



2016

# MORGAN COUNTY PROPERTY ASSESSMENT STUDY

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**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.

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

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

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# INTRODUCTION

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## Colorado

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

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

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

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

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

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

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

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

Wildrose Audit has completed the Property Assessment Study for 2016 and is pleased to report its findings for Morgan County in the following report.



## Historical Information

Morgan County had an estimated population of approximately 28,328 people with 22 people per square mile, according to the U.S. Census Bureau's 2014 estimated census data. This represents a 0.6 percent change from April 1, 2010 to July 1, 2014.

Morgan County was formed in 1889 from part of Weld County. The county was named for its seat, Fort Morgan, which was named for Colonel Christopher A. Morgan of the U.S. Volunteers. The town was first known as Camp Tyler, but in 1865 was renamed Fort Wardwell. The following year, the name was changed to its present one.

Morgan County is primarily a rural entity located on the high plains of northeastern Colorado. Measuring 36 miles long and 36 miles wide, the county encompasses 1,296 square miles. Morgan County is abundantly rich agriculturally with many irrigated and dry land farms as well as beef, sheep and dairy ranches.

Fort Morgan is the home of the Fort Morgan Museum which offers a wonderful view into life in Morgan County and across the Northeast Plains. With exhibits featuring Native American artifacts, as well as exhibits celebrating the county's agricultural roots, the Museum serves as a testimony to the varied history of the community. An exhibit on Glenn Miller, Fort Morgan's most popular alumni, contains photos of Glenn as a young man and teenager. Miller graduated from Fort Morgan High School in 1921. T

The US Military Historical Museum honors the men and women who have served the Country and features items from every American war.

Morgan county is also home to Riverside Park and the Fort Morgan Golf Course. At the I-76 Speedway one can see Late Models, Midgets, Modifieds, Street Stocks, Econos, 1200 Outlaws, Dwarfs, Mini Stocks, Mini Sprints and Trucks race this 1/4 mile high-banked dirt track.

Jackson Lake State Park has become one of Colorado's finest outdoor recreation and water sports sites. A wide variety of activities such as boating, waterskiing, fishing and swimming can all be enjoyed on the 2,700 surface-acre lake. The park is also known for its warm-water, with sandy bottom and shore. During the winter the park offers camping, wildlife observation, photography, ice fishing, ice skating and hunting.

Rainbow Bridge built in 1922 – 1923 was placed on the National Register of Historic Places in 1984. It was designated a Colorado Civil Engineering Landmark in 1992. This bridge has survived major floods and in 1935 braced a 10 foot wall of water virtually undamaged. Today it is used for foot traffic and offers a beautiful view of the South Platte River.

Pawnee National Grassland & Pawnee Buttes extends across the plains from Fort Morgan to the Northeast section of Weld County. The endless horizon along the route is breathtaking. The landscape has it's own distinct and fragile beauty. The Pawnee Buttes are a stark contrast to the vast openness of the surrounding landscape. Rising over 250 feet above the plains, the eroded columns of sandstone have resisted eons of natural forces that have eroded the surrounding area.

*([www.co.morgan.co.us](http://www.co.morgan.co.us), [www.fortmorganchamber.org](http://www.fortmorganchamber.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 Morgan County are:

<b>Morgan County Ratio Grid</b>					
<b>Property Class</b>	<b>Number of Qualified Sales</b>	<b>Unweighted Median Ratio</b>	<b>Price Related Differential</b>	<b>Coefficient of Dispersion</b>	<b>Time Trend Analysis</b>
Commercial/Industrial	31	0.978	1.020	6.7	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	440	0.992	1.008	7.8	Compliant
Vacant Land	N/A	N/A	N/A	N/A	N/A

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

Morgan 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.

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

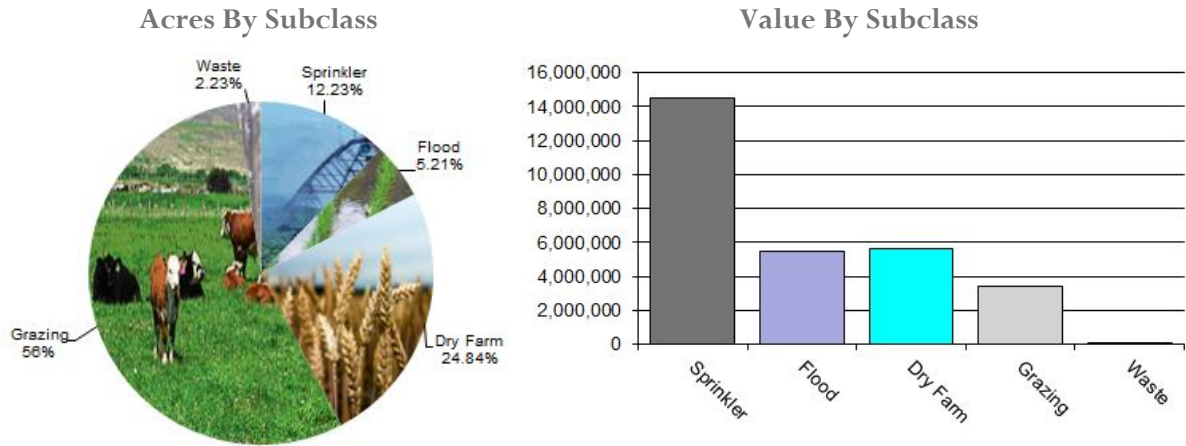
**Conclusions**

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

**Recommendations**

None

# AGRICULTURAL LAND STUDY



## Agricultural Land

County records were reviewed to determine major land categories such as irrigated farm, dry farm, meadow hay, grazing and other 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:

<b>Morgan County Agricultural Land Ratio Grid</b>						
<b>Abstract Code</b>	<b>Land Class</b>	<b>Number Of Acres</b>	<b>County Value Per Acre</b>	<b>County Assessed Total Value</b>	<b>WRA Total Value</b>	<b>Ratio</b>
4107	Sprinkler	92,506	147.61	13,654,964	15,213,586	0.90
4117	Flood	33,524	127.83	4,285,337	4,722,348	0.91
4127	Dry Farm	180,316	28.58	5,153,197	5,620,679	0.92
4147	Grazing	402,924	8.43	3,395,096	3,395,096	1.00
4167	Waste	16,204	1.99	32,189	32,189	1.00
<b>Total/Avg</b>		<b>725,474</b>	<b>36.56</b>	<b>26,520,783</b>	<b>28,983,898</b>	<b>0.92</b>

### Recommendations

None

## Agricultural Outbuildings

### Methodology

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

Property Taxation for the valuation of agricultural outbuildings.

### Recommendations

None

### Conclusions

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



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## Agricultural Land Under Improvements

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### 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

Morgan 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.:

- Phone Interviews

Morgan 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.:

- Phone Interviews

Morgan 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 Morgan County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 32 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.

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**

Morgan County appears to be doing a good job of verifying their sales. WRA agreed with the

county's reason for disqualifying each of the sales selected in the sample. There are no recommendations or suggestions.

### **Recommendations**

None



# ECONOMIC AREA REVIEW AND EVALUATION

## **Methodology**

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

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## Earth and Stone Products

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### 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

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## Producing Oil and Gas

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### 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 Morgan 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**

Morgan 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.

Morgan 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

Morgan 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

Morgan 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.

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

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

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.

Morgan 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:

- Businesses in a selected area
- Accounts with obvious discrepancies
- New businesses filing for the first time
- Accounts with greater than 10% change
- Incomplete or inconsistent declarations
- Accounts with omitted property



- Same business type or use
- Businesses with no deletions or additions for 2 or more years
- Non-filing Accounts - Best Information Available
- Accounts close to the \$7,300 actual value exemption status
- Lowest or highest quartile of value per square foot
- Accounts protested with substantial disagreement

### **Conclusions**

Morgan County has employed adequate discovery, classification, documentation, valuation, and auditing procedures for their personal property assessment and is in statistical compliance with SBOE requirements.

### **Recommendations**

None

## WILDROSE AUDITOR STAFF

**Harry J. Fuller**, *Audit Project Manager*

**Suzanne Howard**, *Audit Administrative Manager*

**Steve Kane**, *Audit Statistician*

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

**J. Andrew Rodriguez**, *Field Analyst*

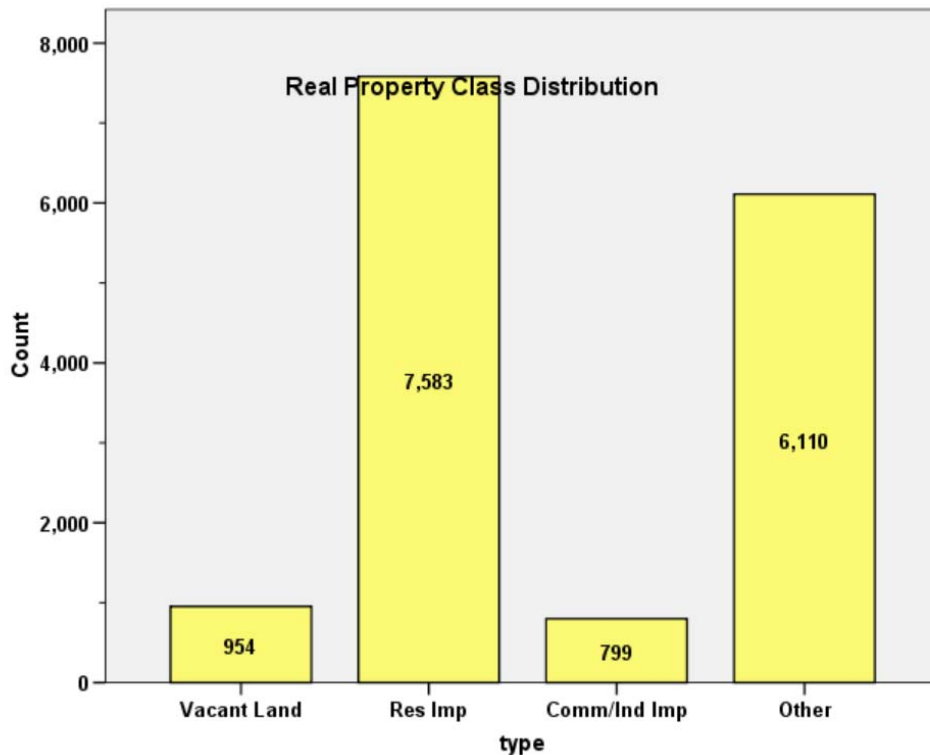
# APPENDICES



**STATISTICAL COMPLIANCE REPORT  
FOR MORGAN COUNTY  
2016**

**I. OVERVIEW**

Morgan County is located in central Colorado. The county has a total of 15,446 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 lots (coded 100 and 1112) accounted for 73.3% of all vacant land parcels. Because there were fewer than 1,200 vacant land parcels, this class of property was excluded from further analysis.

For residential improved properties, single family properties accounted for 94.2% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for less than 5.2% of all such properties in this county.

## II. DATA FILES

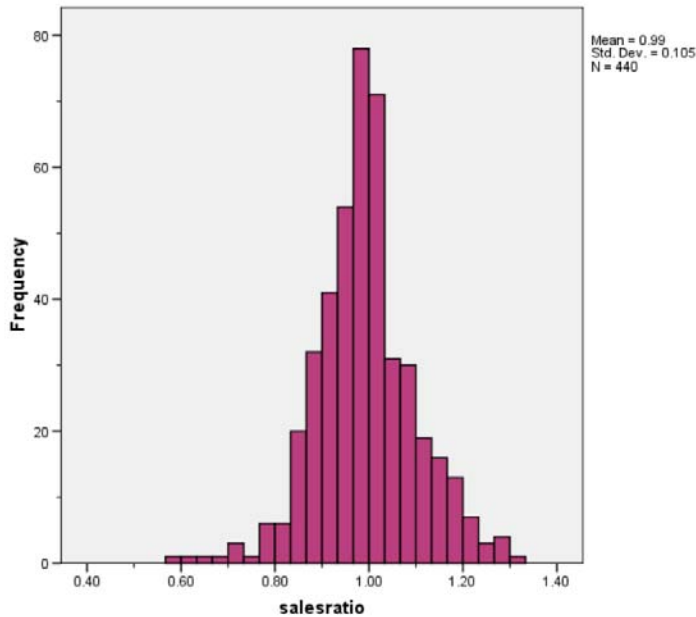
The following analyses were based on the requirements of the 2016 Colorado Property Assessment Study. Information was provided by the Morgan Assessor’s Office in March 2016. The data included all 5 property record files as specified by the Auditor.

## III. RESIDENTIAL SALES RESULTS

There were 440 qualified residential sales for the 18-month period prior to June 30, 2014. The sales ratio analysis was analyzed as follows:

Median	<b>0.992</b>
Price Related Differential	<b>1.008</b>
Coefficient of Dispersion	<b>7.8</b>

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 sale ratios was within state mandated limits. No sales were trimmed.

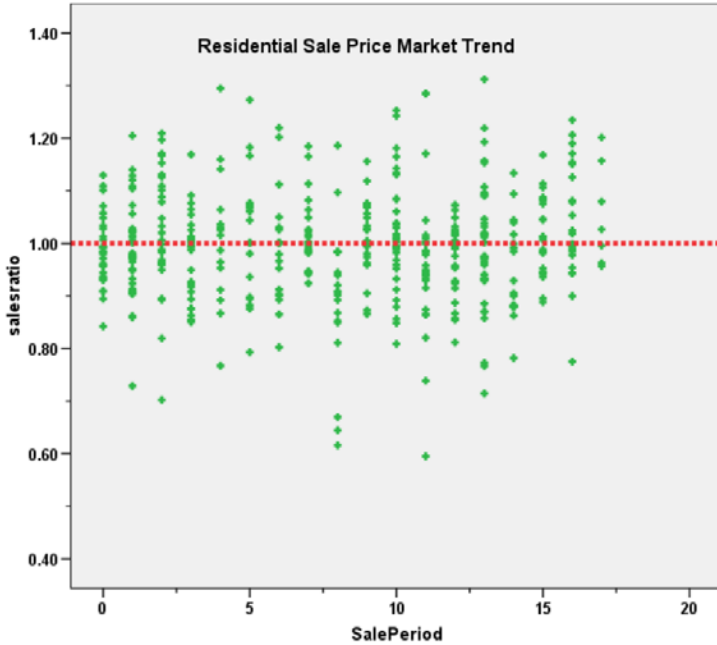
### Residential Market Trend Analysis

We next analyzed the residential dataset using the 18-month sale period for any residual market trending, with the following results:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.987	.009		106.932	.000
	SalePeriod	.001	.001	.033	.690	.490

a. Dependent Variable: salesratio

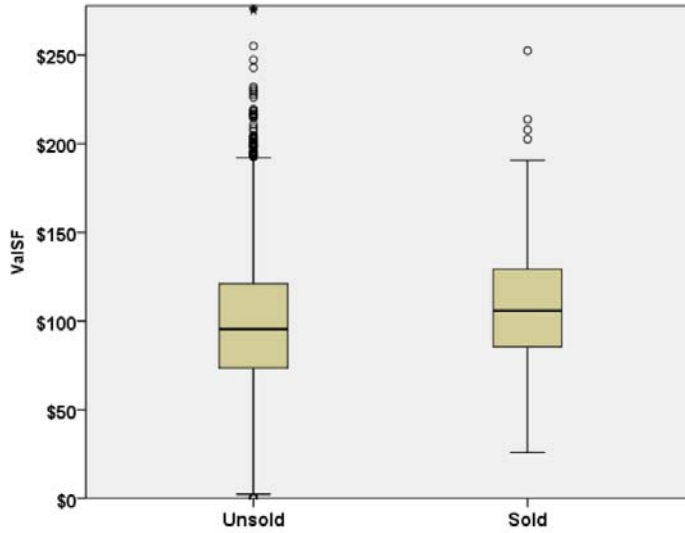


There was no residual trending in the sales ratios. This supports our conclusion that the assessor has adequately addressed market trending in the valuation of residential properties.

### 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 2016 between each group, as follows:

Group	N	Median Val/SF	Mean Val/SF
Unsold	7,096	\$95	\$98
Sold	440	\$106	\$108



### 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.

### Report

ValSF

ECONAREA	sold	N	Median	Mean
1	Unsold	1159	\$117.47	\$115.84
	Sold	93	\$120.96	\$120.20
2	Unsold	1717	\$87.97	\$89.28
	Sold	102	\$91.98	\$95.78
3	Unsold	302	\$130.63	\$128.74
	Sold	34	\$128.64	\$126.17
4	Unsold	988	\$78.63	\$80.21
	Sold	53	\$76.43	\$84.18
5	Unsold	149	\$55.22	\$54.84
	Sold	3	\$58.86	\$62.27
6	Unsold	2149	\$105.67	\$106.53
	Sold	121	\$115.08	\$119.13
7	Unsold	446	\$69.07	\$77.26
	Sold	21	\$89.77	\$93.64
8	Unsold	51	\$118.09	\$122.38
	Sold	4	\$107.42	\$108.13

When compared on an economic area basis, the median differential between sold and unsold residential properties ranged from -5.9 percent to +29.0 percent, with a **median average of 3.6 percent** difference between sold and unsold values.

Although it had fewer than 30 sales, we contacted the assessor concerning the large (30 percent) difference between sold and unsold residential properties in Economic Area 7. The assessor reported that this was a “catch all” economic area, consisting of residential improved properties more than 5 miles from larger markets in Morgan County. There was a wide variation in the age, quality and size of homes in EA 7. Some properties were situated in small unincorporated towns (i.e. Weldona), while others were isolated residential parcels far from other residential property types. Home valuations were also varied greatly. We noted that the average year of construction for the sold properties in this economic area was 1974, while the average year of construction for the unsold residential properties was 1959. Based on these factors, we concluded that the comparison results for Economic Area 7 indicated no significant issues in terms of sold and unsold valuation consistency.

As a final check for this class of property, we also examined the difference between sold and unsold properties using the percent change method, where the median and mean change in value from base years (2014 to 2016) are compared. The following are the results from this method:

Group	N	Median Chg Val	Mean Chg Val
Unsold	7,029	1.09	1.08
Sold	419	1.12	1.11

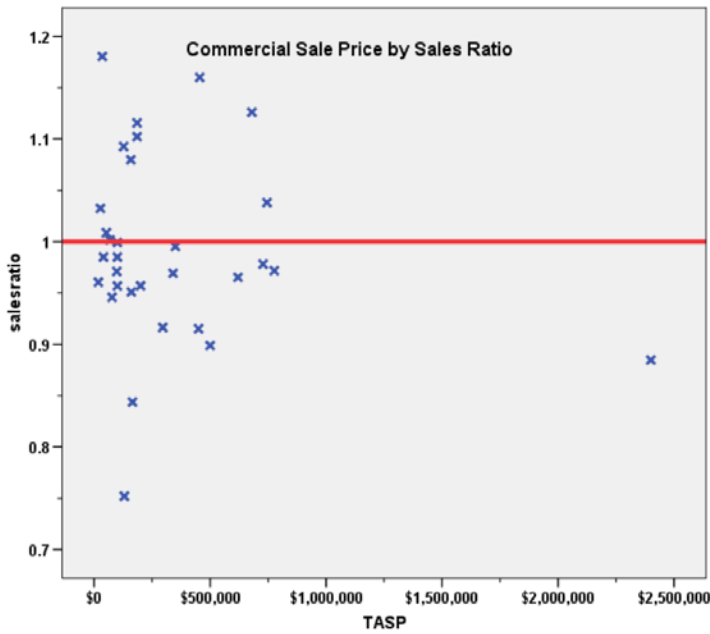
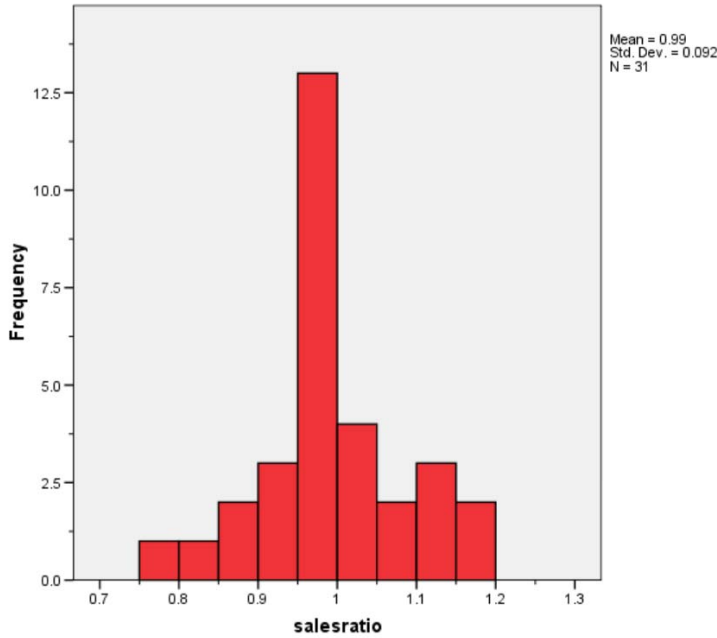
Based on these findings, we concluded that the assessor valued sold and unsold residential properties consistently in 2016.

#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

There were 31 qualified commercial and industrial sales for the 18-month period prior to June 30, 2014. The sales ratio analysis was analyzed as follows:

Median	<b>0.978</b>
Price Related Differential	<b>1.020</b>
Coefficient of Dispersion	<b>.067</b>

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



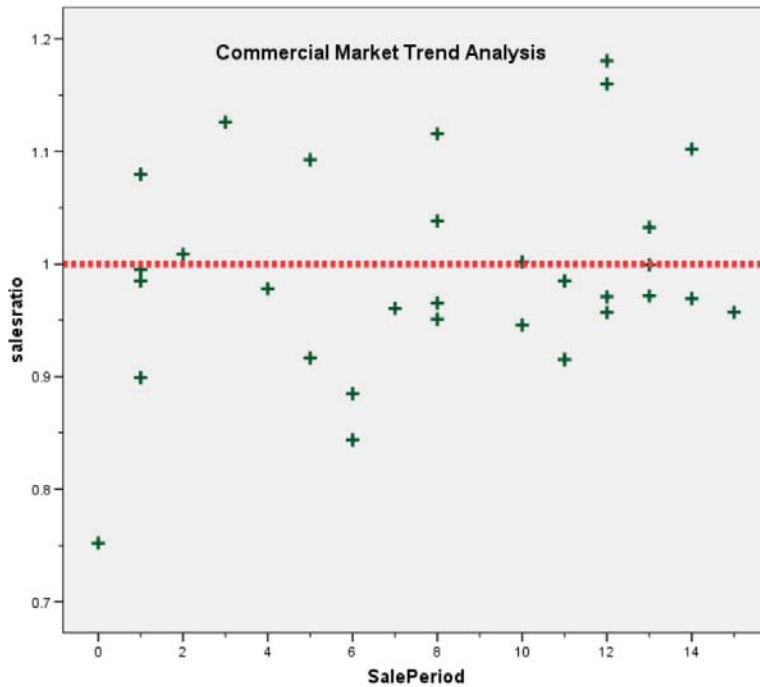
### Commercial Market Trend Analysis

The assessor did not apply any market trend adjustment to the commercial dataset. The 31 commercial/industrial sales were analyzed, examining the sale ratios across a 18-month sale period with the following results:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.955	.033		29.315	.000
	SalePeriod	.005	.004	.237	1.312	.200

a. Dependent Variable: salesratio



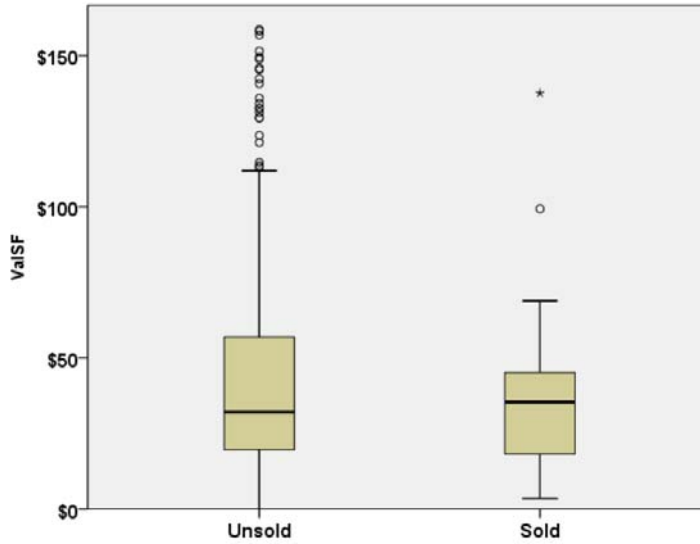
The market trend results indicated no statistically significant trend. We concur that no market trend adjustments were warranted for properties in this class for Morgan County.

**Sold/Unsold Analysis**

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

Group	No.	Median	Mean
Unsold	768	\$32	\$47
Sold	31	\$35	\$45





### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
<b>1</b>	The distribution of ValSF is the same across categories of sold.	Independent-Samples Mann-Whitney U Test	.818	Retain the null hypothesis.

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

Based on the above results, we concluded that the assessor was valuing sold and unsold commercial/industrial properties consistently.

#### V. VACANT LAND SALE RESULTS

Given that there were fewer than 1,200 vacant land parcels in Morgan County, it is exempt from statistical compliance analysis.

#### V. AGRICULTURAL IMPROVEMENTS ANALYSIS

The final statistical verification concerned the assigned actual values for agricultural residential improvements. We compared the actual value per square foot rate for this group and compared it to rates assigned to residential single family improvements in Morgan County.

The following indicates that agricultural residential improvements were valued in a manner similar to the single family residential improvements in this county:

Descriptives				Statistic	Std. Error
abstrimp					
ImpValSF	SFR	Mean		\$80.13	\$.788
		95% Confidence Interval for Lower Bound		\$78.59	
		Mean Upper Bound		\$81.68	
		5% Trimmed Mean		\$79.11	
		Median		\$76.98	
		Variance		1667.481	
		Std. Deviation		\$40.835	
		Minimum		\$0	
		Maximum		\$348	
		Range		\$348	
		Interquartile Range		\$59	
		Skewness		.433	.047
		Kurtosis		.415	.094
Ag	Res	Mean		\$94.87	\$2.011
		95% Confidence Interval for Lower Bound		\$90.92	
		Mean Upper Bound		\$98.82	
		5% Trimmed Mean		\$90.93	
		Median		\$86.53	
		Variance		3250.801	
		Std. Deviation		\$57.016	
		Minimum		\$0	
		Maximum		\$914	
		Range		\$914	
		Interquartile Range		\$50	
		Skewness		5.811	.086
		Kurtosis		69.605	.172

## VI. CONCLUSIONS

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

**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			
.993	.983	1.003	.992	.984	.999	96.0%	.984	.974	.995	1.008	.078	10.6%

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.

**Commercial/Industrial**

**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			
.992	.958	1.025	.978	.957	1.009	97.1%	.972	.919	1.025	1.020	.067	9.2%

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.

**Residential Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

	Count	Percent
SPRec \$25K to \$50K	11	2.5%
\$50K to \$100K	94	21.4%
\$100K to \$150K	136	30.9%
\$150K to \$200K	102	23.2%
\$200K to \$300K	75	17.0%
\$300K to \$500K	22	5.0%
Overall	440	100.0%
Excluded	0	
Total	440	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
\$25K to \$50K	1.036	1.000	.073	10.8%
\$50K to \$100K	1.014	1.001	.085	11.4%
\$100K to \$150K	.994	1.001	.072	9.9%
\$150K to \$200K	.985	1.000	.070	9.4%
\$200K to \$300K	.971	1.001	.083	11.6%
\$300K to \$500K	.965	.998	.070	10.7%
Overall	.992	1.008	.078	10.6%

**Subclass**

**Case Processing Summary**

	Count	Percent
abstrimp 1212	417	94.8%
1214	1	.2%
1215	5	1.1%
1218	1	.2%
1220	7	1.6%
1230	9	2.0%
Overall	440	100.0%
Excluded	0	
Total	440	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1212	.992	1.008	.079	10.7%
1214	1.039	1.000	.000	.%
1215	.907	1.012	.066	8.8%
1218	.883	1.000	.000	.%
1220	.994	1.009	.037	6.5%
1230	.980	1.010	.068	9.0%
Overall	.992	1.008	.078	10.6%

## Improvement Age

### Case Processing Summary

		Count	Percent
AgeRec	Over 100	47	10.7%
	75 to 100	39	8.9%
	50 to 75	109	24.8%
	25 to 50	118	26.8%
	5 to 25	122	27.7%
	5 or Newer	5	1.1%
Overall		440	100.0%
Excluded		0	
Total		440	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	1.006	1.040	.099	12.9%
75 to 100	.954	1.025	.091	12.9%
50 to 75	.985	1.013	.081	11.0%
25 to 50	.997	1.005	.072	9.7%
5 to 25	.989	1.002	.067	9.4%
5 or Newer	.959	.981	.082	12.3%
Overall	.992	1.008	.078	10.6%

## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	3	.7%
	500 to 1,000 sf	82	18.6%
	1,000 to 1,500 sf	192	43.6%
	1,500 to 2,000 sf	112	25.5%
	2,000 to 3,000 sf	44	10.0%
	3,000 sf or Higher	7	1.6%
Overall		440	100.0%
Excluded		0	
Total		440	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LE 500 sf	.867	.987	.050	9.6%
500 to 1,000 sf	.999	1.019	.080	10.6%
1,000 to 1,500 sf	.989	1.016	.083	11.5%
1,500 to 2,000 sf	.992	1.005	.069	9.0%
2,000 to 3,000 sf	.996	1.007	.069	9.8%
3,000 sf or Higher	1.073	.999	.110	15.0%
Overall	.992	1.008	.078	10.6%

## Improvement Quality

### Case Processing Summary

	Count	Percent
QUALITY 2	24	5.5%
3	408	92.7%
4	8	1.8%
Overall	440	100.0%
Excluded	0	
Total	440	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
2	1.024	1.008	.064	8.3%
3	.990	1.007	.079	10.6%
4	.970	.997	.089	15.2%
Overall	.992	1.008	.078	10.6%



## Improvement Condition

### Case Processing Summary

	Count	Percent
CONDITION 2	19	4.3%
3	407	92.5%
4	14	3.2%
Overall	440	100.0%
Excluded	0	
Total	440	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
2	1.053	1.007	.085	11.2%
3	.993	1.008	.077	10.5%
4	.949	.991	.059	9.8%
Overall	.992	1.008	.078	10.6%

**Commercial Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	1	3.2%
	\$25K to \$50K	3	9.7%
	\$50K to \$100K	7	22.6%
	\$100K to \$150K	2	6.5%
	\$150K to \$200K	6	19.4%
	\$200K to \$300K	1	3.2%
	\$300K to \$500K	5	16.1%
	\$500K to \$750K	4	12.9%
	\$750K to \$1,000K	1	3.2%
	Over \$1,000K	1	3.2%
Overall		31	100.0%
Excluded		0	
Total		31	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	.961	1.000	.000	.%
\$25K to \$50K	1.033	1.001	.063	10.6%
\$50K to \$100K	.985	1.002	.020	2.5%
\$100K to \$150K	.922	1.002	.185	26.1%
\$150K to \$200K	1.018	.998	.089	10.7%
\$200K to \$300K	.916	1.000	.000	.%
\$300K to \$500K	.969	1.001	.070	10.9%
\$500K to \$750K	1.008	.999	.055	7.6%
\$750K to \$1,000K	.972	1.000	.000	.%
Over \$1,000K	.885	1.000	.000	.%
Overall	.978	1.020	.067	9.5%

**Subclass**

**Case Processing Summary**

	Count	Percent
abstrimp 2212	12	38.7%
2220	3	9.7%
2225	1	3.2%
2230	7	22.6%
2235	6	19.4%
3212	1	3.2%
3215	1	3.2%
Overall	31	100.0%
Excluded	0	
Total	31	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
2212	.971	.999	.060	9.9%
2220	.951	.978	.127	19.2%
2225	.899	1.000	.000	.%
2230	.995	1.004	.065	8.7%
2235	.982	.986	.031	4.4%
3212	1.080	1.000	.000	.%
3215	.885	1.000	.000	.%
Overall	.978	1.020	.067	9.5%

## Improvement Age

### Case Processing Summary

		Count	Percent
AgeRec	Over 100	2	6.5%
	75 to 100	9	29.0%
	50 to 75	6	19.4%
	25 to 50	8	25.8%
	5 to 25	5	16.1%
	5 or Newer	1	3.2%
Overall		31	100.0%
Excluded		0	
Total		31	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	1.032	.992	.059	8.3%
75 to 100	.999	1.012	.076	11.9%
50 to 75	.963	1.002	.053	8.0%
25 to 50	1.017	1.048	.081	10.0%
5 to 25	.965	.995	.017	2.8%
5 or Newer	.916	1.000	.000	.%
Overall	.978	1.020	.067	9.5%

## Improved Area

### Case Processing Summary

	Count	Percent
ImpSFRec LE 500 sf	1	3.2%
500 to 1,000 sf	2	6.5%
1,000 to 1,500 sf	1	3.2%
1,500 to 2,000 sf	3	9.7%
2,000 to 3,000 sf	3	9.7%
3,000 sf or Higher	21	67.7%
Overall	31	100.0%
Excluded	0	
Total	31	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LE 500 sf	.961	1.000	.000	.%
500 to 1,000 sf	.851	.988	.117	16.5%
1,000 to 1,500 sf	1.009	1.000	.000	.%
1,500 to 2,000 sf	1.002	1.012	.029	4.5%
2,000 to 3,000 sf	.915	1.007	.051	7.7%
3,000 sf or Higher	.985	1.037	.069	9.3%
Overall	.978	1.020	.067	9.5%

## Improvement Quality

### Case Processing Summary

	Count	Percent
QUALITY 2	5	16.1%
3	26	83.9%
Overall	31	100.0%
Excluded	0	
Total	31	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
2	.957	.987	.062	11.1%
3	.982	1.026	.068	9.5%
Overall	.978	1.020	.067	9.5%