
2018 Sales Ratio Criteria

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Property Tax Data & Analysis Unit

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Changes for the 2018 Study

- **Normalization of Ratios:** If a default region includes multiple counties, the trend calculation will include a normalization of the ratios. Before a regression is run on the inverted ratios of multiple counties, each sale's inverted ratio is divided by the median inverted ratio for that property type in that county. The regression is then run on these new values. See [Market Condition Trends](#) for more information.
- **Property Type 95 Trend:** Any property types in PT aggregation 95 that are not included in PT aggregation 93 will receive the trend calculated on PT aggregation 93.

Items of Note

- The 2018 criteria should be used to code eCRV sales from October 1, 2017 – September 30, 2018, but the study methodology (e.g., calculating trends, ratios and extremes) applies to sales from January 1, 2017 – September 30, 2018. The criteria for coding eCRVs from January 1, 2017 – Sept 30, 2017 can be found in the 2017 criteria.
- There may be special circumstances in which non-delinquent special assessments should be reported on an eCRV. A manual adjustment to the sale price can be made for any buyer paid special assessments that had a known effect on the sale price. See [Reporting Special Assessments](#) for more information.
- The 2018 criteria has been updated to include the new commercial, industrial, and apartment regions for metro counties and first class cities. See [Apartments, Commercial, and Industrial Regions](#) for more information.
- Data & Analysis has clarified that the Coefficient of Dispersion is only calculated if there are at least 30 sales.
- Reject reason 16 “Split (not agriculture or timber)” has been changed to “Split/Combined Sales”.

Overview of the Sales Ratio Study

In order to evaluate the accuracy and uniformity of assessments within the state and to ensure compliance with property tax laws, the Minnesota Department of Revenue conducts an annual sales ratio study. The Sales Ratio Study is required by [Minnesota Statute 270.12](#). The study measures the relationship between appraised values and actual sale prices, indicating both of the level of assessment (how close appraisals are to market value on an overall basis) and the uniformity of assessment (how close individual ratios are to the median ratio and each other). As a mathematical expression, a sales ratio is the assessor's estimated market value (EMV) of a property divided by its sales price, as seen here:

$$\text{Sales Ratio} = \frac{\text{Assessor's Estimated Market Value}}{\text{Sales Price}}$$

The Sales Ratio Study is the culmination of the ongoing process of collecting and verifying sales information. The State of Minnesota requires the reporting of sales information on an electronic Certificate of Real Estate Value (eCRV) in [Minnesota Statute 272.115](#). Assessors must verify and review sales information reported through eCRV before it can be used in the study. Sales must meet certain criteria to be included in the study, and these criteria are outlined in this document. These sales are then summarized and analyzed to make generalizations about the market and the assessment for the Sales Ratio Study. The Department of Revenue's Property Tax Data & Analysis Unit and Property Tax Compliance Officers (PTCOs) perform and review the bulk of the Sales Ratio Study, working closely with county assessors and staff.

The Sales Ratio Study is primarily used for the following purposes:

- [State Board of Equalization](#)
- [Tax Court](#)
- [Adjusted Net Tax Capacities](#)
- [Railroad and Utility Equalization](#)
- [Economic Market Values](#)

More information on how sales are studied for each of these purposes can be found in the following sections.

Beyond its primary uses, information from the study can be used for many other purposes. The study provides assessors with important information for refining the upcoming assessment, evaluating the existing assessment, and identifying inequities in an assessment. Legislators use information from the study when developing tax policy. Property owners may also use the studies if they have concerns about unfair or inequitable treatment by their assessor.

State Board of Equalization

The Minnesota State Board of Equalization uses a 12-month forward-adjusted study to review overall levels of assessment. The study period for the 2018 State Board of Equalization study is October 1, 2017 through September 30, 2018. This study adjusts sale prices by a determined market trend to estimate what the ratio

would be if the sale took place January 2, 2019. The State Board of Equalization study determines the median sales ratio for each jurisdiction by property type.

The Commissioner of Revenue constitutes the State Board of Equalization, and in that capacity is empowered to reduce disparities in assessment levels between counties and among the property types within counties. When the State Board of Equalization determines that there has been an unfair or inequitable assessment, the Commissioner is authorized under [Minnesota Statute 270C.94](#) to order a reassessment of any jurisdiction in order to make a correction.

Tax Court

The Minnesota Tax Court uses both a 9-month and a 12-month study when reviewing property valuation cases under [Minnesota Statute 278.05](#). The study period for the 2018 9-month Tax Court study is January 1, 2018 through September 30, 2018. The study period for the 2018 12-month Tax Court study is October 1, 2017 through September 30, 2018. For both of these studies, sales prices are adjusted by a determined market trend to estimate what the ratio would be if the sale took place on January 2, 2018. The Tax Court study determines the median sales ratio for each jurisdiction by property type.

The Tax Court uses the Tax Court studies to measure unequal levels of assessment within property types. The Tax Court prefers to use the 9-month study, for which all sales are backward-adjusted, because all sales occur after the assessment date.

When determining Tax Court ratios, separate commercial and industrial ratios will be determined if those property types have at least 6 sales. However, if one of those property types does not have at least 6 sales, a combined ratio (PT 94) will be determined based on the combination of those property types. If one of the property types has at least 6 sales and the other does not, a ratio will be issued both for the property type with at least 6 sales and for the combination of the two property types.

Adjusted Net Tax Capacities

The Department of Revenue uses a 21-month backward-adjusted study to calculate adjusted net tax capacities (ANTCs), as established by [Minnesota Statute 273.1325](#). The study period for the 2018 12-month ANTC study is January 1, 2017 through September 30, 2018. This study adjusts all sales that occur in 2017 backward to January 2, 2017 and all sales that occur from January 1, 2018 through September 30, 2018 backward to January 2, 2018 using a determined market trend to estimate what the ratio would be if the sale took place at the time of assessment. A weighted median sales ratio for each jurisdiction is calculated to be used for school and local government aid calculations as well as a variety of levy apportionments.

Railroad and Utility Equalization

The Department of Revenue uses a 12-month forward-adjusted study to equalize railroad and utility values under [Minnesota Statute 270.86](#). The study period for the 2018 State Board of Equalization study is October 1,

2017 through September 30, 2018. This study adjusts sale prices by a determined market trend to estimate what the ratio would be if the sale took place at the time of assessment (January 2, 2019). The Railroad & Utility Equalization study uses a median sales ratio of all commercial and industrial sales by county.

Economic Market Values

The Department of Revenue uses a 12-month study to calculate a jurisdiction's economic market value (EcMV). The study period for the 2018 EcMV study is October 1, 2017 through September 30, 2018. This study adjusts sale prices by a determined market trend to estimate what the ratio would be if the sale took place on January 2, 2018. Median sales ratios by property type for each jurisdiction are used to calculate a weighted market value for the jurisdiction. Bonding companies use the EcMV to measure fiscal capacities for bond rating calculations.

Methodology

This section describes the methodology employed by the Department of Revenue to perform the Sales Ratio Study, from collecting sale information to issuing final ratios. This methodology applies to all uses of the Sales Ratio Study outlined in [Overview of the Sales Ratio Study](#). Any differences in the methodology between uses will be noted. The 2018 Sales Ratio Study will analyze sales that occurred between January 1, 2017 and September 30, 2018.

The methodology can be broken down into several steps. The Department of Revenue collects sale information through eCRV and assessment information through PRISM. The sale price of a property reported on eCRV and the EMV of a property reported on PRISM are used to calculate a sales ratio for each sale. Sale prices may be adjusted based on the terms of the sale, and EMVs may be adjusted based on the presence of net improvement and/or exempt value. Sales are then stratified into representative groups based on their property type, county, city/township, and water influence status. Outlier sales within these representative groups are identified as extreme. A market condition trend is then determined for each representative group. If there is evidence of a market condition trend for a representative group, the trend will be applied to the sale prices of all sales in that group in order to determine what the sales prices would have been if the sale had occurred in January 2019. These adjusted sale prices are then compared to EMVs to determine each sales ratio, which are then aggregated and analyzed by county, city/township, property type, and water influence status. Each of these steps are further detailed in the following sections.

Sales Reporting

Sales information is the basis of the Sales Ratio Study. In Minnesota, all real estate transactions over \$1,000 must be reported on an electronic Certificate of Real Estate Value (eCRV) according to [Minnesota Statute 272.115](#). Counties and the Department of Revenue use the sale information reported on an eCRV to verify the sale, determine the sale's eligibility for the study, and perform the Sales Ratio Study.

The following sections will define how sales information should be reported and how it will be used in the study.

eCRV Submission Timeline

The 2018 Sales Ratio Study will include sales that occurred from January 1, 2017 through September 30, 2018. For sales that occur in this period, only those sales with an eCRV that is accepted by the county by November 1, 2018 will be included in the 2018 Study. Note that sales that do not meet this deadline for the 2018 Study will still be used in the 21-month studies of the 2019 Sales Ratio Study, assuming they meet all other criteria.

Sales included in the 2018 Study should be submitted to the Department of Revenue by November 10, 2018. This deadline is necessary to allow county assessors and PTCOs sufficient time to review the reports issued by the Department of Revenue, for counties to appeal applied market condition trends, and for the Department's appeals panel to meet and review appeals. See [Trend Appeals](#) for more information on the appeals process.

More information on eCRV can be found on the Department's [website](#).

Primary Parcel ID for Multi-Parcel Sales

If there are multiple parcels included in a sale, the county must identify which parcel is the primary parcel. Under the Parcels section on the County tab of eCRV, assign the primary parcel the lowest numeric Sequence ID of all the parcels included in the sale. For example, in a sale with two parcels, the primary parcel would have a Sequence ID of 1 and the other parcel would have a Sequence ID of 2.

The primary parcel ID for the sale will appear on the county [sales listing](#). It is important that all non-primary parcels are also reported on eCRV so that the Department of Revenue can accurately determine the total EMV for the sale. See Sales Listings for more information.

Determining Sales Ratio Property Types

Property types for sales ratio study purposes are determined for each sale based on the information reported on the eCRV for the sale. Each sale can only be assigned one sales ratio property type. Accurate reporting of the following fields is critical for ensuring that sales get assigned the correct sales ratio property type:

- Property Type Group—County tab, under Property Types

The Property Type Group describes generally the type of property included in the sale. For guidance on classifying commercial or industrial sales, see [Reporting Commercial and Industrial Sales](#).

- Primary Type for Study Indicator—County tab, under Property Types

This indicator determines which Property Type Group reported for a sale will be used to determine the sales ratio property type. Generally, the Property Type Group with the most value should be the primary type, but there are many exceptions to this rule. Contact your PTCO with any questions.

- Land/Building Indicator—Property tab, under Property Description Questions

This indicator describes whether Land and Buildings, Land only, or Buildings only were included in the sale, to determine if the sale should be classified as a bare land sales ratio property type.

- Deeded Acres—Property tab or County tab, under County Data

The deeded acres field describes whether an agricultural/rural vacant sale is more or less than 34.5 acres. This field is necessary only for agricultural and rural vacant sales.

- Agricultural Classification Acreage—County tab, under Property Types

For sales with both agricultural and rural vacant property types, the acreage amounts from the classification table will be used to determine whether a sale is considered 2a, 2b, or mixed. This table is necessary only for agricultural and rural vacant sales. For guidance on classifying 2a and 2b land, see [Reporting Agricultural and Rural Vacant Sales](#).

For a list and description of the sales ratio property types, see [Property Types](#). The 2018 Sales Ratio Property Types document on our [website](#) describes how information from eCRV is translated into sales ratio property types.

If the Department of Revenue cannot determine the sales ratio property type from the information reported on the eCRV, the sale will be flagged on the county's sales listing for further review. See [Sales Listings](#) for more information.

Reporting Commercial and Industrial Sales

It can sometimes be difficult to classify a property as either commercial or industrial. In an effort to ensure that sales are classified consistently across the state and to provide clarity to counties, the Department of Revenue recommends the following property uses be classified as **Industrial** for the Sales Ratio Study:

- Self/mini-storage
- Warehouses, including general, distribution, office, R&D/engineering, refrigerated, computer/data, and transit
- Manufacturing, including food processing, agribusiness related, high tech, general light, and general heavy
- Energy (not utility), including fuel production, fuel storage, refinery, wind energy conversion systems, and solar energy conversion systems
- Grain elevators
- Mineral deposits
- Gravel pits
- Waste/recycling

Any use not listed above should be considered commercial for the Sales Ratio Study. Deviations from these recommendations are allowed with an explanation in eCRV. Consult with your PTCO on any questionable properties.

A change in use from commercial to industrial or industrial to commercial should not be rejected as a use change, as both uses reside with the same class (3a). Within eCRV, under the County Tab > Property Types, the

‘Property Type Group’ should be based on the Buyer’s planned use of the property. As always if there are extenuating circumstances with a sale, contact your PTCO.

Reporting Agricultural and Rural Vacant Sales

In addition to reporting deeded acres, the Sales Ratio Study requires reporting the number of acres in 2a and 2b land identified as tilled, pasture, meadow, woods, waste, exempt wetland, exempt native prairie land, ditch/road, first acre site value, non-HGA additional site value, and other. In many parts of the state, sales will include a mixture of 2a and 2b lands. The acreage detail allows the Department of Revenue to assign the correct sales ratio property type to each sale. See [Property Types](#) for more information. Accurate reporting of the acreage detail is also critical for determining each county’s Green Acres value.

As the Department of Revenue and the counties transition to PRISM, the Department of Revenue continues to encourage improved data quality when reporting 2a and 2b acres. As part of that effort, definitions for each of the 2a/2b classifications are consistent across eCRV and PRISM. Definitions for each classification type can be found below.

- **Tilled:** Real estate devoted to, or cultivated productively for, the annual growing of agricultural products for sale, or that is tillable even if currently fallow.
- **Pasture:** Non-tillable real estate on which grass or other vegetation eaten as food by grazing animals grows, which is set aside for use by domestic grazing animals as part of a farm or ranch. (This usually requires fencing to restrict animal movement. Pasture land may include stands of trees if used for grazing by domestic animals.
- **Meadow:** Non-tillable real estate serving as a habitat of rolling or flat terrain where grasses predominate, typically containing a significant variety of annual, biennial and perennial plants. Meadow is grass land from which hay could be cut, distinguished from tilled land where alfalfa has been sown.
- **Woods:** Non-tillable real estate having stands of trees, including integral open space, and including felled areas that are awaiting restocking. Woodlands may support an understory of shrubs, herbs, or grasses. Some stands of trees could be considered “pasture” if used for grazing by domestic animals.
- **Waste:** Non-tillable real estate that cannot be used economically for agricultural use or production. Such land types include blowouts, river wash, marshes, swamps, sloughs (including wetlands covered all or part of the year with water, but not so deeply or permanently as to be classified as water surface per se), badlands, steep hillside, large deep gullies (including streambeds and banks, bluffs, and rock land).
- **Ditches and Roads:** Road, road right-of-way, and ditch acres that are included in deeded acres.
- **Other:** Any 2a or 2b land not included in the defined categories.
- **1st Acre Site:** First acre of a building site (1st acre of HGA).
- **Non-HGA Site:** Building site in excess of 1st Acre Site.

eCRV also allows counties to report acreage information related to exempt wetland and exempt native prairie land, if applicable. See the definitions below:

- **Exempt Wetland:** As defined by [Minnesota Statute 272.02](#), "wetlands" means:
 - Land described in section [103G.005, subdivision 15a](#) (as public wetlands);
 - Land which is mostly under water, produces little if any income, and has no use except for wildlife or water conservation purposes, provided it is preserved in its natural condition and drainage of it would be legal, feasible, and economically practical for the production of livestock, dairy animals, poultry, fruit, vegetables, forage and grains, except wild rice; or
 - Land in a wetland preservation area under sections [103F.612](#) to [103F.616](#).

"Wetlands" under clauses (i) and (ii) include adjacent land which is not suitable for agricultural purposes due to the presence of the wetlands, but do not include woody swamps containing shrubs or trees, wet meadows, meandered water, streams, rivers, and floodplains or river bottoms.

- **Exempt Native Prairie:** Land defined by [Minnesota Statute 272.02](#), and determined by the Commissioner of the Department of Natural Resources as native prairie. Pasture land used for livestock grazing purposes is not considered native prairie.

Reporting Special Assessments

In most cases, the inclusion of special assessments in the study can complicate the determination of the sale price without significantly improving accuracy. Special assessments for a sale should only be reported in eCRV if the buyer paid off delinquent special assessments and delinquent taxes owed on the property. These are costs that the buyer assumes in order to complete the transaction and are necessary for understanding the terms of the sale. Current and future special assessments that the buyer pays are generally considered the cost of owning the property rather than the cost of buying the property and do not need to be reported. This field can be found on the Sales Agreement tab of eCRV.

There may be special circumstances in which non-delinquent special assessments should be reported. Discuss any non-delinquent special assessments that should be included in the study of the sale with your PTCO. A manual adjustment to the sale price can be made for any buyer paid special assessments that had a known effect on the sale price. See [Sale Price Adjustments](#) for information on how special assessments are used in the study.

Reporting Water Value Influence

If the sale was influenced by the presence of water, water value influence must be reported on eCRV. Water value influence is necessary to determine whether a sale should be considered on-water or off-water for the purposes of the Sales Ratio Study (see [Regions](#) for more information on how water influence affects the study). This field can be found on the County tab, under Property Attributes. The available water influence options are defined below, including how they are used in the Sales Ratio Study. These definitions are consistent with PRISM water codes.

- **Lake:** Sale of a property physically located on, or having immediate access to, a lake with a valid DNR Water Code. This includes properties with egress accessibility, properties located across the road with a dock, and properties with shared immediate access and views. These sales will be considered **on-water** for the Sales Ratio Study.
- **River:** Sale of a property physically located on, or having immediate access to, a river with a valid DNR Water Code. This includes properties with egress accessibility, properties located across the road with a dock, and properties with shared immediate access and views. These sales will be considered **on-water** for the Sales Ratio Study.
- **Pond, Creek, or Stream:** Sale of a property physically located on, or having immediate access to, a pond, creek, stream, or other small body of water. These bodies of water should not have DNR issued IDs. Anything with a valid DNR issued ID should be reported as a lake or river. These sales will be considered **on-water** for the Sales Ratio Study.
- **Other:** Sale of a property that does not qualify for the other indicator types but has some sort of water influence. This includes but is not limited to properties across the road from a body of water with no egress accessibility or dock and properties with shared immediate access to a body of water but with no views. These sales will be considered **on-water** for the Sales Ratio Study.
- **Swamp or Slough:** Sale of a property physically located on, or having immediate access to, a swamp or slough. These sales will be considered **off-water** for the Sales Ratio Study.
- **None:** Sale of a property that is not on any type of water and does not have any water influence on value. These sales will be considered **off-water** for the Sales Ratio Study.

In some cases, a pond, creek, or stream may have no influence on the value of a property and a swamp or slough may have an influence on the value of the property. In these cases, the county should consult with their PTCO on assigning these sales a different water influence so they may be more appropriately studied as either on-water or off-water.

Counties may elect to remove the consideration of water influence in their county for the purposes of the Sales Ratio Study. Consult with your PTCO if you think there is little water influence in your county, and notify Data & Analysis if you would like the consideration of water influence removed for your county. If your county elects to remove the consideration of water influence in your county for the purposes of the Sales Ratio Study, water influence information will be ignored for the purposes of the Sales Ratio Study only. Water influence on a sale should still be accurately reported on eCRV, and water codes for each property should still be accurately reported in PRISM. This information may still be used for other purposes beyond the Sales Ratio Study at this time.

Rejecting Sales from the Study

All open market, arm's-length sales should be included in the Sales Ratio Study. An "open market sale" is one in which the buyer and seller are acting prudently and the price is not affected by undue stimulus. Neither the buyer nor the seller are under great pressure to complete a transaction in a short time. An "arm's-length sale" is

between two parties, both of whom are seeking to maximize their gain from the transfer. Open market, arm's-length sales that are included in the Sales Ratio Study are referred to as "good" sales.

Every sale must be verified to determine if it was an open market, arm's-length transaction. Counties must perform sales verifications. The Department of Revenue does not verify sales.

If a sale is determined to not be an open market, arm's-length sale, it may be rejected from the study. The reject field in eCRV can be found on the County tab, under County Data. Counties recommend a reject reason, and PTCOs confirm or deny this recommendation. The table below lists the reject reasons available in eCRV, along with the old sales file code associated with that reason. Detailed explanations and criteria for each reject reason can be found in [Reject Reason Definitions](#).

Sale Reject Reasons

Reject Reasons – Old Sales File Reject Codes	
Agricultural Preserve – 25	Legal Action – 15
Allocated Sale Price – 29	Multi County Sale – 24
Assessment Agreement – 25	MDOR Reject – 12
Assemblage – 31	Mortgage Assumption – 14
Assessor Restricted Value – 30	Non-Cash Financing – 06
Bank Sale (including HUD sales) – 21	Not Typical Market – 26
Below Minimum Down Payment – 22	Physical Change – 07
Contract Payoff – 14	Prior Interest Sale – 10
Correction Deed – 08	Partial Interest Sale – 04
Court Ordered Value – 27	Relocation – 19
Default (on contract for deed) – 18	Relative Sale – 02
Estate Sale (non-open market) – 09	Rewrite of Terms – 18
Exempt Party Sale – 03	Sale Under Minimum – 23
Excessive Non-Real Property – 17	Short Sale – 15
Foreclosure – 15	Split/Combined Sales– 16
Forced Sale – 15	Trade – 09
Gift - 09	Unusual Financing – 06
Government Agency Sale – 03	Use Change – 05
Income Guarantees – 06	Value Not Available – 16
Leaseback – 20	

These reject reasons are not necessarily hard and fast rules. A sale that sounds like it meets the reject criteria may still be considered an open market, arm's-length transaction. Consult with your PTCO on any questionable

rejections. The circumstances of each sale should be considered individually. A rejected sale will not be used in any studies in any year, including State Boards, Tax Court, and Adjusted Net Tax Capacities.

County Study or State Study

In eCRV, a user has the option to reject a sale in two different ways on the County tab, under County Data: the state study and the county study. There are many circumstances in which a sale should not be included in the Department's Sales Ratio Study but the county may want to consider the sale good for their internal studies, or vice versa. Rejections for the county study are ignored by the Department. If a sale should not be included in the Department's Sales Ratio Study, please ensure that the correct recommendation is made for the state study.

Split Sales

Agricultural and rural vacant split sales should be included in the Sales Ratio Study. For example, if a farmer sells 40 acres from a 160-acre farm, this would be considered a good split sale. Agricultural and rural vacant split sales consisting of fewer than 34.5 acres should NOT be included in the study. Split sales that are not agricultural or rural vacant should also be rejected from the study.

When a good split sale occurs, the county assessor must ensure that the value is split promptly and a new parcel ID is assigned so that these sales can be properly analyzed for the study.

Resales

If a property sells more than once within the study period, only the most recent good sale is included in the study. These sales will be automatically removed from the study by the Department of Revenue based on matching parcel IDs. The county should not reject resales in eCRV if they were otherwise good, open market, arm's-length transactions.

Net Improvements

There are certain situations where, due to net improvements on the property, a sale price cannot be reasonably compared to the necessary EMVs. In the following situations, the sale should be rejected from the study:

1. If net improvements occurred after the assessment date but before the sale, the sale should be rejected. In these cases, the assessed net improvement amount may be affected by the sale price so the study cannot accurately measure a county's assessing level.
2. If the sale occurred between October 2017 and December 2017 and net improvements occurred after the sale but before the 2018 assessment, the sale should be rejected. If these sales were accepted, the 2019 EMV would have to be adjusted by 2017 net improvement value which might have been impacted by market forces in the 12+ months since the improvement.

For more information, see the [EMV Adjustments for Net Improvements Flow Chart](#) which describes all of the scenarios where a sale with net improvements should be accepted or rejected and how the accepted sales will be adjusted.

Sales that occurred between January 2017 and September 2017 were already accepted or rejected in the 2017 Study. Those accepts and rejects still apply for the 2018 study.

Sales Listings

The Department of Revenue compiles the information reported through eCRV into sales listings for each county for all good sales in the study period. These sales listings are issued to each county regularly to represent the data that the Department will use to perform the study. It is each county's responsibility to ensure that the appropriate sales are being included in the study and that the information for each sale is correct. Data & Analysis performs audits on all sale data to help identify and flag sales that may require additional review. These flags will also be displayed on the sales listing. See the [Sales Listing Companion](#) for more details about the information provided on the sales listings. Counties should notify their PTCO of any errors on the listing as early as possible so that it can be corrected in eCRV.

A listing of rejected sales is also available by request. Please notify Data & Analysis if you would like to receive a reject sales listing.

PRISM Reporting

Counties are required to send the Department of Revenue four parcel-level PRISM files each year. Parcel information from PRISM is matched with sale information from eCRV based on parcel ID.

Land, building, and net improvement EMVs from the following PRISM files will be used in the 2018 Sales Ratio Study:

- PRISM Submission 2: **2017** Adjusted Assessment. The EMVs on this file will be used to calculate market condition trends. See [Market Condition Trends](#) for more information.
- PRISM Submission 2: **2018** Adjusted Assessment. The EMVs on this file will be used to calculate preliminary ratios. See [Preliminary Ratios](#) for more information.
- PRISM Submission 1: 2019 Preliminary Assessment. The EMVs on this file will be used to calculate final ratios. See [Final Ratios](#) for more information.

Net improvement values reported through PRISM should be the net change in EMV due to new construction, demolition, or other physical changes that result in **either positive or negative** value adjustments to the property. For example, if a \$40,000 garage is torn down and a \$20,000 addition is built on a parcel, the net improvements should be reported as -\$20,000.

Exempt values reported on these PRISM files will also be used in the 2018 Study. Exempt values are only required to be reported to the Department of Revenue every six years on PRISM Submission 2. The last exempt

reporting year was 2017 and the next is 2022. However, counties have the option to report exempt values on PRISM Submission 2 in any year.

If a county reports exempt values on any given Submission 2, those values will be used to adjust EMVs. See [EMV Adjustments](#) for more information on what is adjusted and when. If a county chooses to report exempt values in a non-required reporting year, there is no requirement that the values be updated from the last required reporting year. Choosing to report exempt values in non-required years may help counties cut down on time spent editing sales information for the study and will improve the accuracy of the Sales Ratio Study.

The county should pay particular attention to the EMVs on their sales listing. EMVs reported in PRISM can be overridden for Sales Ratio Study purposes in eCRV. Notify your PTCO if an EMV needs to be changed in eCRV. Exempt values will not be added to EMVs overridden in eCRV. If there is exempt value that should be included in the EMV for the purposes of comparing the assessed value to the sale price, the value should be entered into eCRV under an “Exempt” Property Type Group on the County tab, under Property Types.

For more information on PRISM, see the [PRISM webpage](#). Please notify Data & Analysis if you would like to see other PRISM information on the sales listings.

Sale Price Adjustments

In order to determine a market sales price, the Department of Revenue may adjust a sale’s gross sale price by several factors included in the terms and financing of the sale. These adjustments allow the sale price to be compared to the assessor’s EMV.

The net sale price is the gross sale price after adjusting for the terms and financing of the sale. See the equation for net sale price below.

$$\text{Net sale price} = \text{Gross sale price} - \text{personal property} - \text{seller paid points} + \text{special assessments} + \text{financing adjustments}$$

Gross sale price, personal property, seller paid points, and special assessments are reported directly on the Sales Agreement tab of eCRV. See [Reporting Special Assessments](#) for details on which special assessments should be reported on eCRV. Financing adjustments are determined by the Department of Revenue based on financing arrangements reported on the Sales Agreement tab of eCRV. See the following [Financing Adjustments](#) section for more information on when and how these financing adjustments are made.

The net sale price is used in all ratio calculations, including those ratios used to determine market condition trends. Once the market condition trend is determined, it is applied to the net sale price. See [Market Condition Trends](#) and [Ratios](#) for more information on these calculations.

Financing Adjustments

[Minnesota Statute 270.12](#) requires that financing adjustments are made when performing the Sales Ratio Study. The Department of Revenue calculates a financing adjustment for sales with non-market financing in order to

estimate what the sale price would have been with market financing. Any sale with an assumed mortgage or a contract for deed will be considered for a financing adjustment.

Financing adjustments are based on basic present value equations. The Department determines the present value of payments using the market rate rather than the contract rate over the length of the contract. This can be replicated in Excel using the following formula:

=PV(rate/p, nper, pmt)

- **Rate** is the market rate. Market rates are published on the Department of Revenue's [Interest Rate Bulletin](#).
- **P** is the annual number of payments. If the contract calls for annual payments, this number will be 1. If semiannual, 2. If quarterly, 4. If monthly, 12.
- **Nper** is the total number of payments that will be made over the length of the contract.
- **Pmt** is the payment amount.

If there are multiple financing arrangements, the present value must be calculated for each arrangement.

If there is a balloon payment, the present value of the balloon payment is determined using the following formula, where “# of Years” is the number of years between the original contract date and the date of the balloon payment:

$$PV_{Balloon} = \frac{Balloon\ Amount}{(1 + Market\ Rate)^{\#\ of\ Years}}$$

Once the present value is determined for each financing arrangement and the balloon payment (if applicable), the present values are summed for a total present value. The sum of the contract amounts for each arrangement is subtracted from the total present value to get the financing adjustment amount for the sale.

There are several conditions where a financing adjustment will not be automatically made on an assumed mortgage or contract for deed sale.

- The contract rate is within half a percentage point of the market rate. Market rates are published on the Department of Revenue's [Interest Rate Bulletin](#).
- The determined financing adjustment is less than 1% of the net sale price.
- There are more than two financing arrangements.
- The payments are for “Principal Only” or “Interest Only” and no balloon payment is reported.
- The payment type or payment for is reported as “Other.”

While an automatic adjustment will not be made, sales that meet at least one of the last three conditions will be flagged on the sales listing. Counties should review these sales to determine a suitable financing adjustment, if any.

The Department's automatic financing adjustments may not be appropriate for specific sales, as determined during the sales verification process. In these cases, the adjustment can be manually overridden by the PTCO. Work with your PTCO to determine a more appropriate financing adjustment for these sales.

Interest Rate Bulletin

The Department of Revenue publishes market rates for the purposes of the Sales Ratio Study on the [Interest Rate Bulletin](#). There are three separate rates for residential/seasonal residential recreational, agricultural/rural vacant, and commercial/industrial/apartment sales. This bulletin is updated quarterly.

EMV Adjustments

The Department of Revenue may adjust the assessor's EMV for the purposes of the Sales Ratio Study in order to accurately compare the EMV to the net sale price. If there were net improvements on a property before or after the sale, that property's EMV may be adjusted by the net improvement amount for particular years. If there are certain types of exempt property included in the sale, that exempt value may be added to the EMV. Each of these EMV adjustments are detailed below.

Net Improvements

If there were net improvements on a property that sells within the 2018 study period, certain EMVs may need to be adjusted by the net improvement amount in order to compare the EMV to the sale price. Net improvements that occur before January 2, 2017 and after January 2, 2019 do not affect EMV adjustments. The [EMV Adjustments for Net Improvements Flow Chart](#) describes when and how EMVs are adjusted for net improvements. A high resolution version of this flow chart is available on our [website](#). Note that net improvements that occur during an assessment year are reported in the following assessment year, i.e. net improvements that occur in 2017 will be reported to the Department of Revenue in 2018 and will be called 2017 net improvements.

There are certain situations where these adjustments to the EMV cannot be made and the sale should be rejected. See [Rejecting Sales from the Study](#) for more information on when sales should be rejected for net improvements.

Net Improvement Adjustment Example

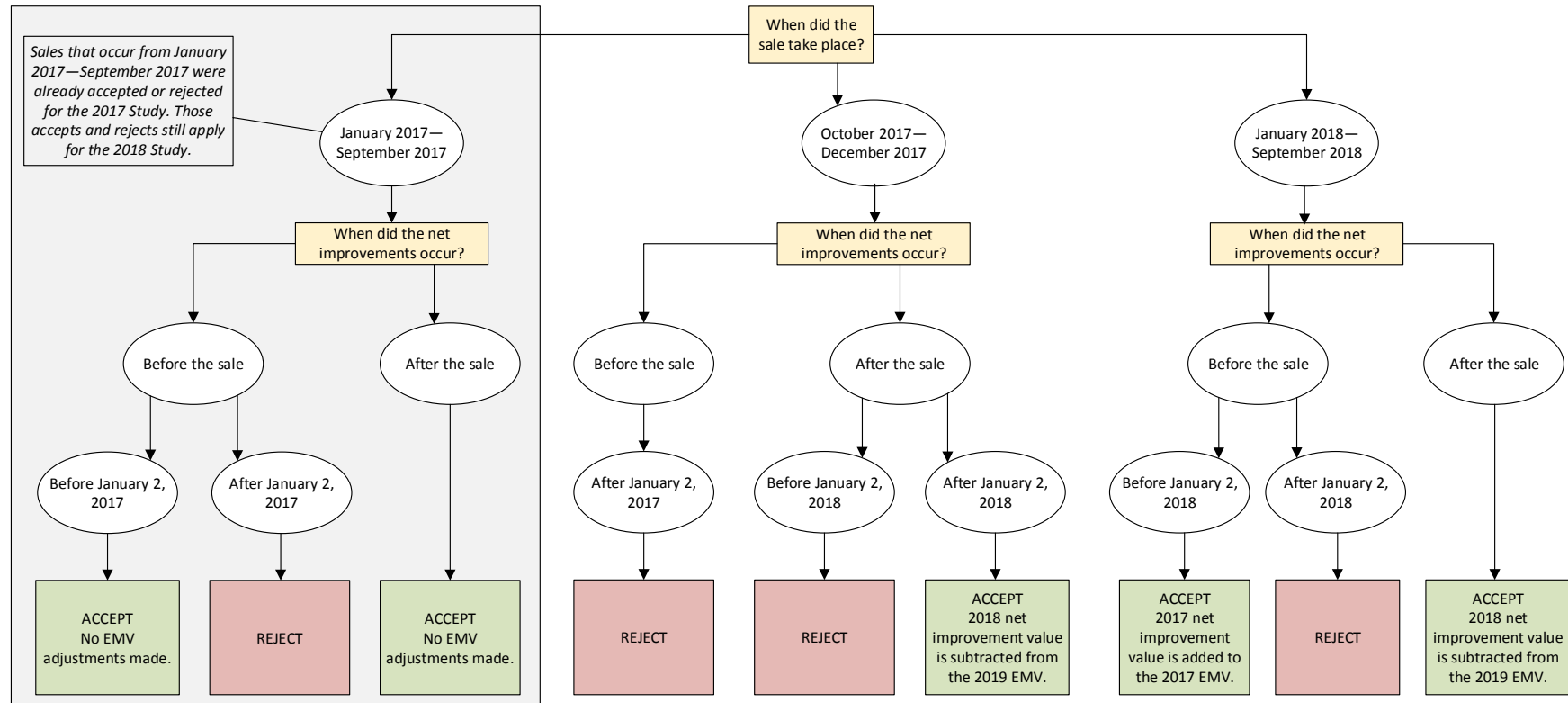
Sale Date	Sale Price	Net Improvement Date	Net Improvement Amount	2017 EMV	2019 EMV
June 2018	\$200,000	June 2017	\$50,000	\$125,000	\$180,000

In this example, if the 2017 EMV is not adjusted, the inverted ratio used for market condition trends (see [Market Condition Trends](#)) would be 160% ($\$200,000 / \$125,000$) because the 2017 EMV does not reflect the net improvements. This would not be comparing apples-to-apples, since the sale price includes the net

improvement value but the 2017 EMV does not. Therefore, this sale needs its 2017 EMV adjusted by the 2017 net improvement amount reported in 2018.

Now, the adjusted inverted ratio for trend calculations would be $\$200,000/(\$125,000 + \$50,000)$, or 114%. The final ratio will not require any adjustments for net improvement value because the 2019 EMV includes that value already, as does the sale price. The final ratio would be $\$180,000/\$200,000$, or 90%.

EMV Adjustments for Net Improvements Flow Chart



Exempt Value

The EMVs reported through PRISM only describe the taxable property on a parcel. Therefore, in order to determine the total assessed value that should be compared to the sale price for a sales ratio, exempt value reported through PRISM may need to be added to the EMV reported through PRISM.

The value of the following types of exempt property will be used to adjust EMVs:

- Senior citizen facilities (PRISM code 0720)
- Elderly living facilities (PRISM code 0780)
- Ag containment facilities (PRISM code 1010)
- Manure pits (PRISM code 1020)
- Monosloped roofs (PRISM code 1040)
- Wetlands (PRISM code 1100)
- Native prairie (PRISM code 1200)

Exempt values were required on 2017 PRISM Submission 2. The value of the above exempt types reported on 2017 PRISM Submission 2 will be added to the 2017 EMV. If a county chooses to report exempt values on their 2018 PRISM Submission 2, the value of the above exempt types reported on that file will be added to the 2018 EMV reported on the 2018 PRISM Submission 2 **and** to the 2019 EMV reported on the 2019 PRISM Submission 1.

Choosing to report exempt values in non-required years may help counties cut down on time spent editing sales information for the study and improve the accuracy of the Sales Ratio Study.

Exempt values will not be added to EMVs overridden in eCRV by the PTCO. If there is exempt value that should be included in the EMV for the purposes of comparing the assessed value to the sale price, the value should be entered into eCRV under an “Exempt” Property Type Group on the County tab, under Property Types.

Stratification

Sales within the 2018 study period are stratified into representative groups for market condition trend calculations and for ratio calculations. Stratification is based on each sale’s property type, city, county, and water status.

Property Types

The Department of Revenue determines each sale’s property type for the Sales Ratio Study based on information reported on eCRV. See [Determining Sales Ratio Property Types](#) for information on which eCRV fields are used to determine each sale’s sales ratio property type. The [Sales Ratio Property Types](#) table below lists the various property types that sales are sorted into. Each sale is only assigned one property type. The 2018 Sales Ratio Property Types document on our [website](#) describes how information from eCRV is translated into these property types. Each of these property types are then combined with like property types to form property type

aggregations. These aggregations are the basis for determining market condition trends and ratios. See [Property Type Aggregations](#) for more information.

When determining if an agricultural and/or rural vacant sale should be considered 2a, 2b, or mixed 2a/2b for the purposes of assigning sales ratio property types, the Department will first consult the Agricultural Classification Acreage reported on the County tab, under Property Types on eCRV. If more than 75% of the acreage included in a sale is classified as 2a, the sale will be considered 2a. If more than 75% of the acreage included in a sale is classified as 2b, the sale will be considered 2b. A sale which is not at least 75% 2a acreage nor 75% 2b acreage will be considered mixed 2a/2b. If Agricultural Classification Acreage is not provided on eCRV, the primary Property Type Group as identified on the County tab, under Property Types on eCRV, will determine if a sale is considered 2a or 2b. However, if Agricultural Classification Acreage is not provided on eCRV, that sale will be flagged on the sales listing. This detail is necessary in order to compute each county's Green Acres value.

When determining if an agricultural and/or rural vacant sale should be considered more or less than 34.5 acres, the Department will first consult the Deeded Acres field on eCRV, found on the Property tab or on the County tab, under County Data. If Deeded Acres is not provided on eCRV, the total Agricultural Classification Acreage will be used. If neither is provided, a property type cannot be determined and the sale will be flag on the county's sales listing.

Sales Ratio Property Types

Sales Ratio Property Type Code	Sales Ratio Property Type Description
01	Residential (less than 4 units)
02	Apartments
03	Non-commercial seasonal residential recreational
06	Commercial
07	Industrial
08	Public utility
09	Railroads
10	Mineral
14	Seasonal recreational commercial and resorts
20	Personal property
21	Residential bare land
22	Apartment bare land
23	Seasonal recreational bare land
26	Commercial bare land
27	Industrial bare land
30	Exempt
31	Agriculture 2a - land with buildings more than 34.5 acres
32	Agriculture 2a - bare land more than 34.5 acres
33	Rural Vacant 2b - land with buildings more than 34.5 acres
34	Rural Vacant 2b - bare land more than 34.5 acres
35	Managed Forest 2c - bare land more than 34.5 acres
36	Agriculture 2a - land with buildings less than 34.5 acres
37	Agriculture 2a - bare land less than 34.5 acres
38	Rural Vacant 2b - land with buildings less than 34.5 acres
39	Rural Vacant 2b - bare land less than 34.5 acres
40	Managed Forest 2c - bare land less than 34.5 acres
47	Mixed 2a, 2b - land with buildings more than 34.5 acres
48	Mixed 2a, 2b - bare land more than 34.5 acres
49	Mixed 2a, 2b - land with buildings less than 34.5 acres
50	Mixed 2a, 2b - bare land less than 34.5 acres
51	Manufactured home parks

Property Type Aggregations

Various sales ratio property types are combined into like groups to form property type aggregations. The [Sales Ratio Property Type Aggregation](#) table below describes which property types are combined to form these aggregations. A high resolution version of this table is available on our [website](#).

Market condition trends are determined based on the following property types/aggregations:

- 02 – Apartments
- 06 – Commercial
- 07 – Industrial
- 91 – Residential/Seasonal Residential Recreational
- 93 – Agricultural/Rural Vacant Bare Land

All of the sales in each of these property types will then be separated by region. See [Regions](#) for more information.

Note that some property types fall within more than one aggregation and some property types do not fall in an aggregation at all. The aggregations noted with an asterisk in the table below include property types that also fall in the 93 aggregation. In those aggregations, sales that are also in the 93 aggregation will be adjusted by the 93 trend while all other sales in the aggregation will not be adjusted by a trend. The 96 aggregation is used as a catch-all aggregation for property types which are not used to calculate market condition trends and ratios. Although sales in the 96 aggregation will not be used in the Sales Ratio Study, they are good sales which may be studied in other ways.

Sales Ratio Property Type Aggregations

Use	Aggregation Code	Aggregation Description	Property Type Code	Description
Ratio + Trend	02	Apartments	02	Apartments
Ratio + Trend	06	Commercial	06	Commercial
Ratio + Trend	07	Industrial	07	Industrial
Ratio	90	Bare Land LESS than 34.5 acres 2a, 2b, 2c, and mixed	37	Agriculture 2a - bare land less than 34.5 acres
			39	Rural Vacant 2b - bare land less than 34.5 acres
			40	Managed Forest 2c - bare land less than 34.5 acres
			50	Mixed 2a, 2b - bare land less than 34.5 acres
Ratio + Trend	91	Residential/Seasonal Recreational Residential	01	Residential (less than 4 units)
			03	Non-commercial seasonal residential recreational
Ratio	92*	Bare Land MORE than 34.5 acres 2b, 2c, and mixed	34	Rural Vacant 2b - bare land more than 34.5 acres
			35	Managed Forest 2c - bare land more than 34.5 acres
			48	Mixed 2a, 2b - bare land more than 34.5 acres
Ratio + Trend	93	Bare Land MORE than 34.5 acres 2a, 2b, 2c and mixed	32	Agriculture 2a - bare land more than 34.5 acres
			34	Rural Vacant 2b - bare land more than 34.5 acres
			35	Managed Forest 2c - bare land more than 34.5 acres
			48	Mixed 2a, Rural 2b - bare land more than 34.5 acres
Ratio + Trend	95	Bare Land + Land with Buildings MORE than 34.5 acres 2a, 2b, 2c, and mixed	31	Agriculture 2a - land with buildings more than 34.5 acres
			32	Agriculture 2a - bare land more than 34.5 acres
			33	Rural Vacant 2b - land with buildings more than 34.5 acres
			34	Rural Vacant 2b - bare land more than 34.5 acres
			35	Managed Forest 2c - bare land more than 34.5 acres
			47	Mixed 2a, 2b - land with buildings more than 34.5 acres
			48	Mixed 2a, 2b - bare land more than 34.5 acres
NOT USED	96	Miscellaneous property type codes for sales not included in ratios or trends	08	Public utility
			09	Railroads
			10	Mineral
			14	Seasonal recreational commercial and resorts
			20	Personal property
			21	Residential bare land
			22	Apartment bare land
			23	Seasonal recreational bare land
			26	Commercial bare land
			27	Industrial bare land
			30	Exempt
			36	Agriculture 2a - land with buildings less than 34.5 acres
			38	Rural Vacant 2b - land with buildings less than 34.5 acres
			49	Mixed 2a, 2b - land with buildings less than 34.5 acres
			51	Manufactured Home Parks

Regions

For the purpose of the Sales Ratio Study, regions are geographic areas that have been identified as having similar markets for a particular property type. Regions can be a jurisdiction, a county, or a group of jurisdictions or counties. Residential/SRR (91) sales are further split into on-water regions and off-water regions. See [Reporting Water Value Influence](#) for more information on identifying on- and off-water sales. Market condition trends, or trends, are determined based on sales of the various property types in these regions.

Every sale in each property type aggregation has a base region, or the area for which a trend is initially calculated. However, if there are less than 30 sales or the trend is statistically insignificant in the base region, the sales in that aggregation may revert to the trend of a larger default region. If the default region has less than 30 sales or the trend is statistically insignificant, the sales in that base region receive no trend. Default trend calculations include all sales within the default region, even if some of those sales are receiving a base trend. See [Market Condition Trends](#) for more information on how trends are determined and applied.

Below is a summary table of each property type aggregation's base and default regions. Note that these are general rules for the state. Base and default regions are flexible and can be tailored to suit the needs of each county's markets. Please contact your PTCO and Data & Analysis to discuss changing your regions. Region change requests are due August 31, 2018. Contact Data & Analysis for clarification on your county's regions.

Base and Default Regions by Property Type Aggregation

Property Type Aggregation	Base Region	Default Region
02 – Apartments*	County	None
06 – Commercial*	County	None
07 – Industrial*	County	None
91W – Residential/SRR On-Water	Residential region	Countywide on-water OR combined on-/off-water base region
91N – Residential/SRR Off-Water	Residential region	Countywide off-water
93 – Agricultural/Rural Vacant	County	Agricultural/rural vacant region

*Indicates aggregations for which metro counties and first class cities have different regions. See below for details.

Apartments, Commercial, and Industrial Regions

Trends for apartments, commercial, and industrial sales are generally determined at the county level. However, the following cities will be considered their own region, and the sales in these cities will not be included in the county's trend calculation:

- Minneapolis
- St. Paul
- Duluth + Hermantown
- Rochester
- St. Cloud
- Moorhead

For metro counties, commercial and industrial sales default to a metro wide region that includes Minneapolis and St. Paul.

For apartment sales, metro counties will default to a metro wide region that excludes Minneapolis and St. Paul. Minneapolis and St. Paul default to a combined Minneapolis and St. Paul region.

Residential/Seasonal Residential Recreational Regions

Residential/SRR base regions are geographic subsets of a county. These base regions are determined by the county. Residential/SRR regions range in size from an individual city or township, to groups of cities and townships, to the entire county. These regions do not need to be contiguous areas, but they should all share similar markets.

In counties with water influence, there will be separate base and default regions for on-water residential/SRR sales and off-water residential/SRR sales. The base regions are determined by the county, and they do not need to cover the same geographic area as the off-water base regions. The standard default for on-water base regions is the countywide on-water trend. However, Counties can elect for their on-water sales to default to a combined on- and off-water trend for the geographic area of the on-water base region. Off-water base regions default to a countywide off-water trend.

The following cities will be considered their own regions, both on-water and off-water, and the sales in these cities will not be included in the countywide trend calculations:

- Minneapolis
- St. Paul
- Duluth
- Rochester
- St. Cloud

Counties may elect to remove the consideration of water influence in their county for the purposes of the Sales Ratio Study. Consult with your PTCO if you think there is little water influence in your county, and notify Data &

Analysis if you would like the consideration of water influence removed for your county. If your county elects to remove the consideration of water influence in your county for the purposes of the Sales Ratio Study, water influence information will be ignored for the purposes of the Sales Ratio Study only. Water influence on a sale should still be accurately reported on eCRV, and water codes for each property should still be accurately reported in PRISM. This information may still be used for other purposes beyond the Sales Ratio Study at this time.

Agricultural/Rural Vacant Regions

Agricultural/rural vacant regions are made up of at least two counties. Minnesota is divided into 23 agricultural/rural vacant regions. Go to [Agricultural/Rural Vacant Region Map](#) to see the regions.

Agricultural/rural vacant trends are first calculated at the county level. If the county has at least 30 sales and a statistically significant trend, it will receive its individual county trend. Otherwise, the county is eligible to receive the regional trend if the agricultural/rural vacant region has at least 30 sales and a statistically significant trend.

Joint Cities

A joint city is a city that crosses county boundaries. A joint city may have parcels in more than one county. There are 42 joint cities in the State of Minnesota. Joint cities may be treated differently than other jurisdictions for the purposes of the Sales Ratio Study to ensure that trends, ratios, and statistics accurately reflect the assessment of the multiple county components of the joint city.

Every joint city is assigned a home county based on the highest percentage of value or improved parcels in the city. Every joint city also has one or more non-home counties. These are the complement to the home county, the county or counties that do not make up the highest percentage of value or improved parcels in the city. The county of location refers to the county which individual parcels are located in.

If a city falls within more than one county, only the part of the city that falls in each county (the count of location) is used when calculated each county's countywide trend. If the trend of a joint city must default to a countywide trend, the whole city receives the home county countywide trend. See [Joint City Regions](#) for the list of base and default regions for each joint city and the exceptions to these rules.

Determining Extremes

Once sales are stratified into their representative groups, the Department of Revenue identifies any extreme sales within each representative group that should not be included in certain aggregate analysis as they may distort the analysis.

The Department of Revenue determines extreme sales using an interquartile range (IQR). The IQR methodology uses the distribution of ratios within a representative group to determine which sales fall outside of the normal distribution of sales for that particular representative group. Sales outside of the lower and upper boundaries determined by the IQR methodology will be considered extreme sales. These limits fall approximately 2 to 3 standard deviations from the mean ratio.

The following steps outline how to calculate the IQR range for each representative group. The ratios used to determine the IQR range depend on the stage of the study. See [Preliminary Extremes](#) and [Final Extremes](#) for more information:

1. Determine the first quartile, or the point where 25% of sales ratios fall below.
2. Determine the third quartile, or the point where 75% of all sales ratios fall below.
3. Calculate the difference between the first and third quartile.
4. Calculate the lower and upper boundaries. Lower boundary = first quartile – 1.5 * difference. Upper boundary = third quartile + 1.5 * difference.

Good open market, arm's-length sales can be extreme, outlier sales. The Department of Revenue will determine which sales are extremes, but these sales will not be automatically removed from the study. Rather, these sales may sometimes be excluded from the aggregate analysis of the Sales Ratio Study as they can cause distortion in analysis, especially if the sample size is small. Extreme sales will be identified on each county's sales listing.

The following table describes when extremes are excluded for which calculations at each stage of the study.

Counties should not reject a sale from the study on the sole basis of it being extreme. Sales identified as extreme could indicate that the sale needs additional verification. Extreme sales could be the result of an error on the eCRV, a physical change to the property, or a processing error.

Summary of Extreme Sale Use

	Trend Calculations	Ratios	Assessment Statistics
Preliminary Stage	Preliminary extremes excluded	Preliminary extremes not excluded	Preliminary extremes excluded
Final Stage	N/A	Final extremes not excluded	Final extremes excluded

Preliminary Extremes

Preliminary extremes will be determined during the preliminary phase of the study, before 2019 EMVs have been reported to the Department. Preliminary extremes are determined using the IQR methodology based on the distribution of sales ratios over the **21-month study period** (January 2017—September 2018) at the base region level. For example, agricultural/rural vacant preliminary extremes will be determined at the county level, and residential/SRR preliminary extremes will be determined at the residential regional level. The following ratio for each sale should be used for the purposes of determining preliminary extremes, where the sale price is adjusted for the terms of the sale (see [Sale Price Adjustments](#)) and the 2017 EMV is adjusted for net improvements and exempt value (see [EMV Adjustments](#)):

$$\text{Sales Ratio} = \frac{\text{2017 Adjusted Estimated Market Value}}{\text{Net Sales Price}}$$

Preliminary extremes are then removed from consideration when calculating market condition trends. For consistency, sales identified as a preliminary extreme at the base region level will still be considered a preliminary extreme when used to calculate a default region trend. Extremes will not be recalculated at the default region level when determining a default region trend.

The same sales identified as a preliminary extreme at the base region level will be removed when determining each county's and jurisdiction's preliminary assessment statistics. See [Assessment Statistics](#) for more information on the calculation of assessment statistics. Extreme sales are not removed for the purposes of determining ratios.

Final Extremes

Final extremes will be determined during the final phase of the study, after 2019 EMVs have been reported to the Department. Final extremes are determined using the IQR methodology based on the distribution of sales over the **12-month study period** (October 2017—September 2018) ratios at the base region level. For example, agricultural/rural vacant preliminary extremes will be determined at the county level, and residential/SRR preliminary extremes will be determined at the residential regional level. The following ratio for each sale should be used for the purposes of determining final extremes, where the sale price is adjusted for the terms of the sale (see [Sale Price Adjustments](#)) and the 2017 EMV is adjusted for net improvements and exempt value (see [EMV Adjustments](#)):

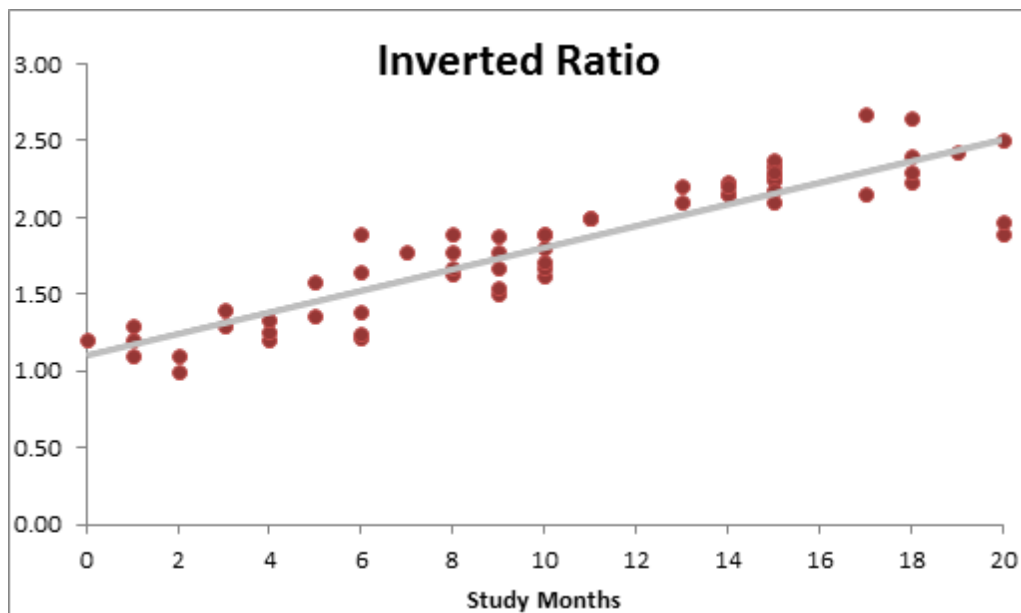
$$\text{Sales Ratio} = \frac{\text{2019 Adjusted Estimated Market Value}}{\text{Net Sales Price Adjusted to January 2019}}$$

Final extremes are removed for the purposes of calculating final assessment statistics at the county and jurisdiction level only. See [Assessment Statistics](#) for more information on the calculation of assessment statistics. The determination of final extremes will not affect market condition trends, which are finalized in January 2019. Extreme sales are not removed for the purposes of determining ratios.

Past Extreme Determination

Prior to the 2014 Sales Ratio Study, sales with ratios below 50% or above 200% were considered extreme ratios. These arbitrary limits were used in an effort to make our study replicable at the county level. Extreme ratios are now calculated using the interquartile range (IQR). The IQR methodology uses the distribution of the ratios to establish new boundaries for extremes. With these new boundaries, ratios above 200% might be included, as long as the methodology suggests that it is part of the distribution of sales. For example, the graph below represents a region experiencing rapid increases in sales prices over the study period. In this scenario, trimming all sales greater than 2.0 would not be representative of the market. Counties can use the MCAST, available on the Department's [website](#), to replicate the IQR methodology for determining extremes.

Determining Extremes: Rapidly Increasing Market Example



Market Condition Trends

Once sales are stratified into their representative groups and preliminary extremes have been identified, the Department of Revenue determines if there are any market condition trends occurring within each group. A simple linear regression of sales ratios is then run over the 21-month study period to calculate market condition trends. If there is evidence of a trend, sale prices will be adjusted for market conditions. See [Market Condition Adjustments](#) for more information on those calculations. Counties are notified of the Department's determined trends in October. Any edits made to sale information may affect the county's trends, and the Department will issue updated trends to counties regularly. Counties have until mid-December to appeal their trends issued by the department. See [Trend Appeals](#) for more information. In mid-January, after the appeal process is complete, trends will be finalized and any further edits to sales will not affect the final market condition trends that have been issued.

The IAAO recognizes market condition adjustments as a crucial part of any ratio study. IAAO recommends five methods for calculating market condition adjustments:

- Paired sales analysis
- Resale analysis
- Sales ratio time trend analysis
- Multiple regression analysis
- Comparing per-unit values over time

Paired sales, multiple regression, and per-unit analyses require more extensive sale and parcel data than the Department collects. Per-unit and resale analyses require a higher volumes of sales and resales. This leaves the Department with the sales ratio time trend method, which can be applied fairly throughout the state.

The basis for the sales ratio time trend method is that changes in market conditions are represented by changes in sale prices over time. However, a simple analysis of changes in sale price can be misleading, especially in areas with few sales. A difference in median sale price of 10% from one month to the next does not usually mean that market values changed 10%. Rather, this is typically a sign that different types of properties sold in each month with more valuable properties being sold in one month than the other. To find out if overall values actually changed, these prices need to be standardized so they can be compared on the same scale.

Using the sales ratio accomplishes this goal because it controls for individual characteristics of the properties, making them comparable. For market condition analysis, we use the inverse of the sales ratio (sale price/assessed value) for ease of interpretation. For example, using the inverted ratio allows us to compare the assessment of a home that sold for \$200,000 to a newer neighboring home that sold for a higher price. The house that sold for \$200,000 should have an EMV that is lower than the house that sold for a higher price, so even though the two homes sell for different prices, the inverted ratio provides an apples-to-apples comparison. Calculating trends with the inverted ratio allows us to isolate the effect of prices, **given an acceptable uniformity of assessment**. An increase in the inverse sales ratio over time indicates an increase in sale prices, and a decrease in the ratio corresponds to a decrease in sale prices relative to assessed values as of a fixed date.

If a default region includes multiple counties, the trend calculation will include a normalization of the ratios. Before a regression is run on the inverted ratios of multiple counties, each sale's inverted ratio is divided by the median inverted ratio for that property type in that county. The regression is then run on these new values. This accounts for counties targeting different assessment levels.

Only sales identified as good open market, arm's-length transactions are used to determine market condition trends. Additionally, preliminary extremes are not included in the trend analysis as they can distort calculations. See [Determining Extremes](#) for more information on how extremes are determined.

Once sales are stratified into representative groups, the following regression equation is run, where the sale price is adjusted for the terms of the sale (see [Sale Price Adjustments](#)), the 2017 EMV is adjusted for net improvements and exempt value (see [EMV Adjustments](#)), the beta coefficient (β_1) is the monthly growth rate, and the intercept (β_0) is the expected value of the ratio on January 1, 2019:

$$\text{Natural Log} \left(\frac{\text{Net Sales Price}}{\text{2017 Adjusted EMV}} \right) = \beta_0 + \beta_1 \text{Study Month} + \varepsilon$$

The estimated coefficient of beta (β_1) can be interpreted as the percentage change in the ratio for each additional month. This monthly growth rate is ultimately what is used to make a market condition adjustment to as sale. The beta (β_1) coefficient is always accompanied by a significance value. Market condition adjustments are only applied if the beta coefficient (β_1) is statistically significant at the 90% confidence level.

The following equation can be used to calculate the annual market condition trend using the monthly growth factor (β_1):

$$\text{Annual Growth} = (1 + \text{Monthly Growth})^{12} - 1$$

As noted in [Regions](#), market condition trends are only applied to sales in regions with at least 30 sales. This threshold is necessary to ensure that there is an adequate sample size. For the Sales Ratio Study, the sample consists of parcels sold within the region. We make the assumption that these sales are representative of the property values of all parcels within the region. To have confidence that that assumption is valid, we need to have a large enough sample size. Using a minimum of 30 sales for market condition trend calculation ensures that the confidence interval is sufficiently narrow. The Department of Revenue will report the monthly growth, annual growth, sample size, and confidence level for all the regions in each county on each county's trend report provided by the Department of Revenue.

If the Department of Revenue cannot determine a market condition trend using the above conditions, it does not mean that values are not changing in a region. Rather, it means that the price-level changes were not statistically significant under the current methodology and/or the number of sales in the region was not sufficient to support regression analysis according to this criteria.

The annual market condition trend does not dictate how counties should change their values for the upcoming assessment. It is a generalized trend that describes the market over the 21-month study period. For example, if a county receives an apartment trend of 14% for the 2018 Study, it does not mean that the county must raise their apartment values by 14% countywide. Rather, the county may want to further stratify their sales to determine which types of apartment properties sold, where they are located in the county, at what point in the study they were sold, and what their ratios were at the time of sale in order to determine how to change their apartment values for the upcoming assessment. Contact your PTCO for more guidance on interpreting your market condition trends.

Trend Appeals

If the county finds that a market condition trend determined by the Department of Revenue is not appropriate for one or more of the regions within their county, they have a right to appeal that trend.

The county assessor must notify their PTCO and Data & Analysis of their appeal. The deadline for appeals will be in mid-December. This deadline will be communicated to counties well in advance. Appeals will be accepted after the study period ends on September 30, 2018, but only after the county has finished reviewing and editing all sales in the property type they are appealing. The appeal of

agricultural/rural vacant trends requires that all counties in the agricultural/rural vacant region have completely clean agricultural and rural vacant sales.

A county's appeal must be specific as to which property type(s) and which jurisdiction(s) are included in their appeal. The county must also provide a summary explaining their reasons for believing a trend appeal is necessary. These reasons should be backed up with sales and/or other data as much as possible. Anecdotal evidence will also be considered.

After receiving an appeal of a trend, Data & Analysis will work closely with the PTCOs to conduct an internal analysis using any and all sales and assessment information available, including any additional information provided by the appealing county. Data & Analysis will complete a detailed summary of the trend and will analyze various things that may impact the trend, including but not limited to:

- extreme ratios within the data set
- the trend when the sales are truncated to a 12-month study period
- the trend from the previous year's 21-month data set
- any non-linear trends within the region
- seasonal impacts on sales in the region
- graphical analysis
- the trend after considering sales that occurred in October, November and December of 2018

Data & Analysis will present this information to the Department's appeals panel for review. The PTCO will participate in this review, and the county will be invited to participate in the review. The appeals panel will make the determination of whether or not to grant the appeal, and Data & Analysis will make the appropriate adjustments to the study.

Counties who submit their appeals well before the mid-December deadline will receive an early determination of their appeal. Counties who submit by mid-December will receive a determination of their appeal by mid-January. More details on appeals will be provided to the counties in the fall of 2018.

Final preliminary ratios will be issued when trends are finalized after the appeal process. See [Preliminary Ratios](#) for more information.

Market Condition Adjustments

Market condition adjustments, based on market condition trends, are a necessary component of the Sales Ratio Study in order to control for the impact of market conditions. The purpose of market condition adjustments is to determine what the sale price would have been if it occurred at the same point in time as the assessment. For example, if values have been rising in a market and no adjustment has been made to the sale price, a sale that occurred in February 2018 may have an artificially high State Board ratio. The EMV is the value as of January 2019 and accounts for the rising market but the sale price is from 10 months earlier and does not capture the

rising market, therefore overstating the level of appraisal for the State Board study if market conditions are not accounted for.

By adjusting each sales price based on a market condition trend, the Department of Revenue can more accurately measure a county's assessment level because the two values used to calculate the final ratio are representative of the same point in time. When all sale prices are adjusted to the same point in time, the median ratio better reflects the overall assessment level of that jurisdiction.

To adjust a sale forward for its market condition trend, we use the following formula:

$$\text{Adjusted Sales Price} = \text{Net Sale Price} * [(1 + \text{Monthly Growth Rate})^{\text{Adjustment Months}}]$$

The [Adjustment Month table](#) below describes what value to use for the adjustment month depending on the date of sale. Note that the adjustment month differs depending on the study and the EMV year you will be comparing it to. See [Overview of the Sales Ratio Study](#) for an explanation of how sale prices are adjusted for each study.

Adjustment Months for Market Condition Adjustments

Sale Date	State Board and RR & Utility Adjustment Months to January 2019	Tax Court and EcMV Adjustment Months to January 2018	ANTC Adjustment Months to January 2017 or January 2018
January 2017	N/A	N/A	0
February 2017	N/A	N/A	-1
March 2017	N/A	N/A	-2
April 2017	N/A	N/A	-3
May 2017	N/A	N/A	-4
June 2017	N/A	N/A	-5
July 2017	N/A	N/A	-6
August 2017	N/A	N/A	-7
September 2017	N/A	N/A	-8
October 2017	15	3	-9
November 2017	14	2	-10
December 2017	13	1	-11
January 2018	12	0	0
February 2018	11	-1	-1
March 2018	10	-2	-2
April 2018	9	-3	-3
May 2018	8	-4	-4
June 2018	7	-5	-5
July 2018	6	-6	-6
August 2018	5	-7	-7
September 2018	4	-8	-8

Market Condition Adjustment Examples

The two following examples will demonstrate the calculations to adjust a sale price forward to January 2019 for the State Board study.

Example 1

A home sold for \$100,000 in October 2017. The monthly growth rate for residential/SRR properties in the region was 2%. To adjust the sale forward to January 2, 2019 we use the following formula:

$$\$100,000 * [(1 + 0.02)^{15}] = \$100,000 * [1.3458] = \$134,586.83$$

Example 2

A home sold for \$100,000 in November 2018. The monthly growth rate for residential/SRR properties in the region was 2%. To adjust the sale forward to January 2, 2019 we use the following formula:

$$\$100,000 * [(1 + 0.02)^2] = \$100,000 * [1.0404] = \$104,040$$

Comparing Examples 1 and 2, you can see that the sale prices of each home were the same, but the value of the sale that took place in November 2018 has a lower adjusted sale value than the property sold in October 2017. After the adjustment, the adjusted sale price for both properties reflects the sale price at a common point in time (January 2019) which makes the values comparable. Once this is done, the quality of assessment can be evaluated without a bias from market trends.

Ratios

After market condition trends have been determined and sale prices have been adjusted, ratios can be determined for each sale and then summarized at the jurisdiction level by property type aggregation. Ratios are calculated during the preliminary stage, before 2019 EMVs are reported to the Department, and during the final stage, after 2019 EMVs are reported to the Department. Extreme sales are included when calculating ratios. Ratios are only calculated when there are at least 6 sales, including extremes, for a property type within a jurisdiction.

Remember that sale prices are adjusted and ratios are calculated differently depending on the study they are being used for. See [Overview of the Sales Ratio Study](#) for more information on the ratios used for each study and [Market Condition Adjustments](#) for more information on how sale prices are adjusted for each study. This section will describe ratio calculation for the State Board study. The State Board study includes sales that occurred between October 1, 2017 and September 30, 2018, adjusted by the trend determined based on sales between January 1, 2017 and September 30, 2018.

Ratios are calculated for joint cities by county of location. For example, for a joint city that is in two counties, two ratios will be determined—one each for the sales that occurred in each county.

Preliminary Ratios

Preliminary ratios for each sale for the State Board study are determined using the following formula:

$$\frac{2018 \text{ Adjusted EMV}}{\text{Net sale price adjusted to January 2019}}$$

Preliminary ratios for individual sales are then combined by property type aggregation and jurisdiction in order to determine a median ratio for the property type within the jurisdiction. Three residential/SRR ratios are determined for each jurisdiction: on-water, off-water, and combined on- and off-water. Mean and aggregate

preliminary ratios are also calculated. These ratios form the basis for measuring a county's assessment levels in 2018 and provide the counties with an indication of how their assessments need to change for 2019.

Final preliminary ratios will be issued in January 2019. While counties have the ability to continue editing sales information which may affect their preliminary ratios past this point, preliminary ratios are frozen at the time that trends are finalized in order to have a point in time to work from when performing other preliminary analysis. See the [2018 Study Timeline](#) for more information on this timeframe.

Final Ratios

Final ratios for each sale for the State Board study are determined using the following formula:

$$\frac{2019 \text{ Adjusted EMV}}{\text{Net sale price adjusted to January 2019}}$$

Final ratios for individual sales are then combined by property type aggregation and jurisdiction in order to determine a median ratio for the property type within the jurisdiction. Three residential/SRR median ratios are determined for each jurisdiction: on-water, off-water, and combined on- and off-water. Mean and aggregate preliminary ratios are also calculated. These ratios form the basis for measuring a county's assessment levels in 2019 and will be used by the PTCOs when making State Board Order recommendations. Generally, a median ratio between 90% and 105% is considered in compliance.

Assessment Statistics

The Department of Revenue calculates other assessment statistics beyond ratios as measures of equity of assessment. These statistics are calculated only for property type aggregations within a jurisdiction (including counties and city/townships) that have 30 or more sales. These statistics are calculated without extreme sales as they can distort the analysis. If the component of the calculation of the statistic is a mean, median, or aggregate ratio, these are ratios calculated without extremes. During the preliminary phase of the study, before 2019 EMVs are reported to the Department, assessment statistics will be calculated using 2018 EMVs and without preliminary extremes. During the final phase of the study, after 2019 EMVs have been reported to the Department, assessment statistics will be calculated using 2019 EMVs and without final extremes. See [Determining Extremes](#) for more information on preliminary and final extremes.

These assessment statistics are reported on each county's ratio prints provided by the Department of Revenue. Counties can also use MCAST, available on our [website](#), to determine these statistics. The State Board of Equalization will consider these assessment statistics, among other things, when reviewing ratios and issuing orders.

Price Related Differential

The price related differential (PRD) is an **indicator** of vertical equity. The PRD is a relative comparison of all ratios in a set of sales. All ratios can be above or below 100%, but it is how they compare to each other that matters.

The PRD for a jurisdiction can be calculated using the following formula, where the mean aggregate ratio is aggregate ratio for the jurisdiction divided by the number of sales without extremes:

$$\text{Price Related Differential} = \frac{\text{Mean Ratio}}{\text{Mean Aggregate Ratio}} * 100$$

The acceptable range for a PRD is between 0.98 and 1.03. A PRD less than 1.00 indicates progressivity, and a PRD greater than 1.00 indicates regressivity. While the PRD is easy to calculate and can indicate an instance of inequity, it cannot quantify the extent of that inequity. It is also susceptible to error in small sample sizes and overstates the degree of regressivity or understates the degree of progressivity. For these reasons, counties are encouraged to focus their attention on the price related bias.

Price Related Bias

The price related bias (PRB) is a **statistical measure** of vertical equity in assessment. Like the PRD, the PRB is a relative comparison of all ratios in a set of sales. All ratios can be above or below 1.0, but it is how they compare to each other that matters. Unlike the PRD, the PRB provides an indication of vertical equity *and* quantifies the extent of any potential inequity. The PRB is also less susceptible to outliers than the PRD. Unfortunately, the PRB is more complicated to calculate. This section will outline this calculation, but MCAST will perform this calculation for you.

The acceptable range for a PRB is between -0.03 and 0.03. A PRB outside of this range may indicate bias. A PRB outside of the range of -0.05 and 0.05 is cause for further inspection. A PRB below 0 indicates regressivity, and a PRB above 0 indicates progressivity.

The PRB can be interpreted as the approximation of how ratios would change as property values double. For example, a PRB of 0.10 suggests that the ratios for \$200,000 properties tend to be 10% higher than the ratios for \$100,000 properties, or the difference between a 100% ratio and 110% ratio. Likewise, the ratio for \$50,000 properties tend to be 10% lower than the ratios for \$100,000 properties, or the difference between a 100% ratio and a 90% ratio.

Calculating the PRB

The PRB is calculated without extreme ratios. Once extreme ratios are removed, sales ratios and median sales ratios are calculated using either the 2018 EMV or the 2019 EMV, depending on if it is the preliminary phase or the final phase of the 2019 Study. The PRB, like a time trend, is obtained by running a simple linear regression.

$$\frac{(\text{sales ratio} - \text{median sales ratio})}{\text{median sales ratio}} = \beta_0 + \beta_1 \frac{\text{LN}((\frac{\text{EMV}}{\text{median}})/2 + \text{sale price}/2)}{\text{LN}(2)} + \varepsilon$$

Reduced to its simplest form, the regression would be:

$$\text{sales ratio} = \beta_0 + \beta_1 \text{property value} + \varepsilon$$

This regression would tell us the expected sales ratio given a property value. The β_1 coefficient can be interpreted as the expected change in sales ratio as property values increase by 1 unit. For example, in the simplified regression, if $\beta_1 = 0.01$ we would expect the sales ratio to increase by 0.01 for every \$1 increase in property value. *When the other elements are added to this equation, it only changes the interpretation of the β_1 coefficient.*

The dependent variable in the analysis is:

$$\frac{(\text{sales ratio} - \text{median sales ratio})}{\text{median sales ratio}}$$

This is the percentage difference between any given sales ratio and the median. By using a percent, the β_1 can be interpreted as a percent change (from the median) in ratios.

The independent variable in the analysis is:

$$\frac{\text{LN}((\frac{EMV}{\text{median}})/2 + \text{sale price}/2)}{\text{LN}(2)}$$

We adjust the estimated market value by dividing by the median ratio to ensure the estimated market value and the sale price is equally weighted. This is important if assessors have target ratios not equal to one.

Instead of using the sale price as the indicator of value, this side of the formula uses the average of the sale price and the adjusted EMV as a proxy for value. While not a perfect indicator of value, using the average reduces the upward bias of the PRB than if the sale price was used.

Using the natural log allows us to interpret increases in property values as a percentage. Given the dependent variable in the analysis is also a percent; it will be interpreted as percent increase in value increases ratios by a percent.

Dividing by the natural log of 2 (0.693) permits each doubling of value to be associated with an increment of 1. So, a 100% increase in the value, a doubling of value, increases the estimated ratio by $(\beta_1 * 100)\%$. This is done for interpretation. If we don't divide by the natural log of 2, the PRB would tell us how ratios change for a 1% increase in the value. This would result in very small coefficients which are hard to conceptualize.

Interpreting the PRB

The β_1 coefficient is the PRB. It can be interpreted as the expected change in ratios as property values double. If ratios increase as property values increase, the resulting PRB will be positive. For example, a *PRB of 0.025 indicates that if property values double, ratios increase by 2.5%*. A positive PRB indicates that assessments are progressive, meaning high value properties are over-appraised relative to low value properties. Conversely, if ratios decrease as property values increase, the resulting PRB will be negative. For example, a *PRB of -0.055 indicates that if property values double, ratios decrease by 5.5%*. A negative PRB indicates that assessments are regressive, meaning high value properties are under-appraised relative to low value properties.

Like market condition trends, the PRB is a statistical measure of bias and is subject to the same criteria as market condition trends. The coefficient must be statistically significant at the 90% confidence level, and the jurisdiction must have 30 or more sales.

The PRB is a trend or an approximation of how ratios change as property values double. Rarely, if ever, will two sales follow the exact trend of the PRB. Additionally, just like with time trends, the default assumption is that there is no price related bias. **A PRB of +/- 0.03 may indicate a bias. A PRB of +/-0.05 is cause for further inspection.**

Coefficient of Dispersion

The coefficient of dispersion (COD) is a measure of variability and uniformity of assessment. The COD is the average percentage deviation of ratios from the median ratio. A low COD indicates more uniform assessments, and a high COD indicates a lack of uniformity in assessments. COD is only calculated if there are at least 30 sales. The COD can be calculated by determining the average absolute value of the difference between the sale ratio and the median ratio and plugging it into the following equation:

$$\text{Coefficient of Dispersion} = \frac{\text{Average Difference}}{\text{Median Ratio}} * 100$$

The following table outlines the acceptable range for a COD for different types of properties.

Acceptable COD Range by Property Type

Property Type	Acceptable COD Range
Newer, homogenous residential properties	10.0 or less
Older residential areas	15.0 or less
Rural residential and SRR	20.0 or less
Income producing, larger urban area	15.0 or less
Income producing, smaller rural area	20.0 or less
Vacant land	20.0 or less
Depressed markets	25.0 or less

Small Sample Study

The Small Sample Study is produced by the Department of Revenue to identify jurisdictions that consistently do not meet the 6 sale minimum for State Board ratios. Counties should review the Small Sample Study with their PTCO to identify jurisdictions that may require further attention. The Department will issue a final preliminary Small Sample Study using the final preliminary 2018 State Board ratios and a final Small Sample Study using the final 2018 State Board ratios.

A “small sample” is a jurisdiction that was not reviewed by the State Board of Equalization at least twice in the past 5 years. In other words, any jurisdiction that did not have at least 2 years over the past 5 years with at least 6 sales is considered a small sample. Jurisdictions with 6 good sales in the 2018 Sales Ratio Study are not included in the Small Sample Study. The Small Sample Study is stratified by sales ratio property type aggregations.

The Small Sample Study provides the following information for every small sample for each of the 5 years. This information is also provided at the county level for reference:

- Sale count, including extreme sales.
- Annual trend, if any, applied or indicated.
- Median ratio, including extreme sales.
- % value change, determined using values for all parcels of that property type in the jurisdiction, adjusted for net improvements. These values are determined using values from the PRISM files.
- Parcel count for that property type in that jurisdiction.

A five-year weighted median is calculated to provide a snapshot of median ratios over the 5 years. The weighted median gives more weight to the median ratios from more recent years and less weight to the median ratios from older years. The five-year weighted median is not calculated for jurisdictions with less than 6 sales over the 5 years. The table below describes the weights for each year as the percent that each contributes to the final weighted median.

Weights by Year for the Five-Year Weighted Median

	2018	2017	2016	2015	2014
Weight	30%	25%	20%	15%	10%

If there is a year (or years) with no sales, the weights adjust proportionally to include only those years with sales. For example, if there were no sales in 2017, the weights only add up to 75%. To determine the new weights for each year with sales, divide the weight in Table 1 by the new total. In this example, 2017 would now hold 40% ($30\% \div 75\%$) of the weight, 2014 would hold 27% ($20\% \div 75\%$), etc.

There are certain situations which may warrant attention from the county. Several flags were created to indicate these jurisdictions. These flags are not definitive indicators of a problem, nor is a lack of flags a definitive indicator that there is not a problem. These flags are described below.

- The Low Total Sales Flag indicates jurisdictions where there are less than 6 total sales over the 5 years.
- The Value Change Flag indicates jurisdictions where values did not change at least twice over the 5 years.
- The Weighted Median Flag indicates jurisdictions where the five-year weighted median is outside of the standard 90% to 105% compliance level.

Reports

Throughout the Sales Ratio Study process, the Department of Revenue issues many different reports to the counties regularly in order to encourage spreading the workload out over many months and to keep counties informed on the status of the study. These reports include sales listings, trend reports, ratio prints, and small sample studies. Sales listings are sent out at every stage in the process to ensure that the most up to date and correct sales information is always being used. The counties must review these sales listings to ensure that this is the case.

Additional reports may be issued throughout the study to provide more information or guidance to the county and the PTCO. These reports should help start conversations between the PTCO and the county and help improve the study and improve the assessment. More information will be provided with each report as it is issued. Reports may be issued on:

- Agricultural and rural vacant values
- Sales chasing
- Local effort/value changes
- Supplementary ratios and trends

PRISM Data and the Sales Ratio Study

As we transition to using PRISM data, some information may not translate exactly between how we used to do things and how we will do them now. This transition should be kept in mind when reviewing certain information from the Department, especially when comparing information over time. The Department will provide guidance on interpreting reports created from PRISM data as necessary.

Counties still maintain the ability to determine the sales ratio property type for each individual sale through eCRV (see [Determining Sales Ratio Property Types](#)).

One example of information that does not translate perfectly are PRISM property types and sales ratio property types. On past Market Value by Parcel files, the county would determine and report the sales ratio property type for each parcel. Now, the Department of Revenue determines the sales ratio property type for each parcel based on information reported in PRISM. This could mean that some parcels are getting assigned different sales ratio property types than they were in the past, which could affect the results of some aggregate analysis performed by the Department such as the Small Sample Study.

The Department uses the following information from PRISM to stratify PRISM parcel data into the same representative groups as sales data (as outlined in the above [methodology](#)):

- County
- City/Township
- PRISM Property Type
- Land and Building EMV
- Deeded Acres
- Water Type Code
- Agricultural and Rural Vacant Classification Breakdowns
- Exempt Value

2018 Study Timeline

Date	Deadline
January 1, 2017	Beginning of the 21-month study period.
October 1, 2017	Beginning of the 12-month study period.
January 1, 2018	Beginning of the 9-month study period.
July 2018	Target for issuing first sales listings of the study
August 31, 2018	Region changes requests are due to Data & Analysis.
September 1, 2018	2018 PRISM Submission 2 is due.
September 30, 2018	End of all study periods.
October 2018	Data & Analysis will begin issuing preliminary trends and ratios. Starting in October, Data & Analysis will accept trend appeals as long as a county has reviewed and cleaned all their study period sales for the property type they are appealing.
November 1, 2018	All eCRVs for sales within the 21-month study period must be accepted by the county. Sales from the study period accepted after this date will not be included in the study.
November 10, 2018	All eCRVs for sales within the 21-month study period should be submitted to the Department of Revenue.
December 2018	Trends are frozen and edits to eCRVs will no longer affect the determination of trends. Trend appeals are due at least one week later. Exact dates to be determined.
January 2019	Appeals panel reaches their determination and counties are notified. Trends are final and final preliminary ratios are issued. Exact date to be determined.
April 1, 2019	2019 PRISM Submission 1 is due. Data & Analysis will issue final ratios to each county as they successfully submit their PRISM file. Counties should review their sales listings for errors, specifically the 2019 EMV.
June 2019	State Board of Equalization convenes to review study results and issue orders.

Reject Reason Definitions

Agricultural Preserves – 25

All sales enrolled in Agricultural Preserve and sales subject to minimum assessment agreements in which the sales price is less than the minimum assessment agreement.

Allocated Sale Price – 29

Sales with allocated sales prices.

Assessment Agreement – 25

All sales enrolled in Agricultural Preserve and sales subject to minimum assessment agreements in which the sales price is less than the minimum assessment agreement.

Assemblage – 31

Properties bought by one buyer to put together a package for later development or change. This reject reason must be supported with a comment.

Assessor Restricted Value – 30

Assessor's value limited by Plat Law in the first year.

Bank Sale (including HUD sales) – 21

Any sale from a bank, HUD, FMHA, or any governmental lending institution, to a private party. These sales will be considered for use in the study only in regions where they are so prevalent that they mirror the actions of buyers and sellers of non-foreclosed property. Thorough verification is necessary before the PTCO will consider including these sales.

Resales of repossessed property may be considered for use in the study. Thorough verification is required before these sales can be used. They should only be used if the sale meets the "open market, arms-length" requirement. Resales of repossessed property by lending institutions will not be adjusted for financing terms. Only the most recent non-rejected resale will be considered.

Below Minimum Down Payment – 22

The minimum down payment for the study is five percent, unless the sales verification proves that the chance of default was extremely low or that the term is one year or less. Many warranty deed sales, especially residential sales with nominal down payments, are insured loan sales, and the buyer is considered a good risk. No down payment can be an acceptable form of financing on a warranty deed sale.

Contract Payoff – 14

Sale of an interest in or a payoff of a contract for deed or mortgage assumption.

Correction Deed – 08

Sales of convenience simply to correct a defect of title or to change the character of the title, including quit claim deeds.

Court Ordered Value – 27

Sales with court ordered values that do not involve post-sale stipulations or abatements. The estimated market value to be used in calculating sales ratios shall be the value established by the assessor before any stipulations or abatements resulting from appeals by property owners. Sales with court established values that were not the result of pre-trial stipulations or abatements are not used in the study.

Default (on contract for deed) – 18

eCRVs which are rewrites of the terms of a contract for deed. If a rewrite occurs within a year of the original contract, both will be deleted. If it is more than a year, the original sale will be used.

Estate Sale (non-open market) – 09

- Trades of properties or transfers in which nonmonetary items, such as stocks, bonds, or personal property are used as the medium of exchange.
- Sales by representatives of estates to members of the immediate family.
- Sales to a trustee for the benefit of some beneficiary.
- Estate sales not exposed to the open market.
 - Transactions of residential or seasonal-recreational residential properties using a personal representative or conservator's deed are automatically rejected.
 - Sales of other property types are subject to verification and may be included.
 - Property sold by the heirs after probate must be verified and may be rejected under other criteria.

Exempt Party Sale – 03

Sales involving governmental agencies as buyers or sellers of property and all sales involving public utilities (including railroad and pipeline companies). This also includes sales involving charitable, religious, or educational institutions.

Excessive Non-Real Property – 17

Non-assessed and significant or unknown non-realty sales including:

- Sales in which a significant, but unknown portion of the total price is non-realty, such as personal property, business value, franchise fees, etc.
- Sales in which there is a significant, known amount (50% or more) of non-realty included in the sale price, such as personal property, franchise fees, etc. If the sale includes a large but well-documented non-realty portion, it may be used in the sales ratio study.
- Sales of non-assessed property.

This reject reason must be supported with a comment.

Foreclosure – 15

- Sales to avoid foreclosure, such as short sales or sales back to the bank.
- Sales involving legal actions such as foreclosures, divorces, bankruptcies or sheriffs' sales. To be rejected, a sale must be ordered by a court. All other sales must be verified and may qualify for rejection under other criteria.

Forced Sale – 15

- Sales to avoid foreclosure, such as short sales or sales back to the bank.
- Sales involving legal actions such as foreclosures, divorces, bankruptcies or sheriffs' sales. To be rejected, a sale must be ordered by a court. All other sales must be verified and may qualify for rejection under other criteria.

Gift – 09

- Trades of properties or transfers in which nonmonetary items, such as stocks, bonds, or personal property are used as the medium of exchange.
- Sales by representatives of estates to members of the immediate family.
- Sales to a trustee for the benefit of some beneficiary.
- Estate sales not exposed to the open market.
 - Transactions of residential or seasonal-recreational residential properties using a personal representative or conservator's deed are automatically rejected.
 - Sales of other property types are subject to verification and may be included.
 - Property sold by the heirs after probate must be verified and may be rejected under other criteria.

Government Agency Sale – 03

Sales involving governmental agencies as buyers or sellers of property and all sales involving public utilities (including railroad and pipeline companies). This also includes sales involving charitable, religious, or educational institutions.

Income Guarantees – 06

This includes sales that have non-monetary consideration and sales that have terms that result in extremely large financing adjustments. These would include:

- Zero interest payments for a long period
- Non-cash financing
- Extreme interest rates that would make the finance adjustment a large part of the sale price and move the sale into the extreme ratio range
- Income guarantees that require the seller to pay the buyer money if a specified income is not realized from the property

This reject reason should be supported with a comment.

Leaseback – 20

Sales where the property is leased back to seller for more than six months. This does not include short-term leases, such as to get crops harvested. This reject reason must be supported with a comment.

Legal Action – 15

- Sales to avoid foreclosure, such as short sales or sales back to the bank.
- Sales involving legal actions such as foreclosures, divorces, bankruptcies or sheriffs' sales. To be rejected, a sale must be ordered by a court. All other sales must be verified and may qualify for rejection under other criteria.

Multi County Sale – 24

Sales of property located in more than one taxing jurisdiction, which do not have separate appraisals for the components of the sale, may be excluded.

MDOR Reject – 12

Sales with unique reasons for rejection authorized by the PTCO. Additional explanation should accompany every use of this reject reason.

Mortgage Assumption – 14

Sale of an interest in or payoff of a contract for deed or mortgage assumption.

Non-Cash Financing – 06

This includes sales that have non-monetary consideration and sales that have terms that result in extremely large financing adjustments. These would include:

- Zero interest payments for a long period
- Non-cash financing
- Extreme interest rates that would make the finance adjustment a large part of the sale price and move the sale into the extreme ratio range
- Income guarantees that require the seller to pay the buyer money if a specified income is not realized from the property

This reject reason should be supported with a comment.

Not Typical Market – 26

Sales that are not advertised, listed, or promoted to potential buyers. A sale with this reject reason and no explanation attached will **not** be automatically rejected by the PTCO. Additional documentation is required.

While this reject reason is valid, a blanket rejection of all sales that are “not advertised, listed or promoted” would reject many sales that still meet the Department of Revenue guidelines for sales that are open market and arms-length. IAAO recognizes the following as methods of marketing:

- Listing with a real estate broker
- Auctions
- For sale by owner
- Internet marketing
- Newspaper advertisements
- Sealed bids
- Word of mouth

Three tests have been developed in an effort to: 1) maximize the number of sales in the study sample, 2) provide appraisers with all possible sales that reflect market value and market trends, and 3) help to establish benchmarks for current and future assessments. The following three tests will help determine if the sale should be rejected or accepted for the study.

1. Was the sale exposed to the market, or announced and/or promoted through realtor listings, newspapers, or other publications, advertisements, brochures, or other promotional or informational mailings, including if the property was for sale by owner?
 - If **YES**, the sale **SHOULD NOT** be rejected.
 - If **NO**, go to test 2.
2. Was an appraisal done prior to the sale to establish the sale price or to be used as a starting point for negotiations?
 - If **YES**, the sale **SHOULD NOT** be rejected.
 - If **NO**, go to test 3.
3. Did the sale involve a willing and informed buyer and a willing and informed seller, neither of whom were under duress to buy or sell, and is the sale price typical of the market for this type of property in your assessment district?
 - If **YES**, the sale **SHOULD NOT** be rejected.
 - If **NO**, the sale **SHOULD** be rejected.

If it is determined through the verification process that the sale should be considered as a market comparable and meets all other acceptance criteria, then the sale should be included in the study.

Agricultural/rural vacant, apartment, and commercial/industrial sales should not be rejected simply because the property was not advertised. However, individual situations may warrant this reject reason on these property types.

Transfers with doubtful title should be rejected.

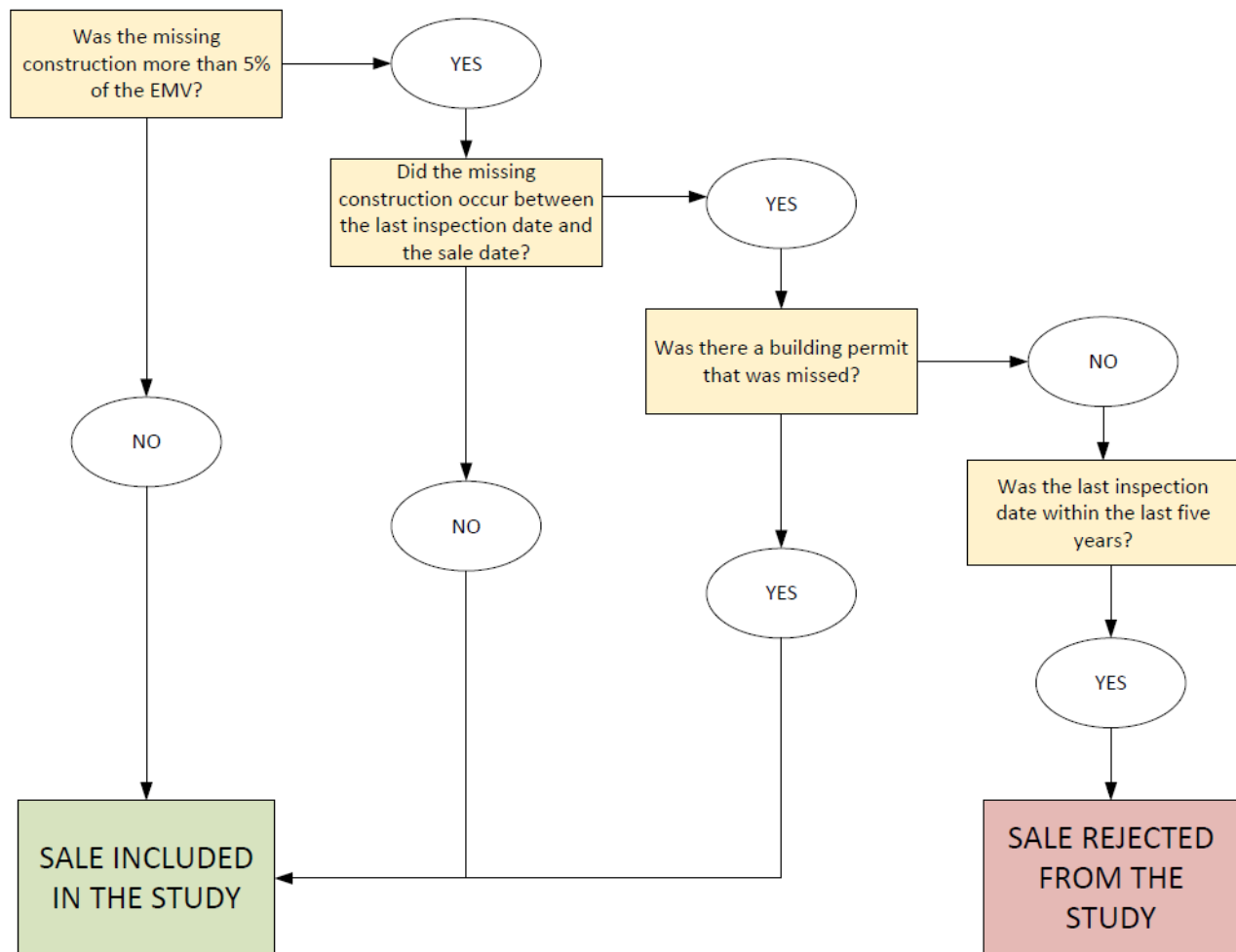
Sales that represent IRS 1031 exchanges should be analyzed to determine if the sale price is representative of market values. If so, the sale is valid for the study. If not, the sale should be rejected.

It may be very difficult to determine if the sale should be rejected for this reason or not. Highly unusual or questionable sales may be encountered. Questions concerning whether a sale should be rejected from or included in the study should be reviewed with the county assessor and the PTCO. **A sale rejected with this code with no explanation will not be automatically rejected. Additional documentation is required.**

Physical Change – 07

Sales of incomplete structures or structures that were assessed prior to completion. Sales should be rejected if the property was substantially improved between assessment date and sale. Property damaged between the assessment date and sale should be rejected due to physical change. Sales in which the physical change is merely cosmetic or would not have caused the assessor to change the market value of the property should be included. Sales involving structures that are more than 5% incomplete *may* be excluded. Sales involving *missing* construction should only be rejected in very specific circumstances. See the [Missing Construction Flow Chart](#) below for more details. Go to [Net Improvements](#) for more information on when net improvements should be accepted or rejected.

Missing Construction Flow Chart



Prior Interest Sale – 10

Sale where the buyer exercised an option to purchase and the price was determined in the last study period or earlier. This reject reason must be supported with a comment.

Partial Interest Sale – 04

Sales of less than the total interest of the property. Sales involving life estates, encumbered leases, fractional interest, and mineral rights may be rejected for this reason. If more than one sale occurs and the combined sales equal the total interest, the sale could be used. This reject reason should be supported with a comment. If the rejected sale represents one portion of a “good” transaction, the comment should refer to the eCRV that combines all portions of the sale.

Relocation – 19

Sales involving an employee transfer or relocation using a relocation company.

Relative Sale – 02

Sales between close relatives or corporate affiliates are usually non-open market transactions. The IAAO guidelines for close relatives include marital relationships, parents, children, aunts, uncles, nephews, nieces, and grandparents. Guidelines for corporate affiliates include corporate relationships between businesses.

Rewrite of Terms – 18

eCRVs which are rewrites of the terms of a contract for deed. If a rewrite occurs within a year of the original contract, both will be deleted. If it is more than a year, the original sale will be used.

Sale Under Minimum – 23

Property Type	Minimum Price
Bare land sales	\$3,000
All other property	\$10,000

Short Sale – 15

- Sales to avoid foreclosure, such as short sales or sales back to the bank.
- Sales involving legal actions such as foreclosures, divorces, bankruptcies or sheriffs’ sales. To be rejected, a sale must be ordered by a court. All other sales must be verified and may qualify for rejection under other criteria.

Split / Combined – 16

Split sales that are:

- Classified as something other than agricultural, rural vacant land, or managed forest
- Less than 34.5 acres of agricultural, rural vacant land or forest management.

- Greater than 34.5 acres of agricultural, rural vacant land or forest management if the assessor's value is not available for the needed study years.

Trade – 09

- Trades of properties or transfers in which nonmonetary items, such as stocks, bonds, or personal property are used as the medium of exchange.
- Sales by representatives of estates to members of the immediate family.
- Sales to a trustee for the benefit of some beneficiary.
- Estate sales not exposed to the open market.
 - Transactions of residential or seasonal-recreational residential properties using a personal representative or conservator's deed are automatically rejected.
 - Sales of other property types are subject to verification and may be included.
 - Property sold by the heirs after probate must be verified and may be rejected under other criteria.

Unusual Financing – 06

This includes sales that have non-monetary consideration and sales that have terms that result in extremely large financing adjustments. These would include:

- Zero interest payments for a long period
- Non-cash financing
- Extreme interest rates that would make the finance adjustment a large part of the sale price and move the sale into the extreme ratio range
- Income guarantees that require the seller to pay the buyer money if a specified income is not realized from the property

This reject reason should be supported with a comment.

Use Change – 05

Sales involving a change from one legal property class to another will be reviewed. Changing from residential to commercial use is an example of a class change. A class change would not be involved if a restaurant were converted to an office building, since both uses would be classified as commercial property. A change of class from seasonal-recreation residential to residential or vice versa should not be rejected. Sales should not be automatically excluded if the class changes are among the agricultural, rural vacant, or managed forest classes. The property should remain in the class it was in before the sale. A change in use from commercial to industrial or industrial to commercial should not be rejected as a use change, as both uses reside with the same class (3a). Within eCRV, under the County Tab > Property Types, the 'Property Type Group' should be based on the Buyer's planned use of the property. As always if there are extenuating circumstances with a sale, contact your PTCO.

Use change requires that most of the value will be moved to a different property classification. This reject reason should be supported with a comment.

Value Not Available – 16

Assessor value for sale year not available

Joint City Regions

City Name	County of Location	Home County	County Wide Trend Calculation	Base Region	Default Region
Bellechester	Goodhue	Goodhue	Goodhue	Dennison, Wanamingo, Kenyon, Bellechester	Goodhue County Trend
Bellechester	Wabasha	Goodhue	Wabasha	Dennison, Wanamingo, Kenyon, Bellechester	Wabasha County Trend
Blaine	Anoka	Anoka County	Anoka	Blaine	Anoka County Trend
Blaine	Ramsey	Anoka County	Ramsey	Blaine	Anoka County Trend
Braham	Isanti	Isanti	Isanti	Balance of Isanti County	Isanti County Trend
Braham	Kanabec	Isanti	Kanabec	Balance of Isanti County	Isanti County Trend
Chanhassen	Carver	Carver County	Carver	Chanhassen	Carver County Trend
Chanhassen	Hennepin	Carver County	Hennepin	Chanhassen	Carver County Trend
Chatfield	Fillmore	Fillmore	Fillmore	Fillmore City Region One	Fillmore County Trend
Chatfield	Olmsted	Fillmore	Olmsted	Fillmore City Region One	Fillmore County Trend
Clearwater	Stearns	Wright	Stearns	Clearwater	Wright County Trend
Clearwater	Wright	Wright	Wright	Clearwater	Wright County Trend
Comfrey	Brown	Brown County	Brown	Comfrey	Brown County Trend
Comfrey	Cottonwood	Brown County	Cottonwood	Comfrey	Brown County Trend
Dayton	Hennepin	Hennepin	Hennepin	Dayton, Hanover, Rogers	Hennepin County Trend
Dayton	Wright	Hennepin	Wright	Otsego, Dayton	Hennepin County Trend
Dennison	Goodhue	Goodhue	Goodhue	Dennison, Wanamingo, Kenyon, Bellechester	Goodhue County Trend
Dennison	Rice	Goodhue	Rice	Dennison, Wanamingo, Kenyon, Bellechester	Goodhue County Trend
Eden Valley	Meeker	Meeker	Meeker	Eden Valley	Meeker County Trend

City Name	County of Location	Home County	County Wide Trend Calculation	Base Region	Default Region
Eden Valley	Stearns	Meeker	Stearns	Eden Valley	Meeker County Trend
Elysian	Le Sueur	Le Sueur	Le Sueur	Balance of Le Sueur County	Le Sueur Country
Elysian	Waseca	Le Sueur	Waseca	Balance of Le Sueur County	Le Sueur Country
Granite Falls	Chippewa	Yellow Medicine	Chippewa	Granite Falls	Yellow Medicine County Trend
Granite Falls	Yellow Medicine	Yellow Medicine	Yellow Medicine	Granite Falls	Yellow Medicine County Trend
Hanover	Hennepin	Wright	Hennepin	Dayton, Hanover, Rogers	Hennepin County Trend
Hanover	Wright	Wright	Wright	St. Michael, Hanover	Wright County Trend
Hastings	Dakota	Dakota	Dakota	Hastings	Dakota County Trend
Hastings	Washington	Dakota	Washington	Hastings	Dakota County Trend
Jasper	Pipestone	Pipestone	Pipestone	Jasper	Pipestone County Trend
Jasper	Rock	Pipestone	Rock	Jasper	Pipestone County Trend
La Crescent	Houston	Houston	Houston	Houston Region One	Houston County Trend
La Crescent	Winona	Houston	Winona	Balance of Winona County	Winona County Trend
Lake City	Goodhue	Wabasha	Goodhue	Lake City	Wabasha County Trend
Lake City	Wabasha	Wabasha	Wabasha	Lake City	Wabasha County Trend
Mankato	Blue Earth	Blue Earth County	Blue Earth	Mankato, Skyline	Blue Earth County Trend
Mankato	Nicollet	Blue Earth County	Nicollet	Mankato, Skyline	Blue Earth County Trend
Minneiska	Wabasha	Wabasha	Wabasha	Balance of Wabasha	Wabasha County Trend
Minneiska	Winona	Wabasha	Winona	Balance of Wabasha	Wabasha County Trend
Minnesota Lake	Blue Earth	Faribault	Blue Earth	Balance of Faribault	Faribault County Trend

City Name	County of Location	Home County	County Wide Trend Calculation	Base Region	Default Region
Minnesota Lake	Faribault	Faribault	Faribault	Balance of Faribault	Faribault County Trend
Motley	Cass	Morrison	Cass	Motley	Morrison County Trend
Motley	Morrison	Morrison	Morrison	Motley	Morrison County Trend
New Prague	Le Sueur	Scott	Le Sueur	New Prague	Scott County Trend
New Prague	Scott	Scott	Scott	New Prague	Scott County Trend
North Mankato	Blue Earth	Nicollet	Blue Earth	North Mankato	Nicollet County Trend
North Mankato	Nicollet	Nicollet	Nicollet	North Mankato	Nicollet County Trend
Northfield	Dakota	Rice	Dakota	Northfield	Rice County Trend
Northfield	Rice	Rice	Rice	Northfield	Rice County Trend
Ormsby	Martin	Watonwan	Martin	Balance of Watonwan County	Watonwan County Trend
Ormsby	Watonwan	Watonwan	Watonwan	Balance of Watonwan County	Watonwan County Trend
Osakis	Douglas	Douglas	Douglas	Osakis	Douglas County Trend
Osakis	Todd	Douglas	Todd	Osakis	Douglas County Trend
Pine Island	Goodhue	Goodhue	Goodhue	Goodhue, Pine Island, Zumbrota	Goodhue County Trend
Pine Island	Olmsted	Goodhue	Olmsted	Byron, Stewartville, Pine Island	Olmsted County Trend
Princeton	Mille Lacs	Mille Lacs	Mille Lacs	Princeton	Mille Lacs County Trend
Princeton	Sherburne	Mille Lacs	Sherburne	Princeton	Mille Lacs County Trend
Rockford	Hennepin	Wright	Hennepin	Hennepin West Central	Wright County Trend
Rockford	Wright	Wright	Wright	Rockford City	Wright County Trend
Roosevelt	Lake of the Woods	Roseau	Lake of the Woods	Balance of Roseau County	Roseau County Trend
Roosevelt	Roseau	Roseau	Roseau	Balance of Roseau County	Roseau County Trend
Rothsay	Otter Tail	Wilkin	Otter Tail	Rothsay	Wilkin County Trend

City Name	County of Location	Home County	County Wide Trend Calculation	Base Region	Default Region
Rothsay	Wilkin	Wilkin	Wilkin	Rothsay	Wilkin County Trend
Royalton	Benton	Morrison	Benton	Balance of Morrison County	Morrison County Trend
Royalton	Morrison	Morrison	Morrison	Balance of Morrison County	Morrison County Trend
Sartell	Benton	Stearns	Benton	Sartell	Stearns County Trend
Sartell	Stearns	Stearns	Stearns	Sartell	Stearns County Trend
Spring Lake Park	Anoka	Anoka County	Anoka	Spring Lake Park	Anoka County Trend
Spring Lake Park	Ramsey	Anoka County	Ramsey	Spring Lake Park	Anoka County Trend
St. Anthony	Hennepin	Hennepin	Hennepin	St. Anthony	Hennepin County Trend
St. Anthony	Ramsey	Hennepin	Ramsey	St. Anthony	Hennepin County Trend
St. Cloud	Benton	Stearns	St. Cloud	St. Cloud	St. Cloud
St. Cloud	Sherburne	Stearns	St. Cloud	St. Cloud	St. Cloud
St. Cloud	Stearns	Stearns	St. Cloud	St. Cloud	St. Cloud
St. Francis	Anoka	Anoka County	Anoka	St. Francis, Bethel	Anoka County
St. Francis	Isanti	Anoka County	Isanti	St. Francis, Bethel	Anoka County
Staples	Todd	Todd	Todd	Staples	Todd County Trend
Staples	Wadena	Todd	Wadena	Staples	Todd County Trend
Swanville	Morrison	Morrison	Morrison	Balance of Morrison County	Morrison County Trend
Swanville	Todd	Morrison	Todd	Balance of Morrison County	Morrison County Trend
Wadena	Otter Tail	Wadena	Otter Tail	Wadena	Wadena County Trend
Wadena	Wadena	Wadena	Wadena	Wadena	Wadena County Trend
White Bear Lake	Ramsey	Ramsey	Ramsey	White Bear Lake	Ramsey County Trend
White Bear Lake	Washington	Ramsey	Washington	Mahtomedi, Willernie, Pine Springs, Birchwood, White Bear Lake	Washington County Trend

Agricultural/Rural Vacant Region Map

