



DEPARTMENT OF TAXATION

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Division of Assessment Standards

# **2007-2008 Report of Assessment Ratio Study**

DIVISION OF ASSESSMENT STANDARDS

# 2007-08 Report of Assessment Ratio Study

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# 2007-08 Report on Ratio Study

## *Authority, Oversight, and Reporting*

NRS 361.333(2) permits the Department to conduct a ratio study on smaller groups of counties instead of the entire state in any one year. The ratio study is therefore conducted over a three year cycle. The counties reviewed for 2007-2008 are Douglas, Humboldt, Lyon, Nye, and Washoe Counties. In 2005, the Tax Commission changed the cycle so that the ratio study in Douglas and Washoe Counties would occur in the same year.

In order to ensure property in the state is appraised equitably by county assessors, the Department tests a variety of information using applied statistics to determine if inequity or assessment bias exists. The Department also surveys and analyzes assessor work practices to ensure the uniform application of valuation and assessment methodology as provided by law and assessment standards. If inequity or bias is discovered, NRS 360.215 and 361.333 provide the Nevada Tax Commission the authority to pursue certain procedures designed to correct inequitable conditions.

## *Ratio Study Design Parameters and Standards for Analysis*

Generally speaking, a "ratio study" is "designed to evaluate appraisal performance by comparing the estimate of assessed value produced by the assessor on each parcel in the sample to the estimate of taxable value produced by the Department. The comparison is called a "ratio."

The properties comprising the sample are physically inspected by Department appraisers and valued according to statutory and regulatory requirements. The appraisals conducted by the Department comprise a *sample* of the *universe or population* of all properties within the jurisdiction being reviewed. From the information about the *sample*, the Department *infers* what is happening to the population as a whole.

The Department examines the ratio information for *appraisal level* and *appraisal uniformity*. Appraisal level compares how close the assessor's estimate of assessed value is to the legally mandated standard of 35% of taxable value. Appraisal level is measured by a descriptive statistic called a *measure of central tendency*. A measure of central tendency, such as the mean, median, or aggregate ratio, is a single number or value that describes the center or the middle of a set of data. In the case of this ratio study, the median describes the middle of the array of all ratios comparing the assessed value to the taxable value established for each parcel.

*Assessment uniformity* refers to the degree to which different properties are assessed at equal percentages of taxable value. If taxable value could be

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described as the center of a "target," then assessment uniformity looks at how much dispersion or distance there is between each ratio and the "target." The statistical measure known as the coefficient of dispersion (COD) measures uniformity or the distance from the "target."

The ratio study by law must include the median ratio of the total property within each subject county and each class of property. The study must also include two comparative statistics known as the overall ratio (also known as the aggregate ratio or weighted mean ratio) and the coefficient of dispersion (COD) of the median, for both the total property in each subject county and for each major class of property within the county. NRS 361.333 (5) (c) defines the major classes of property as:

- I. Vacant land;
- II. Single-family residential;
- III. Multi-residential;
- IV. Commercial and industrial; and
- V. Rural

In addition, the statistics are calculated specifically for improvement, land, and total property values. The classes are further defined as those within the reappraisal area.

The median is a statistic describing the measure of central tendency of the sample. It is the middle ratio when all the ratios are arrayed in order of magnitude, and divides the sample into two equal parts. The median is the most widely used measure of central tendency by equalization agencies because it is less affected by extreme ratios or "outliers," and is therefore the preferred measure for monitoring appraisal performance or evaluating the need for a reappraisal.<sup>1</sup> NRS 361.333(5)(c) states that under- or- over assessment may exist if the median of the ratios falls in a range less than 32% or more than 36%.

The Department calculates the overall or aggregate ratio by dividing the total assessed value of all the observations (parcels) in the sample by the total taxable value of all the observations (parcels) in the sample. This produces a ratio weighted by dollar value. Because of the weight given to each dollar of value, parcels with higher values exert more influence than parcels with lower values. The aggregate ratio helps identify under or over assessment of higher valued property. For instance, an unusually high aggregate ratio might indicate that higher valued property is over assessed, or valued at a rate higher than other property. The statutory and regulatory framework does not dictate any range of acceptability for the aggregate ratio.

The COD is a measure of dispersion relating to the uniformity of the ratios and is calculated for all property within the subject jurisdiction and for each class of property within the subject jurisdiction. The COD measures the deviation of the individual ratios from the median ratio as a percentage of the median and is calculated by (1) subtracting the median from each ratio; (2) taking the absolute value of the calculated differences; (3) summing the

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<sup>1</sup> International Association of Assessing Officers, Standard on Ratio Studies, (1999), p. 23.

absolute differences; (4) dividing by the number of ratios to obtain the “average absolute deviation;” and (5) dividing by the median. The COD has “the desirable feature that its interpretation does not depend on the assumption that the ratios are normally distributed.”<sup>2</sup> The COD is a relative measure and useful for comparing samples from different classes of property within counties, as well as among counties.

There is no range of acceptability stated in statute or regulations for the COD measure. However, the International Association of Assessing Officials (IAAO) states that “the smaller the measure, the better the uniformity, although extremely low measures can signal a flawed study, non-representative appraisals, extremely homogenous properties or stable markets. As market activity changes or as the complexity of properties increase, the measures of variability usually increase, even though appraisal procedures may be equally valid.”<sup>3</sup> The IAAO recommended ratio study performance standards are as follows:

<u>Type of Property</u>	<u>COD</u>
<b>Single-family Residential</b>	
Newer, more homogenous areas	10.0% or less
Older, heterogeneous areas	15.0% or less
Rural residential and seasonal	20.0% or less
<b>Income-producing properties</b>	
Larger, urban jurisdictions	15.0% or less
Smaller, rural jurisdictions	20.0% or less
<b>Vacant land</b>	20.0% or less
<b>Other real and personal property</b>	Varies with local conditions

***Ratio Study Conclusions***

The 2007-2008 Ratio Study presentation includes the comparison of the median and aggregate ratios and the COD of all 17 counties required by NRS 361.333(1)(b)(1). See pages 26-29. These charts show the aggregate and median ratios and the coefficient of dispersion for the past three study years (2005-2007) across all counties for all properties.

Similar data is shown just for the counties in the 2007 study year beginning at page 30. Here the aggregate and median ratios, the COD, and the median related differential (MRD) are compared across types of property in the five counties. Beginning at page 32, data for each individual county is displayed

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<sup>2</sup> International Association of Assessing Officers, Standard on Ratio Studies, (1999), p. 24.

<sup>3</sup> International Association of Assessing Officers, Standard on Ratio Studies, (1999), p. 24.

for each type of property across all appraisal areas within the county, not just the reappraisal area.

The data for the aggregate (overall) ratio, or weighted mean, for the subject counties are within the range of 32% to 36% with the exception of Nye County. The aggregate ratio for Nye County is 30.5%. However, the median ratios for the subject counties have met the statutory range of 32% to 36%, including Nye County at 32.6%.

Based on the median, we can infer the appraisal level of the entire population of properties in the reappraisal area of each county is within statutory limits, using the results of the sample taken by the Department. In other words, the ratio of the assessed value established by the assessor measured against the taxable value established by the Department is within statutory limits. In addition, the COD for each reappraisal area for each county except Nye, is less than 15%, indicating the appraisals are relatively uniform. The COD in Nye County is 15.1%.

The median ratios of assessed value to taxable value for all classes of property in each reappraisal and factored area included in this study fell between 32% and 36%, with the exception of the types listed in the table below. (see, pages 37, 38). This measure indicates minimal over-or-undervaluation of those types of property taken as a whole within the entire appraisal jurisdiction. This is not to say that inequity might not exist in pocket areas. However, this study makes these inferences for property groups as a whole within the jurisdiction, without regard to individual market areas. As noted above, for purposes of monitoring appraisal performance and for direct equalization, the median ratio is the preferred measure of central tendency.

The median of the ratios by property type in each county indicates the following areas of concern:

<b>County</b>	<b>Property Type</b>	<b>Median</b>	<b>Sample Size</b>
Lyon	Rural Improvements	28.7%	2
Nye	Multi-family land	24.1%	12
	Multi-family total property	28.0%	12
	Comm/Ind total property	31.4%	12
	Vacant land	27.8%	24

The median in Nye County for multi-family land may be the result of removing mobile home hook-ups from the cost when mobile homes are converted to real property. Data-entry error at the county level for the sample observations may also account for the medians outside the range.

The calculated COD in all counties examined for 2007-2008 indicate an acceptable level of uniformity of assessments when compared to the standards listed above from the IAAO. The exceptionally low CODs for improvements reflect the fact that the assessors and the Department use the same source to value improvements, and the ratios are consistent with that fact.

In some cases the minor differences between Division valuation conclusions and assessor valuation conclusions appears to be due to the practice by some assessors of using a lump-sum amount for minor improvements such

as fencing or sprinkler systems, rather than itemizing and costing the individual minor improvement. In general, the Division recognizes that some counties use the lump-sum approach because of the time-consuming and inefficient nature of accounting for minor improvements.

### *Procedural Audit*

NRS 361.333 (1)(b)(2) requires the Department to make a determination about whether each county has adequate procedures to ensure that all property subject to taxation is being assessed in a correct and timely manner, and to note any deficiencies. In addition, the Department reviews assessments in those areas where land and improvement factors are applied pursuant to NRS 361.260 (5) to ensure the factors are appropriately applied.

The Department staff traveled to the offices of county assessors to review the procedures used to discover, value, and assess all real and personal property within the jurisdiction of the county assessor. The Department reviewed the resources of the office; reviewed a sample of property files; and interviewed assessors and their staffs. The Procedural Audit consists of observations about departures from required or accepted appraisal practices, recommendations to consider for improvement to work practices and procedures, and identification of best practices, defined as practices which efficiently and effectively capture taxable value keeping in mind the limitations of statutes and regulations. An example of the audit questions used in each subject county may be found in the Appendix.

### *Procedural Audit Topics*

The topics included in the procedural audit were selected based on subject matters examined in the prior two ratio studies. Procedures relating to the following topics were included in the audit:

- *Data collection, including geographic and property characteristics data*

An effective property tax information system requires the accurate collection of data on property characteristics. Audit questions were designed to elicit information about the mapping program, criteria used to determine a parcel of land, what factors affecting value that are tracked, and how the assessor went about data collection.

- *Verification of land sales, including sales transaction data, verification procedures, and sold property data*

Sales data are required to conduct the ratio studies that measure various aspects of appraisal performance. Sales data must be carefully screened to ensure accuracy. Audit questions were designed to examine how thoroughly sales are verified.

- *Stratification*



Questions about how assessors stratify data were included in the audit to discover the extent of use of the stratification tool in pursuing equitable assessments.

- *Analysis of land sales, including alternative methods of land valuation and subdivision discounts*

An effective appraisal system depends on accurate land values. Audit questions were designed to discover how assessors use the sales comparison approach, alternative methods of land valuation, and how they determine and apply subdivision discounts.

- *Cost approach*

Even though statutes and regulations are specific about how the cost approach is applied, there are choices to be made in the use of the Marshall/Swift cost manual. Audit questions were designed to find out how assessors apply the cost approach.

- *Valuation and assessment of agricultural property*

Questions were designed to find out how assessors qualify land for agricultural assessment and how land is removed from agricultural assessment.

- *Valuation and assessment of personal property*

Questions centered on discovery procedures, whether accounts are audited, and the procedures used to value personal property when declarations are not returned by taxpayers.

- *Assessment administration, including status of reference material, timely reporting to the state, certification and training of staff, defense of appealed property, appraisal cycle, and billing and collection procedures.*

The property tax process does not stop with valuation. This section of the audit investigated how assessors address maintaining reference material, how timely reports are returned to the department, how well trained the staff is, data regarding appeals, appraisal cycle, and billing and collection procedures.

## ***Procedural Audit Conclusions***

### **Douglas County**

Based on the procedural audit, the Department concludes the assessor has adequate procedures in place to ensure that all property subject to taxation is being assessed in a correct and timely manner. The recommendations listed below are designed to help the assessor achieve improved work performance or to note best practices.

## ***Data Collection***

### **Geographic Data**

Use of the 12-digit identifier is a uniform, manageable numeric expression and conforms with best assessment practice. The 12-digit parcel identifier permits direct reference to the location of the parcel within a township-range-section (T-R-Sec). The T-R-Sec has general meaning and can be referenced on any map with township-range-section designations, rather than to a map book which can only be referenced in books maintained in the assessor's office. (See question #14 of the Procedural Audit in the Appendix).

Map information is clear, accurate and well-presented. Use of GIS provides additional accuracy. Maps are drawn on appropriate scales using standardized layouts, linework, and symbols. Map sheets are a uniform, convenient size. The mapping program conforms with best assessment practice. (#1-#24)

### **Property Characteristics Data**

Consider routine inspection of interiors of new construction to aid in the determination of quality class and to identify improvements that should be included in the Marshall/Swift cost analysis. (#27)

Consider routine collection of income information for commercial, industrial, and multi-family residence properties to aid in the identification of obsolescence and market trends. (#43)

### **Sales Data: No Recommendations**

### **Sales Verification Procedures**

Consider routinely verifying sales information from a second source besides the declaration of value. The declaration of value is designed for the collection of the real property transfer tax and has little information regarding the arm's length nature of the sale. (#54)

Consider using a sales questionnaire to gain information relating to the validity of the sale. Sales should be verified with a party to the transfer or other reliable source. The Department recommends the sales validation questionnaire in the IAAO Standard on Ratio Studies as a model. (#55)

### **Sold Property Data**

Consider addition of a software module designed to retain property characteristic data on the date of sale, i.e. a "snapshot" of data. The computer system should preserve a picture of a property's data when it is sold, so that sales prices and property characteristics can be properly matched during modeling. For instance, if a property sells in January, and a garage is added in August, the production file should reflect the garage, but the sales file should reflect the property with no garage. (#80)

### ***Stratification***

Stratification by neighborhood and/or market area conforms with best practice because it aids in the development of accurate valuation models. (#82)

### ***Analysis of Land Sales***

Continue the practice of keeping a hard-copy binder of land valuation explanations available to the public. The binder is a valuable tool in the explanation and defense of the complex area of land valuation throughout the county.

Consider adjusting sales used in the valuation analysis to the valuation date. This may produce a more accurate estimate of property values. The Department believes such a practice is authorized under NAC 361.118(1)(b) "market conditions" however, we understand further clarification from the Tax Commission may be required prior to implementation. (#88)

Conducting your own ratio studies at least annually by property type, geographic area, and key property attributes conforms to best practice. In addition to the Excel spreadsheet application produced by the Department, there are other statistical software available for analysis of land sales, such as SPSS. (#103)

### **Alternative Methods of Land Valuation**

Estimating market value of improvements for use in the abstraction method, and/or limiting the use of the abstraction method to newer homogenous subdivisions conforms to best practice because it improves the reliability of the alternative method of land valuation. (#105)

The assessor might be afforded a better opportunity to use the capitalization of ground rents method for commercial properties (#108) If income information were routinely collected (see #43 recommendations above).

### **Subdivision Discounts: No recommendations**

### ***Cost Approach***

Continue to make an effort to accurately measure and value all minor improvements individually rather than by lump sum Visual Site Improvements (VSI). The division's appraiser consistently found differences in the number of minor improvements observed from those valued by the assessor's staff. There has been some improvement in recent years in the verification of individual minor improvements such as paving, porches, patios, etc.; however, the assessor continues to employ a lump sum value to some other minor improvements such as fencing and various other yard improvements. This lump sum value has generally been found to be lower than if each individual minor improvement was valued separately. The assessor indicated that the office is currently making an effort to improve in this area. (#123)

Consider utilizing all available additional multipliers located in the Marshall & Swift cost manuals. The assessor currently uses the “energy”, “foundation” and “hillside” adjustments, but should also consider the “seismic”, “wind” and “resort areas” (unusual conditions) multipliers if and/or when applicable. (#116)

### ***Agricultural Property***

Consider maintaining a file of taxable values for properties claiming agricultural deferment for the 7 year period to aid in the calculation of the agricultural deferred tax, rather than reconstructing taxable value data. (#130)

### ***Personal Property***

Consider obtaining more backup data regarding purchase price for aircraft. Only one receipt and one bill of sale were found in the sample files. For example, one file was listed under a tail number N3063R LLC The company was dissolved and owner was in question. This information was not in the file. Consider verifying taxpayer’s declared value against aircraft blue book or when the insured value is more than the purchase price. It is recommended the assessor require a bill of sale or some reliable form of receipt for additional verification of acquisition cost. (#131)

### ***Assessment Administration: No Recommendations***

## **Humboldt County**

Based on the procedural audit, the Department concludes the assessor has adequate procedures in place to ensure that all property subject to taxation is being assessed in a correct and timely manner. The recommendations listed below are designed to help the assessor achieve improved work performance or to note best practices.

### ***Data Collection***

#### **Geographic Data**

Use of the 8-digit identifier is a uniform, manageable numeric expression. Map information is clear, accurate and well-presented. Maps are drawn on appropriate scales using standardized layouts, linework, and symbols. Map sheets are a uniform, convenient size. (#1-#24)

#### **Property Characteristics Data**

The routine inspection and drawing of interiors of new construction to aid in the determination of quality class and to identify improvements that should be included in the Marshall/Swift cost analysis conforms to best practice. It increases the reliability of building quality and condition ratings, as well as improves overall data credibility. (#27)

The re-measurement of existing property to verify questionable data conforms to best practice. (#28)

Consider improving data collection techniques by use of aerial photography. The County has indicated it is considering such an expenditure from the Technology Fund. (#35)

Consider improving the method by which zoning information is transferred from the Planning Department to improve the quality of information. (#38)

Consider routine collection of income information, particularly rents, for commercial, industrial, and multi-family residence properties to aid in the identification of obsolescence and market trends. (#43)

### **Sales Data**

Example of deed book (excel spreadsheet) with property characteristic data conforms to best practice. (#52) The spreadsheet captures sufficient information from which to build valuation models. Consider adding data regarding quality class and whether sale was verified. Consider improving the functionality of ADS so that a separate spreadsheet program would not be necessary.

### **Sales Verification Procedures**

Example of sales questionnaire conforms to best practice (#54 - #65). The information is obtained from parties to the sale and is sufficient from which to make a determination about whether a sale is valid and represents an arm's length sale.

### **Sold Property Data**

Consider addition of a software module designed to retain property characteristic data on the date of sale, i.e. a "snapshot" of data. The computer system should preserve a picture of a property's data when it is sold, so that sales prices and property characteristics can be properly matched during modeling. For instance, if a property sells in January, and a garage is added in August, the production file should reflect the garage, but the sales file should reflect the property with no garage. (#80)

### ***Stratification***

Consider stratification by neighborhood and/or market area because it aids in the development of accurate valuation models. (#82) Assessor acknowledges stratification by location and indicates the strata proposed in the audit questions may not have useful applications (#84). Model building may have to include larger areas in order to yield sufficient data from which to draw reliable conclusions. Value stratification may be an option. Consult the IAAO Standard on Ratio Studies, Section 4.4, "Stratification."

### ***Analysis of Land Sales***

Plotting land sales on maps by price per unit to help visualize patterns in land sales conforms to best practice. (#87) Consider other units in addition to site values as a way to capture common patterns over wide areas and to establish benchmark values.

Consider adjusting sales used in the valuation analysis to the valuation date. The Department believes such a practice is authorized under NAC 361.118(1)(b) "market conditions" however, we understand further clarification from the Tax Commission may be required prior to implementation. (#88)

Consider conducting your own ratio studies at least annually by property type, geographic area, and key property attributes. In addition to the Excel spreadsheet application produced by the Department for use in determining land factors, there are other statistical software available for analysis of land sales, such as SPSS. (#102)

The ratio study indicates the aggregate ratios for multiple family land and commercial/industrial land are low. The multiple family land ratio may have been influenced by a large apartment complex in the sample in which the County Board of Equalization lowered the value upon appeal by the taxpayer.

### **Alternative Methods of Land Valuation**

Comparative sales analysis is often difficult in rural areas, and could be supplemented with results from alternative methods of land valuation. Consider estimating market value of improvements for use in the abstraction method by developing local costs to build. (#105) The assessor acknowledges lack of information on costs due to failure of contractors to respond to requests for information.

The assessor might be afforded a better opportunity to use the capitalization of ground rents method for commercial properties (#108) If income information were routinely collected (see #43 recommendations above).

### **Subdivision Discounts: No recommendations**

### ***Cost Approach***

Consider utilizing all available additional multipliers located in the Marshall & Swift cost manuals. The assessor currently uses the "climate" and "owner workmanship" adjustments, but should also consider the "seismic", "wind" "energy", "foundation" and "hillside" adjustments and unusual conditions multipliers if and/or when applicable. (#116)

Costing minor improvements from the Marshall/Swift Manual conforms to best practice because it results in a more accurate valuation. (#123)

### ***Agricultural Property***

Maintaining a file of taxable values for properties claiming agricultural deferment for the 7 year period to aid in the calculation of the agricultural

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deferred tax, rather than reconstructing taxable value data, conforms to best practice. (#130)

### ***Personal Property***

Consider obtaining more backup data regarding purchase price for aircraft. Consider verifying taxpayer's declared value against aircraft blue book or when the insured value is more than the purchase price. It is recommended the assessor require a bill of sale or some reliable form of receipt. (#131)

### ***Assessment Administration: No Recommendations***

## **Lyon County**

Based on the procedural audit, the Department concludes the assessor has adequate procedures in place to ensure that all property subject to taxation is being assessed in a correct and timely manner. The recommendations listed below are designed to help the assessor achieve improved work performance or to note best practices.

### ***Data Collection***

#### **Geographic Data**

Use of the 8-digit identifier is a uniform, manageable numeric expression. Map information is clear, accurate and well-presented. Use of GIS provides additional accuracy. Maps are drawn on appropriate scales using standardized layouts, linework, and symbols. Map sheets are a uniform, convenient size. The mapping program conforms with best assessment practice. (#1-#24)

#### **Property Characteristics Data**

Use of aerial photography to identify new improvements is a best practice. (#28, #35)

Consider routine collection of income information, particularly rents, for commercial, industrial, and multi-family residence properties to aid in the identification of obsolescence and market trends. (#43)

#### **Sales Data**

Example of excel spreadsheet (untitled – Example 8) with property characteristic data conforms to best practice. (#52) The spreadsheet captures sufficient information from which to build valuation models. Consider adding more property data, if essential to the valuation of the property, to the spreadsheet such as location by street, escrow number, date of entry, number of bedrooms and bathrooms. Consider improving the functionality of ADS so that a separate spreadsheet program would not be necessary.

## **Sales Verification Procedures**

Verifying sales information from a second source (title company) besides the declaration of value promotes accuracy of information conforms to best practice. The declaration of value is designed for the collection of the real property transfer tax and has little information regarding the arm's length nature of the sale. (#54)

Consider using a sales questionnaire to gain additional information relating to the validity of the sale, such as length of time property was on the market. (#53). The Department recommends the sales validation questionnaire in the IAAO Standard on Ratio Studies as a model. (#55)

## **Sold Property Data**

Consider addition of a software module designed to retain property characteristic data on the date of sale, i.e. a "snapshot" of data. The computer system should preserve a picture of a property's data when it is sold, so that sales prices and property characteristics can be properly matched during modeling. For instance, if a property sells in January, and a garage is added in August, the production file should reflect the garage, but the sales file should reflect the property with no garage. (#80) Untitled excel spreadsheet (Example 8) has certain retention capabilities, but does not appear to be linked to the current ADS system and requires double-entry. Not all data points are re-entered into the spreadsheet program. (#80)

## ***Stratification***

Consider formalizing the criteria used to stratify by writing down the description used to segregate the neighborhood or market area. This will aid in the development of accurate valuation models and may permit better comparison of areas. Include an analysis of the supply and demand factors in the description. (#82)

## ***Analysis of Land Sales***

Plotting land sales on maps by price per unit to help visualize patterns in land sales is a best practice. (#87)

Consider adjusting sales used in the valuation analysis to the valuation date. The Department believes such a practice is authorized under NAC 361.118(1)(b) "market conditions" however, we understand further clarification from the Tax Commission may be required prior to implementation. (#88)

Consider developing standard procedures in writing for the valuation of triangular, trapezoidal, or other irregularly shaped lots. These procedures can be derived from rule-of-thumb models such as the 4-3-2-1 rule, but should be verified by market analysis whenever possible. Shape adjustments are typically recorded as percentages to be applied to the base unit values. (#97)

Consider conducting your own ratio studies at least annually by property type, geographic area, and key property attributes to ensure each type of property is consistently and equitably appraised. In addition to the Excel

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spreadsheet application produced by the Department for use in determining land factors, there are other statistical software available for analysis of land sales, such as SPSS. (#102)

### **Alternative Methods of Land Valuation**

Consider estimating market value of improvements for use in the abstraction method by developing local costs to build. (#105)

The assessor might be afforded a better opportunity to use the capitalization of ground rents method for commercial properties (#108) if income information were routinely collected (see #43 recommendations above).

### **Subdivision Discounts:**

Consider formalizing current written procedures regarding the documentation required for identifying and granting subdivision discounts into a policy and procedure book. (#110)

### ***Cost Approach***

Consider utilizing all available additional multipliers located in the Marshall & Swift cost manuals. The assessor currently uses the "seismic", "wind", "energy", "foundation" and "hillside" adjustments but does not use "owner workmanship" adjustments or unusual conditions multipliers if and/or when applicable. (#116)

Consider costing minor improvements from the Marshall/Swift Manual rather than using a lump sum method because it results in a more accurate valuation, or in the alternative, annually compare sample SFYI lump sums to M/S for adjustments as necessary. (#123)

### ***Agricultural Property***

Consider the minimum income required by NRS 361A.030 (\$5,000) in the context of whether the income is from a business venture for profit. The business profit must be consistent with the size of the operation and the capacity and viability of the land to produce food and fiber. This means data should be routinely collected regarding the items in NAC 361A.160(2)(b) and (c) as support for the decision that the income (profit) is consistent with the capacity and viability of the land. (#129)

Maintaining a file of taxable values for properties claiming agricultural deferment for the 7 year period to aid in the calculation of the agricultural deferred tax, rather than reconstructing taxable value data, conforms to best practice. (#130)

### ***Personal Property***

Consider obtaining more backup data regarding purchase price for aircraft and agricultural equipment, especially over \$10,000. Consider verifying taxpayer's declared value against aircraft blue book or when the insured value is

more than the purchase price. The Department recommends the assessor require a bill of sale or some reliable form of receipt. (#131).

Consider implementing a personal property auditing program during reappraisal years, at least a sample of business types. (#134)

The ratio study indicates the median ratio is outside of the statutory range for unsecured roll commercial/industrial personal property. This may be due to data-entry errors on acquisition cost or to incorrect selection of expected life of property.

### ***Assessment Administration***

Consider in-house training sessions on difficult subject matters and/or office procedures. This may enhance cross-training. (#152)

## **Nye County**

Based on the procedural audit, the Department concludes the assessor has adequate procedures in place to ensure that all property subject to taxation is being assessed in a correct and timely manner. The recommendations listed below are designed to help the assessor achieve improved work performance or to note best practices.

### ***Data Collection***

#### **Geographic Data**

The county is working to update its maps, including making them available in pdf computer files. This should improve the readability and availability of the maps to the public. Currently, basic cadastral information is provided, but the map book format is aging and should be updated.

Although the 8-digit unique parcel identifier is used and consistent with statewide practice, the county is considering using the parcel numbering system based on township-range-section as is used in Clark and Douglas Counties. The Department concurs the 12-digit APN based on township-range-section is the better practice. (#14)

#### **Property Characteristics Data**

Consider routinely capturing other property data in addition to the LUC, lot size and shape currently captured. Additional data will assist in determining whether land value has been appropriately adjusted for positive or negative situs factors. (#25)

Consider routine inspection of interiors of new construction to aid in the determination of quality class and to identify improvements that should be included in the Marshall/Swift cost analysis. It increases the reliability of building quality and condition ratings, as well as improves overall data credibility. (#27)

Consider improving data collection techniques by use of aerial photography. (#35)

The County has failed to implement a comprehensive building permit system (particularly in northern Nye County), which hinders the discovery, appropriate classification of land, and proper taxation of property in the county. (#34) Similarly, lack of zoning control requirements in the county hinders the work of the assessor, particularly in the actively developed areas of the county. Zoning data provides an important comparison tool related to land use and the valuation of land, but is not available for analysis. Zoning is the prerogative of the county commission, which has yet to adopt a comprehensive and enforced zoning control program. (#38)

Consider routine collection of income information for commercial, industrial, and multi-family residence properties to aid in the identification of obsolescence and market trends. (#43)

### **Sales Data**

Consider tracking sales data and property characteristic data in a spreadsheet program so that valuation models can be built, reviewed, and adjusted as necessary to reflect market influences.

### **Sales Verification Procedures**

The Assessor uses a questionnaire to obtain information from parties to the sale and is sufficient from which to make a determination about whether a sale is valid and represents an arm's length sale. Using a questionnaire conforms to best practice because verifying sales information from a second source in addition to the declaration of value promotes accuracy of information. Further, the declaration of value is only designed for the collection of the real property transfer tax and has little information regarding the arm's length nature of the sale. (#54)

Consider adding questions to the sales questionnaire to gain additional information relating to the validity of the sale, such as length of time property was on the market. (#53). The Department recommends the sales validation questionnaire in the IAAO Standard on Ratio Studies as a model. (#55)

Current practice is to invalidate sales where the parties report conflicting information. Rather than invalidating such sales, consider a follow-up phone call or consult with the title company to confirm which data is correct. (#54)

### **Sold Property Data**

Consider addition of a software module designed to retain property characteristic data on the date of sale, i.e. a "snapshot" of data. The computer system should preserve a picture of a property's data when it is sold, so that sales prices and property characteristics can be properly matched during modeling. For instance, if a property sells in January, and a garage is added in

August, the production file should reflect the garage, but the sales file should reflect the property with no garage.

### ***Stratification***

Consider additional stratification by neighborhood and/or market area because it aids in the development of accurate valuation models. (#82) In some areas of the county, model building may have to include larger areas in order to yield sufficient data from which to draw reliable conclusions. Value stratification may be an option. Consult the IAAO Standard on Ratio Studies, Section 4.4, "Stratification."

Consider formalizing the criteria currently used to stratify by writing down the description used to segregate the neighborhood or market area. This will aid in the development of accurate valuation models and may permit better comparison of areas. Include an analysis of the supply and demand factors in the description. (#83)

### ***Analysis of Land Sales***

Consider plotting land sales on maps by price per unit to help visualize patterns in land sales. (#87) Consider other units in addition to site values as a way to capture common patterns over wide areas and to establish benchmark values.

Consider adjusting sales used in the valuation analysis to the valuation date. The Department believes such a practice is authorized under NAC 361.118(1)(b) "market conditions" however, we understand further clarification from the Tax Commission may be required prior to implementation. (#88)

Consider conducting your own ratio studies at least annually by property type, geographic area, and key property attributes. In addition to the Excel spreadsheet application produced by the Department for use in determining land factors, it can also be used for ratio studies. There are also other statistical software available for analysis of land sales, such as SPSS. (#102)

The ratio study indicates both the median and aggregate ratios for multiple family land do not meet the statutory range. This may have been partially influenced by samples in which the mobile home hookups were removed from line-item costs when the mobile homes were converted to real property. In addition, aggregate ratios for commercial/industrial land and improvements were low and may have been influenced by undervaluing commercial property in Tonopah.

### ***Alternative Methods of Land Valuation***

Comparative sales analysis is often difficult in rural areas, and could be supplemented with results from alternative methods of land valuation. Consider estimating market value of improvements for use in the abstraction method by developing local costs to build. (#105)

The assessor might be afforded a better opportunity to use the capitalization of ground rents method for commercial properties (#108) if income information were routinely collected (see #43 recommendations above).

### **Subdivision Discounts**

The assessor collects information about the subdivision through a subdivision analysis questionnaire. Information collected includes number of lots, number sold, number sold per phase, raw land costs, purchase date, development costs, time period for completion of development, estimate of sales per year, estimated sellout date and other information. The questionnaire is thorough, collects pertinent information, and conforms to best practice. (#110)

### ***Cost Approach***

Consider getting approval from the Department Executive Director to use costs for amber pool and hydro-active septic systems not otherwise obtained from Marshall/Swift. (#115)

Consider utilizing all available additional multipliers located in the Marshall & Swift cost manuals. The assessor currently uses the "climate" adjustment, but should also consider the "seismic", "wind" "energy", "foundation," "hillside," and workmanship adjustments and unusual conditions multipliers if and/or when applicable. (#116)

Costing minor improvements from the Marshall/Swift Manual conforms to best practice because it results in a more accurate valuation. (#123)

### ***Agricultural Property***

Consider obtaining additional information to determine whether land qualifies for the agricultural tax deferment, such as IRS Schedule F, weight receipts of hay, actual receipts, and bank records if necessary. (#126)

Maintaining a file of taxable values for properties claiming agricultural deferment for the 7 year period to aid in the calculation of the agricultural deferred tax, rather than reconstructing taxable value data, conforms to best practice. (#130)

### ***Personal Property***

Consider obtaining more backup data regarding purchase price for aircraft and agricultural equipment, especially over \$10,000. Consider verifying taxpayer's declared value against aircraft blue book or when the insured value is more than the purchase price. It is recommended the assessor require a bill of sale or some reliable form of receipt. (#131).

Consider implementing a more routine personal property auditing program during reappraisal years, at least a sample of business types. (#134)

### ***Assessment Administration***

Consider in-house training sessions on difficult subject matters and/or office procedures. This may enhance cross-training. (#152)

The assessor has produced a document entitled Assessor's Office Duties (July, 2006). Duties specifically describes all office procedures and policies with regard to appraisal and assessment administration. This represents a best practice, and the assessor should be commended for the exceptional effort it took to produce this document.

### **Washoe County**

Based on the procedural audit, the Department concludes the assessor has adequate procedures in place to ensure that all property subject to taxation is being assessed in a correct and timely manner. The recommendations listed below are designed to help the assessor achieve improved work performance or to note best practices.

#### ***Data Collection***

##### **Geographic Data**

Map information is continually updated. Use of the 8-digit identifier is a uniform, manageable numeric expression. Use of GIS provides additional accuracy. Maps are drawn on appropriate scales using standardized layouts, linework, and symbols. Map sheets are a uniform, convenient size. Maps depict tax rate areas, market areas and neighborhoods, and other useful information. The mapping program conforms to best practice. (#1-#24)

##### **Property Characteristics Data**

The county maintains comprehensive computerized property characteristics records, including building data, special features, factors affecting land value such as zoning and flood hazards, sales transfer information and building permits. The property record card is well designed and supported by data-code keys. Only essential data is collected and maintained. The system for maintaining records conforms to best practice. (#25)

Consider routine inspection of interiors of new construction to aid in the determination of quality class and to identify improvements that should be included in the Marshall/Swift cost analysis. It increases the reliability of building quality and condition ratings, as well as improves overall data credibility. Assessor states inspection of interiors is conducted. (#27)

Use of aerial photography to identify new improvements conforms to best practice. (#28, #35)

Routine collection of zoning data and recording on maps conforms to practice. (#38)

Consider routine collection of income information for commercial, industrial, and multi-family residence properties to aid in the identification of obsolescence and market trends, whether or not obsolescence is requested by the taxpayer. (#43)

### **Sales Data**

Complete sales file is available to the public on-line by year and contains land and building characteristic data as well as sales validity information in excel spreadsheet format. This conforms to best practice. (#53)

Consider obtaining data regarding length of time property is on the market. (#53) This could be obtained from parties to the sale through questionnaires. See comments under verification procedures.

### **Sales Verification Procedures**

The Assessor uses a questionnaire to obtain information from parties to the sale and is sufficient from which to make a determination about whether a sale is valid and represents an arm's length sale, however the questionnaire is only sent to parties in a vacant land transaction. Using a questionnaire conforms to best practice because verifying sales information from a second source in addition to the declaration of value promotes accuracy of information. Further, the declaration of value is only designed for the collection of the real property transfer tax and has little information regarding the arm's length nature of the sale. (#54)

Consider adding questions to the sales questionnaire to gain additional information relating to the validity of the sale, such as length of time property was on the market. (#53). The Department recommends the sales validation questionnaire in the IAAO Standard on Ratio Studies as a model. (#55) The Department recommends the sales questionnaire be sent to parties in all sales except those of convenience, typically identified on declarations of value as exemptions pursuant to NRS 375.090.

Current practice is to contact title companies for sales of \$1M or over or for any sale in Incline Village. Because the sales questionnaire is only sent to parties in a vacant land sale transaction and because of the limitation of when title companies are contacted, verification from a second source is not comprehensive. (#54)

Although a cover letter is explanatory, also consider adding a disclosure statement on the face of the questionnaire to inform taxpayers why the data is being collected. (#67)

### **Sold Property Data: No Recommendations**

#### ***Stratification***

Stratification by neighborhood and/or market area conforms to best practice because it aids in the development of accurate valuation models. (#82)

Value stratification may be an option. Consult the IAAO Standard on Ratio Studies, Section 4.4, "Stratification."

Consider formalizing the criteria currently used to stratify by writing down the description used to segregate the neighborhood or market area. This will aid in the development of accurate valuation models and may permit better comparison of areas. Include an analysis of the supply and demand factors in the description. (#84)

### ***Analysis of Land Sales***

Plotting land sales on maps by price per unit to help visualize patterns in land sales conforms to best practice. (#87)

Consider adjusting sales used in the valuation analysis to the valuation date. The Department believes such a practice is authorized under NAC 361.118(1)(b) "market conditions" however, we understand further clarification from the Tax Commission may be required prior to implementation. (#88) Assessor responds that, based on the recent Supreme Court decision, there can be no paired sales analysis, the primary way adjustment for time is made. The Assessor requests clarification of sale/resale analysis, as to whether the procedure is appropriate. (See also comments under alternative methods of land valuation). In addition, adjustments for financing are rarely made; no cash equivalencies are calculated because market participants don't do that.

Consider formalizing the standard procedures for the valuation of triangular, trapezoidal, or other irregularly shaped lots by putting the analysis criteria in writing. These procedures can be derived from rule-of-thumb models such as the 4-3-2-1 rule, but should be verified by market analysis whenever possible. Shape adjustments are typically recorded as percentages to be applied to the base unit values. (#97)

Consider using the view evaluation sheet developed by DOAS. (#101) Assessor responds he wants the evaluation sheet approved by the Tax Commission.

### **Alternative Methods of Land Valuation**

Comparative sales analysis is often difficult in rural areas, and could be supplemented with results from alternative methods of land valuation. Consider estimating market value of improvements for use in the abstraction method by developing local costs to build. (#105)

The assessor might be afforded a better opportunity to use the capitalization of ground rents method for commercial properties (#108) if income information were routinely collected (see #43 recommendations above).

In using the allocation method, a comparison is made using sales/resales analysis, where the sales price when vacant is compared to the sales price when improved. If the ability to use sales/resales analysis is precluded by interpretation of a recent Supreme Court case, the Assessor may not be able to use this alternative method of valuation.



### **Subdivision Discounts**

Consider collection of information about the subdivision through a subdivision analysis questionnaire. Information collected should include number of lots, number sold, number sold per phase, raw land costs, purchase date, development costs, time period for completion of development, estimate of sales per year, estimated sellout date and other information. (#110)

### ***Cost Approach***

Consider utilizing all available additional multipliers located in the Marshall & Swift cost manuals. The assessor currently uses the slope adjustment, but should also consider the "seismic", "wind" "energy", "foundation," "hillside," and workmanship adjustments and unusual conditions multipliers if and/or when applicable. (#116)

Updating Marshall/Swift annually in the computer programming so that use of an improvement factor is not necessary conforms to best practice. (#120)

Consider costing minor improvements from the Marshall/Swift Manual rather than using a lump sum method because it results in a more accurate valuation, or in the alternative, annually compare sample SFYI lump sums to M/S for adjustments as necessary. (#123)

### ***Agricultural Property***

The procedures for processing applications and for removing a parcel from agricultural deferment are well-documented and constitute a best practice. (#125 - #130)

Consider maintaining a file of taxable values for properties claiming agricultural deferment for the 7 year period to aid in the calculation of the agricultural deferred tax, rather than reconstructing taxable value data. (#130)

### ***Personal Property***

The county has implemented on-line reporting of personal property assets, digitized supporting documentation, and is making a concerted effort to improve reporting by taxpayers. The new reporting system and document imaging and retrieval system constitute a best practice. (#133).

Continue to improve on the itemization of assets rather than lumping assets by expected life categories. (#132)

Consider obtaining more backup data regarding purchase price for aircraft and agricultural equipment, especially over \$10,000. Consider verifying taxpayer's declared value against aircraft blue book or when the insured value is more than the purchase price. It is recommended the assessor require a bill of sale or some reliable form of receipt. (#131).

The county has hired outside auditors to audit large corporate personal property accounts. This conforms to best practice. (#134). The Department recommends expanding the auditing program as much as resources allow.

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***Assessment Administration***

The county supports IAAO certified trainers on staff, which is beneficial not only to the county but to other assessing jurisdictions as well. This constitutes a best practice. (#152)

Documents and data sent to the State Board of Equalization in defense of appeals conform to the requirements of the State Board and constitute a best practice of the County Clerk and the Assessor. (#157)

# **2007-2008 Ratio Study Statistical Charts**

**NEVADA DEPARTMENT OF TAXATION**  
**2007-2008 RATIO STUDY**  
**AGGREGATE RATIOS**

SUBJECT COUNTY	STUDY YEAR	ALL PROPERTY	IMPROVEMENTS	IMPROVED LAND	VACANT LAND	SINGLE FAMILY RESIDENCE	MULTI-FAMILY RESIDENCE	COMMERCIAL INDUSTRIAL	RURAL LAND & IMPROVEMENTS
CARSON CITY	2005	34.4	35.2	34.0	31.0	35.2	34.3	34.8	31.8
CHURCHILL	2005	34.3	34.3	33.9	33.9	34.5	34.7	34.1	34.0
CLARK	2006	34.7	34.5	34.7	35.0	34.4	34.5	34.8	32.7
DOUGLAS	2007	34.7	34.4	35.0	34.7	34.8	34.9	34.4	35.0
ELKO	2005	33.9	33.7	34.6	33.7	34.6	34.5	33.6	34.6
ESMERALDA	2006	34.5	34.4	34.4	35.0	34.1	35.0	33.8	33.9
EUREKA	2006	34.0	33.1	35.0	34.8	33.9	34.6	32.2	34.9
HUMBOLDT	2007	33.3	34.1	30.8	32.0	34.2	32.0	33.3	35.2
LANDER	2005	34.2	34.1	34.3	34.5	34.5	34.4	33.8	34.7
LINCOLN	2006	34.4	34.5	34.2	34.3	33.0	36.1	34.3	35.0
LYON	2007	33.6	33.5	33.7	33.2	34.0	34.7	32.7	33.8
MINERAL	2006	34.6	34.5	34.9	34.8	34.9	34.6	34.5	33.4
NYE	2007	30.7	32.6	29.0	28.5	32.3	25.9	31.0	34.9
PERSHING	2005	33.7	33.6	33.7	34.7	33.2	34.3	34.1	34.3
STOREY	2006	33.8	34.1	33.7	34.4	33.5	32.7	34.2	35.1
WASHOE	2007	34.7	35.3	33.8	34.5	33.3	33.6	35.4	34.3
WHITE PINE	2005	34.5	37.7	34.1	34.5	33.1	35.2	35.0	35.1
STATEWIDE	<b>2007</b>	34.4	34.6	34.3	34.3	34.1	34.2	34.6	34.5

**NEVADA DEPARTMENT OF TAXATION**  
**2007-2008 RATIO STUDY**  
**MEDIAN RATIOS**

SUBJECT COUNTY	STUDY YEAR	ALL PROPERTY	IMPROVEMENTS	IMPROVED LAND	VACANT LAND	SINGLE FAMILY RESIDENCE	MULTI-FAMILY RESIDENCE	COMMERCIAL INDUSTRIAL	RURAL LAND & IMPROVEMENTS
CARSON CITY	2005	34.9	35.3	34.6	34.0	35.0	35.2	34.7	33.8
CHURCHILL	2005	34.4	34.9	34.1	33.5	34.6	34.7	34.3	35.0
CLARK	2006	34.7	34.3	35.0	35.0	34.6	34.4	34.7	34.0
DOUGLAS	2007	35.0	35.0	35.0	35.0	35.0	35.1	34.6	34.9
ELKO	2005	34.8	34.3	34.7	35.0	34.7	34.4	33.9	35.0
ESMERALDA	2006	35.0	34.6	34.7	35.0	34.4	35.2	33.7	34.6
EUREKA	2006	34.8	33.7	35.0	34.8	34.3	35.0	34.0	35.0
HUMBOLDT	2007	34.2	34.7	33.7	33.2	34.5	34.1	33.8	35.0
LANDER	2005	35.0	34.0	35.0	35.0	34.5	33.3	33.5	35.0
LINCOLN	2006	34.3	34.0	34.1	34.5	33.9	33.6	33.9	35.0
LYON	2007	34.2	34.6	34.6	33.6	34.1	34.8	34.0	34.9
MINERAL	2006	35.0	35.0	35.0	35.0	35.2	34.1	35.1	35.0
NYE	2007	32.6	33.1	33.9	27.8	32.7	28.0	31.4	34.9
PERSHING	2005	34.6	33.9	34.7	34.5	34.3	34.2	34.2	35.0
STOREY	2006	34.2	34.0	34.5	34.8	33.6	33.8	33.7	35.1
WASHOE	2007	34.4	34.1	35.0	34.9	34.3	34.1	34.1	34.9
WHITE PINE	2005	34.9	34.7	34.2	35.0	34.9	34.6	34.3	35.1
STATEWIDE	2007	34.6	34.4	34.9	34.9	34.5	34.4	34.3	35.0

**NEVADA DEPARTMENT OF TAXATION**  
**2007-2008 RATIO STUDY**  
**COEFFICIENTS OF DISPERSION**

SUBJECT COUNTY	STUDY YEAR	ALL PROPERTY	IMPROVEMENTS	IMPROVED LAND	VACANT LAND	SINGLE FAMILY RESIDENCE	MULTI-FAMILY RESIDENCE	COMMERCIAL INDUSTRIAL	RURAL LAND & IMPROVEMENTS
CARSON CITY	2005	4.1	3.9	6.0	8.1	2.3	2.4	2.8	6.6
CHURCHILL	2005	1.8	2.4	3.7	1.4	1.7	1.7	1.8	1.0
CLARK	2006	2.0	4.6	1.2	0.9	2.0	2.7	1.7	2.8
DOUGLAS	2007	1.3	3.8	0.1	0.7	1.4	1.6	2.1	0.4
ELKO	2005	2.6	4.2	5.0	2.2	2.3	2.3	4.7	0.4
ESMERALDA	2006	2.0	3.5	2.2	1.0	2.7	1.7	2.3	1.9
EUREKA	2006	3.2	8.2	0.7	0.7	5.9	2.3	8.1	0.4
HUMBOLDT	2007	5.0	4.3	5.4	8.7	3.1	3.1	4.7	0.7
LANDER	2005	4.9	7.5	6.1	5.6	3.8	4.7	9.4	0.5
LINCOLN	2006	4.2	6.2	2.8	2.1	3.6	7.2	5.7	0.1
LYON	2007	4.5	6.8	4.5	4.4	3.2	2.8	8.1	1.4
MINERAL	2006	2.2	4.4	0.5	0.6	1.7	3.2	5.3	1.9
NYE	2007	15.8	11.5	13.6	30.6	6.9	25.7	14.8	0.1
PERSHING	2005	2.6	3.5	5.8	1.3	5.4	1.5	1.4	0.3
STOREY	2006	3.5	10.6	3.0	2.8	3.4	6.5	3.1	0.0
WASHOE	2007	3.6	4.5	4.2	1.6	3.9	2.2	5.4	0.6
WHITE PINE	2005	4.5	7.2	5.7	1.2	6.4	3.6	8.1	0.4
STATEWIDE	2007	3.5	5.4	2.9	3.9	3.3	3.8	4.4	0.9

**NEVADA DEPARTMENT OF TAXATION**  
**2007-2008 RATIO STUDY**  
**MEDIAN RELATED DIFFERENTIALS**

SUBJECT COUNTY	STUDY YEAR	ALL PROPERTY	IMPROVEMENTS	IMPROVED LAND	VACANT LAND	SINGLE FAMILY RESIDENCE	MULTI-FAMILY RESIDENCE	COMMERCIAL INDUSTRIAL	RURAL LAND & IMPROVEMENTS
CARSON CITY	2005	1.01	1.00	1.02	1.10	0.99	1.03	1.00	1.06
CHURCHILL	2005	1.00	1.02	1.01	0.99	1.00	1.00	1.00	1.03
CLARK	2006	1.00	0.99	1.01	1.00	1.01	1.00	1.00	1.04
DOUGLAS	2007	1.01	1.02	1.00	1.01	1.01	1.00	1.00	1.00
ELKO	2005	1.02	1.02	1.00	1.04	1.00	1.00	1.01	1.01
ESMERALDA	2006	1.02	1.00	1.01	1.00	1.01	1.00	0.99	1.02
EUREKA	2006	1.03	1.02	1.00	1.00	1.01	1.01	1.06	1.00
HUMBOLDT	2007	1.03	1.02	1.09	1.04	1.01	1.07	1.01	0.99
LANDER	2005	1.02	1.00	1.02	1.01	1.00	0.97	0.99	1.01
LINCOLN	2006	1.00	0.99	1.00	1.01	1.03	0.93	0.99	1.00
LYON	2007	1.02	1.03	1.03	1.01	1.00	1.00	1.04	1.03
MINERAL	2006	1.01	1.02	1.00	1.01	1.01	0.99	1.02	1.05
NYE	2007	1.06	1.02	1.17	0.98	1.01	1.08	1.01	1.00
PERSHING	2005	1.03	1.01	1.03	0.99	1.03	1.00	1.00	1.02
STOREY	2006	1.01	1.00	1.02	1.01	1.00	1.03	0.98	1.00
WASHOE	2007	0.99	0.96	1.03	1.01	1.03	1.02	0.96	1.02
WHITE PINE	2005	1.01	0.92	1.00	1.01	1.06	0.98	0.98	1.00
STATEWIDE	2007	1.01	0.99	1.02	1.02	1.01	1.01	0.99	1.02

**NEVADA DEPARTMENT OF TAXATION  
2007-2008 RATIO STUDY  
ALL APPRAISAL AREAS**

**OVERALL (AGGREGATE) RATIO**

Subject County	All Property
DOUGLAS	34.7
HUMBOLDT	33.3
LYON	33.6
NYE	30.7
WASHOE	34.7
ALL COUNTIES	34.4

Class of Property							
Improvements	Improved Land	Vacant Land	Single Family Residence	Multi-Family Residence	Commercial Industrial	Rural Land & Improvements	
34.4	35.0	34.7	34.8	34.9	34.4	35.0	
34.1	30.8	32.0	34.2	32.0	33.3	35.2	
33.5	33.7	33.2	34.0	34.7	32.7	33.8	
32.6	29.0	28.5	32.3	25.9	31.0	34.9	
35.3	33.8	34.5	33.3	33.6	35.4	34.3	
34.8	33.9	34.1	33.8	33.7	35.0	34.5	

**MEDIAN RATIO**

Subject County	All Property
DOUGLAS	35.0
HUMBOLDT	34.2
LYON	34.2
NYE	32.6
WASHOE	34.4
ALL COUNTIES	34.5

Class of Property							
Improvements	Improved Land	Vacant Land	Single Family Residence	Multi-Family Residence	Commercial Industrial	Rural Land & Improvements	
35.0	35.0	35.0	35.0	35.1	34.6	34.9	
34.7	33.7	33.2	34.5	34.1	33.8	35.0	
34.6	34.6	33.6	34.1	34.8	34.0	34.9	
33.1	33.9	27.8	32.7	28.0	31.4	34.9	
34.1	35.0	34.9	34.3	34.1	34.1	34.9	
34.4	35.0	34.8	34.4	34.4	34.1	34.9	



**NEVADA DEPARTMENT OF TAXATION  
2007-2008 RATIO STUDY  
ALL APPRAISAL AREAS  
COEFFICIENT OF DISPERSION (COD)**

Subject County	All Property
DOUGLAS	1.3
HUMBOLDT	5.0
LYON	4.5
NYE	15.8
WASHOE	3.6
ALL COUNTIES	5.3

Class of Property							
Improvements	Improved Land	Vacant Land	Single Family Residence	Multi-Family Residence	Commercial Industrial	Rural Land & Improvements	
3.8	0.1	0.7	1.4	1.6	2.1	0.4	
4.3	5.4	8.7	3.1	3.1	4.7	0.7	
6.8	4.5	4.4	3.2	2.8	8.1	1.4	
11.5	13.6	30.6	6.9	25.7	14.8	0.1	
4.5	4.2	1.6	3.9	2.2	5.4	0.6	
5.8	4.8	7.3	3.8	6.0	6.5	0.6	

**MEDIAN RELATED DIFFERENTIAL**

Subject County	All Property
DOUGLAS	1.01
HUMBOLDT	1.03
LYON	1.02
NYE	1.06
WASHOE	0.99
ALL COUNTIES	1.00

Class of Property							
Improvements	Improved Land	Vacant Land	Single Family Residence	Multi-Family Residence	Commercial Industrial	Rural Land & Improvements	
1.02	1.00	1.01	1.01	1.00	1.00	1.00	
1.02	1.09	1.04	1.01	1.07	1.01	0.99	
1.03	1.03	1.01	1.00	1.00	1.04	1.03	
1.02	1.17	0.98	1.01	1.08	1.01	1.00	
0.96	1.03	1.01	1.03	1.02	0.96	1.02	
0.99	1.03	1.02	1.02	1.02	0.98	1.01	

**DOUGLAS COUNTY**  
**2007-2008 RATIO STUDY**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
COUNTYWIDE TOTAL PROPERTY	34.7%	35.0%	1.3%	167
COUNTYWIDE IMPROVEMENTS	34.4%	35.0%	3.8%	107
COUNTYWIDE IMPROVED LAND	35.0%	35.0%	0.1%	115
COUNTYWIDE VACANT LAND	34.7%	35.0%	0.7%	52
SINGLE FAMILY IMPROVEMENTS	34.5%	35.0%	3.2%	64
SINGLE FAMILY LAND	35.0%	35.0%	0.2%	64
SINGLE FAMILY TOTAL PROPERTY	34.8%	35.0%	1.4%	64
MULTIPLE FAMILY IMPROVEMENTS	34.7%	35.2%	3.9%	25
MULTIPLE FAMILY LAND	35.0%	35.0%	0.0%	25
MULTIPLE FAMILY TOTAL PROPERTY	34.9%	35.1%	1.6%	25
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	34.0%	34.1%	5.7%	18
COMMERCIAL/INDUSTRIAL LAND	35.0%	35.0%	0.1%	18
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	34.4%	34.6%	2.1%	18
RURAL IMPROVEMENTS	n/a	n/a	n/a	-
RURAL LAND	35.0%	34.9%	0.4%	8
RURAL TOTAL PROPERTY	35.0%	34.9%	0.4%	8
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.0%	35.0%	0.0%	18
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	35.0%	35.0%	0.0%	6
BILLBOARDS	n/a	n/a	n/a	-
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.0%	6
MOBILE HOMES	35.0%	35.0%	0.1%	6
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	35.0%	35.0%	0.1%	20
AIRCRAFT	35.0%	35.0%	0.0%	8
AGRICULTURAL	n/a	n/a	n/a	-
BILLBOARDS	n/a	n/a	n/a	-
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.0%	6
MOBILE HOMES	35.3%	35.0%	0.3%	6
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.0%</b>	<b>35.0%</b>	<b>0.1%</b>	<b>38</b>

# HUMBOLDT COUNTY 2007-2008 RATIO STUDY

## ALL APPRAISAL AREAS

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
COUNTYWIDE TOTAL PROPERTY	33.3%	34.2%	5.0%	90
COUNTYWIDE IMPROVEMENTS	34.1%	34.7%	4.3%	62
COUNTYWIDE IMPROVED LAND	30.8%	33.7%	5.4%	66
COUNTYWIDE VACANT LAND	32.0%	33.2%	8.7%	24
SINGLE FAMILY IMPROVEMENTS	34.3%	34.7%	3.8%	36
SINGLE FAMILY LAND	33.8%	33.5%	3.9%	36
SINGLE FAMILY TOTAL PROPERTY	34.2%	34.5%	3.1%	36
MULTIPLE FAMILY IMPROVEMENTS	34.1%	35.4%	2.9%	12
MULTIPLE FAMILY LAND	21.8%	33.0%	8.6%	12
MULTIPLE FAMILY TOTAL PROPERTY	32.0%	34.1%	3.1%	12
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	33.8%	34.0%	6.9%	12
COMMERCIAL/INDUSTRIAL LAND	31.6%	34.1%	6.7%	12
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	33.3%	33.8%	4.7%	12
RURAL IMPROVEMENTS	35.3%	34.3%	4.4%	2
RURAL LAND	35.2%	35.0%	0.9%	6
RURAL TOTAL PROPERTY	35.2%	35.0%	0.7%	6
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.0%	35.0%	0.0%	16
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	35.0%	35.0%	0.0%	6
BILLBOARDS	n/a	n/a	n/a	-
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.0%	5
MOBILE HOMES	35.0%	35.0%	0.0%	5
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	35.0%	35.0%	0.0%	11
AIRCRAFT	35.0%	35.0%	0.0%	2
AGRICULTURAL	35.0%	35.0%	0.0%	4
BILLBOARDS	35.0%	35.0%	0.0%	2
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.0%	3
MOBILE HOMES	n/a	n/a	n/a	-
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.0%</b>	<b>35.0%</b>	<b>0.0%</b>	<b>27</b>

**LYON COUNTY  
2007-2008 RATIO STUDY**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
COUNTYWIDE TOTAL PROPERTY	33.6%	34.2%	4.5%	105
COUNTYWIDE IMPROVEMENTS	33.5%	34.6%	6.8%	69
COUNTYWIDE IMPROVED LAND	33.7%	34.6%	4.5%	73
COUNTYWIDE VACANT LAND	33.2%	33.6%	4.4%	32
SINGLE FAMILY IMPROVEMENTS	34.5%	34.7%	4.1%	35
SINGLE FAMILY LAND	33.1%	34.4%	5.9%	35
SINGLE FAMILY TOTAL PROPERTY	34.0%	34.1%	3.2%	35
MULTIPLE FAMILY IMPROVEMENTS	34.9%	35.1%	4.1%	12
MULTIPLE FAMILY LAND	34.4%	34.9%	2.0%	12
MULTIPLE FAMILY TOTAL PROPERTY	34.7%	34.8%	2.8%	12
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	32.0%	34.0%	11.7%	20
COMMERCIAL/INDUSTRIAL LAND	33.8%	34.2%	4.4%	20
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	32.7%	34.0%	8.1%	20
RURAL IMPROVEMENTS	32.1%	28.7%	22.8%	2
RURAL LAND	34.6%	34.9%	1.0%	6
RURAL TOTAL PROPERTY	33.8%	34.9%	1.4%	6
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	34.9%	35.0%	1.6%	16
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	35.2%	35.0%	2.0%	6
BILLBOARDS	n/a	n/a	n/a	-
COMMERCIAL/INDUSTRIAL	34.0%	35.1%	2.5%	5
MOBILE HOMES	35.0%	35.0%	0.0%	5
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	35.0%	35.0%	0.1%	21
AIRCRAFT	35.0%	35.0%	0.0%	5
AGRICULTURAL	34.9%	34.8%	0.6%	2
BILLBOARDS	35.0%	35.0%	0.0%	3
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.2%	6
MOBILE HOMES	35.0%	35.0%	0.0%	5
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.0%</b>	<b>35.0%</b>	<b>0.7%</b>	<b>37</b>

**NYE COUNTY  
2007-2008 RATIO STUDY**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
COUNTYWIDE TOTAL PROPERTY	30.7%	32.6%	15.8%	91
COUNTYWIDE IMPROVEMENTS	32.6%	33.1%	11.5%	66
COUNTYWIDE IMPROVED LAND	29.0%	33.9%	13.6%	67
COUNTYWIDE VACANT LAND	28.5%	27.8%	30.6%	24
SINGLE FAMILY IMPROVEMENTS	33.1%	33.0%	7.4%	37
SINGLE FAMILY LAND	30.8%	33.3%	7.5%	37
SINGLE FAMILY TOTAL PROPERTY	32.3%	32.7%	6.9%	37
MULTIPLE FAMILY IMPROVEMENTS	32.5%	33.2%	13.0%	12
MULTIPLE FAMILY LAND	19.3%	24.1%	48.9%	12
MULTIPLE FAMILY TOTAL PROPERTY	25.9%	28.0%	25.7%	12
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	30.0%	32.1%	26.4%	12
COMMERCIAL/INDUSTRIAL LAND	32.5%	34.7%	11.9%	12
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	31.0%	31.4%	14.8%	12
RURAL IMPROVEMENTS	n/a	n/a	n/a	-
RURAL LAND	34.9%	34.9%	0.1%	6
RURAL TOTAL PROPERTY	34.9%	34.9%	0.1%	6
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.0%	35.0%	0.2%	18
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	35.0%	35.0%	0.0%	6
BILLBOARDS	n/a	n/a	n/a	-
COMMERCIAL/INDUSTRIAL	35.1%	35.0%	0.6%	6
MOBILE HOMES	35.0%	35.0%	0.0%	6
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	33.5%	35.0%	1.1%	23
AIRCRAFT	35.0%	35.0%	0.0%	6
AGRICULTURAL	35.0%	35.0%	0.0%	3
BILLBOARDS	35.0%	35.0%	0.0%	3
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.0%	5
MOBILE HOMES	30.7%	35.0%	4.4%	6
<b>TOTAL PERSONAL PROPERTY</b>	<b>34.5%</b>	<b>35.0%</b>	<b>0.7%</b>	<b>41</b>

**WASHOE COUNTY  
2007-2008 RATIO STUDY**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
COUNTYWIDE TOTAL PROPERTY	34.7%	34.4%	3.6%	200
COUNTYWIDE IMPROVEMENTS	35.3%	34.1%	4.5%	166
COUNTYWIDE IMPROVED LAND	33.8%	35.0%	4.2%	170
COUNTYWIDE VACANT LAND	34.5%	34.9%	1.6%	30
SINGLE FAMILY IMPROVEMENTS	34.5%	34.4%	3.8%	100
SINGLE FAMILY LAND	31.7%	35.0%	5.4%	100
SINGLE FAMILY TOTAL PROPERTY	33.3%	34.3%	3.9%	100
MULTIPLE FAMILY IMPROVEMENTS	32.7%	33.1%	5.0%	28
MULTIPLE FAMILY LAND	34.8%	35.0%	1.6%	28
MULTIPLE FAMILY TOTAL PROPERTY	33.6%	34.1%	2.2%	28
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	35.8%	33.5%	5.1%	36
COMMERCIAL/INDUSTRIAL LAND	34.6%	35.0%	3.2%	36
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	35.4%	34.1%	5.4%	36
RURAL IMPROVEMENTS	35.0%	33.8%	4.0%	2
RURAL LAND	33.7%	34.9%	1.3%	6
RURAL TOTAL PROPERTY	34.3%	34.9%	0.6%	6
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.0%	35.0%	1.9%	18
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	34.1%	35.0%	6.4%	4
BILLBOARDS	32.8%	32.8%	0.0%	1
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.1%	7
MOBILE HOMES	35.0%	35.0%	0.0%	6
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	34.5%	35.0%	0.9%	22
AIRCRAFT	34.4%	35.0%	0.5%	7
AGRICULTURAL	35.0%	35.0%	0.0%	1
BILLBOARDS	33.2%	33.1%	0.5%	3
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.4%	5
MOBILE HOMES	35.0%	35.0%	0.0%	6
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.0%</b>	<b>35.0%</b>	<b>1.3%</b>	<b>40</b>

**ALL COUNTIES INCLUDED IN  
2007-2008 RATIO STUDY**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
ALL COUNTIES TOTAL PROPERTY	34.4%	34.5%	5.3%	653
ALL COUNTIES IMPROVEMENTS	34.8%	34.4%	5.8%	470
ALL COUNTIES IMPROVED LAND	33.9%	35.0%	4.8%	491
ALL COUNTIES VACANT LAND	34.1%	34.8%	7.3%	162
SINGLE FAMILY IMPROVEMENTS	34.3%	34.6%	4.4%	272
SINGLE FAMILY LAND	33.3%	35.0%	4.5%	272
SINGLE FAMILY TOTAL PROPERTY	33.8%	34.4%	3.8%	272
MULTIPLE FAMILY IMPROVEMENTS	33.8%	34.8%	5.8%	89
MULTIPLE FAMILY LAND	33.6%	35.0%	7.6%	89
MULTIPLE FAMILY TOTAL PROPERTY	33.7%	34.4%	6.0%	89
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	35.3%	33.6%	9.4%	98
COMMERCIAL/INDUSTRIAL LAND	34.5%	35.0%	4.5%	98
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	35.0%	34.1%	6.5%	98
RURAL IMPROVEMENTS	33.7%	34.0%	9.2%	6
RURAL LAND	34.7%	34.9%	0.7%	32
RURAL TOTAL PROPERTY	34.5%	34.9%	0.6%	32
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.0%	35.0%	0.7%	86
AIRCRAFT	n/a	n/a	n/a	-
AGRICULTURAL	35.0%	35.0%	1.4%	28
BILLBOARDS	32.8%	32.8%	0.0%	1
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.6%	29
MOBILE HOMES	35.0%	35.0%	0.0%	28
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	34.7%	35.0%	0.5%	97
AIRCRAFT	34.7%	35.0%	0.1%	28
AGRICULTURAL	35.0%	35.0%	0.1%	10
BILLBOARDS	34.8%	35.0%	1.3%	11
COMMERCIAL/INDUSTRIAL	35.0%	35.0%	0.1%	25
MOBILE HOMES	33.6%	35.0%	1.2%	23
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.0%</b>	<b>35.0%</b>	<b>0.6%</b>	<b>183</b>

**STATEWIDE  
2004-2007 RATIO STUDIES**

**ALL APPRAISAL AREAS**

<b>REAL PROPERTY</b>	<b>AGGREGATE RATIO</b>	<b>MEDIAN RATIO</b>	<b>COD MEDIAN</b>	<b>SAMPLE SIZE</b>
STATEWIDE TOTAL PROPERTY	34.1%	34.6%	3.5%	2,792
STATEWIDE IMPROVEMENTS	34.4%	34.6%	4.3%	1,985
STATEWIDE IMPROVED LAND	33.8%	34.8%	3.0%	2,161
STATEWIDE VACANT LAND	34.0%	34.7%	4.9%	627
SINGLE FAMILY IMPROVEMENTS	34.2%	34.6%	3.7%	941
SINGLE FAMILY LAND	33.8%	34.8%	2.8%	941
SINGLE FAMILY TOTAL PROPERTY	34.0%	34.5%	2.9%	941
MULTIPLE FAMILY IMPROVEMENTS	34.4%	34.6%	4.5%	480
MULTIPLE FAMILY LAND	33.5%	34.7%	3.8%	481
MULTIPLE FAMILY TOTAL PROPERTY	34.1%	34.4%	3.4%	482
COMMERCIAL/INDUSTRIAL IMPROVEMENTS	34.2%	34.6%	5.3%	480
COMMERCIAL/INDUSTRIAL LAND	33.9%	34.6%	3.7%	477
COMMERCIAL/INDUSTRIAL TOTAL PROPERTY	34.1%	34.4%	3.9%	480
RURAL IMPROVEMENTS	34.0%	34.6%	3.3%	78
RURAL LAND	34.7%	35.0%	0.9%	262
RURAL TOTAL PROPERTY	34.6%	35.0%	1.2%	262
<b>SECURED PERSONAL PROPERTY</b>				
ALL SECURED	35.4%	35.0%	0.4%	533
AIRCRAFT	35.0%	35.0%	0.0%	3
AGRICULTURAL	35.0%	35.0%	0.7%	128
BILLBOARDS	35.0%	35.0%	0.0%	7
COMMERCIAL/INDUSTRIAL	36.1%	35.0%	0.6%	197
MOBILE HOMES	35.0%	35.0%	0.1%	198
<b>UNSECURED PERSONAL PROPERTY</b>				
ALL UNSECURED	35.0%	35.0%	0.6%	775
AIRCRAFT	35.0%	35.0%	0.3%	108
AGRICULTURAL	34.8%	35.0%	0.7%	115
BILLBOARDS	35.0%	35.0%	0.1%	43
COMMERCIAL/INDUSTRIAL	35.1%	35.0%	0.6%	272
MOBILE HOMES	35.0%	35.0%	0.7%	237
<b>TOTAL PERSONAL PROPERTY</b>	<b>35.2%</b>	<b>35.0%</b>	<b>0.5%</b>	<b>1,308</b>



# Appendix

# Appendix

## *Glossary of Terms*

**Aggregate Ratio:** (also known as the weighted mean): the sum of the assessed values divided by the sum of the department's assessed values.

**Assessed value:** A value set on real and personal property by the county assessor as a basis for levying taxes. The level of assessment, also defined as the ratio of the assessed value to taxable value, is set by NRS 361.225: "All property subject to taxation must be assessed at 35 percent of its taxable value."

**Taxable value:** A value determined pursuant to NRS 361.227. In the case of real property, taxable value is the sum of the full cash value of the land under certain statutory conditions plus the replacement cost new of any improvements on the land, considering all applicable depreciation and obsolescence. In the case of personal property, taxable value is also based on replacement cost new less depreciation as determined by regulation of the Nevada Tax Commission.

**Central tendency:** The tendency of most kinds of data to cluster around some typical or central value, such as the mean or median.<sup>1</sup>

**Class:** A set of items defined by common characteristics. NRS 361.333 defines the major classes subject to the ratio study as:

- Vacant;
- Single-family residential;
- Multi-residential;
- Commercial and industrial; and
- Rural

**Coefficient of Dispersion (COD):** The average deviation of a group of numbers from the median expressed a percentage of the median. In ratio studies, the average percentage deviation from the median ratio.<sup>2</sup>

**Median:** A measure of central tendency. The value of the middle item in an uneven number of items arranged or arrayed according to size; the arithmetic average of the two central items in an even number of items similarly arranged.<sup>3</sup>

**Outliers:** Observations that have unusual values, that is, differ markedly from a measure of central tendency. Some outliers occur naturally; others are due to data errors.

**Representative sample:** A random sample of observations from a larger population of observations, such that statistics calculated from the sample can be expected to represent the characteristics of the population being studied.<sup>4</sup>

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<sup>1</sup> International Association of Assessing Officers, Standard on Ratio Studies (1999), p. 37.

<sup>2</sup> Ibid, p. 38.

<sup>3</sup> Ibid., p. 39.

<sup>4</sup> Ibid., p. 40.

## Division of Assessment Standards

### *Example of Procedural Audit Questions*

**Authority:** NRS 360.215(6): The Department shall continually supervise assessment procedures which are carried on in the several counties of the State and advise county assessors in the application of such procedures. The Department shall make a complete written report to each session of the Legislature, which must include all reports of its activities and findings and all recommendations which it has made to the several county assessors, and the extent to which the recommendations have been followed.

#### ***Topic List for 2007-2008***

**Data Collection**

- Geographic Data
- Property Characteristics Data

**Verification of land sales**

- Sales Transaction Data
- Verification Procedures
- Sold Property Data

**Stratification**

- Analysis of land sales
- Alternative methods of land valuation
- Subdivision Discounts
- Cost Approach
- Agricultural Property

**Personal Property**

Description of Ratio Study Sample  
Observations and Number of Outliers

**Assessment Administration**

- Status of Reference Material
- Reporting
- Certification and Training
- Defense of Appealed Property
- Appraisal Cycle
- Billing and Collection Procedures

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#### ***Data Collection***

Refer to NRS 361.189 through 361.220 for mapping requirements. Refer to NAC 361.118 for property characteristics and sales data requirements.

**STANDARD: NRS 361.189(a): All land in this State must be legally described for tax purposes by parcel number in accordance with the parceling system prescribed by the Department.**  
**NRS 361.189(b): Each county shall prepare and possess a complete set of maps drawn in accordance with such parceling system for all land in the county.**

Geographic Data	Yes	No	N/A or Other	Comments
1. Is the county divided into geographical areas using recognized and permanent boundaries, such as township, range or section lines?				
2. Is each geographic area designated as a map book with an assigned number?				
3. Are all pages numbered within each map book?				
4. Are the maps drawn using suitable scales to cover every type or class of property?				

<b>Geographic Data Con't</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
5. Is a parcel number assigned to each parcel of land?				
6. Does the county maintain a county index map which shows the area covered by each map book?				
7. Is the map book index located in the front of each book?				
8. Is there a map book subdivision index in each book?				
9. What type of mapping system does the county maintain? (i.e. metes & bounds; coordinate; lot & block)				
10. In the event the legal description is vague, what procedures does the county use to map the parcel?				
<b>Criteria used to determine a "parcel" of land</b>				
11. Are master parcel numbers used to summarize the assessment of several parcels?				
12. Are parcels designated to reflect the largest area that can be legally and practically parceled?				
13. Provide examples of determinations of contiguous and non-contiguous land configurations. (Attach)				
14. Is an 8-digit identifier used as the basis of the APN?				
If not, explain reason for variance				
15. In a parcel split, is a new APN assigned?				
<b>Assessment Map Standards</b>				
<b>Size and material of maps</b>				
16. Is the size 12 x 18" or 11.5" x 17.5"?				
17. Is line work and lettering neat, readable, and conform with standard lettering guides, such as the Leroy Lettering System?				
18. Do map symbols conform with standard symbols used by USGS, the U.S. Board of Surveys and Map Standards?				
19. Are standard cadastral map scales listed?				
20. Does the scale selected improve map accuracy, clarity, and provide essential data?				
21. How are discrepancies between surveys and legal descriptions resolved?				
22. How is area calculated?				
23. Are maps stored in effective, quality-controlled filing systems? Are the maps stored in a fire-proof area?				

<b>Geographic Data Con't</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
<b>24. Is the following data maintained?</b> Chain of title, including copy of the recorded deed with the correct legal description Record of survey Ancillary legal documents & surveys Deed record numbers and recording dates Assessment work map Date of map's development Gross & net acreages plus all the acreage revisions and corrections				

**STANDARD: NAC 361.118(1)(b): The elements of comparison between the comparable properties and the subject property that may be used by the county assessor include, without limitation, the real property rights conveyed, financing terms, conditions of sale, market conditions, location, physical characteristics, size, zoning or use, governmental restrictions and nonrealty components of value.**

<b>Property Characteristics Data</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
<b>25. Are factors that influence the local market collected and maintained?</b>				
Lot size and shape				
Topography				
Soil type				
Traffic				
Proximity to positive or negative value influence centers (e.g., central business district, view of water, golf courses, mountains, or greenbelts)				
Other				
Other				
Describe the process by which physical inspection takes place.				
<b>26. How often is property physically re-inspected?</b>				
<b>27. If the property is improved, is the interior of the property inspected?</b>				
<b>28. Does re-inspection include A. partial measurement of the two most complex sides of improvements and B. a walk around to identify deletions and additions?</b>				
<b>29. How is quality class determined?</b>				
<b>30. Is a comprehensive exterior inspection conducted, including measurement of improvements?</b>				
<b>31. Has the county developed a data collection manual? If so, attach.</b>				
<b>32. Is the coding of data as objective as possible, i.e. number of plumbing fixtures instead of poor, average, good plumbing.</b>				

<b>Property Characteristics Data Con't</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
33. Does the data-entry program have data edit capabilities? (i.e. error or warning messages generated in response to invalid or unusual data items).				
34. Is building permit, occupancy permit information used and maintained?				
35. Are aerial photographs used and maintained?				
36. Is the local realtor multi-list used to obtain physical characteristic data?				
37. Are the correct land use and exemption codes being applied?				
38. Is data collected and maintained regarding zoning? Describe process.				
39. Is data collected and maintained for classifying land as vacant or improved? Describe process.				
40. List each property characteristic that is collected and maintained and specify whether it is primarily required for valuation, for defense of values, other, or non-essential.				
41. Is the data-entry form or screen clearly organized in a logical sequence that permits the data collector to check or circle common features or enter appropriate codes for less common features?				
42. Are hand-held computers used for field data-collection?				
43. Does the county have a program of routinely collecting income data for apartment buildings, retail stores, office buildings, and other commonly leased or rented properties?				
44. How is new construction discovered?				
45. How often are sites under construction visited and at what stages?				
46. Are building department or developer provided plans used for measurements of new construction?				
47. Is a final inspection done when the building is completed?				
48. Is the appraiser's name and the date of inspection available in the appraisal record?				
49. Is depreciation being calculated correctly?				
50. What lien date is being used?				
51. How does the assessor code tax districts? Attach example.				

## Verification of Land Sales

**STANDARD: . . .the county assessor must acquire sufficient sales data concerning the comparable property . . .NAC 361.118(2)**

Sales Data	Yes	No	N/A or Other	Comments
52. Describe in general how land sales are identified and maintained.				
53. Does the sales file include the following data:				
Total amount paid for the property				
Terms of sale				
Names & contact info of buyer & seller				
Relationship of buyer & seller				
Legal description, address, APN				
Information regarding arm's length sale				
Length of time property on market				
Extent of interest transferred to buyer				
Nature of non-realty items				
Date of transfer				

**STANDARD: . . .the county assessor may determine the accuracy of the sales data through 4 enumerated methods. NAC 361.118(3)**

Verification procedures	Yes	No	N/A or Other	Comments
54. Does the assessor routinely contact the following:				
Buyer				
Seller				
Title Company				
Other				
55. Does the assessor use a sales questionnaire?				
56. Is the questionnaire based on IAAO format?				
57. If questionnaires are used, what is the return rate?				
58. Questionnaire asks for total amount paid for property				
59. Questionnaire asks for terms of sale				
60. Questionnaire asks for names and contact				

information of buyer and seller				
61. Questionnaire asks for legal description, APN, physical address				
<b>Verification procedures</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
62. Questionnaire asks for length of time on market				
63. Questionnaire asks for extent of interest transferred to buyer				
64. Questionnaire asks for nature of non-realty items				
65. Questionnaire asks for date of transfer				
ATTACH EXAMPLE OF SALES VERIFICATION QUESTIONNAIRE, IF AVAILABLE.				
66. Does the assessor conduct personal interviews as necessary?				
67. Does assessor disclose use of information to contacted parties?				
68. Does the assessor review declarations of value routinely / always?				
69. How does assessor identify sales with potentially unreliable information?				
70. Are the sales listed in NAC 361.118(4) automatically rejected, or is there some process to qualify the sales?				
71. Are sales assigned a validation code, and entered into the system?				
72. Are sales documents screened by a knowledgeable appraiser or other properly trained and qualified person?				
73. Aside from splits and consolidations, are sales screened and entered into the system within 30 days of recording?				
74. Does the computer system maintain a "snapshot" of the properties at the time of sale?				
75. Are sales excluded that have been found to be invalid or for which the price is clearly inconsistent with sales of properties with similar features?				
76. Are older sales added or is the model redefined when there are too few current sales?				
77. Are separate models developed for different market areas in the jurisdiction which are characterized by substantially different value levels?				
78. Are properties with extreme errors ("outliers") reviewed, and are data corrected or the sale eliminated as appropriate?				



79. Describe the quality control practices the county employs to validate sales comparison models.				
<b>Sold property data</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
80. Are characteristics of sold property identified and maintained?				
Size				
Shape				
Use				
Zoning				
Topography				
Road frontage				
Other (list)				

### *Stratification*

**STANDARD:** . . .the county assessor may sort sales and other market data into homogeneous groups to reflect different market influences and variations in zoning, other land-use controls and probable use, and to ensure that land values will reflect market data for parcels with similar or competitive uses in the same area. NAC 361.118 (5)

<b>Stratification</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
81. Is land stratified by zoning and then by location?				
82. Is land stratified into neighborhoods?				
83. Are strata created that do not have enough sales to support meaningful analysis?				
84. Check yes for all that apply: Single-family residential sales are sorted by				
Neighborhood				
Quality Class				
Living Area				
Year Built				
Other (List)				
85. Commercial property sales are sorted by				
Market area or neighborhood				
Location groupings based on supply, rents, vacancies, and access				
Other (List)				



<b>100.</b> Are view adjustments considered in all neighborhoods?				
<b>101.</b> Describe the process when a view adjustment is made. (Provide examples).				
<b>102.</b> Does the county use spreadsheets or statistical software to help develop land values?				
<b>103.</b> Does the county use a GIS to assist in data quality control and fine-tuning valuation models?				

### *Alternative Methods of Land Valuation*

**STANDARD:** . . .If the county assessor is not able to use the sales comparison approach for vacant land because sufficient sales of comparable properties which were vacant land at the time of sale are not available, the county assessor may determine valuation through one of several methods identified in NAC 361.119(1).

Alternative Methods of Land Valuation	Yes	No	N/A or Other	Comments
<b>104.</b> What are the criteria used to determine whether insufficient vacant land sales exist to use the sales comparison approach?				
<b>105.</b> Does the county use the abstraction technique? If so, describe the steps used.				
<b>106.</b> Does the county use the allocation technique? If so, describe the steps used.				
<b>107.</b> Does the county use the land residual technique? If so, describe the steps used.				
<b>108.</b> Does the county use the capitalization of ground rents? If so, describe the steps used.				
<b>109.</b> Does the county use the cost of development method? If so, describe the steps used.				

### *Subdivision Discounts*

**STANDARD:** In determining the taxable value of land within a qualified subdivision, the county assessor shall use one of three methods listed in NAC 361.1295.

Subdivision Discounts	Yes	No	N/A or Other	Comments

110. What data is collected to verify eligibility for the subdivision discount?				
111. Where is eligibility data stored physically and in the computer?				
112. Which of the 3 methods available is used by the county?				

### *Cost Approach*

**STANDARD: . . .The taxable value of improvements made on the land is calculated by subtracting from the cost of replacement of the improvements all applicable depreciation and obsolescence. Depreciation of an improvement made on real property must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement, up to a maximum of 5 years. NRS 361.227(1)(b).**  
**For rural buildings, use the standards in the manual entitled Rural Building Costs and for other improvements, use the standards in the cost manuals published by the Marshall and Swift Publication Company. NAC 361.128.**

Cost Approach	Yes	No	N/A or Other	Comments
113. Does the county perform a cost analysis to verify or adjust the Marshall/Swift manual tables, or to use in the land abstraction approach?				
114. Are cost schedules fully computerized?				
115. Have alternative cost determinations been approved by the Executive Director of the Department?				
116. What adjustments provided by Marshall Swift are being used? (List)				
117. Are quality classes consistent with those described in Marshall Swift?				
118. Are all cost manuals available in the office?				
119. Have the cost manuals been correctly updated?				
120. What local multiplier and improvement factor is being used?				
121. Is the zip code used to key the local multiplier and climate code? If no, then please describe.				
122. Is the age of the improvements available in the appraisal record?				
123. How are minor improvements valued?				
124. How is cost established for a single unit in a multi-unit building?				

## *Agricultural Property*

**STANDARD: The assessing authority must determine from field inspection and other available information whether the activities conducted on the property qualify as agricultural pursuits. NAC 361A.150.**

**Upon a determination that an activity on the land qualifies as an agricultural pursuit, the assessing authority must then determine whether the operator is engaged in the agricultural pursuit as a business venture for profit. NAC 361A.160.**

Agricultural Property	Yes	No	N/A or Other	Comments
125. Does the county physically inspect the property nominated for agricultural classification?				
126. What documents are inspected to verify whether the activity is an agricultural pursuit?				
127. Is the property re-inspected to verify it continues to qualify as agricultural land?				
128. How is the information on applications maintained and/or stored?				
129. In making a determination about capacity and viability of the land for agricultural use, does the county consider: the size of the parcel terrain availability of water soil capability type of vegetation grown growing season animal unit months and animal units Other				
130. Describe how deferred tax is calculated by the county. Attach an example.				

## *Personal Property*

Personal Property	Yes	No	N/A or Other	Comments
131. What procedures are used to discover:				
Business personal property				
Aircraft				
Billboards				
Mobile or modular homes				
Other				
132. If personal property is acquired with real property for a lump-sum, what procedures are used to establish a separate acquisition cost or				

value for personal property?				
133. How are declarations stored and maintained?				
134. How are accounts audited?				
135. Are existing accounts field audited periodically?				
136. Are new accounts field audited?				
137. What are the procedures when a declaration is not returned?				
138. Are there benchmarks for different types of businesses?				
139. How are accounts tied and cross-referenced with corresponding real property?				
140. How are accounts cross referenced with leased property?				
141. What are the procedures when a declaration does not meet benchmarks for the type of business?				
142. Is the <i>Personal Property Manual</i> available and correctly applied?				

<b>Assessment Administration</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
<b>Status of Reference Material</b>				
143. Are the statutes and administrative code available?				
144. Are the statutes and administrative code up to date?				
145. Are files logically organized and maintained with current, accurate data?				
146. Is the Rural Building Manual current?				
147. Is the Personal Property Manual current?				
148. Is the Agricultural Bulletin current?				
149. Is the Department improvement factor letter on file?				
150. Is the NTC decision letter approving land factors on file?				
151. Is the NTC decision letter approving the minimum billing cost on file?				
<b>Reporting</b>				
Were the following reports received by the Department in a timely manner?				
Tax Roll – NAC 361.152				Date:
Affidavit - NRS 360.250				Date:
Affidavit – NRS 361.310				Date:
Open Roll Logs – NRS 361.310				Date:
Report of Appraisals – NAC 361.150				Date:
Sales Data – NAC 361.151				Date:
Factors – NRS 361.260				Date:
Qualified Heating & Cooling Systems – NRS 361.079 / NAC 361.058				Date:
Tax Roll after County Board - NRS 361.390 (1)				Date:

<b>Assessment Administration</b>	<b>Yes</b>	<b>No</b>	<b>N/A or Other</b>	<b>Comments</b>
Segregation Reports – NRS 361.390 (2)				Date:
Statistical Analysis of the Roll – NRS 361.390 (3)				Date:
<b>Certification and Training</b>				
Are all appraisers certified for the job they are performing?				Number & Type:
Is the Assessor certified?				Type:
Number of appraisers having in excess of 180 hours of continuing education				Average number of hours
Number of appraisers having less than 180 hours of continuing education				Average number of hours
152. Is in-office training provided?				
153. Typical number of hours of class-time staff attends annually				
<b>Defense of appealed property</b>				
154. Number of appeals resolved in-office				
155. Number of appeals heard by county board of equalization				
156. Number of appeals heard by state board of equalization				
157. Did documents and data sent to the State Board in defense of appeals conform to State Board regulations?				
<b>Appraisal Cycle</b>				
158. Was all real property reappraised at least once every 5 years?				
159. Did the NTC approve any change in the areas of reappraisal, and if so, is the decision letter on file?				
<b>Billing and Collection Procedures</b>				
160. Are penalties on delinquent accounts correctly calculated?				
161. Is interest on delinquent accounts correctly calculated?				
162. Are late notices sent to taxpayers?				
163. Are second late notices sent to taxpayers?				
164. Describe criteria used to determine whether penalty and interest will be waived (NRS 361.4835)				

**Comments by Department Staff:**

**Response by County Assessor:**

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

Assessor: \_\_\_\_\_ Date: \_\_\_\_\_