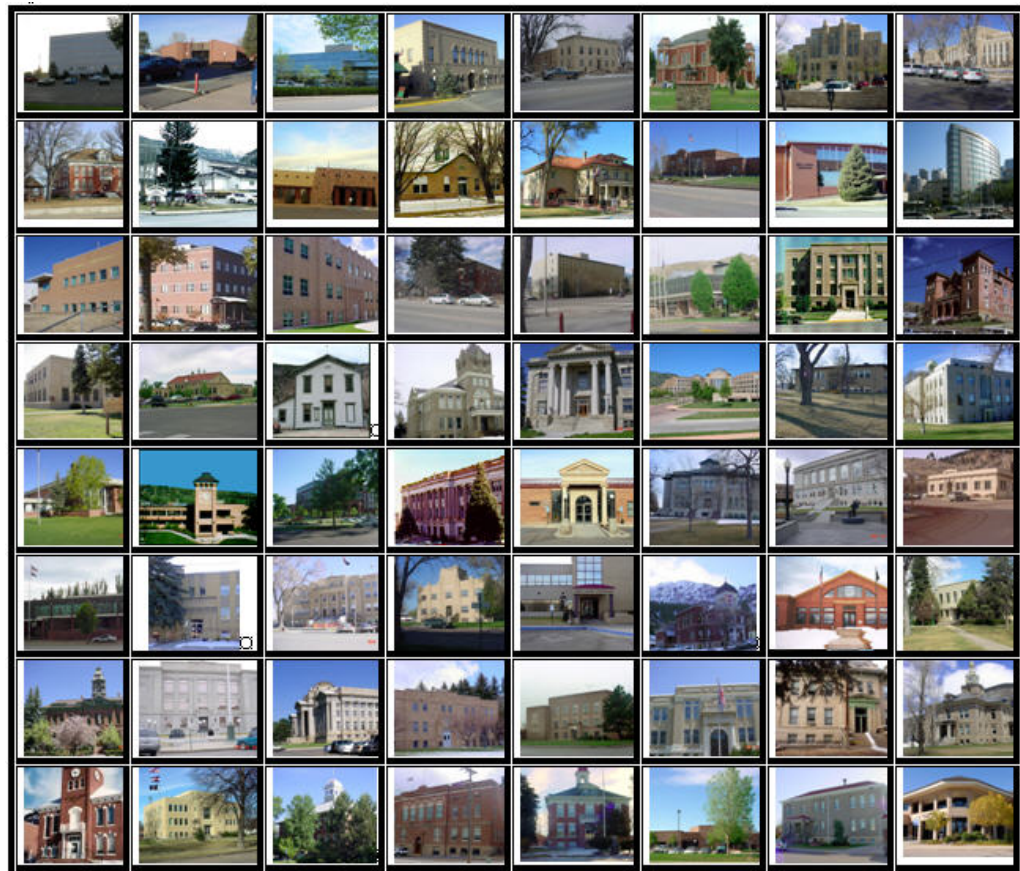




2011  
MORGAN COUNTY  
PROPERTY ASSESSMENT  
STUDY

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**WILDROSE**  
APPRAISAL, INCORPORATED  
**Audit Division**



September 15, 2011

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

**RE: Final Report for the 2011 Colorado Property Assessment Study**

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2011 Colorado Property Assessment Study.

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

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

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

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

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

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

## TABLE OF CONTENTS

Introduction .....	3
Regional/Historical Sketch of Morgan County .....	4
Ratio Analysis.....	6
<i>Random Deed Analysis</i> .....	7
Time Trending Verification .....	8
Sold/Unsold Analysis .....	9
Agricultural Land Study .....	11
<i>Agricultural Land</i> .....	11
<i>Agricultural Outbuildings</i> .....	12
Sales Verification.....	13
Economic Area Review and Evaluation .....	14
Natural Resources .....	15
<i>Earth and Stone Products</i> .....	15
<i>Producing Oil and Gas Procedures</i> .....	15
Vacant Land.....	16
Possessory Interest Properties .....	17
Personal Property Audit .....	18
Wildrose Auditor Staff.....	20
Appendices.....	21

## 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 2011 and is pleased to report its findings for Morgan County in the following report.

# REGIONAL/HISTORICAL SKETCH OF MORGAN COUNTY

## Regional Information

Morgan County is located in the Eastern Plains region of Colorado. The Eastern Plains of Colorado refer to the region on the east side of the Rocky Mountain. It is east of the population centers of the Front Range,

including Baca, Bent, Cheyenne, Crowley, Elbert, Kiowa, Kit Carson, Lincoln, Logan, Morgan, Otero, Phillips, Prowers, Sedgwick, Washington, and Yuma counties.



## Historical Information

Morgan County has a population of approximately 28,159 people with 21.91 people per square mile, according to the U.S. Census Bureau's 2010 census data. This represents a 3.64 percent change from the 2000 Census.

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.

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 2009 and June 2010. Counties with less than 30 sales typically extended the sale period back up to 5 years prior to June 30, 2010 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	50	1.003	1.037	10.1	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	286	0.996	1.012	7.2	Compliant
Vacant Land	50	1.000	1.026	10.8	Compliant

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

**Random Deed Analysis**

An additional analysis was performed as part of the Ratio Analysis. Ten randomly selected deeds with documentary fees were obtained from the Clerk and Recorder. These deeds were for sales that occurred from January 1, 2009 through June 30, 2010. These sales were then checked for inclusion on the Assessor’s qualified or unqualified database.

**Conclusions**

After comparing the list of randomly selected deeds with the Assessor’s database, Morgan County has accurately transferred sales data from the recorded deeds to the qualified or unqualified database.

**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 methodology 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.

All qualified residential and commercial class properties were examined using the unit value method, where the actual value per square foot was compared between sold and unsold properties. A class was considered qualified if it met the criteria for the ratio analysis. The median value per square foot for both groups was compared from an appraisal and statistical perspective. If no significant difference was indicated, then we concluded that no further testing was warranted and that the county was in compliance in terms of sold/unsold consistency.

If either residential or commercial differences were significant using the unit value method, or if data limitations made the comparison invalid, then the next step was to perform a ratio analysis comparing the 2010 and 2011 actual values for each qualified class of property. All qualified vacant land classes were tested using this method. The sale property ratios were arrayed using a range of 0.8 to 1.5, which theoretically excluded changes between years that were due to other unrelated changes in the property. These ratios were also stratified at the appropriate level of analysis. Once the percent change was determined for each appropriate class and sub-class, the next step was to select the unsold sample. This sample

was at least 1% of the total population of unsold properties and excluded any sale properties. The unsold sample was filtered based on the attributes of the sold dataset to closely correlate both groups. The ratio analysis was then performed on the unsold properties and stratified. The median and mean ratio distribution was then compared between the sold and unsold group. A non-parametric test such as the Mann-Whitney test for differences between independent samples was undertaken to determine whether any observed differential was significant. If this test determined that the unsold properties were treated in a manner similar to the sold properties, it was concluded that no further testing was warranted and that the county was in compliance.

If a class or sub-class of property was determined to be significantly different by this method, the final step was to perform a multi-variate mass appraisal model that developed ratio statistics from the sold properties that were then applied to the unsold sample. This test compared the measures of central tendency and confidence intervals for the sold properties with the unsold property sample. If this comparison was also determined to be significantly different, then the conclusion was that the county had treated the unsold properties in a different manner than sold properties.

These tests were supported by both tabular and chart presentations, along with saved sold and unsold sample files.

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

### **Conclusions**

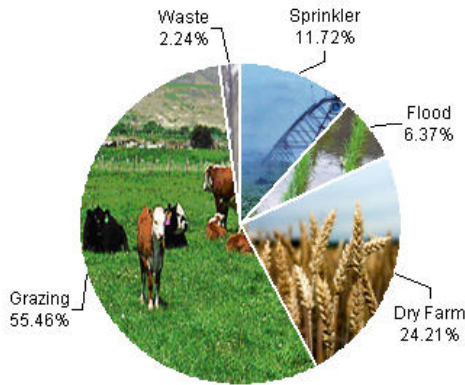
After applying the above described methodologies, it is concluded that Morgan County is reasonably treating its sold and unsold properties in the same manner.

### **Recommendations**

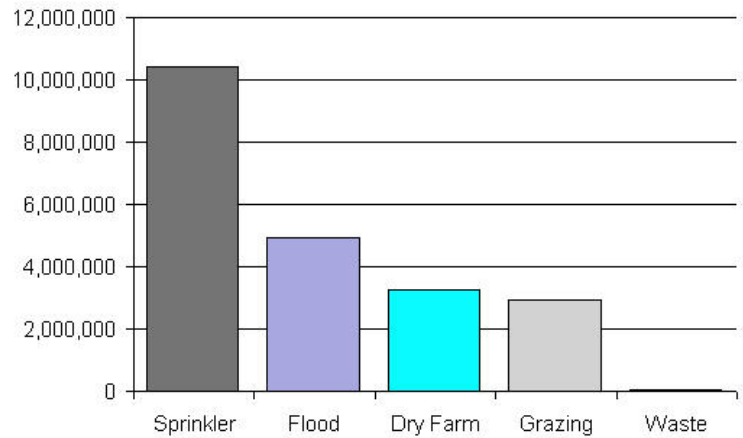
None

# AGRICULTURAL LAND STUDY

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:

<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	85,272	122.00	10,408,691	10,292,288	1.01
4117	Flood	46,308	106.00	4,913,431	4,799,476	1.02
4127	Dry Farm	176,066	18.00	3,245,372	3,274,697	0.99
4147	Grazing	403,337	7.00	2,924,236	2,924,236	1.00
4167	Waste	16,325	2.00	26,348	26,348	1.00
<b>Total/Avg</b>		<b>727,308</b>	<b>30.00</b>	<b>21,518,078</b>	<b>21,317,046</b>	<b>1.01</b>

### **Recommendations**

None

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## **Agricultural Outbuildings**

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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 5.74 through 5.77 were being followed.

### **Conclusions**

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

### **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 2011 for Morgan County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 30 sales listed as unqualified.

### **Conclusions**

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

### **Recommendations**

Morgan County appears to be doing a good job of verifying their sales. There are no recommendations.

# 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 Procedures

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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 2011 in Morgan 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**

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 2011 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 \$5,500 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 / Field Analyst*

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

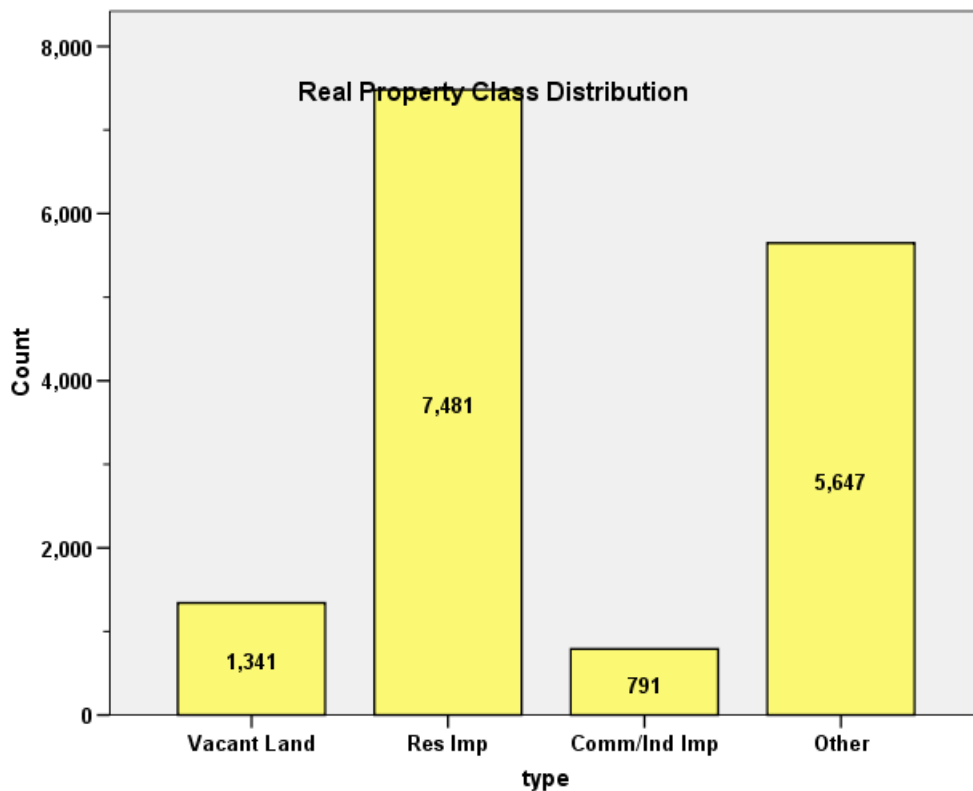
**J. Andrew Rodriguez**, *Field Analyst*

# APPENDICES

## STATISTICAL COMPLIANCE REPORT FOR MORGAN COUNTY 2011

### I. OVERVIEW

Morgan County is located in central Colorado. The county has a total of 15,260 real property parcels, according to data submitted by the county assessor's office in 2011. 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 59% of all vacant land parcels.

For residential improved properties, single family properties accounted for 93% 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% of all such properties in this county.

## II. DATA FILES

The following analyses were based on the requirements of the 2011 Colorado Property Assessment Study. Information was provided by the Morgan Assessor's Office in April 2011. The data included all 5 property record files as specified by the Auditor.

## III. RESIDENTIAL SALES RESULTS

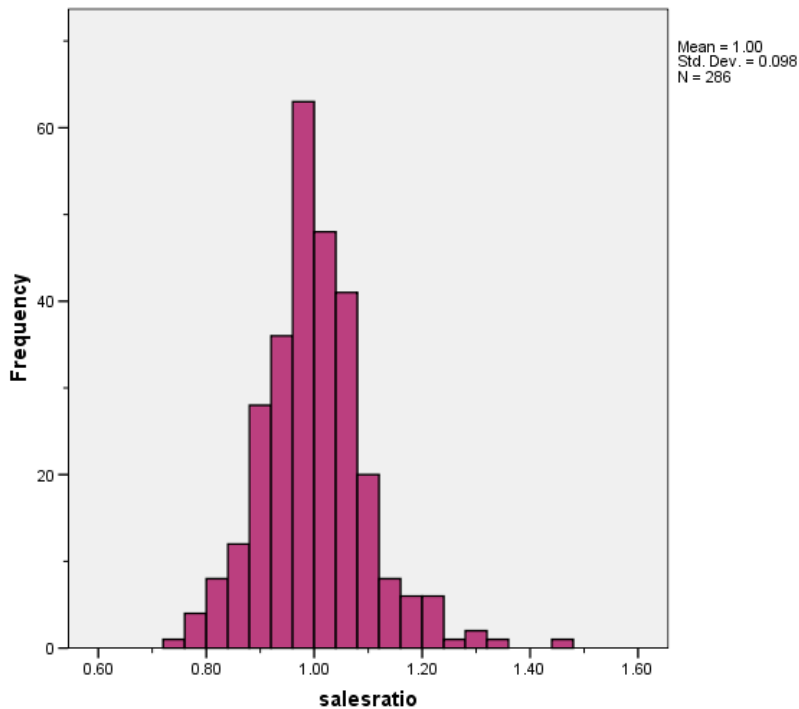
The following steps were taken to analyze the residential sales:

1. Total sales	3,884
2. Selected qualified sales	1,634
3. Select improved sales	1,355
4. Select residential sales only	1,239
5. Sales between January 1, 2009 and June 30, 2010	286

The sales ratio analysis was analyzed as follows:

Median	<b>0.996</b>
Price Related Differential	<b>1.012</b>
Coefficient of Dispersion	<b>.072</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.

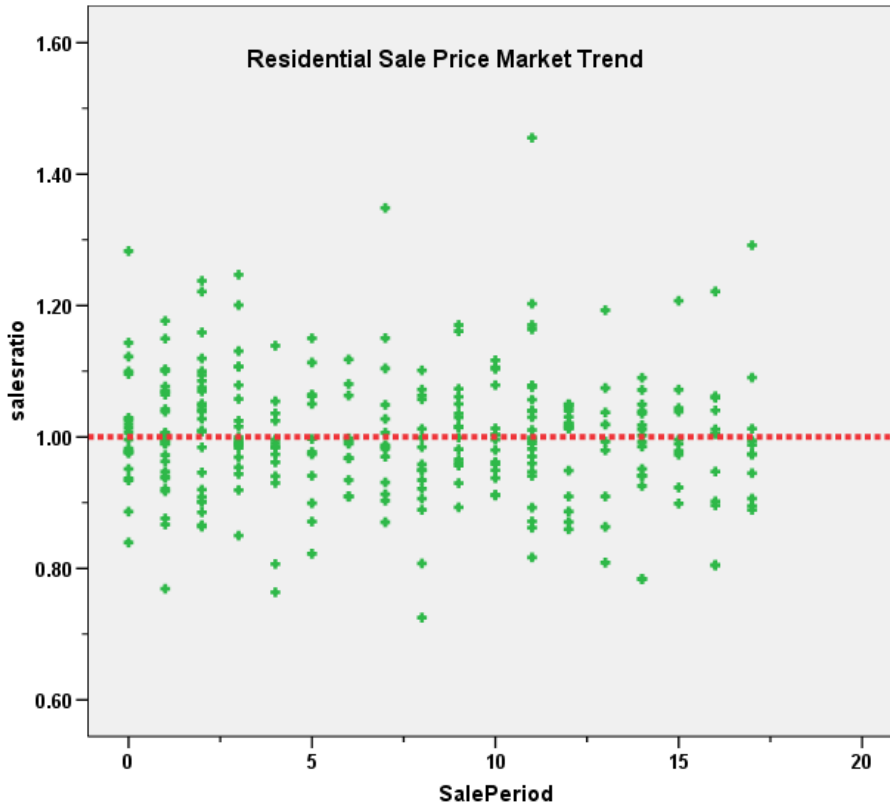
### Residential Market Trend Analysis

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)	1.011	.010		99.424	.000
	SalePeriod	-.001	.001	-.066	-1.107	.269

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 2011 between each group, as follows:

Group	N	Median	Mean
Unsold	7,118	\$99	\$108
Sold	281	\$107	\$113

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

#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

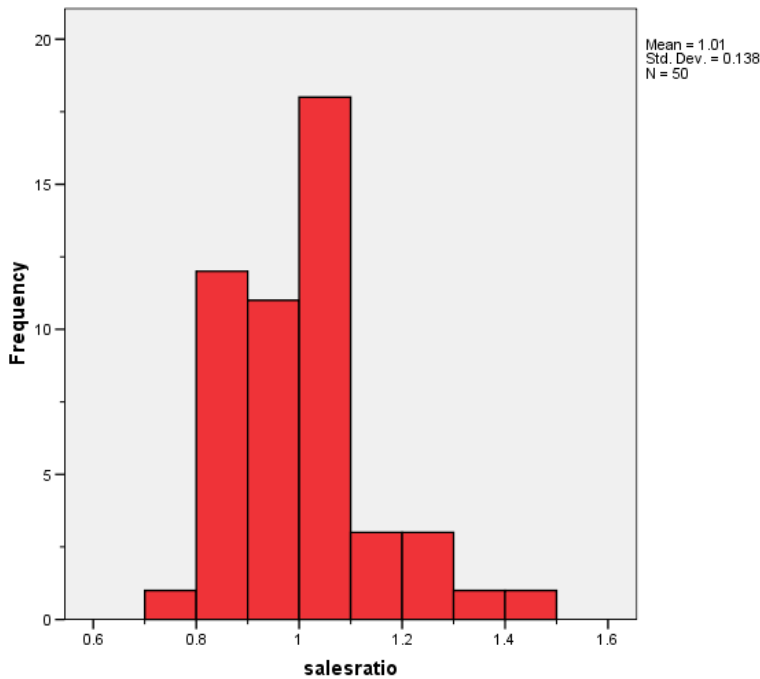
A separate commercial sales file than ranges from July 2003 to June 2008 was provided by the assessor. The following steps were taken to analyze these commercial/industrial sales:

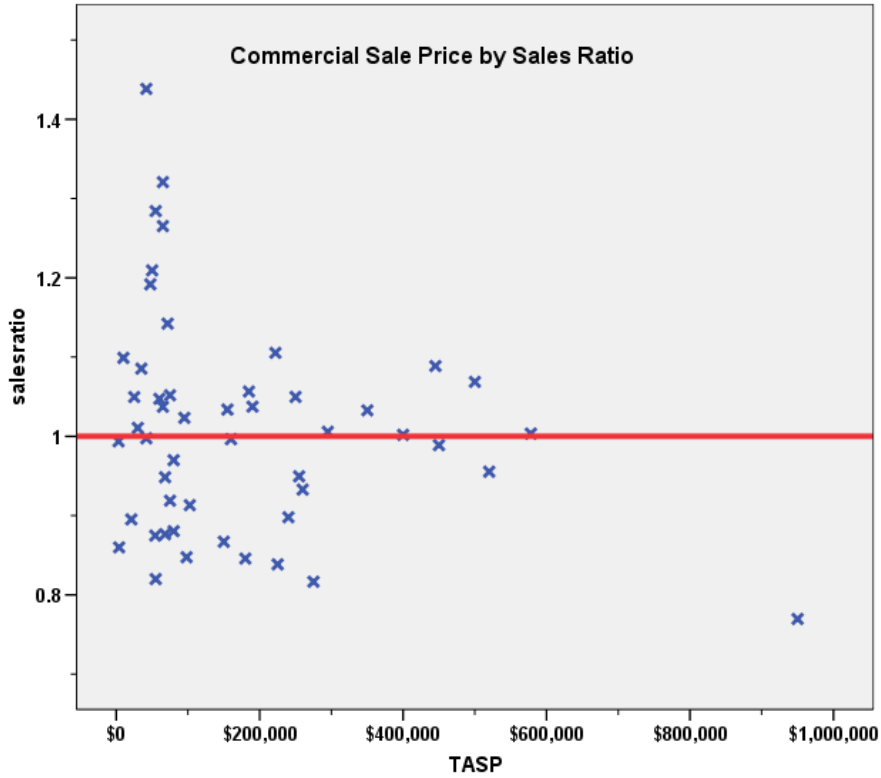
- |   |       |
|---|-------|
| 1. Total sales                              | 3,884 |
| 2. Selected qualified sales                 | 1,634 |
| 3. Select improved sales                    | 1,355 |
| 4. Commercial/Industrial sales              | 110   |
| 5. Sales between January 2008 and June 2010 | 50    |

The sales ratio analysis was analyzed as follows:

Median	<b>1.003</b>
Price Related Differential	<b>1.037</b>
Coefficient of Dispersion	<b>.101</b>

The above table indicates 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:





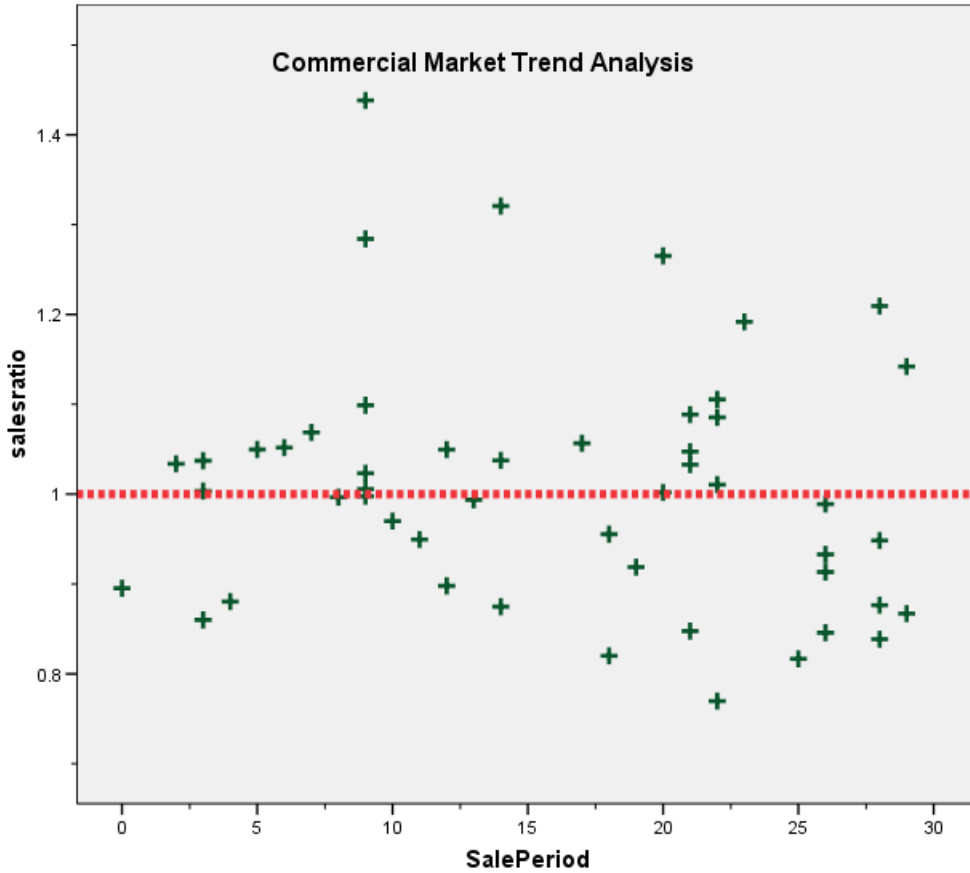
### Commercial Market Trend Analysis

The assessor did not apply any market trend adjustment to the commercial dataset. The 50 commercial/industrial sales were analyzed, examining the sale ratios across a 30 month sale period with the following results:

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

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.044	.042		25.146	.000
SalePeriod	-.002	.002	-.139	-.972	.336

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	732	\$38	\$64
Sold	49	\$47	\$56

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

## V. VACANT LAND SALE RESULTS

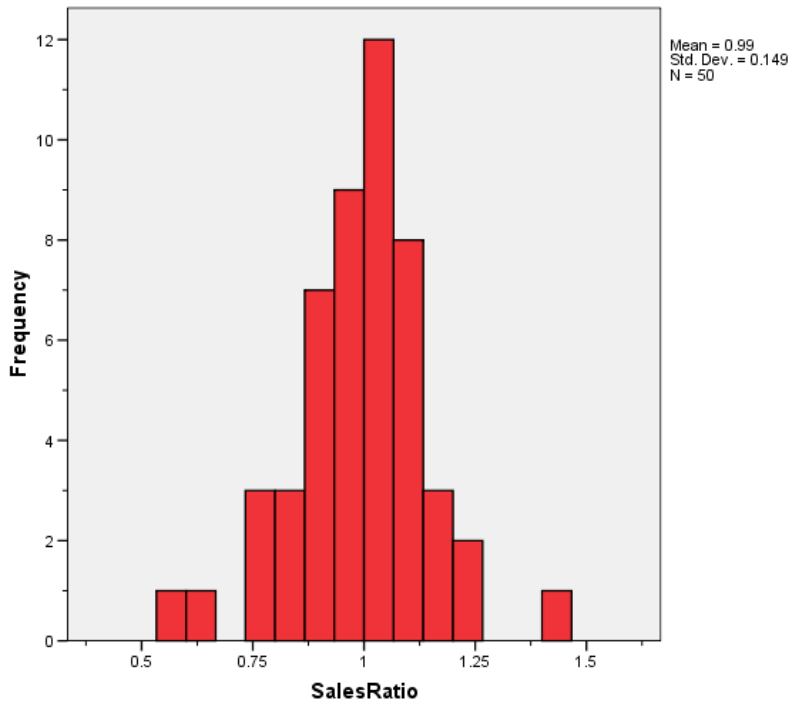
The following steps were taken to analyze vacant land sales:

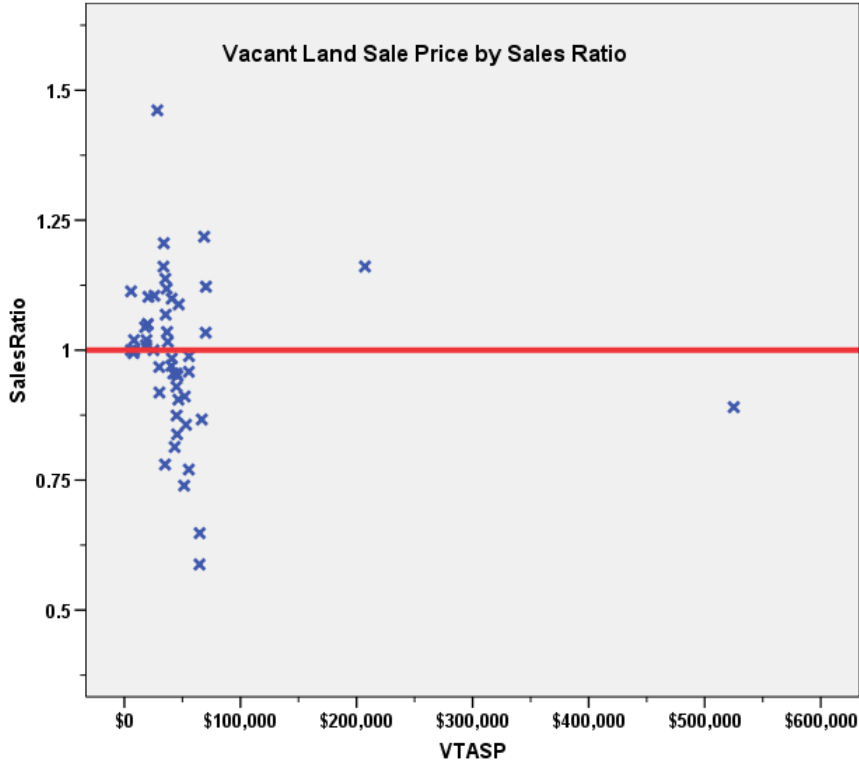
1. Total sales	3,884
2. Selected qualified sales	1,634
3. Select vacant land sales	154
4. Select non-agricultural sales	154
5. Sales between July 1, 2007 and June 30, 2010	50

The sales ratio analysis was analyzed as follows:

Median	<b>1.000</b>
Price Related Differential	<b>1.026</b>
Coefficient of Dispersion	<b>.108</b>

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





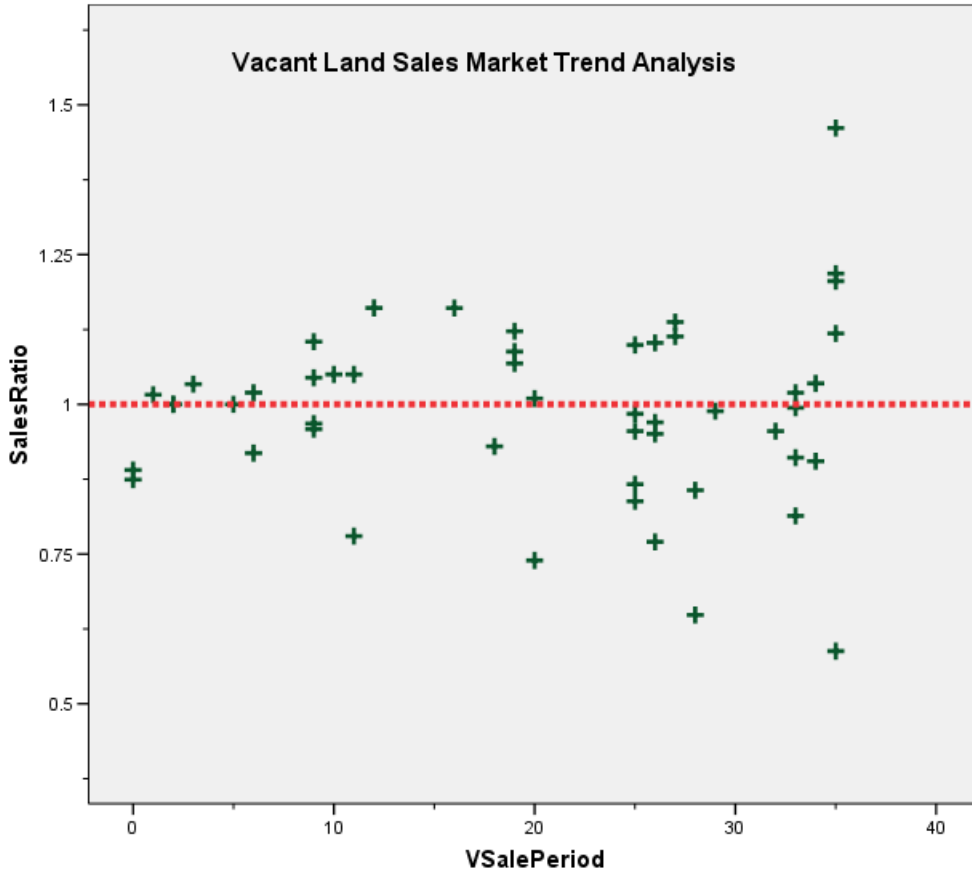
### Vacant Land Market Trend Analysis

The assessor did not apply any market trend adjustment to the vacant land dataset. The 50 vacant land sales were analyzed, examining the sale ratios across the 36 month sale period with the following results:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.983	.044		22.575	.000
	VSalePeriod	.000	.002	.026	.181	.857

a. Dependent Variable: SalesRatio



The market trend results indicated no statistically significant trend. Based on these results, we concluded that the assessor has adequately considered market trending in their vacant land valuations.

### Sold/Unsold Analysis

We compared the median change in actual value between 2010 and 2011 for vacant land properties to determine if sold and unsold properties were valued consistently, as follows:

Group	N	Median	Mean
Unsold	1,095	0.915	0.939
Sold	49	0.877	0.972

The above results indicated that sold and unsold vacant land properties were valued consistently overall.

### 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						
	Abstrimp		Statistic	Std. Error		
ImpValSF	1212	Mean	\$84.33	\$ .527		
		95% Confidence Interval for Mean	Lower Bound	\$83.30		
			Upper Bound	\$85.36		
		5% Trimmed Mean	\$80.99			
		Median	\$78.49			
		Variance	1930.060			
		Std. Deviation	\$43.932			
		Minimum	\$0			
		Maximum	\$1,393			
		Range	\$1,393			
		Interquartile Range	\$40			
		Skewness	5.449	.029		
		Kurtosis	122.755	.059		
			4277	Mean	\$90.77	\$1.997
				95% Confidence Interval for Mean	Lower Bound	\$86.86
Upper Bound	\$94.69					
5% Trimmed Mean	\$85.02					
Median	\$78.97					
Variance	3767.073					
Std. Deviation	\$61.376					
Minimum	\$5					
Maximum	\$717					
Range	\$712					
Interquartile Range	\$57					
Skewness	3.937			.080		
Kurtosis	31.390			.159		

## 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 Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
1.001	.990	1.013	.996	.988	1.006	96.2%	.989	.977	1.001	1.012	.072	9.8%

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

**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 Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
1.008	.969	1.047	1.003	.950	1.038	96.7%	.972	.920	1.025	1.037	.101	13.6%

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.

**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 Mean Centered
	Lower Bound	Upper Bound		Lower Bound	Upper Bound	Actual Coverage		Lower Bound	Upper Bound			
.990	.947	1.032	1.000	.955	1.035	96.7%	.965	.906	1.024	1.026	.108	15.1%

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



**Residential Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	2	.7%
	\$25K to \$50K	9	3.1%
	\$50K to \$100K	68	23.8%
	\$100K to \$150K	131	45.8%
	\$150K to \$200K	29	10.1%
	\$200K to \$300K	38	13.3%
	\$300K to \$500K	9	3.1%
Overall		286	100.0%
Excluded		0	
Total		286	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	1.155	.988	.118	16.7%
\$25K to \$50K	1.061	1.002	.046	6.7%
\$50K to \$100K	1.027	1.002	.086	12.0%
\$100K to \$150K	.992	1.000	.066	8.3%
\$150K to \$200K	.996	.999	.055	7.3%
\$200K to \$300K	.971	1.001	.061	8.5%
\$300K to \$500K	.963	1.006	.099	13.6%
Overall	.996	1.012	.072	9.9%

### Subclass

Case Processing Summary			
		Count	Percent
Abstrimp	1212	275	96.2%
	1215	6	2.1%
	1220	1	.3%
	1230	4	1.4%
Overall		286	100.0%
Excluded		0	
Total		286	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1212	.996	1.012	.072	9.9%
1215	.988	1.009	.075	11.8%
1220	.864	1.000	.000	%
1230	.959	.996	.051	9.6%
Overall	.996	1.012	.072	9.9%

### Age

Case Processing Summary			
		Count	Percent
AgeRec	75 to 100	12	4.2%
	50 to 75	89	31.1%
	25 to 50	98	34.3%
	5 to 25	63	22.0%
	5 or Newer	24	8.4%
Overall		286	100.0%
Excluded		0	
Total		286	

#### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
75 to 100	1.038	1.027	.102	16.2%
50 to 75	.993	1.011	.076	9.9%
25 to 50	1.005	1.008	.070	9.5%
5 to 25	.989	1.009	.057	7.4%
5 or Newer	.992	1.008	.084	11.5%
Overall	.996	1.012	.072	9.9%

## Improved Area

**Case Processing Summary**

	Count	Percent
ImpSFRec 0	5	1.7%
LE 500 sf	8	2.8%
500 to 1,000 sf	88	30.8%
1,000 to 1,500 sf	111	38.8%
1,500 to 2,000 sf	50	17.5%
2,000 to 3,000 sf	21	7.3%
3,000 sf or Higher	3	1.0%
Overall	286	100.0%
Excluded	0	
Total	286	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
0	.974	1.018	.047	7.7%
LE 500 sf	1.000	1.007	.050	6.8%
500 to 1,000 sf	1.004	1.017	.079	11.2%
1,000 to 1,500 sf	.999	1.006	.076	9.9%
1,500 to 2,000 sf	.989	1.002	.065	8.9%
2,000 to 3,000 sf	.998	1.002	.045	6.1%
3,000 sf or Higher	1.028	1.041	.075	12.2%
Overall	.996	1.012	.072	9.9%

## Improvement Quality

Case Processing Summary			
		Count	Percent
QUALITY	2	16	5.6%
	3	5	1.7%
	3	263	92.0%
	4	2	.7%
Overall		286	100.0%
Excluded		0	
Total		286	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
2	1.051	1.011	.063	8.6%
3	.980	1.009	.053	9.4%
3	.995	1.011	.072	9.9%
4	.980	.993	.031	4.4%
Overall	.996	1.012	.072	9.9%

**Commercial Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	5	10.0%
	\$25K to \$50K	6	12.0%
	\$50K to \$100K	16	32.0%
	\$100K to \$150K	2	4.0%
	\$150K to \$200K	5	10.0%
	\$200K to \$300K	8	16.0%
	\$300K to \$500K	5	10.0%
	\$500K to \$750K	2	4.0%
	\$750K to \$1,000K	1	2.0%
Overall		50	100.0%
Excluded		0	
Total		50	

**Ratio Statistics for CURRTOT / TASP**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	.994	.988	.079	10.3%
\$25K to \$50K	1.139	.990	.109	14.5%
\$50K to \$100K	.997	1.007	.128	16.3%
\$100K to \$150K	.890	1.005	.026	3.7%
\$150K to \$200K	1.034	1.000	.049	9.3%
\$200K to \$300K	.941	1.001	.083	10.7%
\$300K to \$500K	1.033	.998	.032	4.1%
\$500K to \$750K	.979	.999	.025	3.5%
\$750K to \$1,000K	.770	1.000	.000	.%
Overall	1.003	1.037	.101	13.7%

## Subclass

### Case Processing Summary

	Count	Percent
Abstrimp 1881	1	2.0%
1891	1	2.0%
2212	11	22.0%
2220	8	16.0%
2230	20	40.0%
2235	7	14.0%
3212	2	4.0%
Overall	50	100.0%
Excluded	0	
Total	50	

### Ratio Statistics for CURRTOT / TASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1881	1.002	1.000	.000	.%
1891	.817	1.000	.000	.%
2212	1.003	1.104	.098	13.8%
2220	1.016	1.067	.137	19.7%
2230	1.015	1.002	.090	12.6%
2235	1.050	.967	.080	11.4%
3212	.889	.991	.049	6.9%
Overall	1.003	1.037	.101	13.7%



### Vacant Land Median Ratio Stratification

Case Processing Summary			
		Count	Percent
abstrlnd	100	16	32.0%
	110	3	6.0%
	200	2	4.0%
	300	1	2.0%
	530	1	2.0%
	1112	16	32.0%
	1115	1	2.0%
	1135	3	6.0%
	2115	1	2.0%
	2120	1	2.0%
	2130	2	4.0%
	2135	2	4.0%
	3112	1	2.0%
Overall		50	100.0%
Excluded		0	
Total		50	

#### Ratio Statistics for CURRLND /VTASP

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
100	.991	1.068	.108	15.8%
110	1.010	1.020	.023	4.2%
200	.874	1.008	.107	15.2%
300	1.088	1.000	.000	%
530	.930	1.000	.000	%
1112	1.042	1.017	.096	14.1%
1115	.814	1.000	.000	%
1135	1.000	1.151	.152	26.0%
2115	1.218	1.000	.000	%
2120	1.161	1.000	.000	%
2130	.878	.990	.013	1.9%
2135	.996	.996	.038	5.3%
3112	1.122	1.000	.000	%
Overall	1.000	1.026	.108	15.0%