

INTRODUCTION TO VERMONT'S EQUALIZATION STUDY

December 2009

Vermont Department of Taxes
Division of Property Valuation and Review

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Vermont Municipal Officials:

Annually, the Tax Department conducts an "equalization" study. The purpose of the study is to estimate the full fair market value of all property that is taxable for education purposes and to determine the level of assessment equity (coefficient of dispersion). The results are reported to the:

Chairs of the Boards of Listers,
Town Clerks,
Chairs of the Boards of School Directors,
Chairs of Selectboard, and
School Superintendents

The following pages give a general outline of how the values are determined and how they will be used. We've also included a section describing how a town may appeal these values.

We occasionally received requests for listings of those sales transactions that were eliminated from the study. This year we are making this information (all three years of invalid sales) available to Boards of Listers upon request. The information for your town is available in an Excel file. If you are interested in receiving this information, please contact Marcia Woodard at marcia.woodard@state.vt.us or (802) 828-5860 and ask for the "Invalid Sales Report" for your community

Questions or comments can be addressed to Property Valuation and Review Division (PVR) at the above address. The telephone number is 802-828-5860.

William E. Johnson, Director
Property Valuation and Review Division

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I. INTRODUCTION

Vermont raises education funds through several tax sources including a state property tax. The state property tax is based on the grand lists compiled by the listers in over 250 municipalities in the state.

Vermont listers are required to list all taxable property each year at its fair market value. However, listed values often do not reflect fair market value. This is because real estate markets are always changing, and because townwide reappraisals are not conducted annually. In order to treat all municipalities fairly, it is necessary to bring grand lists to fair market value. Fair market value is the price a property is likely to bring if sold in the open market. Therefore, deriving a ratio of listed-value-to-sale-price on recent arms-length transactions and applying that ratio to similar property types will render a reliable estimation of the total fair market value of the town.

Equalization studies have been performed in Vermont since 1963. Similar studies are regularly conducted by state governments in most of the United States, for much the same reasons that they are conducted in Vermont.

II. PURPOSE OF EQUALIZATION STUDIES

Equalization studies measure the total value of taxable property in each town and school district in the state. The results are used to:

1. determine the education tax rates;
2. apportion county taxes;
3. determine whether a town or city must undergo a reappraisal.

III. STATUTORY REQUIREMENTS

By January 1 of each year, the director of PVR must notify the town clerk and chair of the board of listers of each town and city of the equalized education property value and coefficient of dispersion. The Commissioner of Education is notified of these values annually by April 1. 32 V.S.A. §5406. The equalized education property tax grand list is one percent of the town's equalized education property value.

In determining the fair market value of property, the Tax Department takes into consideration those factors required by 32 V.S.A. § 3481. The Commissioner's determination is based upon such methods, as in his judgment and in view of the resources available for that purpose, is appropriate to support this determination. 32 V.S.A. § 5405.

Any town or city may petition the Director of Property Valuation and Review for a redetermination of its equalized education property value and coefficient of dispersion, and may further appeal a redetermination to the Valuation Appeal Board. An appeal from the Valuation Appeal Board decision can be made to the superior court and from there to the Vermont Supreme Court. 32 V.S.A. §5408. The Valuation Appeal Board is a five-member panel appointed by the Governor. 32 V.S.A. § 5407.

IV. DETERMINING EQUALIZED FAIR MARKET VALUES

A. General Procedures

With over 250 taxing jurisdictions in the state, there is naturally some divergence in the assessment levels of the various jurisdictions. PVR performs equalization studies to eliminate the divergence prior to determining education tax rates.

PVR takes the following steps to estimate a town's equalized value: 1) collects sales data; 2) eliminates sales that do not represent market value; 3) stratifies the remaining sales by grand list categories; 4) calculates listed-value-to-sales-price ratios for all market sales; 5) determines equalization ratios that represent reliable estimates of the divergence from 100% of fair market value; 6) applies the resulting ratios to the grand list value for appropriate categories; and 7) sums the resulting values. The total, with adjustments for local agreements and current use appraisal, is the equalized education property value for the town.

B. Collecting Data; The Sales Ratio Report

A Property Transfer Tax Return (PTTR) is filed with the Department of Taxes on every real property conveyance. These returns are entered into a data base, and initially screened to remove those which obviously cannot be used to determine fair market value—such as straw deeds, transfers of rights-of-way, and transfers for which there is no monetary consideration.

A report is then produced for each town and city showing all sales that took place in the year prior to the assessment date of the study. This report is provided to the listers. They are asked to assist the PVR District Advisor in further screening the sales and to correct any errors in the listed values, category coding, grand list descriptions, etc. This new sales information is then added to the two years of sales information previously reviewed by the local assessing officials¹.

C. Analysis of Sales Data; Certified Sale Report

The screened sales are analyzed to determine how to use the resulting ratios to best estimate the town's fair market value. You will see three columns at the far right of the sales listings. Any outlier--extreme and influential ratios (see Glossary) identified in that analysis-- is noted there.

Immediately following the sales for each category (R1, R2, etc.) are three groupings of information. The first one—*Category Statistics*—contains an overview of a number of statistics that describe the characteristics of the sales data within that property category, e.g. the median ratio and the coefficient of dispersion. The second one—*Limits Established By Original Sales Data*—contains the analysis used to identify the outliers and/or extremes noted above.

The third grouping—*Ratios and Confidence Intervals*—contains the analysis used to determine whether the aggregate ratio can be used to equalize the category. The aggregate ratio is used when we are 90% sure that the true aggregate will fall within the parameters given (its confidence interval). If that confidence level has been achieved, you will see "YES" beside the statement "Category Sample Valid: 90% confident that true aggregate ratio is within 10% of sample ratio." If that confidence level is not achieved at the category level, and you see "NO," the aggregate ratio determined at a higher level of aggregation (class or townwide) is used. The analysis at these higher levels of aggregation appears at the end of the "Certified Sales Report."

Many of the terms used above are defined in the glossary at the end of this document. If you have questions, please contact your Property Valuation District Advisor or call PVR at 802-828-5860.

¹ All three years of sales are screened and the listed values revised in the year of a reappraisal.

D. Grand List Categories

Each parcel of property in the education grand list is assigned a grand list category code by the listers based on the property's highest and best use (see Section V of the Vermont Listers Handbook for complete definitions). These grand list categories are used for many purposes, some of which are not related to PVR's equalization study. For purposes of the study, the grand list categories fall into one of four use classes; Residential, Commercial/Industrial, Utilities, and Farm/Vacant.

<u>Grand List Category Code</u>	<u>Use Class</u>
R1 - Residential 1	Residential
R2 - Residential 2	Residential
S1 - Seasonal 1	Residential
S2 - Seasonal 2	Residential
MH-U - Mobile Home-Unlanded	Residential
MH-L - Mobile Home-Landed	Residential
C - Commercial	Commercial/Industrial
CA - Commercial Apartments	Commercial/Industrial
I - Industrial - Manufacturing	Commercial/Industrial
UE - Industrial - Electric Utility	Utilities
UO - Industrial - Other Utility	Utilities
F - Farm	Farm/Vacant
W - Woodland	Farm/Vacant
M - Miscellaneous	Farm/Vacant
O - Other ²	

The listers annually provide an abstract of the grand list (form 411) to the town/city clerk who then certifies that information to the Department of Taxes. This abstract contains the total listed value in each of the 15 grand list categories above and gives detailed information on stabilized and exempt properties.

² Category used to isolate a unique type of property, such as condominiums or lakefront properties.

V. UNDERSTANDING THE COMPUTATION SHEET

The "Certified Final Computation Sheet" shows the final data used to determine the town's equalized education property value, common level of appraisal, etc.

The Category, Property Count, and the Ed Form 411 Listed Value columns come directly from the abstract of the grand list (Form 411) filed by the town or city clerk. The other columns across the page from left to right are:

CUSE Value - Current Use Value. These figures are from the 2009 current use data, and represent the use value of farm buildings (at 0% value) and acreage that are enrolled in the current use program (32 V.S.A. chapter 124).

CUSE values are deducted from the Education and Municipal Listed Values prior to the application of the equalization ratios. (The ratios are applied only to that portion of the grand list that was established by the local assessing officials, not to that portion required to be appraised at use value.) After equalizing the difference, the CUSE values (as set by Current Use Advisory Board) are added to the equalized (fair market) values to compute the equalized education and municipal values.

Education Listed Value Excl. CUSE - This is the education listed value as reported on the 411 form minus the CUSE values.

Municipal Listed Value Excl. CUSE - This is the municipal listed value as reported on the 411 form minus the CUSE values.

Applied Ratio - This is the equalization ratio that is used to adjust the listed value by category. For most categories, the Form 411 Listed Value divided by this ratio equals the Education Equalized Value of that category. (Form 411 Listed Value of Category / Applied Ratio) = Equalized value for category. However, for categories that include current use properties, there is another step. Here is the math for deriving the Education Equalized Value using the Applied Ratio: (Education Listed Value Excluding CUSE) / Applied Ratio + Equalized use value = Equalized value of category. In order to calculate the equalized use value of the category, reference the current use information on the back of the computation sheet. The use value of enrolled land has been adjusted to reflect the use values as set by the Current Use Advisory Board.

The bottom figure in the Applied Ratio column, in the Grand Totals row, is the "Common Level of Appraisal" or CLA, which is defined in 32 V.S.A. § 5401(3). It is the sum of the Form 411 Ed Listed Values (including any cable TV listed as personal property) plus the foregone listed value of any local agreements divided by the equalized education value. ((Education Grand List + Cable TV Personal Property + Local Agreement Values) / Equalized Education Property Value.)

Education Equalized Value - This column shows equalized values on a category basis. It does not include any value for Personal Property-Inventory, or Personal Property-Machinery and Equipment, which is still part of many municipal grand lists (and is the reason PVR distinguishes between an "education grand list" and a "municipal grand list"). The sum of this column, plus the value for cable TV personal property and local agreements, is the Equalized Education Property Value that is used in Vermont's education finance system.

Municipal Equalized Value - This includes the fair market value of all nonresidential and homestead property required to be listed at fair market value, plus the aggregate use value of property enrolled in the current use program, plus the value of personal property if the town or city taxes such property, plus the value of any local voted agreements.

COD – This is the coefficient of dispersion for the category as indicated by any sales. A zero means no sales were available to determine a COD. The certified COD, determined using all sales, appears to the right of the total equalized values, (see Townwide COD).

Average LV Incl. St. Exemption - This is the average listed value for the category.

VI. APPEALS

Petition for Redetermination. Towns may petition the Director for redetermination of their equalized education property value and coefficient of dispersion. The petition must be postmarked within 30 days of the date the town clerk receives the study and must be signed by the chair of the legislative body (which is usually the selectboard or city council) or its designee. 32 V.S.A. § 5408.

The petition and hearing process is designed to be informal so towns will be encouraged to appeal if they feel aggrieved. Provided a town meets the statutory requirements mentioned above, the hearing is the town's opportunity to raise whatever arguments it chooses and to support these arguments with whatever evidence it feels is relevant.

Towns have the burden of making their case and cannot rely exclusively on PVR to substantiate claims. Towns are required to provide a short, plain statement of the matters being appealed and a statement of the remedy the town seeks. Redeterminations will be based exclusively on the evidence presented and its relative weight and on matters officially noticed by the Director or his designated hearing officer.³

For example, a petitioning town may decide to appeal the exclusion of certain sales and the inclusion of others. The town's short, plain statement should identify these sales and state that the town seeks to have the first group included and the second group excluded from the study.

During the hearing, the town should be prepared to support its petition with evidence. It should be prepared to rebut the exclusion of these sales by the State. (If the town does not know the reasons for the exclusions, contact the district advisor and get an explanation.) If the issue is whether the sale prices represent fair market values, the hearing will typically focus on whether the specific sales were arms-length transactions between willing buyers and willing sellers and therefore good indications of the fair market values of the properties. Copies of the related property transfer tax returns may help you in your presentation.

For the sales that the town seeks to exclude, a statement from a lister or selectperson that, "property X sold above its market value" is evidence. However, its weight may be inconsequential in the face of the presumption that a bona fide sales price reflects fair market value. A more persuasive argument for the elimination of a sale may be evidence (e.g. a sales verification form signed by the seller and/or buyer) tending to show that the transaction was not arms-length.

Notice of Tentative Redetermination. To help speed the petition process, PVR's district advisors will offer to meet with petitioning towns. PVR will consider the issues raised at the meeting. If appropriate, PVR will recalculate the town's equalized value and COD and issue a notice of tentative redetermination. To accept, the town must sign and return the stipulation enclosed in the notice within ten days of receipt of the notice. If the town decides not to accept the tentative redetermination within ten days, the town's hearing will proceed in accordance with its original petition for redetermination.

Appeals Beyond the Director's Redetermination. The Director's final redetermination may be appealed to the Valuation Appeal Board. Valuation Appeal Board decisions can be appealed to the superior court of the district in which the town is located and from there to the Vermont Supreme Court.

³ These requirements are consistent with the notice obligations contained in the Administrative Procedure Act. 3 V.S.A. §801 et. seq.

GLOSSARY

Aggregate ratio (weighted mean) - The sum of the listed values divided by the sum of the fair market values (sale prices and/or appraised values).

Average ratio - Sum of the ratios divided by the number of transactions.

Category (see also use class) – All real properties are classified into 15 categories based on highest and best use. For example, R1 refers to small acreage residential and UE to utility electric. The goal is to group properties with similar market influences together.

Class (see use class)

Coefficient of Dispersion (COD) - The coefficient of dispersion is a measure of equity. It shows how fairly distributed the property tax is within a town. A high COD (above 20%) means that many taxpayers are paying more than their fair share and many are paying less than their fair share. If a town's COD is higher than 20%, a town is required to reappraise. The COD is the average of the absolute deviations of each sales ratio from the median ratio, divided by the median ratio.

Common Level of Appraisal (CLA) - The common level of appraisal is the education property value (listed value) divided by the equalized education property value. Vermont law requires property to be assessed at 100% of its fair market value. If the CLA falls below 80%, a town is required to reappraise.

Confidence Interval (see also *confidence level*) – An interval calculated around the aggregate ratio. The high and low values in the interval form a range within which one can predict (within the limits of the confidence level) that the true ratio for the grand list exists. Vermont's study required that the interval not exceed a range of plus and minus 10% around the aggregate ratio. This is the maximum range of the interval. The actual range is generally considerably less but will depend on the size of the sales sample and its variability.

Confidence Level (see also *confidence interval*) – The required level of confidence to achieve a pre-established level of statistical reliability. Vermont's study is based on a 90% confidence level. This means that if we were to repeatedly select sales samples from a grand list, the resulting equalization ratios would be within the calculated confidence interval 9 out of 10 times. Ratios used for equalization are calculated at the lowest level of sales aggregation (see also *category, class, town-wide and use class*) that achieves the 90% level.

Equalized Education Grand List - One percent of the equalized education property value.

Equalized Education Property Value - The equalized education property value, one percent of which is the equalized education grand list (EEGL), is an estimate of the taxable appraisal value.

Extreme Ratios (see also *outlier ratios* and *interquartile range*) – Extreme ratios are those identified as being markedly higher or lower than the aggregate ratio. If a ratio were identified as being extreme, its inclusion in the study would distort the results. Extreme ratios are therefore not used to calculate study results at any level of aggregation where they are identified.

Grand List - One percent of the listed value established by the local assessing officials. The *municipal grand list* is the value used to raise municipal taxes. It includes any personal property taxable at the local level, and excludes locally voted exemptions. Properties subject to local stabilization agreements are included at their stabilized values. The "*education property tax grand list*" (*education grand list*) is one percent of the education property value. 32 V.S.A. §5404. This is a value established by the listers. It does not include business inventory and generally does not include business machinery and equipment. It does include the value of properties exempted by local vote (if not "grandfathered"), and it includes the full value of properties subject to local stabilization agreements.

Influential Sales – Sales that exert an undue influence on the overall study results. A sale is influential if the town aggregate ratio with the sale included is outside the 90% confidence interval of the town aggregate ratio with the sale excluded. In other words, inclusion of the sale would affect the estimate of percent of fair market value more than could be expected given statistical sample uncertainty or margin of error.

Interquartile values / range (see also *outlier* and *extreme ratios*) - The values that divide a set of ratios into 4 equal parts with the lowest observation equal to 0% and the highest equal to 100%. The interquartile range is the distance from the 25th percentile to the 75th percentile. These statistics are used to identify outlier and extreme observations. An outlier is defined as a ratio that is beyond 1.5 times the interquartile range from either the 25th or the 75th percentiles. An extreme is defined as a ratio that is beyond 3 times the interquartile range from the same percentiles.

Median ratio - The midpoint or middle value when the ratios are ranked in order of magnitude. If there is an even number of sales, the average of the two middle ratios is used.

Outlier Ratio (see also *extreme ratio* and *interquartile range*) – Ratios that are found to be statistically different from other sales ratios in a given sample. Outliers may deserve special attention to ensure they represent fair market sales.

Price-Related Differential (PRD) - The mean ratio divided by the aggregate ratio. The PRD is used to determine whether assessment practices are progressive or regressive. A PRD above 1.03 tends to indicate assessment regressivity (lower-valued properties assessed at higher ratios). A PRD below .98 tends to indicate assessment progressivity (higher-value properties assessed at higher ratios).

Reliable ratio (see also *confidence level* and *confidence interval*) – For this study, a ratio which is statistically accurate within a margin of error of plus or minus 10% at a 90% confidence level. The sale report indicates if this guideline was met at each level of sales aggregation.

Townwide (see also *use class*) - The highest level of sales sample aggregation in which all sales across all categories are included for a city or town.

Trimmed data (see also *extreme ratios*) – This refers to the data used to calculate the equalization ratio (i.e., the aggregate or weighted mean) and its confidence interval after any extreme ratios have been eliminated.

Use Class – The classification of properties into groups based on their use--for example, residential, commercial, utility, etc. All properties in Vermont are grouped into 15 categories. In conducting the equalization study, listed value to sale price ratios are calculated at the lowest level of aggregation that achieves a reliable ratio. If a reliable ratio can not be achieved at the category level, then the next higher level of aggregation (class) is used. If a reliable ratio is not achieved at this level, then the townwide ratio is used for equalization.