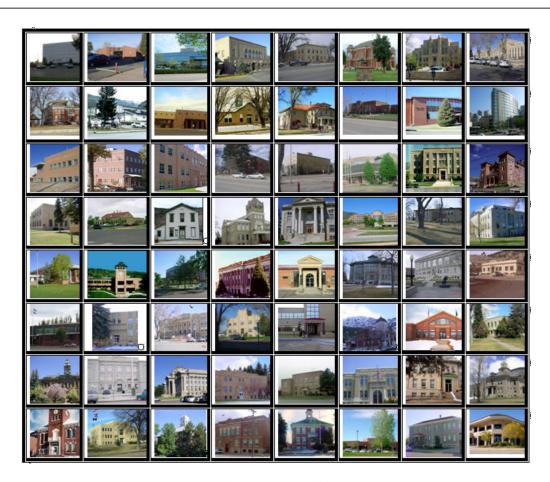


# 2011 WELD COUNTY PROPERTY ASSESSMENT STUDY







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.

Harry J. Fuller Project Manager

Harry J. Zulla

Wildrose Appraisal Inc. – Audit Division



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# INTRODUCTION



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

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

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

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

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

The property assessment audit conducts a twopart 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 subdivision and discounting procedures. Valuation methodology for vacant land, improved properties commercial residential and 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 Weld County in the following report.



# REGIONAL/HISTORICAL SKETCH OF WELD COUNTY

# **Regional Information**

Weld County is located in the Front Range region of Colorado. The Colorado Front Range is a colloquial geographic term for the populated areas of the State that are just east of the foothills of the Front Range. It includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Pueblo, and Weld counties.





#### **Historical Information**

Weld County has a population of approximately 252,825 people with 63.32 people per square mile, according to the U.S. Census Bureau's 2010 census data. This represents a 39.73 percent change from the 2000 Census.

Weld County covers an area of 4,004 square miles in north central Colorado. It is bordered on the north by Wyoming and Nebraska and on the south by the Denver metropolitan area. The third largest county in Colorado, Weld County has an area greater than that of Rhode Island, Delaware and the District of Columbia combined.

Major Stephen H. Long made an expedition to the area now known as Weld County in 1821. In 1835 a government expedition came through the general area; the next year a member of that party, Lt. Lancaster Lupton, returned to establish a trading post located just north of the present town of Fort Lupton. In 1837 Colonel Ceran St. Vrain established Fort St. Vrain; Fort Vasquez was built south of Platteville about 1840. The latter was rebuilt in the 1930's by the State Historical Society.

The county seat is Greeley which began as the Union Colony, which was founded in 1869 as

an experimental utopian community of "high moral standards" by Nathan C. Meeker, a newspaper reporter from New York City. Meeker purchased a site at the confluence of the Cache la Poudre and South Platte Rivers (that included the area of Latham, an Overland Trail station), halfway between Cheyenne and Denver along the tracks of the Denver Pacific Railroad formerly known as the "Island Grove Ranch." The name Union Colony was later changed to Greeley in honor of Horace Greeley, who was Meeker's editor at the New York Tribune, and popularized the phrase "Go West, young man."

Weld County's cultural assets include Centennial Village, an authentic recreation of pioneer life on the Colorado plains. The Meeker Museum in Greeley is a national historic site. Fort Vasquez in southern Weld County has an exciting history as an early Colorado trading Greeley post. The Philharmonic Orchestra is one of the oldest symphony orchestra west of the Mississippi. The University of Northern Colorado's Little Theatre of the Rockies is one of America's premier college dramatic organizations.

(www.co.weld.co.us, www.wikipedia.org)



# RATIO ANALYSIS

# Methodology

All significant classes of properties were Sales were collected for each analyzed. 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 pricerelated 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 Weld County are:

Weld County Ratio Grid							
Number of Unweighted Price Coefficient Qualified Median Related of Ti Property Class Sales Ratio Differential Dispersion							
Commercial/Industrial	79	0.990	1.041	8.8	Compliant		
Condominium	N/A	N/A	N/A	N/A	N/A		
Single Family	5,627	0.981	1.017	11	Compliant		
Vacant Land	174	1.028	1.063	16	Compliant		

#### Ratio Statistics for current / tasp

Group	Median	Price Related Differential	Coefficient of Dispersion
0	.988	1.021	.107
2	.980	1.011	.090
3	.986	1.008	.086
4	.979	1.018	.113
5	.961	1.010	.159
6	.984	1.039	.159
7	.967	1.013	.157
8	.959	1.013	.155
9	.975	1.014	.124
Overall	.981	1.017	.110

After applying the above described methodologies, it is concluded from the sales ratios that Weld 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, Weld County has accurately transferred sales data from the recorded deeds to the qualified or unqualified database.

#### Recommendations



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

#### Recommendations



# SOLD/UNSOLD ANALYSIS

# Methodology

Weld 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. 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 nonparametric 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 multivariate 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.



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

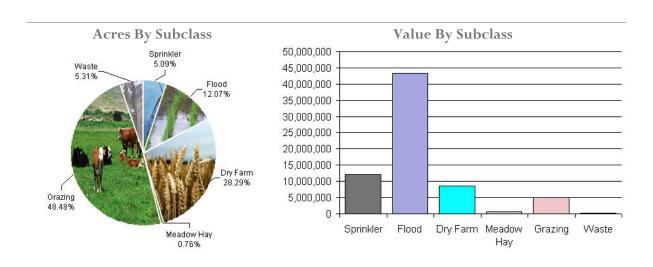
#### Conclusions

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

#### Recommendations



# 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: 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 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:



	Weld County Agricultural Land Ratio Grid						
Abstract	Number County County WRA Abstract Of Value Assessed Total						
Code	Land Class	Acres	Per Acre	Total Value	Value	Ratio	
4107	Sprinkler	101,461	119.00	12,036,104	12,334,273	0.98	
4117	Flood	240,481	180.00	43,335,409	43,144,479	1.00	
4127	Dry Farm	563,679	15.00	8,680,332	9,263,326	0.94	
4137	Meadow Hay	15,061	43.00	647,611	647,611	1.00	
4147	Grazing	966,052	5.00	5,046,906	5,046,906	1.00	
4167	Waste	105768	2	170,705	170,705	1.00	
Total/Avg		105,768	35.00	69,917,067	70,607,300	0.99	

#### 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**

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

#### Recommendations



# 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 Weld County. This study was conducted by checking selected sales from the master sales list for the current valuation period. Specifically WRA selected 46 sales listed as unqualified.

All but two of the sales selected in the sample gave reasons that were clear and supportable. Two sales had inadequate justification for disqualification.

#### Conclusions

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

#### Recommendations



# ECONOMIC AREA REVIEW AND EVALUATION

# Methodology

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



# NATURAL RESOURCES

#### **Earth and Stone Products**

#### Methodology

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

#### **Conclusions**

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

#### Recommendations

None

# Producing Oil and Gas Procedures

# 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



# VACANT LAND

#### **Subdivision Discounting**

Subdivisions were reviewed in 2011 in Weld 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

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

#### Recommendations



# 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 C.R.S. Chapter 39-1-103 (17)(a)(II)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 under lease, permit, concession, contract, or other agreement.

Weld 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

Weld 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



# PERSONAL PROPERTY AUDIT

Weld 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.

Weld 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.

Weld 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
- 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
- Accounts protested with substantial disagreement

Weld County's median ratio is 1.00. This is in compliance with the State Board of Equalization (SBOE) compliance requirements which range from .90 to 1.10 with no COD requirements.

#### Conclusions

Weld 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



# 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



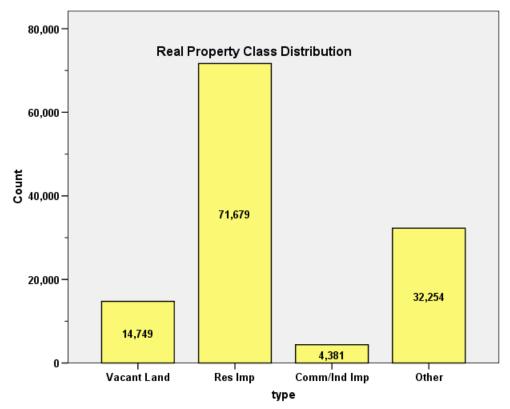
# APPENDICES



# STATISTICAL COMPLIANCE REPORT FOR WELD COUNTY 2011

#### I. OVERVIEW

Weld County is an urban county located along Colorado's Front Range. The county has a total of 123,063 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 81% of all vacant land parcels.

For residential improved properties, single family properties accounted for 92% of all residential properties.

Commercial and industrial properties represented a much smaller proportion of property classes in comparison. Commercial/industrial properties accounted for 4% of all such properties in this county.



#### II. DATA FILES

The following sales analyses were based on the requirements of the 2011Colorado Property Assessment Study. Information was provided by the Weld 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. Qualified sales	5,999
2. Improved sales	5,727
3. Select residential sales only	5,627

The sales ratio analysis results were as follows:

#### **Case Processing Summary**

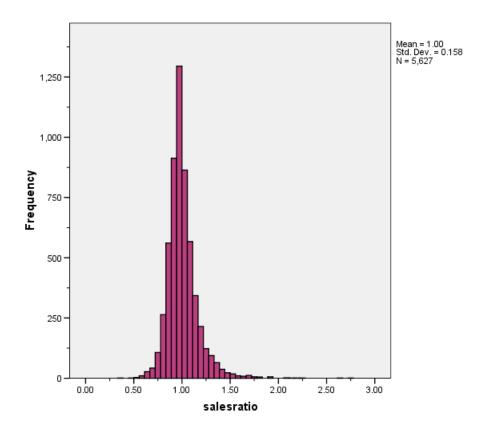
	Count	Percent
econarea O	528	9.9%
2	1707	31.9%
3	1281	23.9%
4	469	8.8%
5	66	1.2%
6	1119	20.9%
7	20	.4%
8	33	.6%
9	132	2.5%
Overall	5355	100.0%
Excluded	272	
Total	5627	

#### Ratio Statistics for current / tasp

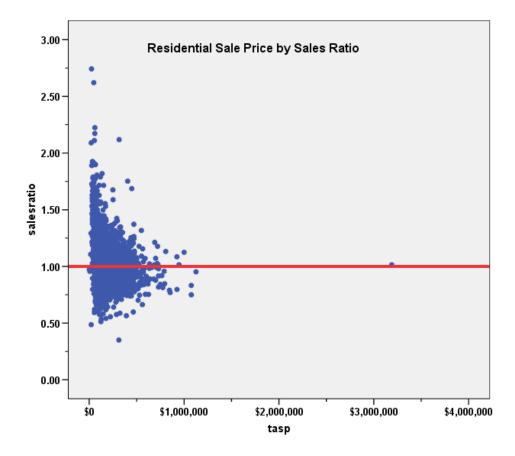
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4	.979	1.018	.113
5	.961	1.010	.159
6	.984	1.039	.159
7	.967	1.013	.157
8	.959	1.013	.155
9	.975	1.014	.124
Overall	.981	1.017	.110



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.

# **Residential Market Trend Analysis**

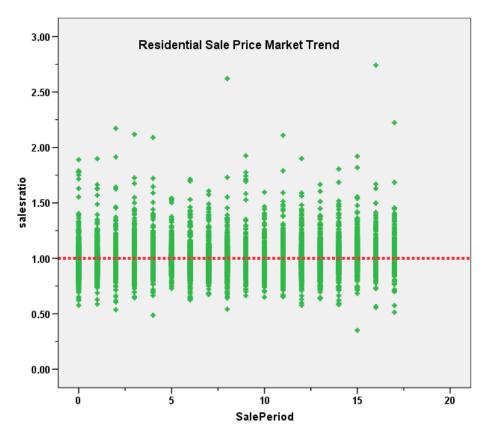
We next analyzed the residential dataset using the 18-month sale period for any residual market trending and broken down by economic area, as follows:



#### Coefficients<sup>a</sup>

econarea	Model		Unstandardized Coefficients		Standardized Coefficients		
			В	Std. Error	Beta	t	Sig.
0	1	(Constant)	.992	.014		72.319	.000
		SalePeriod	.002	.001	.072	1.650	.100
2	1	(Constant)	.984	.005		179.895	.000
		SalePeriod	.002	.001	.072	2.990	.003
3	1	(Constant)	.988	.006		160.953	.000
		SalePeriod	.001	.001	.049	1.752	.080
4	1	(Constant)	.935	.012		75.178	.000
		SalePeriod	.008	.001	.276	6.211	.000
5	1	(Constant)	.950	.042		22.515	.000
		SalePeriod	.002	.004	.058	.465	.644
6	1	(Constant)	1.031	.012		85.418	.000
		SalePeriod	001	.001	019	633	.527
7	1	(Constant)	1.052	.079		13.245	.000
		SalePeriod	011	.008	304	-1.354	.192
-8	1	(Constant)	.899	.055		16.291	.000
		SalePeriod	.007	.005	.236	1.350	.187
9	1	(Constant)	.972	.027		35.429	.000
		SalePeriod	.004	.003	.107	1.224	.223

a. Dependent Variable: salesratio



There was no residual market trending present in the sale ratio data for any of the economic areas. While two economic areas had statistically significant results, the magnitude of each trend was not significantly; we therefore concluded that the assessor has adequately addressed market trending in the valuation of residential properties.



# **Sold/Unsold Analysis**

In terms of the valuation consistency between sold and unsold residential properties, we compared the median actual value per square foot for 2011 between each group. The data was analyzed both as a whole and broken down by economic area, as follows:

Group	N	Median	Mean
Unsold	62,214	\$105	\$105
Sold	5,355	\$111	\$113

ECONAREA	Group	N	Median	Mean
0	Unsold	4,896	\$116.18	\$115.82
	Sold	528	\$115.38	\$114.68
2	Unsold	17,478	\$118.17	\$119.49
	Sold	1,707	\$122.93	\$125.39
3	Unsold	12,521	\$117.22	\$118.42
	Sold	1,281	\$118.03	\$121.01
4	Unsold	5,420	\$80.98	\$80.71
	Sold	469	\$95.90	\$95.11
5	Unsold	1,229	\$73.93	\$77.35
	Sold	66	\$75.10	\$82.36
6	Unsold	17,147	\$90.12	\$88.40
	Sold	1,119	\$95.67	\$92.36
7	Unsold	741	\$48.56	\$58.50
	Sold	20	\$51.73	\$62.03
8	Unsold	592	\$62.59	\$66.45
	Sold	33	\$80.00	\$82.50
9	Unsold	2,190	\$111.00	\$106.70
	Sold	132	\$121.30	\$117.39

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



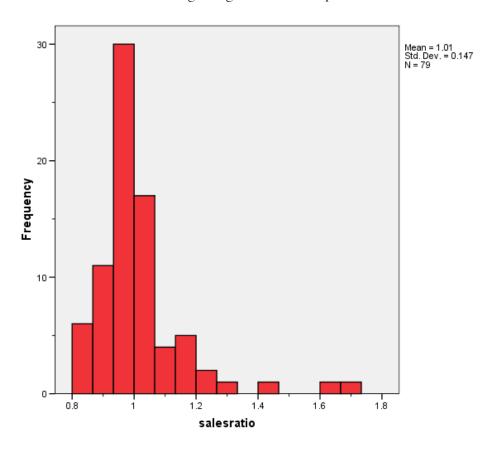
#### IV. COMMERCIAL/INDUSTRIAL SALE RESULTS

1. Qualified sales	5,999
2. Improved sales	5,727
3. Select commercial/industrial sales only	79

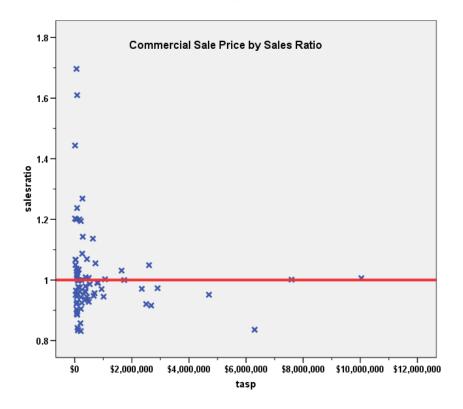
The sales ratio analysis was analyzed as follows:

Median	0.990
Price Related Differential	1.041
Coefficient of Dispersion	.088

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







# Commercial/Industrial Market Trend Analysis

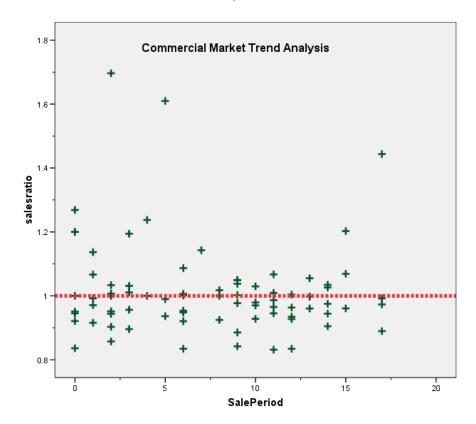
The assessor did apply market trend adjustments to the commercial/industrial land dataset. The 79 commercial/industrial land sales were analyzed, examining the sale ratios across the 18 month sale period with the following results:

#### Coefficients<sup>a</sup>

Model		Unstandardiz	red Coefficients	Standardized Coefficients			
		В	Std. Error	Beta	t	Sig.	
1	(Constant)	1.036	.029		35.854	.000	
	SalePeriod	003	.003	101	890	.376	

a. Dependent Variable: salesratio





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

#### **Sold/Unsold Analysis**

We compared the median actual value per square foot for 2011 between sold and unsold groups to determine if sold and unsold properties were valued consistently, as follows:

Group	No. Props	Median Val/SF	Mean Val/SF
Unsold	4,020	\$60	\$75
Sold	77	\$65	\$76

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



#### V. VACANT LAND SALE RESULTS

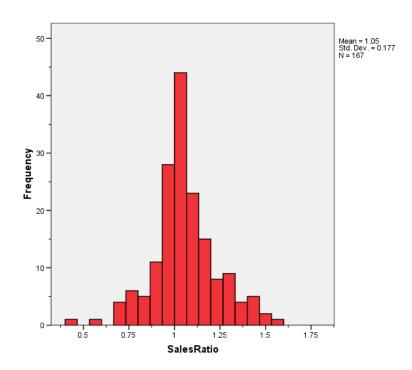
The following steps were taken to analyze the vacant land sales:

1. Qualified sales	5,999
2. Vacant land sales	177
3. Residential & commercial/ind vacant land sales	174

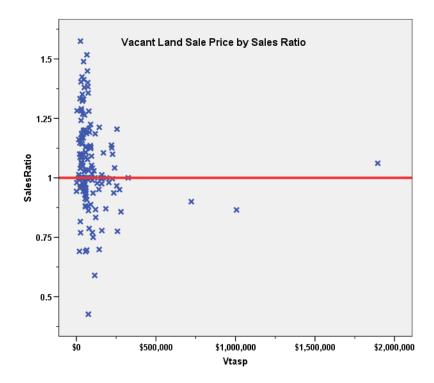
The sales ratio analysis was analyzed as follows:

Median	1.014
Price Related Differential	1.039
Coefficient of Dispersion	.128

The above ratio statistics were in compliance overall with the standards set forth by the Colorado State Board of Equalization (SBOE) for the overall vacant land sales. The following graphs describe further the sales ratio distribution for all of these properties:







The above histogram indicates that the distribution of the vacant land sale ratios was within state mandated limits. No sales were trimmed.

#### **Vacant Land Market Trend Analysis**

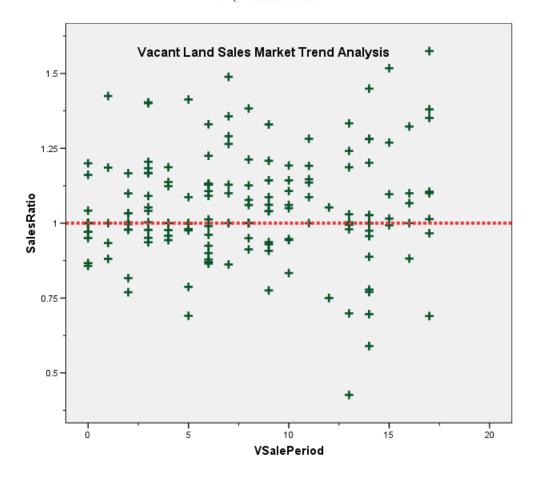
We next analyzed the vacant land dataset using the 18-month sale period, with the following results:

Coefficients<sup>a</sup>

Mod	lel	Unstandardize				
		В	Std. Error	Beta	t	Sig.
1	(Constant)	1.036	.025		41.493	.000
	VSalePeriod	.002	.003	.064	.821	.413

a. Dependent Variable: SalesRatio





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

#### **Sold/Unsold Analysis**

In terms of the valuation consistency between sold and unsold vacant land properties, we compared the median change in value for 2010 and 2011 between each group. We stratified the vacant land properties by subdivision and found overall consistency. The following results present the overall comparison results:

Subdivno	Group	No.	Median	Mean
TOTAL	Unsold	11,869	0.8824	0.8661
	Sold	164	0.8333	0.8769

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



#### V. AGRICULTURAL IMPROVEMENTS ANALYSIS

The final statistical verification concerned the assigned actual values for agricultural residential improvements. We compared the 2011 median improved value per square foot for this group and compared it to the 2011 median improved value per square foot for residential single family improvements in Weld County.

The following indicates that both groups were valued in essentially the same manner:

ImpValSF	abstrimp			Statistic	Std. Error			
ImpValSF	SFR	Mean		\$189.26	\$13.788			
		95% Confidence Interval for Mean	Lower Bound	\$162.23				
			Upper Bound	\$216.28				
		5% Trimmed Mean		\$80.55				
		Median		\$81.99				
		Variance	1.253E7					
		Std. Deviation	\$3,539.351					
		Minimum	\$0					
		Maximum	\$234,945					
		Range	\$234,945					
		Interguartile Range	<u>Interquartile</u> Range					
		Skewness		37.759	.010			
		Kurtosis	1614.485	.019				
	Ag	Mean		\$145.04	\$54.853			
	Res	95% Confidence Interval for Mean	Lower Bound	\$37.43				
			Upper Bound	\$252.66				
		5% Trimmed Mean						
		Median		\$80.68	)			
		Variance		3860358.440				
		Std. Deviation		\$1,964.779				
		Minimum		\$0				
		Maximum	\$70,395					
		Range	\$70,395					
		Interquartile Range						
		Skewness	4	35.711	.068			
		Kurtosis	1277.771	.137				

#### VI. CONCLUSIONS

Based on this 2011 audit statistical analysis, residential, commercial/industrial and vacant land properties were found to be in compliance with state guidelines.



#### **STATISTICAL ABSTRACT**

#### **Residential**

#### Ratio Statistics for current / tasp

	95% Confiden Me			95% Con	95% Confidence Interval for Median			95% Confiden Weighte				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
1.004	1.000	1.009	.980	.978	.984	95.2%	.987	.983	.990	1.018	.109	15.7%

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

#### **Commercial Land**

#### Ratio Statistics for current / tasp

	95% Confiden Me			95% Con	95% Confidence Interval for Median			95% Confiden Weighte				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
1.015	.982	1.047	.990	.963	1.002	95.8%	.975	.942	1.007	1.041	.088	14.5%

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 currInd / Vtasp

	95% Confider Me	ice Interval for an		95% Confidence Interval for Median				95% Confiden Weighte				Coefficient of Variation
Mean	Lower Bound	Upper Bound	Median	Lower Bound	Upper Bound	Actual Coverage	Weighted Mean	Lower Bound	Upper Bound	Price Related Differential	Coefficient of Dispersion	Mean Centered
1.092	1.052	1.132	1.028	1.000	1.067	96.0%	1.027	.992	1.062	1.063	.160	24.7%

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



# **Residential Median Ratio Stratification**

#### **Sale Price**

Case Processing Summary

		Count	Percent
SPRec	LT \$25K	12	.2%
	\$25K to \$50K	92	1.6%
	\$50K to \$100K	620	11.0%
	\$100K to \$150K	1367	24.3%
	\$150K to \$200K	1420	25.2%
	\$200K to \$300K	1446	25.7%
	\$300K to \$500K	595	10.6%
	\$500K to \$750K	60	1.1%
	\$750K to \$1,000K	11	.2%
	Over \$1,000K	4	.1%
Overall		5627	100.0%
Excluded		0	
Total		5627	

Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
LT \$25K	.972	.884	.330	67.5%
\$25K to \$50K	1.267	1.011	.203	25.9%
\$50K to \$100K	1.086	1.010	.160	20.9%
\$100K to \$150K	.978	1.001	.111	15.0%
\$150K to \$200K	.978	1.000	.086	11.9%
\$200K to \$300K	.973	1.000	.077	10.7%
\$300K to \$500K	.958	1.000	.097	14.0%
\$500K to \$750K	.936	.997	.103	13.4%
\$750K to \$1,000K	.919	.995	.128	15.2%
Over \$1,000K	.892	.955	.108	13.3%
Overall	.980	1.018	.109	16.3%

#### **Subclass**

Case Processing Summary

		Count	Percent
abstrimp	1212	5272	93.7%
	1215	76	1.4%
	1220	8	.1%
i	1224	1	.0%
	1225	2	.0%
	1230	264	4.7%
	2234	1	.0%
	2746	1	.0%
	9240	1	.0%
Overall Excluded	9249	1 5627 0	.0% 100.0%
Total		5627	



Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
1212	.980	1.017	.109	16.0%
1215	1.030	1.050	.178	31.5%
1220	1.087	1.029	.110	15.1%
1224	1.177	1.000	.000	.%
1225	1.045	1.024	.029	4.0%
1230	.970	1.024	.079	15.4%
2234	.826	1.000	.000	.%
2746	.823	1.000	.000	.%
9240	1.083	1.000	.000	.%
9249	.883	1.000	.000	.%
Overall	.980	1.018	.109	16.3%

Age Case Processing Summary

		•	
		Count	Percent
AgeRec	Over 100	102	1.8%
	75 to 100	166	3.0%
	50 to 75	311	5.5%
	25 to 50	802	14.3%
	5 to 25	2330	41.4%
Overall Excluded	5 or Newer	1916 5627 0	34.1% 100.0%
Total		5627	

Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
Over 100	.999	1.059	.251	35.1%
75 to 100	.990	1.057	.187	27.3%
50 to 75	.971	1.073	.212	30.0%
25 to 50	.979	1.020	.149	20.9%
5 to 25	.983	1.013	.098	13.1%
5 or Newer	.980	1.008	.074	10.6%
Overall	.980	1.018	.109	16.3%

# **Improved Area**

Case Processing Summary

		Count	Percent
ImpSFRec	LE 500 sf	8	.1%
	500 to 1,000 sf	502	8.9%
	1,000 to 1,500 sf	2096	37.2%
	1,500 to 2,000 sf	1609	28.6%
	2,000 to 3,000 sf	1070	19.0%
Overall Excluded	3,000 sf or Higher	342 5627 0	6.1% 100.0%
Total		5627	



Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
LE 500 sf	.972	1.033	.070	13.8%
500 to 1,000 sf	.970	1.050	.175	23.6%
1,000 to 1,500 sf	.975	1.021	.110	16.9%
1,500 to 2,000 sf	.980	1.017	.092	13.8%
2,000 to 3,000 sf	.990	1.016	.099	14.7%
3,000 sf or Higher	.991	1.012	.113	16.6%
Overall	.980	1.018	.109	16.3%

Quality
Case Processing Summary

	recesiiig eui	y	
		Count	Percent
quality	1	118	2.1%
	2	1616	28.7%
	3	3413	60.7%
	4	409	7.3%
	5	60	1.1%
	6	11	.2%
Overall Excluded	I	5627 0	100.0%
Total		5627	

Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
1	.969	1.082	.209	28.5%
2	.972	1.036	.153	22.5%
3	.981	1.012	.087	12.3%
4	.994	1.013	.091	12.5%
5	.993	1.021	.118	20.0%
6	.991	1.008	.097	12.7%
Overall	.980	1.018	.109	16.3%

# **Commercial Median Ratio Stratification**

#### Sale Price

**Case Processing Summary** 

		Count	Percent
SPRec	LT \$25K	4	5.1%
	\$25K to \$50K	3	3.8%
	\$50K to \$100K	19	24.1%
	\$100K to \$150K	8	10.1%
	\$150K to \$200K	4	5.1%
	\$200K to \$300K	9	11.4%
	\$300K to \$500K	10	12.7%
	\$500K to \$750K	5	6.3%
	\$750K to \$1,000K	4	5.1%
	Over \$1,000K	13	16.5%
Overall		79	100.0%
Excluded		0	
Total		79	



Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
LT \$25K	1.135	1.050	.117	17.0%
\$25K to \$50K	.965	1.003	.040	7.5%
\$50K to \$100K	1.004	1.008	.142	23.9%
\$100K to \$150K	.999	.996	.053	9.0%
\$150K to \$200K	.968	1.009	.092	15.3%
\$200K to \$300K	1.000	.991	.121	15.2%
\$300K to \$500K	.962	1.000	.034	4.8%
\$500K to \$750K	.987	.999	.058	8.7%
\$750K to \$1,000K	.991	1.001	.006	1.2%
Over \$1,000K	.973	1.004	.043	5.8%
Overall	.990	1.041	.088	15.1%

#### **Subclass**

Case Processing Summary

		Count	Percent
abstrimp	0	1	1.3%
μυσιπηρ	1215	,	1.3%
		1	
	2212	16	20.3%
	2215	1	1.3%
	2220	4	5.1%
	2225	1	1.3%
	2230	13	16.5%
	2233	1	1.3%
	2235	30	38.0%
	3212	3	3.8%
	3215	5	6.3%
	3746	1	1.3%
	9249	1	1.3%
	9279	1	1.3%
Overall		79	100.0%
Excluded		0	
Total		79	

Ratio Statistics for currtot / tasp

Group		Price Related	Coefficient of	Coefficient of Variation
	Median	Differential	Dispersion	Median Centered
0	1.444	1.000	.000	.%
1215	1.034	1.000	.000	.%
2212	.971	1.053	.097	20.8%
2215	1.000	1.000	.000	.%
2220	1.059	.988	.065	11.8%
2225	1.031	1.000	.000	.%
2230	.945	1.011	.063	9.9%
2233	.925	1.000	.000	.%
2235	.975	1.100	.098	16.4%
3212	1.000	1.001	.004	.8%
3215	1.006	1.007	.018	2.7%
3746	.952	1.000	.000	.%
9249	1.055	1.000	.000	.%
9279	1.087	1.000	.000	.%
Overall	.990	1.041	.088	15.1%



# **Vacant Land Median Ratio Stratification**

#### **Case Processing Summary**

		Count	Percent
abstrind	100	53	31.7%
	200	9	5.4%
	300	5	3.0%
	400	4	2.4%
	520	1	.6%
	1112	81	48.5%
	1135	7	4.2%
	2112	2	1.2%
	2120	1	.6%
	2130	2	1.2%
	2135	2	1.2%
Overall		167	100.0%
Excluded		0	
Total		167	

#### Ratio Statistics for currInd / Vtasp

Group	Median	Price Related Differential	Coefficient of Dispersion
100	1.042	1.041	.148
200	1.000	1.072	.082
300	.951	.991	.108
400	1.133	.996	.048
520	.943	1.000	.000
1112	1.000	1.049	.126
1135	1.003	.997	.124
2112	1.029	.976	.032
2120	1.000	1.000	.000
2130	1.031	1.011	.018
2135	1.053	1.016	.050
Overall	1.014	1.039	.128