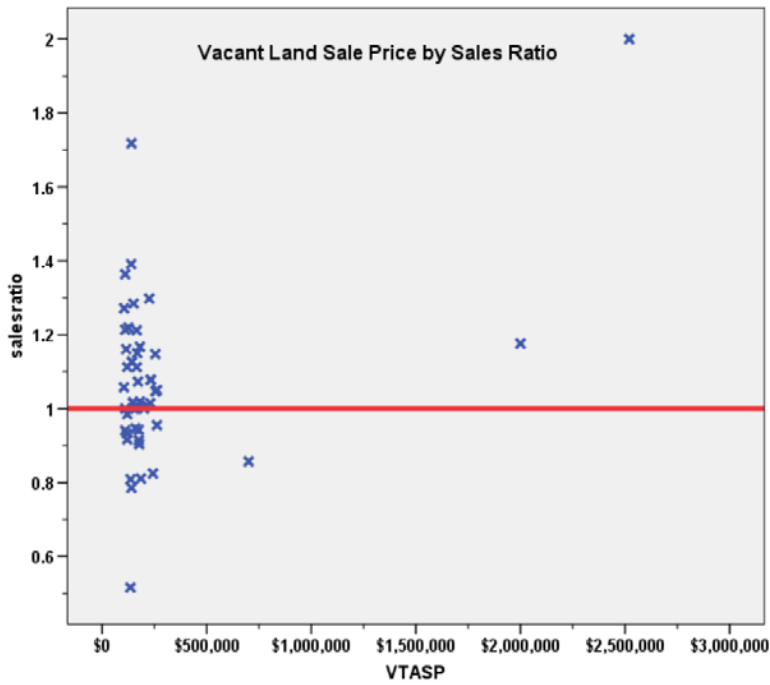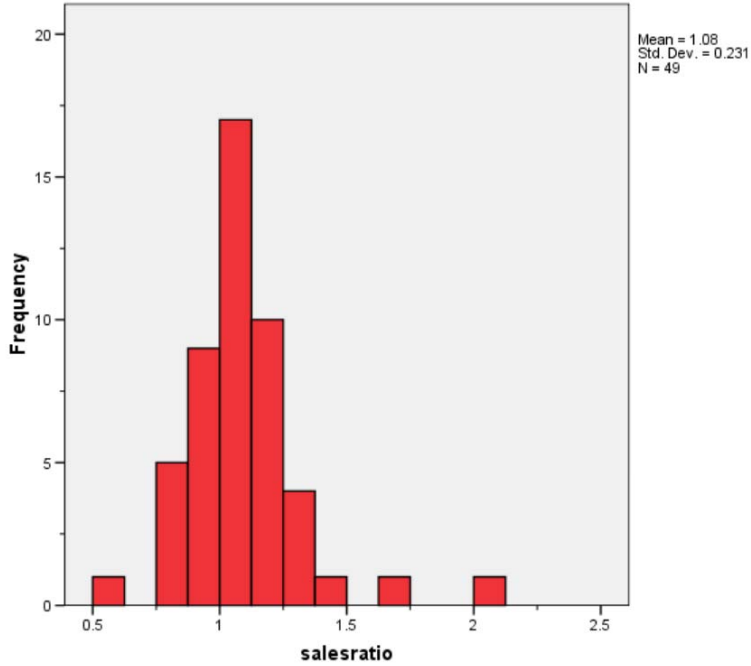
The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits, while the above scatter plot indicated that there were no price related differential issues. No sales were trimmed.

Vacant Land Market Trend Analysis

We next analyzed the vacant land dataset using the 24-month sale period and stratified by economic area, with the following results:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.962	.049		19.764	.000
	VSalePeriod	.007	.004	.282	1.879	.067

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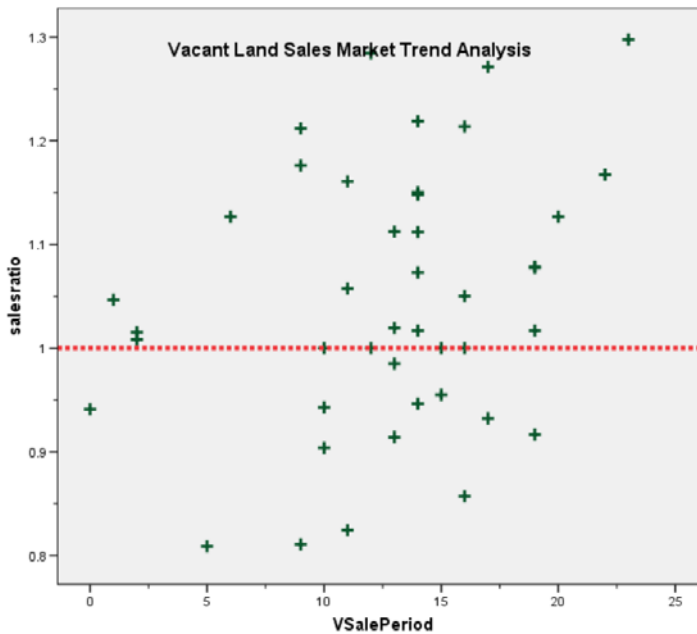
The above analysis indicated that no significant market trending was present in the vacant land sale data. We concluded that the assessor has adequately dealt with market trending for vacant land properties.

Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in value for 2014 and 2015 between each group for subdivisions with at least one sale and one unsold vacant land property, as follows:

SubDiv	Group	N	Median Chg Vl	Mean Chg Val
3015	**Unsold**	4	0.9190	0.9948
	Sold	1	0.9190	0.9190
4069	**Unsold**	1	0.4386	0.4386
	Sold	11	1.4735	1.4657
6065	**Unsold**	1	1.7482	1.7482
	Sold	1	2.0094	2.0094
6094	**Unsold**	10	3.0333	4.7118
	Sold	1	5.3401	5.3401
6114	**Unsold**	3	2.0681	12.4898
	Sold	4	2.0681	2.1785
6130	**Unsold**	11	1.2848	1.3148
	Sold	11	1.3668	1.3287
6134	**Unsold**	1	1.5830	1.5830
	Sold	6	1.5830	1.5985

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

V. AGRICULTURAL IMPROVEMENTS ANALYSIS

Based on the parameters of the state audit analysis, this county was exempt from this analysis for 2015.

VI. CONCLUSIONS

Based on this 2015 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

| 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
.990	.987	.993	.984	.982	.985	95.4%	.985	.982	.988	1.005	.055	7.7%

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

Ratio Statistics for CURRTOT / TASP

| Mean | 95% Confidence Interval for Mean | | Median | 95% Confidence Interval for Median | | | Weighted Mean | 95% Confidence Interval for Weighted Mean | | Price Related Differential | Coefficient of Dispersion | Coefficient of Variation |
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			Mean Centered
.990	.952	1.028	.991	.964	1.021	95.7%	.994	.957	1.032	.996	.070	10.2%

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 / VTASP

| 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
1.077	1.010	1.143	1.047	1.000	1.113	95.6%	1.248	.940	1.556	.863	.146	21.4%

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.

Residential Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	LT $25K	1	.0%
	$50K to $100K	1	.0%
	$100K to $150K	27	1.1%
	$150K to $200K	204	8.0%
	$200K to $300K	907	35.5%
	$300K to $500K	917	35.8%
	$500K to $750K	418	16.3%
	$750K to $1,000K	66	2.6%
	Over $1,000K	17	.7%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
LT $25K	1.008	1.000	.000	.%
$50K to $100K	1.305	1.000	.000	.%
$100K to $150K	1.050	.998	.109	14.6%
$150K to $200K	.997	1.000	.065	10.2%
$200K to $300K	.984	1.001	.054	7.4%
$300K to $500K	.985	1.001	.049	6.6%
$500K to $750K	.970	1.000	.056	7.5%
$750K to $1,000K	.976	1.001	.051	7.0%
Over $1,000K	.966	.968	.084	12.0%
Overall	.984	1.005	.055	7.7%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	1212	2235	87.4%
	1215	1	.0%
	1220	3	.1%
	1225	2	.1%
	1230	317	12.4%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1212	.984	1.006	.056	7.8%
1215	.850	1.000	.000	.%
1220	1.212	1.078	.145	27.9%
1225	1.019	1.016	.023	3.2%
1230	.984	1.004	.043	6.6%
Overall	.984	1.005	.055	7.7%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	Over 100	1	.0%
	75 to 100	3	.1%
	50 to 75	144	5.6%
	25 to 50	522	20.4%
	5 to 25	1330	52.0%
	5 or Newer	558	21.8%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
Over 100	.984	1.000	.000	.%
75 to 100	.973	1.010	.030	5.7%
50 to 75	.983	1.007	.076	10.3%
25 to 50	.984	1.006	.067	9.5%
5 to 25	.984	1.004	.051	7.1%
5 or Newer	.984	1.004	.048	6.4%
Overall	.984	1.005	.055	7.7%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	1	.0%
	500 to 1,000 sf	121	4.7%
	1,000 to 1,500 sf	655	25.6%
	1,500 to 2,000 sf	860	33.6%
	2,000 to 3,000 sf	650	25.4%
	3,000 sf or Higher	271	10.6%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation / Median Centered
LE 500 sf	1.008	1.000	.000	.%
500 to 1,000 sf	.975	1.008	.057	8.3%
1,000 to 1,500 sf	.979	1.005	.051	7.3%
1,500 to 2,000 sf	.986	1.008	.056	7.9%
2,000 to 3,000 sf	.985	1.008	.055	7.6%
3,000 sf or Higher	.991	1.004	.057	8.0%
Overall	.984	1.005	.055	7.7%

Improvement Quality

Case Processing Summary

		Count	Percent
QUALITY	1	1	.0%
	2	66	2.6%
	3	1119	43.7%
	4	1261	49.3%
	5	105	4.1%
	6	6	.2%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1	.984	1.000	.000	.%
2	.985	1.003	.055	7.5%
3	.985	1.004	.060	8.6%
4	.983	1.005	.050	6.8%
5	.985	1.008	.062	8.8%
6	.998	.994	.041	6.0%
Overall	.984	1.005	.055	7.7%

Improvement Condition

Case Processing Summary

		Count	Percent
CONDITION	0	1	.0%
	1	4	.2%
	2	2	.1%
	3	2200	86.0%
	4	342	13.4%
	5	8	.3%
	6	1	.0%
Overall		2558	100.0%
Excluded		0	
Total		2558	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
0	.737	1.000	.000	.%
1	1.127	1.120	.097	11.5%
2	1.057	1.003	.004	.6%
3	.984	1.006	.056	7.9%
4	.983	1.005	.045	6.2%
5	1.001	1.004	.113	15.3%
6	1.011	1.000	.000	.%
Overall	.984	1.005	.055	7.7%

Commercial Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$100K to $150K	1	3.3%
	$150K to $200K	2	6.7%
	$200K to $300K	6	20.0%
	$300K to $500K	4	13.3%
	$500K to $750K	2	6.7%
	$750K to $1,000K	4	13.3%
	Over $1,000K	11	36.7%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$100K to $150K	1.057	1.000	.000	.%
$150K to $200K	.963	1.001	.012	1.7%
$200K to $300K	.988	1.004	.076	11.6%
$300K to $500K	.956	1.007	.121	16.9%
$500K to $750K	.951	.996	.043	6.0%
$750K to $1,000K	1.021	.995	.064	13.2%
Over $1,000K	.985	1.006	.056	8.3%
Overall	.991	.996	.070	10.2%

Subclass

Case Processing Summary

		Count	Percent
ABSTRIMP	2212	3	10.0%
	2214	1	3.3%
	2220	4	13.3%
	2230	1	3.3%
	2235	6	20.0%
	2245	9	30.0%
	3212	2	6.7%
	3230	4	13.3%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
2212	.992	.943	.055	8.2%
2214	.964	1.000	.000	.%
2220	.957	1.012	.041	4.9%
2230	.875	1.000	.000	.%
2235	1.003	1.002	.054	8.5%
2245	.995	.981	.072	11.2%
3212	1.132	.989	.107	15.1%
3230	.992	1.052	.089	13.1%
Overall	.991	.996	.070	10.2%

Improvement Age

Case Processing Summary

		Count	Percent
AgeRec	0	3	10.0%
	50 to 75	2	6.7%
	25 to 50	10	33.3%
	5 to 25	13	43.3%
	5 or Newer	2	6.7%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation: Median Centered
0	.943	.998	.107	18.3%
50 to 75	.956	.997	.040	5.7%
25 to 50	1.004	.987	.064	10.4%
5 to 25	.992	.985	.074	10.8%
5 or Newer	.971	1.008	.008	1.1%
Overall	.991	.996	.070	10.2%

Improved Area

Case Processing Summary

		Count	Percent
ImpSFRec	1,000 to 1,500 sf	1	3.3%
	1,500 to 2,000 sf	4	13.3%
	2,000 to 3,000 sf	2	6.7%
	3,000 sf or Higher	23	76.7%
Overall		30	100.0%
Excluded		0	
Total		30	

Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
1,000 to 1,500 sf	.979	1.000	.000	.%
1,500 to 2,000 sf	.975	1.017	.065	9.1%
2,000 to 3,000 sf	.880	1.046	.108	15.2%
3,000 sf or Higher	.995	1.008	.069	10.2%
Overall	.991	.996	.070	10.2%

Vacant Land Median Ratio Stratification

Sale Price

Case Processing Summary

		Count	Percent
SPRec	$100K to $150K	23	46.9%
	$150K to $200K	13	26.5%
	$200K to $300K	10	20.4%
	$500K to $750K	1	2.0%
	Over $1,000K	2	4.1%
Overall		49	100.0%
Excluded		0	
Total		49	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
$100K to $150K	1.058	1.001	.167	23.0%
$150K to $200K	1.000	1.002	.094	12.0%
$200K to $300K	1.049	1.002	.077	11.7%
$500K to $750K	.857	1.000	.000	.%
Over $1,000K	1.588	.971	.259	36.7%
Overall	1.047	.863	.146	22.2%

Subclass

Case Processing Summary

		Count	Percent
ABSTRLND	100	25	51.0%
	200	2	4.1%
	300	1	2.0%
	1112	19	38.8%
	1125	1	2.0%
	2130	1	2.0%
Overall		49	100.0%
Excluded		0	
Total		49	

Ratio Statistics for CURRLND / VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation Median Centered
100	1.000	.999	.073	9.9%
200	.846	.746	.390	55.2%
300	1.047	1.000	.000	.%
1112	1.168	1.013	.101	15.0%
1125	2.000	1.000	.000	.%
2130	.857	1.000	.000	.%
Overall	1.047	.863	.146	22.2%