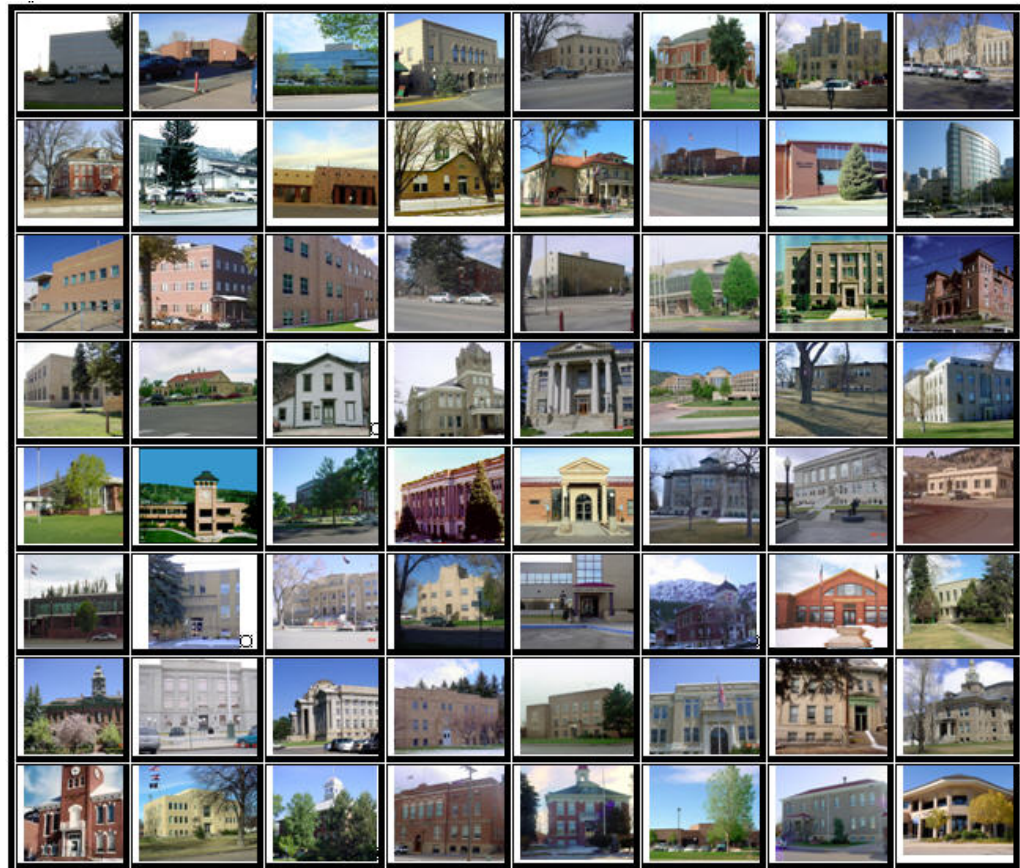




2012  
LOGAN COUNTY  
PROPERTY ASSESSMENT  
STUDY

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



September 15, 2012

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

**RE: Final Report for the 2012 Colorado Property Assessment Study**

Dear Mr. Mauer:

Wildrose Appraisal Inc.-Audit Division is pleased to submit the Final Reports for the 2012 Colorado Property Assessment Study.

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

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

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

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

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

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

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# INTRODUCTION

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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 2012 and is pleased to report its findings for Logan County in the following report.

# REGIONAL/HISTORICAL SKETCH OF LOGAN COUNTY

## Regional Information

Logan 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

Logan County has a population of approximately 22,709 people with 12.35 people per square mile, according to the U.S. Census Bureau's 2010 census data. This represents a 10.75 percent change from the 2000 Census.

Logan County, located in the northeast corner of Colorado, is a rapidly growing agriculture and industry-based community. The County, created from the eastern portion of Weld County, was established in 1887 and is 1,822 square miles in area. Sterling is the hub city of the county, the largest city in the Northeastern Colorado region and the county seat. It was named for Sterling, Illinois, the hometown of railroad surveyor David Leavitt who established the first post office on his ranch in 1872..

Sterling was named the Best Small Community of the year by the Economic Development Council of Colorado in 2006.

Just a few miles northeast of Sterling is located the North Sterling State Park, situated on the North Sterling Reservoir, a man-made lake fed by waters from the South Platte River. This new state park has three state of the art boat ramps, and three modern camping areas with over 150 camping sites, as well as multiple picnicking sites. The park is famous for its superb swimming, boating, waterskiing, camping, and fishing.

Pheasant, duck, and deer hunting are excellent in the high plains and South Platte River Valley surrounding Sterling.

Sterling is the home of two beautiful golf courses, Riverview Golf Course and the Northeastern Eighteen (the former Sterling Country Club - now owned by Northeastern Junior College), each offering excellent 18-hole courses.

The Overland Trail Museum, located east of Sterling near Interstate 76, houses an eclectic mix of historical items in the main building, which resembles an early fort, as well as a restored local one-room schoolhouse and other restored historical buildings. Museum admission is free, and picnic grounds are adjacent.

The Overland Trail Recreation Area features a 5-acre fishing pond open to all ages as well as biking trails, fishing, picnic tables, BBQ grills, walking path, off road parking, and fishing pier.

Each summer, Sterling hosts the annual Logan County Fair, a typical old-time county fair complete with 4-H animal shows, baked goods competitions, a carnival, music shows, demolition derby, and a rodeo as well as the annual Sugar Beet Days harvest festival in the fall.

*([www.logancountyco.gov](http://www.logancountyco.gov), [www.wikipedia.org](http://www.wikipedia.org).)*

# RATIO ANALYSIS

## Methodology

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

<b>Logan 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	49	0.962	1.076	12.6	Compliant
Condominium	N/A	N/A	N/A	N/A	N/A
Single Family	302	0.978	1.012	10	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 Logan 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, Logan 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 Logan County has complied with the statutory requirements to analyze the effects of time on value in their county. Logan 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

Logan 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 2012 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	N/A

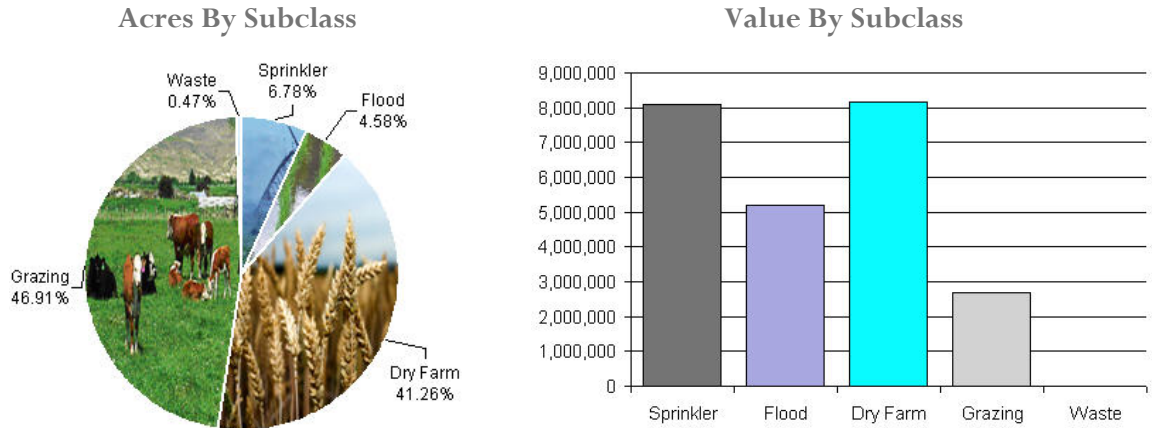
### **Conclusions**

After applying the above described methodologies, it is concluded that Logan 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>Logan 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	67,036	121.00	8,107,658	8,121,699	1.00
4117	Flood	45,260	115.00	5,208,309	5,330,730	0.98
4127	Dry Farm	407,892	20.00	8,150,823	8,022,429	1.02
4147	Grazing	463,775	6.00	2,700,600	2,700,600	1.00
4167	Waste	4,604	2.00	7,431	7,431	1.00
<b>Total/Avg</b>		<b>988,567</b>	<b>24.00</b>	<b>24,174,820</b>	<b>24,182,889</b>	<b>1.00</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.

### Conclusions

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

### Recommendations

None

## Agricultural Land Under Improvements

### Methodology

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

Property Taxation for the valuation of land under residential improvements that may or may not be integral to an agricultural operation.

### Recommendations

None

### Conclusions

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

## 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 2012 for Logan County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 31 sales listed as unqualified.

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

### **Conclusions**

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

### **Recommendations**

None

# ECONOMIC AREA REVIEW AND EVALUATION

## **Methodology**

Logan County has submitted a written narrative describing the economic areas that make up the county's market areas. Logan 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 Logan 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 2012 in Logan 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**

Logan 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.

Logan 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

Logan 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

Logan 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.

Logan 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.

Logan County submitted their personal property written audit plan and was current for the 2012 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**

Logan 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*

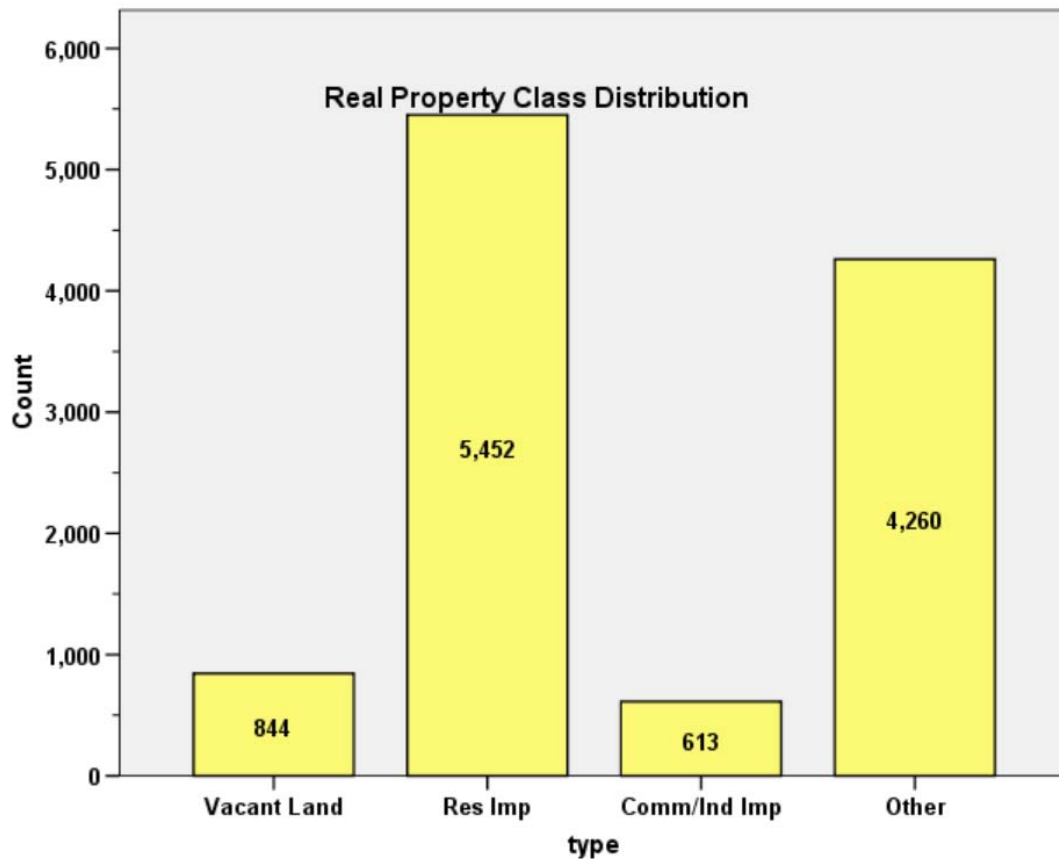
**J. Andrew Rodriguez**, *Field Analyst*

# APPENDICES

## STATISTICAL COMPLIANCE REPORT FOR LOGAN COUNTY 2012

### I. OVERVIEW

Logan County is an agricultural county located in northeastern Colorado. The county has a total of 11,169 real property parcels, according to data submitted by the county assessor's office in 2012. 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 or 1112) accounted for 47.8% of all vacant land parcels, while mobile home land accounted for 31.4%. Based on the number of vacant land parcels in Logan County, we were not required to analyze this class of property for audit compliance.

For residential improved properties, single family properties accounted for 93.6% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial sales accounted for 5% of all such properties in this county.

## II. DATA FILES

The following sales analyses were based on the requirements of the 2012 Colorado Property Assessment Study. Information was provided by the Logan Assessor's Office in April 2012. 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:

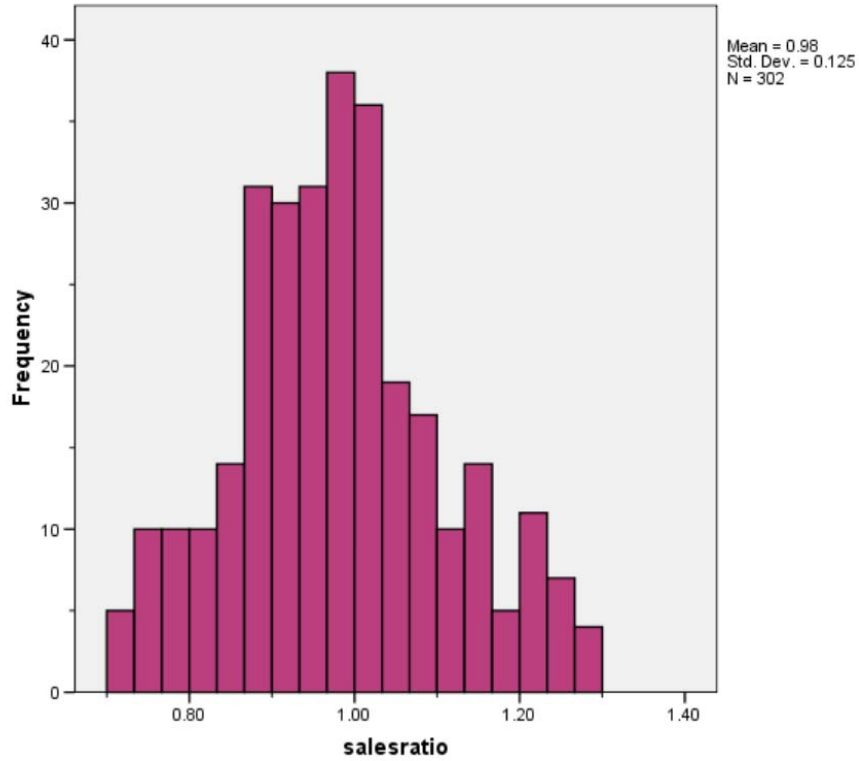
1. All sales	661
2. Select qualified sales	374
3. Select improved sales	355
4. Select non-duplicate sales	353
5. Sales between January 1, 2009 and June 30, 2010	314
6. Select residential sales only	302

The sales ratio analysis was analyzed as follows:

Median	<b>0.978</b>
Price Related Differential	<b>1.012</b>
Coefficient of Dispersion	<b>.100</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 all of these properties:





The above graphs indicate that the distribution of the sale ratios was within state mandated limits, and that there were no significant price-related differential issues. No sales were trimmed.

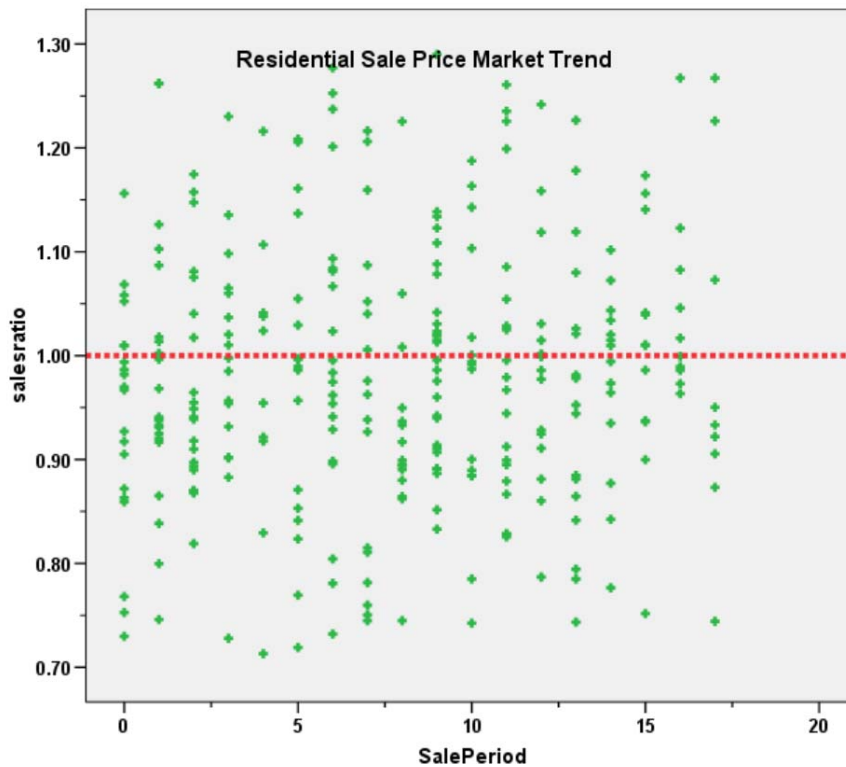
## Residential Market Trend Analysis

We next analyzed the residential dataset using the 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)	.966	.013		72.331	.000
	SalePeriod	.002	.001	.074	1.281	.201

a. Dependent Variable: salesratio



The above analysis indicated that no significant market trend was present in the sale ratio data. We concur with the assessor that no market trend adjustments were warranted.

## Sold/Unsold Analysis

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot between sold and unsold residential properties, as follows;

Group	No. Props	Median Act Val/SF	Mean Act Val/SF
Unsold	5,150	\$65	\$65
Sold	302	\$70	\$71

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

#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

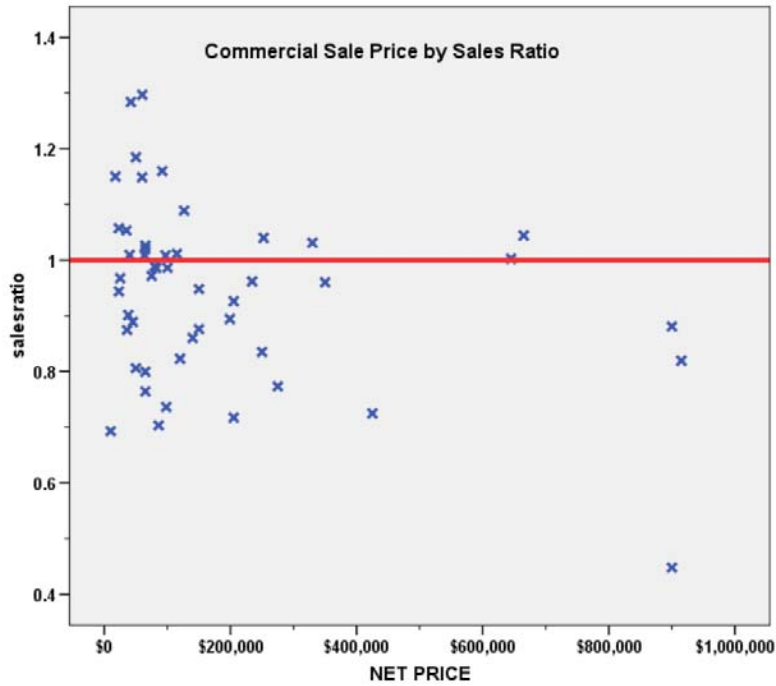
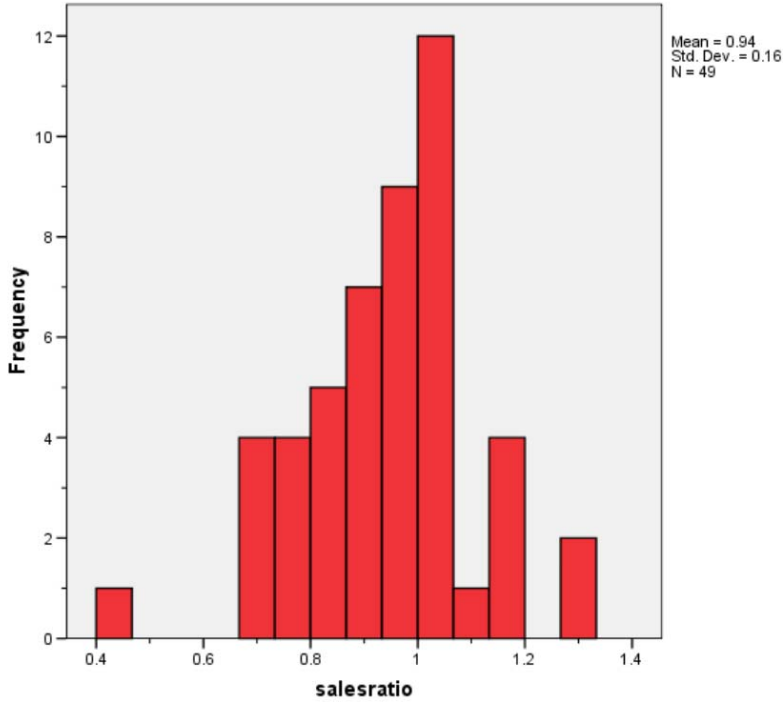
The following steps were taken to analyze the commercial sales:

1. All sales	661
2. Select qualified sales	374
3. Select improved sales	355
4. Select non-duplicate sales	353
5. Select commercial/industrial sales only	49

The sales ratio analysis was analyzed as follows:

Median	<b>0.962</b>
Price Related Differential	<b>1.076</b>
Coefficient of Dispersion	<b>0.126</b>

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



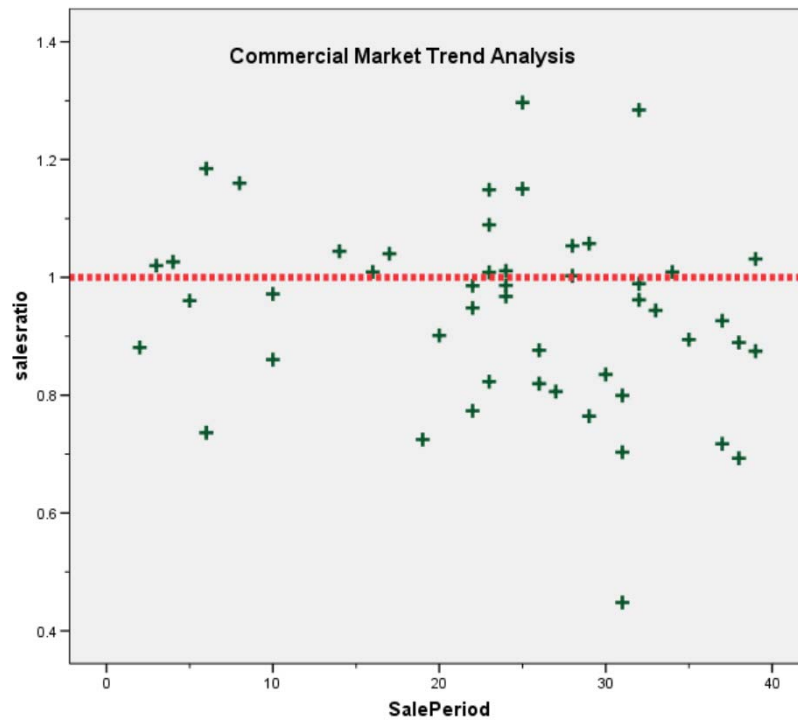
### Commercial Market Trend Analysis

The assessor did not apply any market trend adjustment to the commercial dataset. The 49 commercial sales were analyzed, examining the sale ratios across a 3-year sale period with the following results:

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.018	.056		18.029	.000
	SalePeriod	-.003	.002	-.213	-1.497	.141

a. Dependent Variable: salesratio



The above results indicate that there was no significant market trend residual in the commercial sale ratios.

## 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. While this is a challenge to prove in this county, given the small number of sales and the overall small number and diversity of commercial/industrial properties in general, the following results indicate that based on the median actual value, both groups were valued in a consistent manner:

Group	No. Props	Median	Mean
Unsold	470	\$25	\$41
Sold	47	\$30	\$42

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

## 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 Logan County.

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

<b>Descriptives</b>					
	<b>ABSTRIMP</b>		<b>Statistic</b>	<b>Std. Error</b>	
<u>ImpValSF</u>	1212	Mean	\$53.26	\$ .261	
		95% Confidence Interval for Mean	Lower Bound	\$52.75	
			Upper Bound	\$53.77	
		5% Trimmed Mean	\$53.00		
		Median	\$53.86		
		Variance	346.517		
		Std. Deviation	\$18.615		
		Minimum	\$0		
		Maximum	\$190		
		Range	\$190		
		Interquartile Range	\$23		
		Skewness	.278	.034	
		Kurtosis	1.514	.069	
		4277		Mean	\$50.42
95% Confidence Interval for Mean	Lower Bound			\$47.66	
	Upper Bound			\$53.17	
5% Trimmed Mean	\$46.21				
Median	\$44.40				
Variance	2218.327				
Std. Deviation	\$47.099				
Minimum	\$0				
Maximum	\$836				
Range	\$836				
Interquartile Range	\$25				
Skewness	9.454			.073	
Kurtosis	122.865			.146	

## VI. CONCLUSIONS

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

**STATISTICAL ABSTRACT**

**Residential**

**Ratio Statistics for CURRTOT / NET PRICE**

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			
.981	.967	.995	.978	.957	.994	95.6%	.969	.954	.984	1.012	.100	12.8%

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 / NET PRICE**

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			
.941	.895	.986	.962	.889	1.008	95.6%	.874	.778	.970	1.076	.126	17.0%

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	4	1.3%
	\$25K to \$50K	26	8.6%
	\$50K to \$100K	104	34.4%
	\$100K to \$150K	86	28.5%
	\$150K to \$200K	48	15.9%
	\$200K to \$300K	30	9.9%
	\$300K to \$500K	4	1.3%
Overall		302	100.0%
Excluded		0	
Total		302	

**Ratio Statistics for CURRTOT / NET PRICE**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	.985	1.016	.078	12.0%
\$25K to \$50K	1.056	.989	.138	16.3%
\$50K to \$100K	.994	1.007	.095	12.2%
\$100K to \$150K	.958	.996	.092	11.9%
\$150K to \$200K	.953	1.000	.088	11.9%
\$200K to \$300K	.962	1.001	.108	13.0%
\$300K to \$500K	.928	1.006	.075	9.8%
Overall	.978	1.012	.100	12.8%

**Subclass**

**Case Processing Summary**

	Count	Percent
ABSTRIMP 1212	290	96.0%
1215	10	3.3%
1220	1	.3%
1230	1	.3%
Overall	302	100.0%
Excluded	0	
Total	302	

**Ratio Statistics for CURRTOT / NET PRICE**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1212	.976	1.011	.101	12.9%
1215	.997	1.031	.093	14.1%
1220	1.017	1.000	.000	.%
1230	.954	1.000	.000	.%
Overall	.978	1.012	.100	12.8%

Age

**Case Processing Summary**

		Count	Percent
AgeRec	Over 100	26	8.6%
	75 to 100	62	20.5%
	50 to 75	94	31.1%
	25 to 50	74	24.5%
	5 to 25	41	13.6%
	5 or Newer	5	1.7%
Overall		302	100.0%
Excluded		0	
Total		302	

**Ratio Statistics for CURRTOT / NET PRICE**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	.957	1.021	.095	13.5%
75 to 100	.898	1.031	.130	16.7%
50 to 75	.975	1.019	.099	12.9%
25 to 50	.995	1.005	.088	11.9%
5 to 25	1.010	1.018	.077	10.1%
5 or Newer	.877	.999	.050	8.0%
Overall	.978	1.012	.100	12.8%

## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	2	.7%
	500 to 1,000 sf	46	15.2%
	1,000 to 1,500 sf	107	35.4%
	1,500 to 2,000 sf	62	20.5%
	2,000 to 3,000 sf	62	20.5%
	3,000 sf or Higher	23	7.6%
Overall		302	100.0%
Excluded		0	
Total		302	

### Ratio Statistics for CURRTOT / NET PRICE

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LE 500 sf	.763	1.003	.024	3.4%
500 to 1,000 sf	.953	1.024	.115	15.2%
1,000 to 1,500 sf	.977	1.022	.097	12.3%
1,500 to 2,000 sf	.964	1.017	.093	12.3%
2,000 to 3,000 sf	.990	1.014	.094	12.3%
3,000 sf or Higher	1.039	1.015	.084	10.9%
Overall	.978	1.012	.100	12.8%

## Quality

### Case Processing Summary

	Count	Percent
Quality 1	9	3.0%
2	55	18.2%
3	198	65.6%
4	39	12.9%
5	1	.3%
Overall	302	100.0%
Excluded	0	
Total	302	

### Ratio Statistics for CURRTOT / NET PRICE

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1	.996	.988	.106	14.2%
2	.955	1.035	.137	16.9%
3	.985	1.013	.089	11.7%
4	.950	1.006	.105	13.3%
5	.990	1.000	.000	.%
Overall	.978	1.012	.100	12.8%

**Commercial Median Ratio Stratification**

**Sale Price**

**Case Processing Summary**

		Count	Percent
SPRec	LT \$25K	5	10.2%
	\$25K to \$50K	8	16.3%
	\$50K to \$100K	15	30.6%
	\$100K to \$150K	6	12.2%
	\$150K to \$200K	1	2.0%
	\$200K to \$300K	6	12.2%
	\$300K to \$500K	3	6.1%
	\$500K to \$750K	2	4.1%
	\$750K to \$1,000K	3	6.1%
Overall		49	100.0%
Excluded		0	
Total		49	

**Ratio Statistics for CURRTOT / NET PRICE**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
LT \$25K	.968	.975	.118	17.7%
\$25K to \$50K	.955	.999	.139	18.1%
\$50K to \$100K	.989	1.008	.116	16.8%
\$100K to \$150K	.912	1.003	.089	11.4%
\$150K to \$200K	.894	1.000	.000	.%
\$200K to \$300K	.881	.999	.114	13.8%
\$300K to \$500K	.960	1.016	.106	18.1%
\$500K to \$750K	1.023	1.000	.020	2.9%
\$750K to \$1,000K	.820	.999	.176	32.5%
Overall	.962	1.076	.126	16.7%

Subclass

**Case Processing Summary**

	Count	Percent
ABSTRIMP 1716	1	2.0%
1721	1	2.0%
2212	11	22.4%
2215	1	2.0%
2220	6	12.2%
2225	1	2.0%
2230	14	28.6%
2235	11	22.4%
3215	2	4.1%
3220	1	2.0%
Overall	49	100.0%
Excluded	0	
Total	49	

**Ratio Statistics for CURRTOT / NET PRICE**

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1716	.860	1.000	.000	.%
1721	1.297	1.000	.000	.%
2212	.926	1.080	.126	15.8%
2215	.448	1.000	.000	.%
2220	1.014	1.012	.095	14.9%
2225	.889	1.000	.000	.%
2230	.961	1.008	.123	16.1%
2235	.968	1.018	.095	13.0%
3215	.938	.999	.109	15.5%
3220	.948	1.000	.000	.%
Overall	.962	1.076	.126	16.7%

## Age

### Case Processing Summary

		Count	Percent
AgeRec	Over 100	3	6.1%
	75 to 100	9	18.4%
	50 to 75	14	28.6%
	25 to 50	14	28.6%
	5 to 25	9	18.4%
Overall		49	100.0%
Excluded		0	
Total		49	

### Ratio Statistics for CURRTOT / NET PRICE

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
Over 100	1.008	1.008	.027	4.1%
75 to 100	.860	1.001	.132	15.4%
50 to 75	.994	1.065	.138	17.2%
25 to 50	.862	1.156	.152	19.7%
5 to 25	1.003	.976	.078	10.8%
Overall	.962	1.076	.126	16.7%



## Improved Area

### Case Processing Summary

		Count	Percent
ImpSFRec	500 to 1,000 sf	5	10.2%
	1,000 to 1,500 sf	7	14.3%
	1,500 to 2,000 sf	5	10.2%
	2,000 to 3,000 sf	4	8.2%
	3,000 sf or Higher	28	57.1%
Overall		49	100.0%
Excluded		0	
Total		49	

### Ratio Statistics for CURRTOT / NET PRICE

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
500 to 1,000 sf	1.008	.976	.124	18.3%
1,000 to 1,500 sf	.944	1.014	.070	9.1%
1,500 to 2,000 sf	.968	1.036	.121	17.2%
2,000 to 3,000 sf	1.019	.978	.075	13.1%
3,000 sf or Higher	.954	1.079	.142	19.1%
Overall	.962	1.076	.126	16.7%

## Quality

### Case Processing Summary

	Count	Percent
Quality 1	11	22.4%
2	29	59.2%
3	9	18.4%
Overall	49	100.0%
Excluded	0	
Total	49	

### Ratio Statistics for CURRTOT / NET PRICE

Group	Median	Price Related Differential	Coefficient of Dispersion	Coefficient of Variation
				Median Centered
1	1.040	1.014	.136	17.6%
2	.926	1.088	.124	16.0%
3	.960	1.022	.084	12.6%
Overall	.962	1.076	.126	16.7%