2026
Orion Market Modeling Checklist

I. PREPARATION

1. **Appraisal activities that MUST be complete before market modeling begins.**
   - CALP changes
   - Data changes from 17% maintenance.
   - Quality and CDU changes
   - Neighborhood delineation process must be complete.
   - Neighborhood profiles should be run to determine average sale prices, values, number of sales and averages on key property characteristics such as year built, quality and size.
   - All properties must have a current market calibrated cost value.
   - Sales verification should be up to date.
   - The **CAMASL** Extract Report should be run for Sales quality control; all means should be taken to ensure that the data in Sales History is correct.

2. **Security Rights** - The market analysis should have the Market Modeling role. This role should be the ONLY role with the right to Maintain Current and Future Market Setup Parameters located on the Market Setup tab.

3. **Determine the Time Adjusted Value.**
   - Orion allows the time adjustment to be included as a market variable in regression, DSSF or DSSF_SP.
   - If the market analyst can determine the time adjustment outside the Orion program, then the user defined time adjusted sale price can be used for regression and the comp sales adjusted sale prices. See Appendix D.

4. **Determine if the Land Link value or the system default Land Value will be used in your county**.

   If the Land Link value will be used in your county, the following steps must be made:

   a. The user **MUST** select the LandBldgLink option on the Market Setup Parameter – Default Settings.
   b. The Comp Report format must display the Land Value as Data Type - Variable and the Option name – LandLinkValue.
   c. The Comp Report format must display the Total Cost Value as Data Type -Variable and the Variable name - TotalCostValue.
   d. All Market Models must use the Land variable named LandLinkValue.
   e. All parcels with multi-residential dwellings must have the land lines 'linked' to a building page. If a $0 value is desired for any building, the land link data field on the residential building page should have a number which is not linked to a land line, such as the number 99.
   f. Check all split parcels ensure the link is correct.
   g. Run query - ResBldgs vs LandLinks – to find parcels with more than one residential dwelling and the lank link count does not equal building count. See **Appendix C**.
   h. See Chapter 13 in the Kansas Market Valuation manual for more information.

If the system default Land value method will be used in your county, the following steps must be made:

a. The user must check to ensure the LandBldgLink option on the Market Setup Parameter – Default Setting is **NOT** selected.
b. The Comp Report format should display the Land Value row as Data Type- Predefined and the Option- LandVal (pulls the land value from the SH file)
c. The Comp Report format should display the Total Cost Value row as Data Type- Variable and the Variable-SH_CostValue (pulls land & RCNLD from SH file)
d. All Market Models must use the Land variable named LandVal.
e. Run query - ResBldgs vs LandLinks – to make sure the land/building data fields are NOT linked on any parcel.
    i. NOTE: When using the system default Land Value method, the total market land value is included in the MRA value for each building. The calculation for the Comp Sales Value includes the total market land value for the first building and removes the land value for each additional building.

5. **Check the Sales History Parameters.** Configuration – Sales Setup – Set Sales History Parameters. Check the Tax Year for Property Data Capture. The year should reflect the year of the valuation cycle. Check the date range to verify that the range includes the years planned for market modeling and comparable sales.

6. **Run the Sales History Capture batch job to insert new sales.** Configuration **–** Sales Setup – Sales History Batch Processing – Capture
   If a valid sale exists on the transfer tab but has not been captured into Sales History, the batch job will capture the CAMA data and create the sales history record.
   NOTE: Make sure the parameter is set to <u>only</u> capture VALID validity code(s) before Submitting this job.
   When the job has completed, check the Batch Calculation Report for any errors.
    a. Go to Reporting – Calculation Report – Batch Calculation Report. Select the appropriate tax year, calculation Type SALES and the batch with the correct date time stamp.

   For more information, see Kansas Market Valuation Manual section 4.3.

7. **Recost the Sales History file.** Configuration **–** Sales Setup – Sales History Batch Processing – Recost. The sales history batch Recost should be run to ensure that the cost values shown on the comp report are based on the current cost tables.
   NOTE: When entering the criteria for the batch job, include ALL validity codes.
   When the job has completed, check the Batch Calculation Report for any errors.
    a. Go to Job History – click on the Orion Sales Recost Concatenated Job – click the first job on the list and View Output.
    b. Or, go to Reporting –Calculation Report – Batch Calculation Report. Select the appropriate tax year, calculation type SALES and the batch with the correct date/time stamp.
       For more information, see Kansas Market Valuation Manual section 4.8.

8. Run the **SH__Cost vs Sale query** in Sales History Query Tool to find outlier sales as well as determine that cost values are working in the Nbhd. If not, then land value and depreciation may need to be reviewed again. The user will need to manually create the sales ratio, *Cost Value / Sale Price*, on a column at the end of the report.

9. **Check Market Assignments:** Go to Market Setup – Set Market Assignments – View Market Assignments. In the Find Market Assignments dialog select the appropriate tax year, Search by Nbhd and type the word All in the Nbhd field, then click the Search button. See Chapter 5 in the Kansas Market Valuation Manual for more detail.
   Note: The market assignments will carry forward from one year to another. Check all assignments and modify, if necessary.

10. **Decide whether you will use regular or alternate market areas**. See section 5.4.3 in the Kansas Market Valuation Manual for more detail.
    a. Counties using age stratification must run: Mult Res Bldgs with yr blt Query to find multi-dwelling parcels with both a pre & post war home. See instructions on **Appendix B.**

II. INITIAL MODELING RUN

1. **Market Setup parameter**. The market parameter is located in Configuration – Market Setup – Market Setup Parameter. Select the tax year **2026** and click on the Residential code on the list page. Review all settings including:
   a) Verify the Property Types listed. Note: it is suggested that you select ALL property types.
   b) Change the Market Valuation Date to **01/01/2026**
   c) Check Market Options.
      a. Get Sales Data From: Sale History
      b. Sale Price Options: select Adjusted When Present *unless* you will be determining the Time Trend outside of Orion. Then, you will select the User Defined Variable based on the variable tied to the Named Table that will be used. (see Appendix D)
   d) Set the sale date range for the sales to be extracted for market analysis.
   e) Set the Validity Code
   f) Minimum Price – set the lowest sale price that will be used for regression or as a comp.
   g) Maximum Price – set the highest sale price that will be used for regression or as a comp.
   h) Sale Type – select building sale types.
   i) Verify or create edits in the Market Sales Extract Validation Rules. Edits the county may want to create includes:
   Warning: AttGarage > MFLA
   Warning: Bsmt_FinHigh > MFLA
   Warning: Bsmt_FinMin > MFLA
   Warning: BsmtArea > MFLA
   Error: CommBldgVal >= 1
   Warning: COSTvsSP > 1.40
   Warning: COSTvsSP < 0.60
   Warning: livngunits > 1
   Error: MobileHomeVal >= 1
   Warning: OthValue > 0
   Error: ResMultiBldg >= 1
   Error: TotAgAcres >= 1
   Error: TotalAcres > 20

j) In the Default Settings section:
    a. Select the **CLT** option.
    b. Use Land/Bldg Link MUST be marked when using the Land Link option.

   For more details about the Land Link for Multi Building Parcels see #2 above and Chapter 13 in the Kansas Market Valuation manual.
k) Minimum # of Comps: typically set at 5.
l) Maximum Comparability Distance: typically set at 50 or below. All comparables in the subject neighborhood within the maximum distance points will be selected first before searching for any additional comps.
m) Excessive Adjustment Threshold: can set if you plan to display the excessive adjustment flag on the comp sales report. See section 6.8.4 in the Kansas Market Valuation manual.
n) The user has the option to vary some of the market settings by market area in the Market Area Custom Settings. If the custom settings were used in the previous tax year, these should be checked to make sure that sales date ranges and other settings are correct for the current appraisal cycle. If the user intends on using the Land Link option, the check box MUST be marked next to the Use Land/Bldg Link. See section 6.9 in the Kansas Market Valuation manual for more details of the Market Area Custom Settings.

2. **Market Models**. Go to Market Setup- Maintain Market Models.
   Before the Sales Extract file can be produced, the dependent variable and at least one Independent variable must exist in each Market Area.
   The user may manually enter the variables to each market area annually or batch copy the prior year variables. Section 7.2 in the Kansas Market Valuation manual.
    a) Go to Configuration - Market Setup - Batch Processing Comp Sales - **Copy Market Model Variables Forward**.

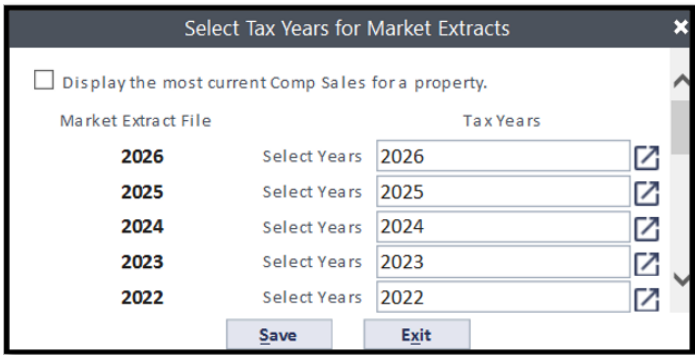
3. **Selection Rules and Adjustments.** Before a comparable sales report can be created, the selection rules for the market area must exist for each Market Area.
   The user may manually enter the selection rules and weights to each market area annually or batch copy the prior tax year rules and weights. See section 9.2 in the Kansas Market Model Manual.
    a) Go to Configuration - Market Setup - Batch Processing Comp Sales - **Copy Selection Rules and Adjustments Forward.**

4. **Review the Market Variables list included with this checklist and compare to your site**.
   Reporting –Calculation Reports – Calculation Definition Report
   If there are changes or new variables that you would like to add to your site, contact PVD CAMA support for assistance.
   NOTE: all counties now have new variables for the Time Adjusted Sale price named tables and variable names, based on Time Adjustment by Nbhd or Time Adjustment by Sale Price.

5. **Build and Compile the Market Variable calculations** for the current tax year. Go to Market Setup - Market Calculation Compilation options. Click the Build Calculation Source Files and select the nodes under the **2026** tax year including all Item Pages. Click Build. When complete, click the Compile Calculation Setup – select the Appraisal node and continue. When complete, the dialog message box should read: Compile at node 11 completed successfully. If the analyst receives a different message, contact the CAMA support team for assistance.

6. **Run the Sales Extract File for one parcel.** Market Setup - Batch Processing Comp Sales - Sales Extract. Set the job parameters for the **2026** tax year.
For the first extract run in the appraisal cycle, select the option to Replace Entire Sales Extract file. You only need to enter one Quick Ref ID number as this step will create the new 2026 Tax Year Extract folder. Do NOT worry if the job errors out since the sale extract will be re-run in step 8.

7. **Map to Tax Years.** Go to Market Setup - Market Setup Parameter – **2026** tax year. Click the Map to Tax Years orange header control. A 'Select Tax Years for Market Extracts' dialog will launch. Select the Tax Year **2026** for the new **2026** Market Extract file. If the current year is mapped to the prior year, then you must first uncheck the year from the prior year and select the tax year for the new Market Extract File. See Section 6.6 in the Kansas Market Model Manual. Click Save and then **Save** the market parameter.



8. **Build and Compile the Market Variable calculations.**
Note: any time you Save and invalidate the current sales extract file to ensure the new Sales Extract run will read the updated parameters.
Go to Market Setup - Market Calculation Compilation options. Click the Build Calculation Source Files and select the nodes under the **2026** tax year including all Item Pages. Click Build. When complete, click the Compile Calculation Setup – select the Appraisal node and continue. When complete, the dialog message box should read: Compile at node 11 completed successfully. If the analyst receives a different message, contact the CAMA support team for assistance.

9. **Re-Run the Sales Extract File.** Check the job parameters and click the Submit button.

   a) **Review Output when complete.** Check the Market Extract Batch Completion job in Job History. The job splits to batches of 1000. Each batch should have a description in the Progress column of Processed ### of #### sales. If the number of sales processed is less than the total number of sales, then the calculation report should be checked.

   b) **Review the Market Batch Calculation Report.** The user has the option to view the batch calculation report in the Market Extract Batch Completion job - Job Detail. Click the View Output for the report.
   The user can also view the report in: Reporting - Calculation Reports - Batch Calculation Report. Select the appropriate tax year, calculation type MRKT and the batch with the correct date/time stamp. Check the report to verify that the properties that were not processed were rejected for legitimate reasons.

c) **View Sales Extract records.** Market Setup - Work with Comparable Sales - View Extracted Sales. Review the extract files to check that variables display values.

d) Review Sales Edited out of the Sales Extract. Reporting - Market Reports - Market Extract Edit List. Sales edited out of the extract due to the Market Sales Extract Validation Rules will appear on this report.
Warning: Sales will remain in the extract for Regression and Comparable Sales.
Error: Sales are removed from the Sales Extract for regression and Comparable Sales.
There are two different formats to select.

a. The Market Extract Edit Format - displays the Parcel ID, Quick Ref ID, Market Area, Sale Date, Sale Price, Validation Rule Edit and Error Type.
b. Market Extract Validation Edit format – displays the Parcel ID, Quick Ref ID, Market Area, Sale Date, Sale Price, Cost Value, Cost Ratio, Validation Rule, and Error Type.
NOTE: the Cost Value on this report pulls the Cost Total Value found in the Calculated Value Information grid on the FV tab. This value will include the Land Value, Residential and Commercial building values. The cost value will NOT include any AG building, AG Land, Misc or Manufactured Home Values.

e) **Market Variable Report.** Reporting – Market Reports – Market Variable Property Report. On the parameter page, select the current Tax Year, Market Area and Extract Type: Sales Extract.
In the Where statements, check the data in the extract for problems including:

1. **ResBldgRCNLD < 100** = will display the Parcel ID and Quick Ref number for any dwelling with a value less than $100.
2. **LandVal < 100** = will display the Parcel ID and Quick Ref number for any record with land value less than $100.
3. **LandLinkVal < 100** = will display the Parcel ID and Quick Ref parcel ID number for any record with little or no land link value.
4. **OthValue > 0** = will display the Parcel ID and Quick Ref parcel ID number for any record that has an Other Improvement Child of the Parcel cost value. The improvement should either be moved under the Other Improvement Child of the Building node, or the market analyst should include the variable named: OthImpSale in regression.

10. **Run Market Models.** Market Setup/Market Activities/Maintain Market Models. Open each of the Market Areas and click the gray Calculate Model button.

a) If the Time Adjusted Named Table, the Market Parameter, and the Dependent Variable are setup for the time trend, remove the DSSF or DSSF_SP variable, if they exist.

b) Add additional variables needed for each model and click the Calculate Model button.

c) The analysis should always begin with unconstrained models. Remove all the constraints copied from the prior year model then calculate the model.

d) Check the Market Variable Statistical Summary. Note the Average Sale Price, YearBlt, Quality and CDUcode. Check the high entries on the variables such as NMFVD,

Bsmt_FinMin, Bsmt_FinHigh, AttGarage, Fixtures to verify that all entries are plausible.

e) Check the model statistic. Is the R-squared above 80%? Is the COV 20% or below?

f) Check the variable coefficients**.** How many variables entered the unconstrained model? Are the coefficients on the most important variables reasonable – CDUSF more than $2.00, MFLAQF or TLAQF more than $15.00? Did a time trend enter (DSSF)? If so, is the time trend reasonable?

g) Check the Sales List. Reporting - MRA Reports - MRA Sales List. Are there any sales with extreme errors – errors more than $15,000 or percent of error more than 30%? If the cost value is close to sale price and the market estimate is far off, this is a modeling problem not a data problem; the sale should be left alone. However, if both cost and the market estimate are far off from the sale price, the sale and the data on sales history should be rechecked.

11. **If you have 200 or more sales, try an age model run.** Compare the R-squared and the standard error from the age run to the one model run. Compare the average sale price and the coefficients for DSSF, UFLAQF and MFLAQF in the two models. If these are significantly different, then you should consider keeping these two components of the market separate by using age modeling in the county.

III. REFINEMENT MODELING

1. **Data Errors.** After the first modeling run, you should check any sales that seemed questionable. If any data corrections are necessary, you should correct CAMA; extract the corrected record to sales history and re-run the Sales Extract.

2. **Decide the model configuration**. You must decide whether you will use one Model, locational models, age models or a combination of age/locational models.

3. **Model coefficients.** After any data errors are corrected, you will begin constraining coefficients in the model. The coefficients are the adjustments which will be used in the comparable sales approach. The goal in applying constraints is to have a set of adjustments which represent the actions of the local housing market and also good appraisal judgment.

   The Land and OBYCost variables should be constrained at 1.00 to value them at their cost value.

   If the detached garage will be valued at cost, use the OBYCost variable which includes all other improvements child of the building.

   If a coefficient value will be created for the detached garage, use the Det152Area variable. The OBYminusDetGar variable should then be used for the total cost value of any additional other improvements child of the building.

Because of the interrelationship among characteristics in the list of coefficients, applying constraints to one variable frequently affects the coefficients on other variables. For this reason, several runs are necessary before the final set of constraints is established.

As the constraints are applied, the appraiser needs to monitor the effect on the R-squared and the standard error of estimate. Frequently, as constraints are applied, the R-squared goes down and the standard error goes up. As long as the changes are minor, these effects can be tolerated.

The coefficients for TLAQF (or MFLAQF and UFLAQF), WTAREA, CDUSF, AGESF and DSSF should never need to be constrained.

Review the final set of coefficients for "reasonability".

a. Make sure that no coefficients for additional features such as Bsmt_FinHighQF, AttGarQF, Decks, etc. are higher than the primary size adjustment for the dwelling MFLAQF or TLAQF.
b. Make sure that related sets of adjustments are reasonable compared to each other.

If central air conditioning is the norm, the no heat adjustment (NoHeat_PercentSF) should be more negative than the non-central adjustment (HVAC_NonCent), which should be more negative than the adjustment for having central heat without AC(HVAC_Central).

The adjustment for basement will be BsmtArea (SF of basement). An additional adjustment may be needed for Slab homes (SlabSF).

Finished basement area (Bsmt_FinHighQF) should have a higher adjustment than rec room finish (Bsmt_FinMinQF). The finished area typically will not be higher than MFLA.

Enclosed porches (EncPorchAllQ) should have an adjustment greater than or equal to open porches (OpenPorchQF).

The upper floor adjustment (UFLAQF) should be less than the main floor adjustment (MFLAQF). If it is not, you should go back to a single adjustment by using TLAQF.

The AgeSF and SlabSF variable should have a negative coefficient value. Bed2 and BsmtArea should have a positive coefficient value.

Date of Sale variable - A positive DSSF coefficient value indicates that properties were worth more in the past than they would be on the valuation date. A negative DSSF coefficient value indicates that properties were worth less in the past than they would be on the valuation date. *Annual Time Trend calculation: (Date of Sale coefficient x mean of TLA x 12) / mean sale price*

Make sure that adjustments are reasonable compared to average sale price. An adjustment of $2,000 for an extra full bath may be reasonable in an area with an average sale price in the $100,000 or up range, but it may not be reasonable in an area where the average sale price is around $50,000. Pay special attention to adjustments for fireplaces, fixtures, basement garages or masonry exterior wall cover.

Check the Regression Action Report (MRA Coefficient Report) for any variables with an action of DEL. These variables have "dropped out" of the model and therefore the characteristics that they represent will not have adjustments in the comparable sales approach. Make sure that you are comfortable with not adjusting for these characteristics.

The user can flag sales to be excluded from the market model, to be excluded from comparable sales selection or both. Right clicking on a sale provides options to set or remove flags. If a sale is flagged, the flag displays in the Info column.

The flags available are:

D – Do not use the sale in market modeling regression analysis or as a comparable.

C – Use the sale as a comparable; do not use in regression analysis.

R – Use the sale in regression analysis; do not use as a comparable.

IV. COMPARABLE SALES

2. **Selection Rules and Adjustments.** Go to Market Setup – Work with Comparable Sales – Set Selection Rules and Adjustments.
Review any problem areas in comp selection which may have occurred in previous years.
Note:
Quantitative weight types must ONLY be numeric variables. Never use string variables.
Qualitative weight types can be string or numeric variables.

    a. Click the orange **Update from Model** button to update the market model adjustments (coefficient values) for the Selection Rules and Adjustment report.

3. **Review the Basic Comp Report.** Go to Market Setup – Work with Comparable Sales – Define Comparable Sales Report.

    a. Modify the comp sales report format as needed. The sales report allows approx. 41 rows of data. The Tax Year displays on the header of the report. Note: when using the Pre-defined Variable = Quick Ref ID on the report, the quick ref id is displayed in blue and is a 'link' to the CAMA record for the comparable sale.

    b. If the county is using the Land Link option, make sure the LandLinkValue variable is set in the Land Value line and the TotalCostValue variable is set in the Total Cost line. If the county is using the default land value, the LandVal variable (land value pulled from the sales history record) must be in the Land Value line. The SH_CostValue variable must be in the Total Cost Line (LandVal+RCNLD+OBYCost).

    c. If the county has more than one comp sales report format, set the 'Online Default' checkbox on the Comparable Sales Report Layout dialog box on the report to be displayed on the Comp Sales tab.

    d. If the county determines the Time Adjustment outside the Orion program, modify the comp sales report to display the Sale Price, Time Adjusted value, and Time Adjusted Sale Price. See Appendix D.

    e. The county has the option to include the MRA and Weighted Estimate reports in the comp sales format.
    Go to Market Setup – Work with Comparable Sales – Define Comp Sales Report Formats – select an existing report or create a new report. Select the option for MRA Detail and/or Weighted Estimate to display on the report.

V. TESTING COMPARABLES FOR SUBJECT.

Run batch Select Comparables to test comp reports and selection rules.

1. **Market Setup – Batch Processing Comp Sales – Select Comparables**
    a. Run the Select Comparables to create comp reports for the subject properties.
    b. See section 11.5 in the Kansas Market Model Manual.

2. **Run the CRS Refresh job for the 2026 tax year.** When the job completes, run the CRS Extracts including Code File Extract, NBHD Extract, Prop Extract and Comp Sale Extract.

3. **Run the CRS Extract report: Comp Sheets (subject is also a comparable sale)** for a list of parcels where the subject property pulls itself as a comparable and review the comp sales report for these parcels. The cost values of the property which is used both as a subject and a comparable should be equal and the only adjustment to the property's sale price should be the time adjustment. Hand calculate to verify that the time adjustment, if one has been used, has been applied correctly. The only distance points, which print on the "comparability" line, should come from a selection criterion on sale date (NMFVD). Check to see that the correct number of distance points has been applied.

    a. Check to see whether you are satisfied with the other comps that have been selected for the property. If you see problem areas and wish to test the effect of changes in weights or selection criteria, rerun the comp reports after each change.

    b. Several test runs are generally necessary before the final set of selection criteria is determined.

    c. You may also want to do some test runs on sample neighborhoods so that you can check market value differences among adjacent properties. Also, insure that value shifts from previous values can be supported by the comparable sales being used and the time trend. When testing values using the CRS data in excel spreadsheets, the analyst must Refresh CRS after each Select Comparable batch job run. Make sure that you check comp sheets from each of the model areas.

VI. CLOSING THE MODEL

1. After all data errors in the sales have been cleaned up, constraints have been applied to the model and the Selection Rules and Weights have been determined, go to Market Setup – Work with Comparable Sales – Selection Rules and Adjustments and Click the **Update from Model** button for the final adjustments to appear on the Selection Rules and Adjustment report.

2. Next, all the models must be "closed". In the Market Model dialog box, click the orange **Close Model** button. See section 8.7 in the Kansas Market Valuation manual.

VII. ADD ADDITIONAL SALES TO USE AS COMPARABLES

1. When testing is complete and before locking the Extract file, the user can pull additional valid sales into the Sales Extract file to use as comparable sales for the subject properties.
2. The user should make sure all models are closed.
3. A record of the Sales and Market flags must be kept before rerunning the Sales Extract file.
    i. Go to Reporting – Market Reports – Market Flag List. Save the report to a file created for 2026 market reports.
    ii. Go to Reporting - MRA Reports – MRA Sales List. Save the report to the file.
4. The user must make sure the check box on the Sales Extract parameter named 'Replace Entire Sales Extract file' **IS NOT** checked before re-running the Sales Extract file. See section 11.3 in the Kansas Market Model Manual.
5. After running the Sales Extract, the user may need to re-flag the sales in the View Modeled Sales

VIII. LOCK SALES FILE

1. Market Setup – Batch Processing Market Models – Lock Sales file
    a. Setup the criteria to lock the sales file and click Save.
    b. To verify the file is locked, go to Market Setup - Work with Comparable Sales – View Sales Extract. The text color will change from black to red when the file is locked.
    c. See section 11.4 in the Kansas Market Model Manual.

IX. BATCH SELECT COMPARABLES FOR SUBJECT – FINAL RUN

1. All subject parcels must have a current market calibrated cost value **-** Activities - Run/Schedule CAMA Calculations
   Note: If a county plans to print the Subject Index Value on the Comp Sales Report, they must first populate the Index Factor tables with the current factors and then run the CAMA Calculations for all parcels.
   NOTE: If Index Factors will not be used, populate the Index table with 0

2. Market Setup – Batch Processing Comp Sales – Select Comparables
    a. Run the Select Comparables to create comp reports for the subject properties.
    b. Counties have the option to select the checkbox to 'Set Market as Final Value' and select the Change Reason and Appraiser Codes to be displayed on the Final Value tab.
    c. See section 11.5 in the Kansas Market Model Manual.

3. **Run the CRS Refresh.** When completed, Query Tool – CRS Extracts menu – download the CodeFileExtract, NbhdExtract, PropExtract and CompSalesExtract. Go to CRSExtract on your desktop and update the CRS Inventory.

4. **Run the CRS Extract: Residential parcels missing a comp sheet.** Report to Pvd CAMA section if any parcels appear on this report.

X. PRINT COMPARABLE SALES REPORTS

1. Market Setup – Batch Processing Comp Sales – Print Comparable Sales Reports
    a. The parameter page includes a required field to select the comp report format. The format will be used for all properties in that batch run.
    b. It is advised that the user runs the batch jobs by NBHD, Market Area or by a parcel list to avoid timeout errors.
    c. When printing Comparable Sales Reports with Photos, each batch run is limited to no more than 700 parcels. This limit may vary according to the size of the photos.
    d. See section 11.6 in the Kansas Market Model Manual.

XI. CREATE MARKET REPORTS FOR HISTORICAL RECORDS

1. Create a historical record of the model by using the submit button and send the job to the job queue. Then, retain the job in Job History by right clicking and select the option 'Retain Job'.
    a. MRA Coefficient Report – Reporting / MRA Reports
    b. Selection Rules and Adjustments – Reporting / Market Reports
    c. Market Flag List – Reporting / Market Reports
    d. MRA Variable Statistical Summary – Reporting / MRA Reports
    e. MRA Sales List – Reporting / MRA Reports

XII. SECURITY SETTINGS

SECURITY SETTINGS - All counties should remove the rights to 'Calculate Models in prior tax year' for ALL users. If given this right, the user can calculate a model in a prior year which may change the coefficient values in the regression model.

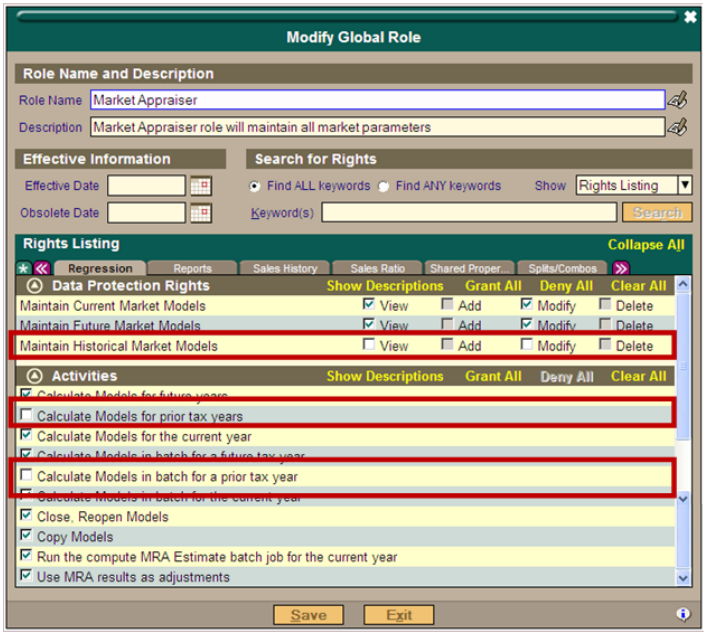
1. Go to User Maintenance – Roles – open a role – go to the 'Regression' tab. Remove any check marks in:
    Maintain Historical Market Models
    Calculate Models for prior tax years
    Calculate Models in batch for a prior tax year.
    Click Save. Go through the steps for each role.
    See **Appendix A**.

APPENDIX A

SECURITY RIGHTS: REMOVE SECURITY RIGHTS TO CALCULATE MODELS IN A PRIOR TAX YEAR

To prevent a user from calculating and changing a prior year regression model, counties should review ALL security roles and remove the rights to maintain or calculate market models in prior years.

The security right to calculate models in a prior year is located on the Regression tab
Go to Configuration – User Maintenance –Roles



Remove the rights to:
Maintain Historical Market Models
Calculate Models for prior tax years
Calculate Models in batch for a prior tax year

Also, make sure the Prior Year rights on the Market Setup tab are unchecked for all roles:
Approve Prior Year Changes to Calculation Definition Groups
Approve Prior Year Changes to Calculation Definition
Approve Prior Year Changes to Named Table Lookups
Approve Prior Year Changes to User Function Groups
Approve Prior Year Changes to User Functions
Maintain Historical Calculation Definition Groups
Maintain Historical Calculation Definition Groups (Restricted)
Maintain Historical Calculation Definitions
Maintain Historical Calculation Definitions (Restricted)
Maintain Historical Comp Sales Report Formats
Maintain historical Market Setup Parameters
Maintain Historical Named Table Lookups
Maintain Historical User Function Groups
Maintain Historical User Function Groups (Restricted)
Maintain Historical User Function
Maintain Historical User Function (Restricted)

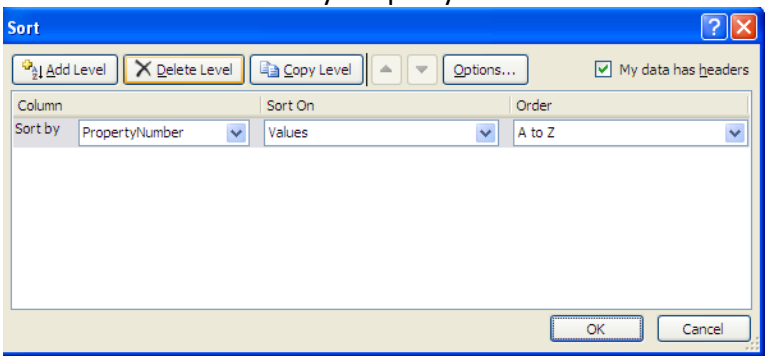
APPENDIX B

Query instructions for Residential Multi-dwelling parcels in Counties with Alternate Market Areas

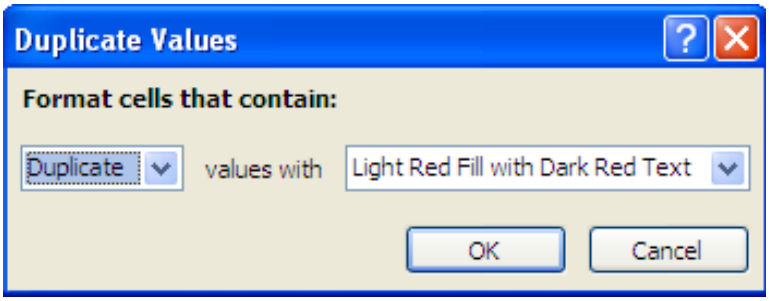
The query can be found at: www.kdor.org/pvdcama
Orion Custom Reporting System-Market Modeling Checklist Queries-Mult Res Bldgs with yr blt Query

The system is designed to make only one market assignment per property. If age stratification is used, then the market assignment comes from the first dwelling. If the first dwelling is a Postwar year built, it will go to the default market area and all subsequent dwellings will go to the respective market area according to the age of the dwelling.
However, if the first dwelling is a Prewar year built, then the dwelling and all subsequent dwellings will go only to the alternate market area.
To fix this, each multi-dwelling parcel must be reviewed. If the parcel has both prewar and postwar year-built dwellings AND the prewar dwelling is listed first on the CAMA tree, then modify so the postwar year built appears first on the CAMA tree.

Run the query named: Mult Res Bldgs with yr blt
In excel, highlight the 4 columns: QuickRefID, PropertyNumber, ResSeqNum, fyrblt
Click Data – Sort – sort by Property Number – Values – A to Z

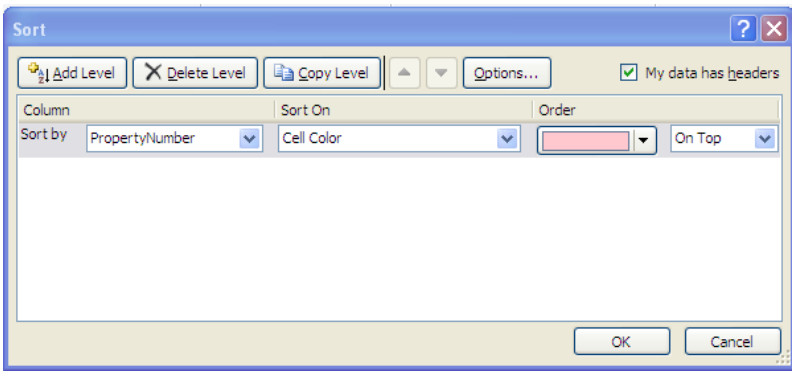


Highlight first two columns: QuickRefID and Property Number
Click Home – Conditional Formatting – Highlight Cell Rules – Duplicate Values

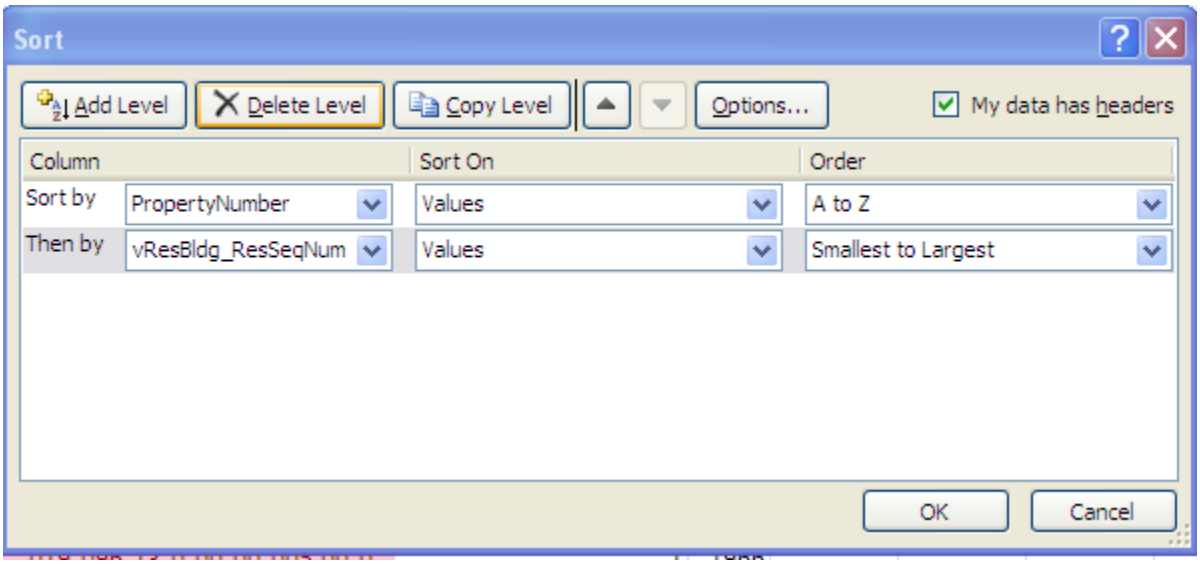


Select Duplicate values with Light Red Fill with Dark Red Text
Click OK

Highlight all four (4) columns
Click Data – Sort –
Sort by: PropertyNumber Sort On: Cell Color Order: select Red Cellselect: On Top
Click OK.



Delete rows that have a single dwelling.
Highlight the four (4) columns – click Sort –
Sort by PropertyNumber
click Add Level - Then by: ResSeqNum



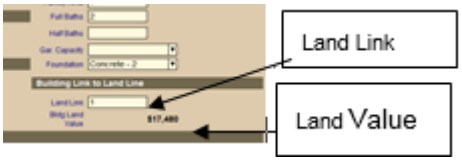
Look for parcels that has prewar year built home as first building and sequential buildings have post year built home(s)

APPENDIX C
Instructions for Res Bldg vs Land Link Query

The query can be found at: www.kdor.org/pvdcama
Orion Custom Reporting System – Market Modeling Checklist Queries – Res Bldg vs Land Link Query

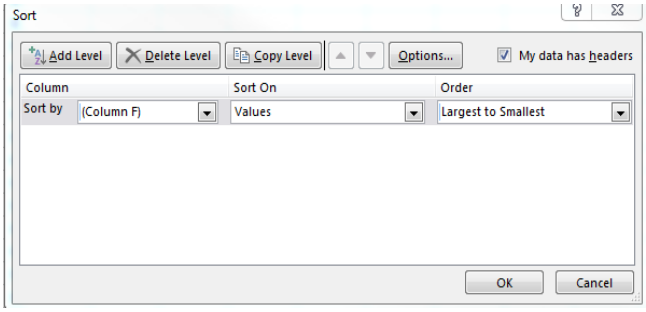
This query must be ran each year in counties using the Land/Building Link.

- When the Land link data field on the Res Bldg page has the same 'key' (numeric or alpha) as the Building link data field on the Land item page, the Land Value will display in the Bldg Land Value field on the Residential Building item page.



- **The link will only need to be used on multi-building parcels.**
- This option allows a county the ability to allocate a land record value to a particular building.
- It is recommended that counties enter the number 99 in the land link data field on the building page when a dwellings should not have a land value. This will also allow the user to find these parcels in queries for quality control.

Run the query named: Res Bldg vs Land Link
In Excel, **highlight the columns and sort by column F,** the count of the # of Res Bldg. Instance IDs.
Note: Column G is the count of the # of Land Link fields populated.



Review the parcels with more than one Residential dwelling and the Land Link count does not equal building count.

B	C	D	E	F	G
PropertyID	QuickRefID	PropertyNumber	fpropclass		
3598	R3598	021-109-29-0-00-00-002.00-0	R	5	0
4410	R4410	021-114-17-0-20-01-010.01-0	F	4	0
2	R2	107-156-23-0-00-00-00A	A	3	0
12419	R12419	021-261-12-0-30-27-002.00-0	R	3	0
844	R844	021-047-25-0-00-00-006.00-0	F	2	2
3808	R3808	021-112-09-0-10-02-028.00-0	R	2	2
3902	R3902	021-112-09-0-30-03-028.00-0	R	2	2
7627	R7627	021-124-18-0-20-05-007.00-0	R	2	2
5598	R5598	021-115-16-0-10-14-003.01-0	E	2	0
286	R286	021-024-19-0-00-00-003.00-0	F	2	0

APPENDIX D

COMP SALES TIME ADJUSTMENT OPTION

The KCAA Enhancement committee requested the ability to allow the county Market Analyst to apply a standard appraisal sequence of adjustments to the Sale Price. Where financing is applied first, followed by consideration for a time adjustment, and finally, adjustments for physical characteristics. This is the standard appraisal practice of making adjustments in order to arrive at an adjusted sale price when determining the value of a subject property.

If the market analyst can determine the time adjustment outside the Orion program, then the user defined time adjusted sale price can now be used for regression and the comp sales adjusted sale prices. This allows for a consistent application of a time adjustment for all sales and all approaches throughout the annual analysis.

Application

It will be the County's responsibility to determine the best approach to arrive at the desired valuation results. Each method of accounting for time could perform better or worse in specific jurisdictions based on the available information and make-up of the county.

With these changes the County has the option to apply a time adjustment based on:

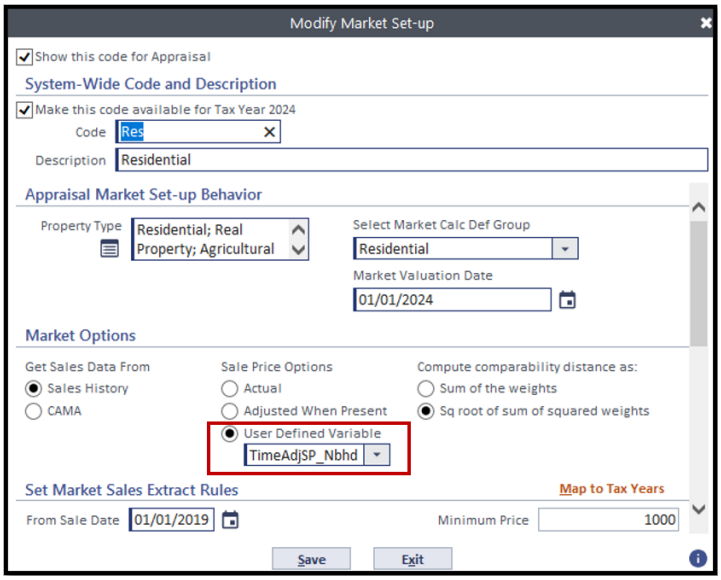
DSSF - Orion currently allows the time adjustment to be included as a market variable in regression. This works well for most counties and has been the historical approach to accounting for time in regression analysis.

Neighborhood - This assumes properties in different neighborhoods trend at different rates but within the neighborhood properties trend similarly.

Sale Price - This assumes properties selling within a particular price range trend differently based on the supply and demand factors within the various ranges (ie lower priced homes trend at a higher rate compared to higher priced home).

No Trend - Deciding that no time adjustment is necessary.

If at the County's discretion, the county would like the option to determine the time adjustment factor outside of the Orion program, then PVD will update the System Admin setting to enable the ability to define the Sale Price as a User Defined variable in the Market Setup Parameter page.

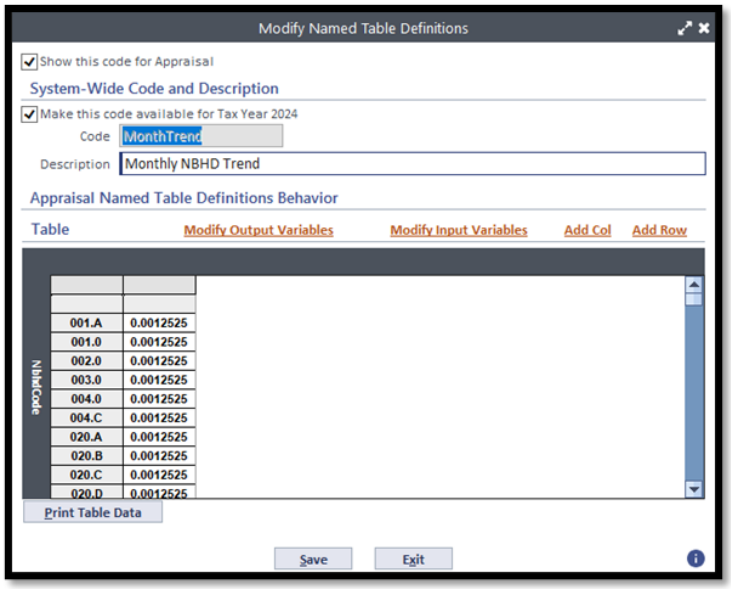


Once the setting is active, an additional radio button will be available on the market parameter to allow a User Defined Variable to be selected.

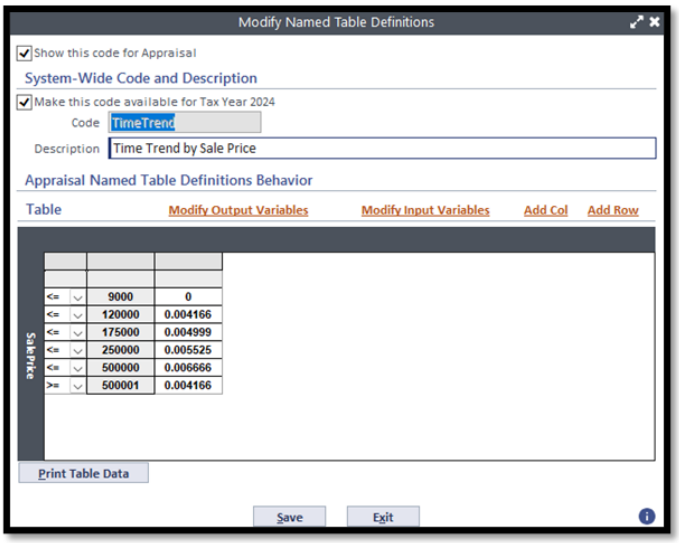
When the market analyst determines the time adjustment factor to be applied, the factors will be populated in the Market Setup – Named Tables - Named Table Definitions.

The county will have two different named table options –

- **MonthlyTrend** – store time trend factor by Nbhd. The output is named: Factor
  The statement for this option is similar to the current DSSF variable.
  The TrendbyNbhd calculation is: Factor * NMFVD * TLA



- **TimeTrend** – store time trend factor by Sale Price. This option was recently added and will need testing by market analysts.
  The calculation for the TrendbySP: NMFVD x TimeFactorbySP x SPAdjWhenPres



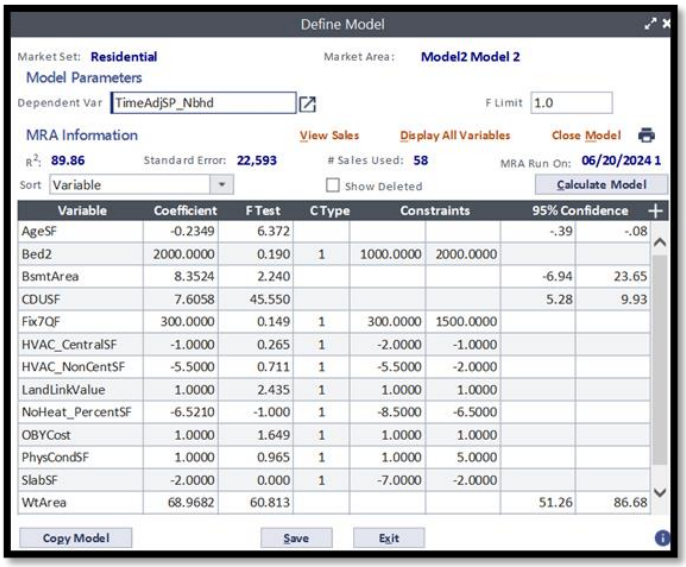
Regression

When selecting the User Defined Variable for Time Adjustment on the Market Setup parameter, the Market Analysis will set the Dependent Variable in the Market Models with the Time Adjusted Variable based on the Named Table used.

Note: The DSSF or DSSF_SP must be removed from the model when using a dependent time adjusted variable.

- Dependent Var TimeAdjSP_Nbhd
- Dependent Var TimeAdjustSP

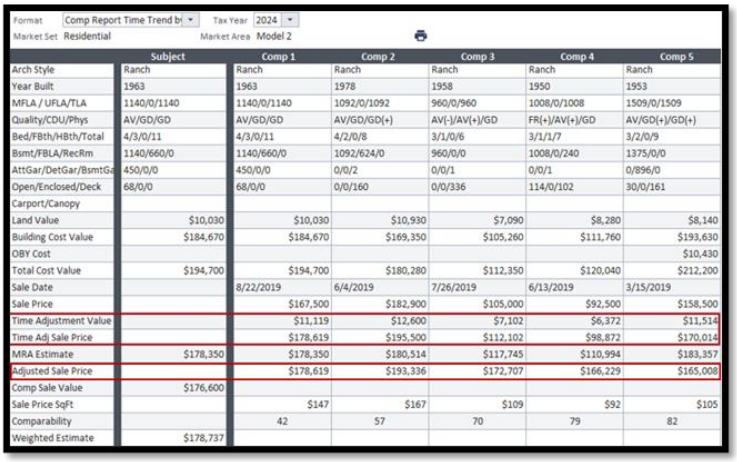
The View Modeled Sales will display the time adjusted sale price in the Sale Price column:



Comparable Sales

When selecting the User Defined Variable for Time Adjustment on the Market Setup parameter, the comp sales report will need to be modified with the new variables.

The new comp sales functionality will allow the calculation for the Adjusted Sale Price to read the Time Adjusted Sale Price created by the county instead of the Actual/Adjusted Sale Price pulled from the Sales History Record.



Format: Comp Report Time Trend b | Tax Year: 2024
Market Set: Residential | Market Area: Model 2

	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5
Arch Style	Ranch	Ranch	Ranch	Ranch	Ranch	Ranch
Year Built	1963	1963	1978	1958	1950	1953
MFLA / UFLA/TLA	1140/0/1140	1140/0/1140	1092/0/1092	960/0/960	1008/0/1008	1509/0/1509
Quality/CDU/Phys	AV/GD/GD	AV/GD/GD	AV/GD/GD(+)	AV(-)/AV(+)/GD	FR(+)/AV(+)/GD	AV/GD(+)/GD(+)
Bed/FBth/HBth/Total	4/3/0/11	4/3/0/11	4/2/0/8	3/1/0/6	3/1/1/7	3/2/0/9
Bsmt/FBLA/RecRm	1140/660/0	1140/660/0	1092/624/0	960/0/0	1008/0/240	1375/0/0
AttGar/DetGar/BsmtGa	450/0/0	450/0/0	0/0/2	0/0/1	0/0/1	0/896/0
Open/Enclosed/Deck	68/0/0	68/0/0	0/0/160	0/0/336	114/0/102	30/0/161
Carport/Canopy						
Land Value	$10,030	$10,030	$10,930	$7,090	$8,280	$8,140
Building Cost Value	$184,670	$184,670	$169,350	$105,260	$111,760	$193,630
OBY Cost						$10,430
Total Cost Value	$194,700	$194,700	$180,280	$112,350	$120,040	$212,200
Sale Date		8/22/2019	6/4/2019	7/26/2019	6/13/2019	3/15/2019
Sale Price		$167,500	$182,900	$105,000	$92,500	$158,500
Time Adjustment Value		$11,119	$12,600	$7,102	$6,372	$11,514
Time Adj Sale Price		$178,619	$195,500	$112,102	$98,872	$170,014
MRA Estimate	$178,350	$178,350	$180,514	$117,745	$110,994	$183,357
Adjusted Sale Price		$178,619	$193,336	$172,707	$166,229	$165,008
Comp Sale Value	$176,600					
Sale Price SqFt		$147	$167	$109	$92	$105
Comparability		42	57	70	79	82
Weighted Estimate	$178,737					

For example, when looking at Comp #1 the calculations are:
Actual sale price: $167,500 (Variable: SPAdjWhenPres)
Time Adjustment Value: $11,119(Variable: TrendbyNbhd)
Time Adj Sale Price: $178,619 (Variable: TimeAdjSP_Nbhd)
The Adjusted Sale Price: $178,619 (Variable: Market Adjusted Sale Price)

The calculations for Comp #2 are:
Actual sale price: $182,900 (Variable: SPAdjWhenPres)
Time Adjustment Value: 12,600 (Variable: TrendbyNbhd)
Time Adj Sale Price: $195,500 (Variable: TimeAdjSP_Nbhd)
The Adjusted Sale Price is calculated with the following formula:
$178,350 (Subj MRA) - $180,514 (Comp1 MRA) = $-2,164(difference in MRA) + $195,500 (Time Adjusted Sale Price) = $193,336 (Adjusted Sale Price)

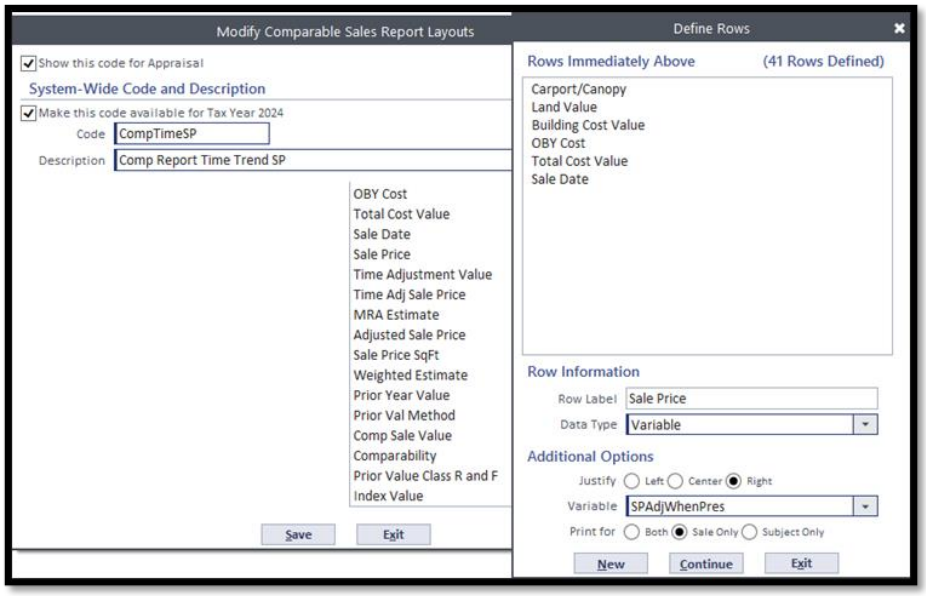
New calculation statements added to your site for this enhancement includes:
SPAdjWhenPres = if Sales History record has Adj Sale Price, use it. Else, use actual Sale Price

TimeFactor = Nbhd Time Adjustment Factor
TrendbyNbhd = NMFVD x TimeFactor x SPAdjWhenPres
TimeAdjSP_Nbhd = SPAdjWhenPres + TrendbyNbhd
TimeAdjDiffNbhd = TimeAdjSP_Nbhd – SPAdjWhenPres

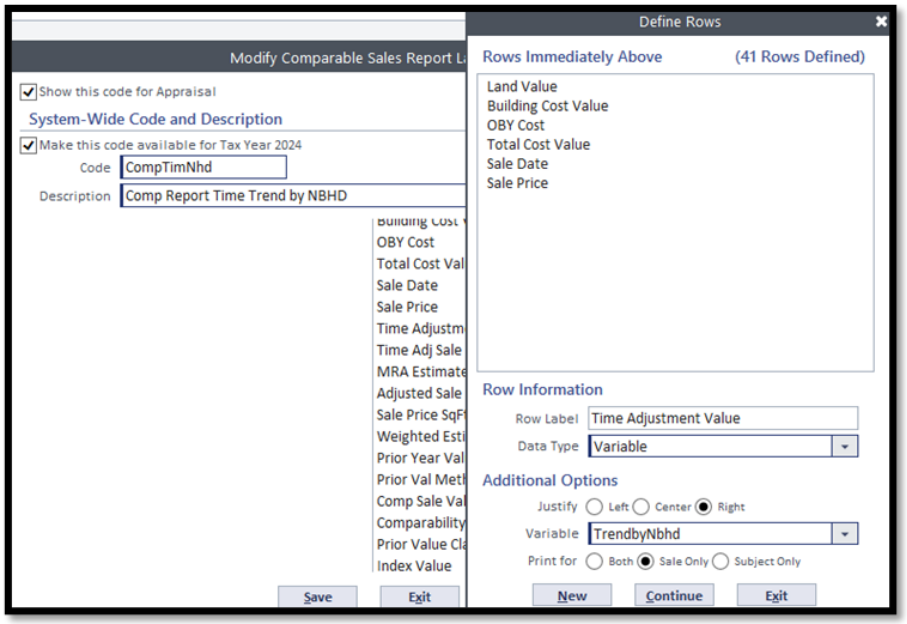
TimeFactorbySP = Time Adjustment Factor x Sale Price
TrendbySP = NMFVD x TimeFactorbySP x SPAdjWhenPres
TimeAdjustSP = SPAdjWhenPres + TrendbySP
TimeAdjDiffSP = TimeAdjustSP – SPAdjWhenPres

Modifying the Comp Sales Report Layout

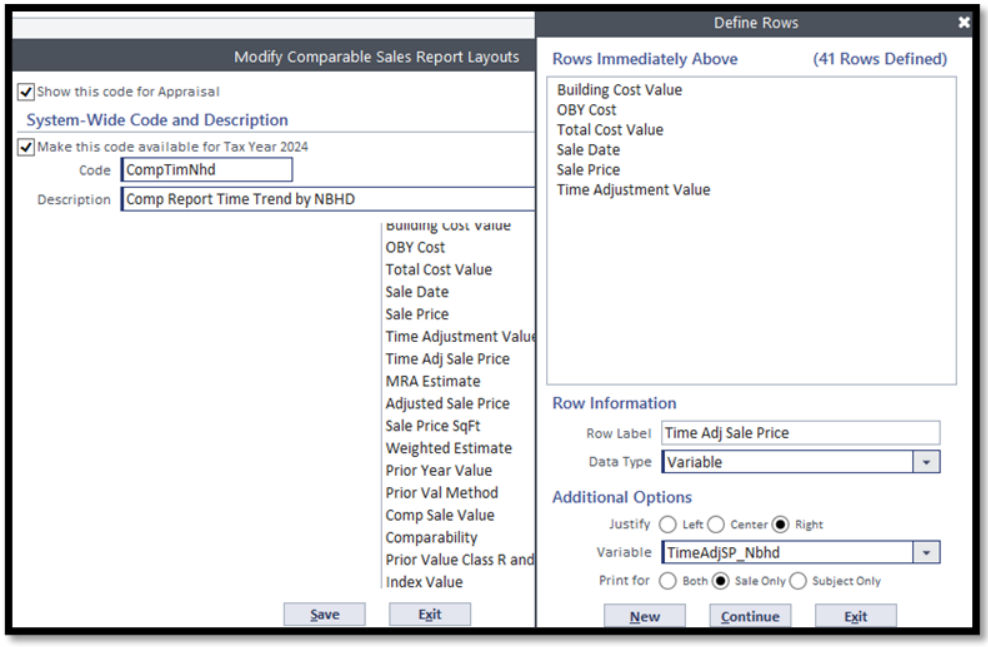
Go to Market Setup – Work with Comparable Sales – Comp Sales Report Layout – Scroll down to Sale Price and click to open. Modify:
Data Type: **Variable**
Variable: **SPAdjWhenPres**
Print for: **Sale Only**



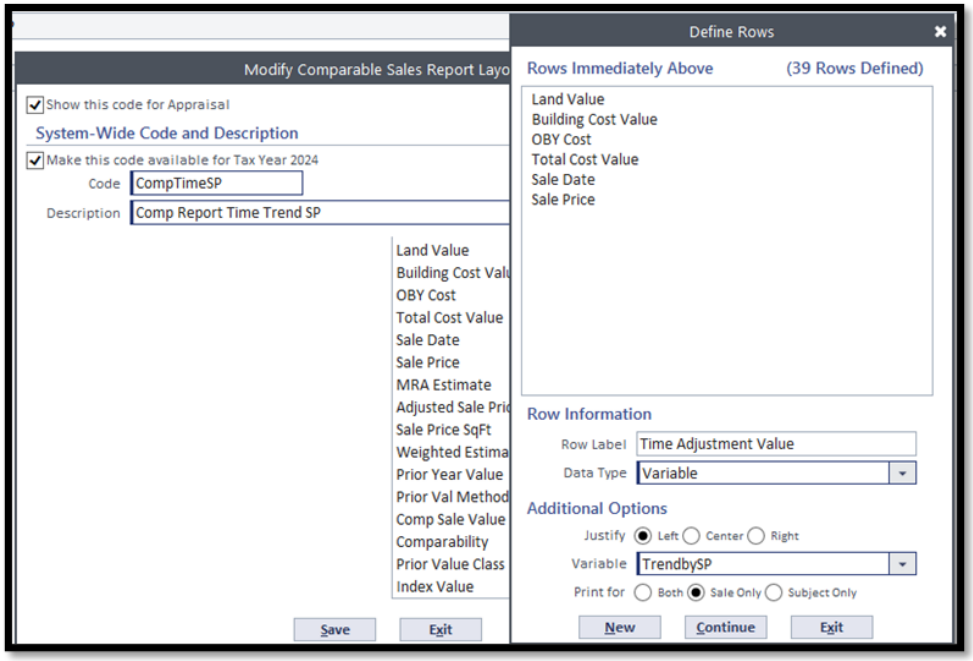
SETUP COMP REPORT FOR MONTHLY NBHD TIME TREND
Go to the row named Sale Price, right click and select the option to Insert Below.
Row Label: **Time Adjustment Value**
Data Type: **Variable**
Variable: **TrendbyNbhd**
Print for: **Sale Only**



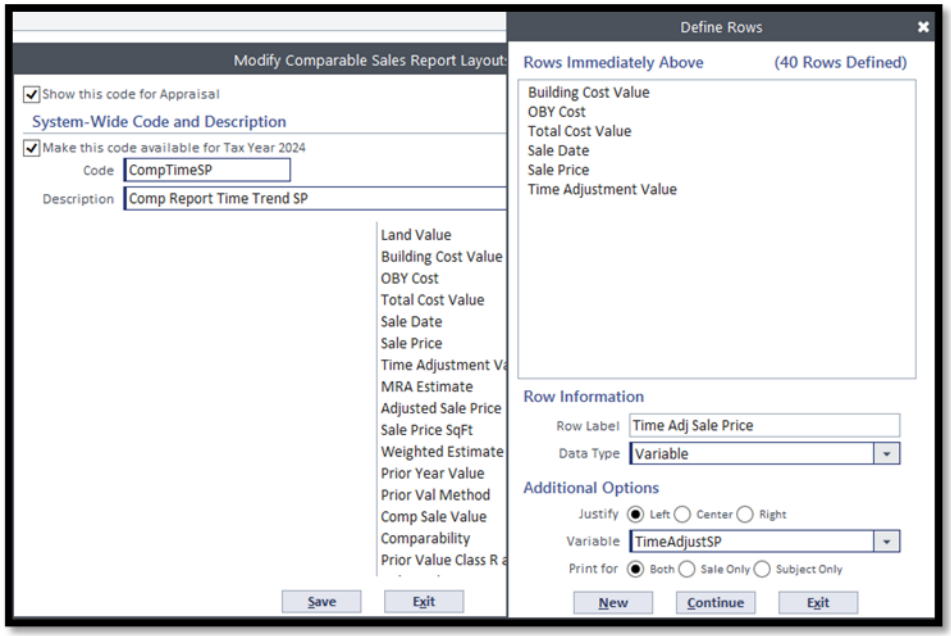
Go under the Time Adjustment Value, right click and insert.
Row Label: **Time Adj Sale Price**
Data Type: **Variable**
Variable: **TimeAdjSP_Nbhd**
Print for: **Sale Only**



SETUP COMP REPORT FOR TIME TREND BY SALE PRICE
Go under the Sale Price, right click and insert.
Row Label: **Time Adjustment Value**
Data Type: **Variable**
Variable: **TrendbySP**
Print for: **Sale Only**



Go under the Time Adjustment Value, right click and insert.
Row Label: **Time Adj Sale Price**
Data Type: **Variable**
Variable: **TimeAdjustSP**
Print for: **Sale Only**



2026
Orion Market Variable Calculations

Variables that typically will be used in regression

Variables that will be used for reporting only – Comp report or Market Variable Statistical report

Variables designed for Market Extract Validation Rules ONLY

String Type Variables (Alphanumeric variables) - Cannot be used in Market Modeling. Often used as selection criteria but must only be used with the Weight Type Qualitative. A String variable should never be used with a Quantitative Weight Type. String Type variables are also used to define market variables so information can be printed on the comp sales report.

Numeric Type Market Variables - Can use in market model, on the comp sales report or as a Quantitative or Qualitative Weight Type in the selection criteria.

Variable List

1) Qfact — Factors mapped to M&S Quality ratings.
   a. Table of factors located in Market Setup - Calculation Setup & Tables – Qfact

Quality	M-S as factor of rank 3
1.00	0.71
1.15	0.75
1.33	0.79
1.67	0.82
2.00	0.85
2.33	0.89
2.67	0.96
3.00	1.00
3.33	1.11
3.67	1.23
4.00	1.32
4.33	1.39
4.67	1.47
5.00	1.56
5.33	1.78
5.67	2.03
5.83	2.31
6.00	2.65

2) Access_Semi	Number	Property Factor code 2 - Semi-Improved Road
3) AddressLink	String	Address Link data field on Res Bldg page for Comp Sales Report
4) Age	Number	Tax year minus year built.
5) Age_EffSF	Number	Age of Effective Year built, otherwise Age of Year Built
6) AgeLvl	Number	Age leveled off at 60 years
7) AgeLvlSF	Number	Leveled Age multiplied by TLA
8) AgeSF	Number	Age multiplied by TLA
9) AgImpts	Number	Total Agricultural Improvement Value – for Comparables only
10) AgMktSale	Number	Agricultural Market Land Value – for Comparables only
11) AgMrktLandVal	Number	Agricultural Market Land Value - subject and comparable (*do NOT use in regression)*
12) AgUseValue	Number	Total Agricultural Land Value – for Comparables only
13) ArchStyle	String	Architectural Style code from the ResBldg page **1 = Bi-Level 2 = Ranch 3 = Split Level** **4 = Conventional 5 = Modern 6 = Earth Contact** **7 = Earth Shelter 8 = Bungalow 9 = Old Style** **10 = Victorian 11 = Colonial 12 = Traditional** **13 = Condo 14 = Other 15 = Other** **16 = Other 17 = Other 18 = Other**
14) ArchStyleGrp	Number	Architectural Style groups for comp selection Style 2 = ArchStyleGrp 1 Style 1,3 = ArchStyleGrp 2 Style 4,5,8,9,10,11,12 = ArchStyleGrp 3 Style 6,7,13 = ArchStyleGrp 4
15) AsbestosSiding	Number	Asbestos siding Component code 116
16) AttDetBsmtGar	String	Attached gar/ detached gar / basement gar for Comp Report
17) AttDetGar	String	Attached garage / detached garage (152 area) for Comp Report
18) AttGarage	Number	Sum attached garage component codes 701, 711
19) AttGarQF	Number	Attached Garage area multiplied by QFact
20) Bed	Number	Bedroom count
21) Bed2	Number	Bedroom count less than 3
22) Bed3	Number	Bedroom count less than or more than 3
23) Bedbathtot	String	Bed / Full bath / Half bath / Total Fixtures for Comp Report
24) BedBathTotRm	String	Bed / Full bath / Half bath / Total Room for Comp Report
25) BlockSiding	Number	Block Siding Component Code 161,163
26) Breezeway	Number	Breezeway (enclosed) Component codes 957, 958, 959, 960, 961, 962, 963, 964, 965
27) BrickSiding	Number	Bick Siding Component Code 162,165
28) Bsmt_FinHigh	Number	High quality bsmt finish (FBLA) component code 803
29) Bsmt_FinHighQF	Number	High quality bsmt finish (FLBA) multiplied by QFact
30) Bsmt_FinMin	Number	Minimal basement finish (Rec) component code 802
31) Bsmt_FinMinQF	Number	Minimal basement finish (Rec) multiplied by QFact
32) BsmtArea	Number	Basement Area from ResComp code 801
33) BsmtAreaQF	Number	Basement Area multiplied by Quailty Factor
34) BsmtFblaRec	String	Basement Area / FBLA / RecRoom
35) BsmtGar	Number	Basement Garage Component codes 805,806,807
36) BsmtGar1	Number	Basement garage component code 805 (one car capacity)
37) BsmtGar2	Number	Basement garage component code 806 (two car capacity)
38) BsmtGar3	Number	Basement garage component code 807 (three car capacity)

39) BsmtGar804	Number	Basement garage component code 840 (square foot size of bsmt gar)
40) BsmtGarDisplay	Number	Number or SqFt size of Basement Garage for Comp Sales report
41) BsmtGarN	Number	Total number of basement garage capacity
42) BSMTGRSF	Number	Total number of basement garage capacity times 240 or BsmtGar804
43) BsmtType	Number	Bsmt type code from the Resbldg page
44) BsmtTypeDesc	String	Basement description on res building page for Comp Report 1=Slab, 2=Crawl, 3=Partial, 4=Full
45) Carport	Number	Carport component codes 721,722,723
46) CarportPool	String	Carport / Pool for Comp Report
47) CDU	String	Numeric CDU from code table 1= UN 2=VP- 3=VP 4=PR- 5=PR 6=FR- 7= F 8=AV- 9=AV 10=AV+ 11=GD 12=GD+ 13=VG 14=VG+ 15= EX
48) CDU_PHYS	String	CDUText / PhyCondText for Comp Report
49) CDUcode	Number	CDU code for statistical report
50) CDUNorm	Number	Normalized CDU = AV (adj up or down from average) times TLA 1 = -8 2 = -7 3= -6 4= -5 5= -4 6= -3 7 = -2 8 = -1 9=0 10=1 11=2 12=3 13 =4 14=5 15=6
51) CDUSF	Number	CDUNorm multiplied by TLA
52) CDUText	String	CDU text for Comp Sales Report 1=UN, 2=VP-, 3=VP, 4=PR-, 5=PR, 6=FR-, 7=FR, 8=AV-, 9=AV, 10=AV+, 11=GD, 12=GD+, 13=VG, 14=VG+, 15=EX
53) CementFiberSiding	Number	Cement Fiber Siding Component Code 117,118,119
54) CommBldgVal	Number	Commercial Bldg value for Market Extract Validation Rules
55) ConcreteSiding	Number	Concrete Siding Component Code 167
56) CondoLvl	Number	Condo level
57) CondoType	String	Condo Type for comp sheet
58) CostValueTotal	Number	ResBldgRCNLD + OBYCost + Predefined Land Value
59) COSTvsSP	Number	Cost value divided by Sale Price
60) CTypeCode	Number	CondoType indicator = 1 if interior, 2 if corner else 0
61) CurrentFVMethodSubj	String	Current value method of Subject parcel
62) CurrentValue	Number	Current Value of parcels
63) CurrentValue_CurrentMethod	String	Current value of Subject / Current value method of Subject
64) CurrentValueSubj	Number	Current value of Subject parcel only
65) Deck	Number	Deck component code 903
66) Depth	Number	Depth land size from Frontage and Depth item page
67) Det152Area	Number	Detached Garage – Other Improv. Child of the Bldg – sq ft size
68) DetGar152	Number	Detached garage – Other Improv. Child of the Bldg – Cost Value
69) DetGarage	Number	Sum detached garage component code 706
70) DSSF	Number	Date of Sale (NMFVD) multiplied by TLA
71) DSSF_SP	Number	DSSF not applied below a sale price threshold of $50,000
72) DSSF_1Year	Number	Date of Sale (NMFVD) from month 1 to 12
73) DSSF_2Year	Number	Date of Sale (NMFVD) from month 13 to 24
74) DSSF_3Year	Number	Date of Sale (NMFVD) from month 25 to 36
75) DSSF_4Year	Number	Date of Sale (NMFVD) from month 37 to 48
76) Earth	String	Earth Contact and Earth Shelter architectural styles
77) EffAge	Number	Tax Year minus Effective Year Built
78) EffFrontage	Number	Effective Frontage land size from Frontage and Depth item page
79) EncPorch.	Number	Total enclosed porch area. Component codes 907, 908, 909, 910, 911, 912, 913, 914, 915

80)	EncPorchAll	Number	Sum of Enclosed Porches + Breezeways
81)	EncPorchAllQF	Number	EnclosedPorchAll multiplied by QFact
82)	Fireplaces	Number	Fireplace component codes 641,642,643,644,646,645,647,648
83)	FireplaceQF	Number	Fireplaces multiplied by QFact
84)	Fix5QF	Number	Normalize Fixtures at 5, multiplied by QFact
85)	Fix6QF	Number	Normalize Fixtures at 6, multiplied by QFact
86)	Fix7QF	Number	Normalize Fixtures at 7, multiplied by QFact
87)	Fix8QF	Number	Normalize Fixtures at 8, multiplied by QFact
88)	Fix9QF	Number	Normalize Fixtures at 9, multiplied by QFact
89)	Fix10QF	Number	Normalize Fixtures at 10, multiplied by QFact
90)	Fix11QF	Number	Normalize Fixtures at 11, multiplied by QFact
91)	Fix12QF	Number	Normalize Fixtures at 12, multiplied by QFact
92)	FixtureQF	Number	Fixtures multiplied by QFact
93)	Fixtures	Number	Total fixtures component code 601
94)	FloodPct	Number	Flood Zone Percent on property page
95)	FloodZoneA	Number	Flood Zone C on property page times .01M
96)	FloodZoneB	Number	Flood Zone C on property page times .01M
97)	FloodZoneC	Number	Flood Zone C on property page times .01M
98)	FloodZoneCode	String	Flood Zone Code on property page
99)	FPExtra	Number	Extra Fireplace openings FPExtra component codes 644,645,646,647
100)	FPTot	Number	Sum of Fireplaces & FPExtra
101)	FPTotQF	Number	Sum of Fireplaces & FPExtra multiplied by QFact
102)	FPyesno	Number	Fireplace indicator for comparable selection
103)	Front_Depth	String	Effective Frontage and Depth from first land line on parcel
104)	GarCapacity	Number	Garage Capacity from res bldg page
105)	Heat_HeatPct	Number	HeatText + Heat_Percent for Comp Report
106)	Heat_Percent	Number	Total HVAC percent on parcel
107)	Heat3	Number	Establishes relationship between 3 levels of heat when AC is norm
108)	HeatText	String	Heat Text for Comp Report HVAC_AC = Central Air HVAC_Central = Central HVAC_NONCENT = Non-Central HVAC_NoHeat – None
109)	HVAC_AC	Number	AC Component Codes 351,352,353,354,355,381
110)	HVAC_ACSF	Number	AC multiplied by TLA
111)	HVAC_Central	Number	Central Heat Component Codes 303,304,306,308,309,310,311,312
112)	HVAC_CentralSF	Number	Central heat multiplied by TLA
113)	HVAC_NonCent	Number	Non Central heat Component Codes 301,305,307,313,314
114)	HVAC_NonCentSF	Number	Non Central multiplied by TLA
115)	IndexValue	Number	Index Value for reporting purposes
116)	IndexValSubj	Number	Index Value for reporting purposes for Subject parcels
117)	LandLinkValue	Number	Land value linked to the residential building page
118)	LandVal	Number	Sales history land value – ignores any land links
119)	livngunits	Number	Living Units on displayed property page
120)	LogSiding	Number	Log siding Component Code 115
121)	MasonryOnBlock	Number	Masonry,Brick,Stone or Stucco on Block Siding Codes 166,168,169
122)	MasonryVeneerSiding	Number	Masonry Veneer Siding Component Codes 131,133,134
123)	Metal_VinylSiding	Number	Metal and Vinyl Siding Component Code 102
124)	MetalSiding	Number	Metal Siding Component Code 106
125)	MFamily	Number	Multi-family Assignment – LBCS structure codes 1121, 1123, 1124, 1202, 1203, 1204, 1305

126)	MFLA	Number	Main Floor Living Area
127)	MFLAQF	Number	MFLA multiplied by QFact
128)	MflaUfla	String	MFLA / UFLAI for comp sales report
129)	MflaUflaTla	String	MFLA / UFLAI / TLA for comp sales report
130)	MiscOthVal	Number	Other Impt, child of property that is not Ag Use class + Property page Misc Impt and NewCon values for comp sales report
131)	MiscOth_MHVal	String	MiscOthVal / MobileHomeVal for comp sales report
132)	Mkt_Land_Fld_Zone	String	Eff Front / Depth / Market Acres / Flood Zone for comp sales report
133)	MktAcres	Number	Total Market Acres from Property page
134)	MktRem_Land	Number	Additional Market Land Value not included in Land Link Value
135)	MobileHomeVal	Number	Mobile Home value for Market Extract Validation Rules
136)	Msnry	Number	Masonry exterior wall component codes 131,133,134,162,165,166,168
137)	MsnrySF	Number	Masonry exterior wall multiplied by TLA
138)	MsnrySF_QF	Number	MasonrySF multiplied by QFact
139)	MSStyle	String	M&S style codes for comp sheet (may not display on batch Reports) See variable- MSStyleDesc
140)	MSStyleDesc	String	MS Style Description for Comp Sales Report (replace var#17) 1 = 1 Story, 2 = 2 Story, 3 = 3 Story, 4 = Split Level, 5 = 1 ½ Story, 6 = 1 ½ Story Unfin. , 7 = 2 ½ Story, 8 = 2 ½ Story Unfin., 9 = 3 ½ Story, 10 = 3 ½ Story Unfinished, 11 = Bi-Level, 12 = Bi-Level
141)	MSStyleGrp	Number	MSStyle grouped for comp selection MSStyle 1,6 = MSStyleGrp 1 MSStyle 2,3,5,7,8,9,10= MSStyleGrp 2 MSStyle 4,11,12 = MSStyleGrp 3
142)	Multi	Number	Multi-family indicator–ResType2=Low-Rise Multiple or 5=Duplex
143)	Nbhd_Nbgrp	String	Neighborhood / Neighborhood Group for Comp Report
144)	Nbhd_Grp_MktArea	String	Neighborhood / Nbhd Group / Market Area for Comp Report
145)	Nbhd_***	Number	Binary variable for neighborhood codes
146)	NewConstVal	Number	Total New Construction Value
147)	NoHeat_Percent	Number	If Heat_Percent is less than 100, then calculate % with no heat
148)	NoHeat_PercentSF	Number	NoHeat_Percent multiplied by TLA
149)	OBYCost	Number	Total Cost Value for Other Improvement, child of the building
150)	OBYminusDetGar	Number	Other Improvement, child of building minus DetGar152
151)	OBYminusPool	Number	OBYCost value minus OBY pool value
152)	OpenEncDeck	String	Open Porch / Enclosed Porch / Deck for Comp Report
153)	OpenPorch	Number	Total open porch area. Comp codes 904, 905, 906, 954, 955, 956
154)	OpenPorchQF	Number	Open Porch multiplied by QFact
155)	OthImpSale	Number	Non Res Bldg Other Improvement value – for Comparables only
156)	OthValue	Number	Non Res Bldg Other Improvement value – subject and comparable *(do NOT use in regression)*
157)	OthValueSubj	Number	Display Oth Improv of parcel on subject parcel's first comp report only
158)	OwnerName16	String	PreDefined Owner Name truncated at 16 characters.
159)	OwnerName17	String	PreDefined Owner Name truncated at 17 characters.
160)	OwnerName18	String	PreDefined Owner Name truncated at 18 characters.
161)	PctCompNewCon	String	Percent Complete / New Construction for Comp Sales Report
162)	PercentGood	Number	Percent Good factor for Residential Building
163)	PhysCond	String	Physical condition code from the ResBldg page 6.00 = EX 5.50 = VG+ 5.00 = VG 4.50 = GD+ 4.00 = GD 3.50 = AV+ 3.00 = AV 2.50 = AV- 2.00 = FR 1.75 = FR- 1.50 = PR 1.40 = PR- 1.25 = VP 1.10 = VP- 1.00 = UN

164)	PhysCondCode	Number	Physical Condition Code for Statistical Report
165)	PhysCondNorm	Number	Physical Condition normalized at average 6.00 = 3 5.50 = 2.50 5.00 = 2 4.50 = 1.50 4.00 = 1 3.50 = .50 3.00 = 0 2.50 = -.50 2.00 = -1 1.75 = -1.50 1.50 = -1.75 1.40 = -2 1.25 = -2.50 1.10 = -3 1.00 = -3.5
166)	PhysCondSF	Number	Physical Condition Normalized multiplied by TLA
167)	PhyCondText	String	Physical Cond text for Comp Sales Report 1.00=UN, 1.10=VP-, 1.25=VP, 1.40=PR-, 1.50=PR, 1.75=FR-, 2.00=FR, 2.50=AV-, 3.00=AV, 3.50=AV+, 4.00=GD, 4.50=GD+, 5.00=VG, 5.50=VG+, 6.00=EX
168)	Pool	Number	Pool component codes 6607014,6606011,6606012
169)	PoolCost	Number	Pool Cost from other improvement, child of residential building
170)	Postwar	Number	Indicator for year built 1946 to current year
171)	Post_AgeSF	Number	Postwar age multiplied by TLA
172)	Post_AgeEffSF	Number	Postwar multiplied by age of Year Built or age of Eff Year Built
173)	Post_AttGarQF	Number	Postwar Attached Garage multiplied by QFact for Comp Sales Report
174)	Post_BsmtFinMinQF	Number	Postwar Minimal Bsmt Fin. multiplied by QFact for Comp Sales Report
175)	Post_BsmtFinHighQF	Number	Postwar High Bsmt Fin. multiplied by QFact for Comp Sales Report
176)	Post_BSMTGRSFQF	Number	Postwar Bsmt Garage size multiplied by QFact for Comp Sales Report
177)	Post_CarportQF	Number	Postwar Carport multiplied by QFact for Comp Sales Report
178)	Post_CDUSF	Number	Postwar CDU normalized multiplied by TLA
179)	Post_DeckQF	Number	Postwar Deck multiplied by QFact for Comp Sales Report
180)	Post_DSSF	Number	Postwar date of sale multiplied by TLA
181)	Post_EncPorchQF	Number	Postwar Enclosed Porch multiplied by QFact for Comp Sales Report
182)	Post_MFLA	Number	Postwar main floor living area
183)	Post_MFLAQF	Number	Postwar main floor living area multiplied by QFact
184)	Post_OpenPorchQF	Number	Postwar Open Porch multiplied by QFact for Comp Sales Report
185)	Postwar_SP	Number	Postwar Sale Price for use in calculating market trend
186)	Post_TLA	Number	Postwar total living area
187)	Post_TLAQF	Number	Postwar total living area multiplied by QFact
188)	Post_UFLA	Number	Postwar upper living area
189)	Post_UFLAQF	Number	Postwar upper living area multiplied by QFact
190)	Post_WtArea	Number	Postwar Weighted Estimate
191)	Prewar	Number	Indicator for year built equal or prior to 1945
192)	Pre_AgeSF	Number	Prewar age multiplied by TLA
193)	Pre_AgeEffSF	Number	Prewar multiplied by age of Year Built or age of Eff Year Built
194)	Pre_AttGarQF	Number	Prewar Attached Garage multiplied by QFact for Comp Sales Report
195)	Pre_BsmtFinMinQF	Number	Prewar Minimal Bsmt Fin. multiplied by QFact for Comp Sales Report
196)	Pre_BsmtFinHighQF	Number	Prewar High Bsmt Fin. multiplied by QFact for Comp Sales Report
197)	Pre_BSMTGRSFQF	Number	Prewar Bsmt Garage size multiplied by QFact for Comp Sales Report
198)	Pre_CarportQF	Number	Prewar Carport multiplied by QFact for Comp Sales Report
199)	Pre_CDUSF	Number	Prewar CDU normalized multiplied by TLA
200)	Pre_DeckQF	Number	Prewar Deck multiplied by QFact for Comp Sales
201)	Pre_DSSF	Number	Prewar date of sale multiplied by TLA
202)	Pre_EncPorchQF	Number	Prewar Enclosed Porch multiplied by QFact for Comp Sales Report
203)	Pre_MFLA	Number	Prewar main floor living area
204)	Pre_MFLAQF	Number	Prewar main floor living area multiplied by QFact
205)	Pre_OpenPorchQF	Number	Prewar Open Porch multiplied by QFact for Comp Sales Report
206)	Prewar_SP	Number	Prewar Sale Price for use in calculating market trend
207)	Pre_TLA	Number	Prewar total living area

208)	Pre_TLAQF	Number	Prewar total living area multiplied by QFact
209)	Pre_UFLA	Number	Prewar upper living area
210)	Pre_UFLAQF	Number	Prewar upper living area multiplied by QFact
211)	Pre_WtArea	Number	Prewar Weighted Estimate
212)	PriorAsmtVal_R_F	Number	Prior Asmt Class F or R value to display on Comp Sales Report
213)	PriorTotal	Number	Last Year Total Value for Subject and Comparable
214)	PriorTotalValue	Number	Last Year Value for Subject only
215)	PriorValMethodSubj	String	Prior Value Method for Subject
216)	PriorValue_PriorMethod	String	Prior Value of Subject / Prior Value Method for Subject
217)	Proplevelrcnld	Number	Total Res Building Market Adjustment for ResMultiBldg variable
218)	_QREFID	String	Quick Ref number for display on Sales Extract Detail report
219)	QRef_Year	String	Quick Ref ID/Tax Year to display on comp report for subject only
220)	Quality	String	Quality code for comp sheet
221)	QualCDUPhy	String	Quality / CDU / PhyCond for Comp Report
222)	QualityText	String	Quality text for comp sales report 6.00=EX+, 5.83=EX, 5.67=EX-, 5.33=VG+, 5.00=VG, 4.67=VG-, 4.33=GD+, 4.00=GD, 3.67=GD-, 3.33=AV+, 3.00=AV, 2.67=AV-, 2.33=FR+, 2.00=FR, 1.67=FR-, 1.33=LO+, 1.15=LO, 1.00=LO-
223)	Rem_Land	Number	Additional Market Land Value not included on comp report
224)	ResBldgRCNLD	Number	Replacement cost new less depreciation from the Res Bldg Page
225)	ResMultiBldg	Number	Find multi residential bldgs for Market Extract Validation Rules
226)	Res_Struct_LivUnit	String	Res Type + LBCS Structure + Living Units
227)	ResType	String	M&S Residential type code for comp sheet
228)	SH_CostValue	Number	Res Bldg RCNLD plus OBYCost plus sales history LandVal
229)	Siding	Number	Frame, Stucco or Siding component codes 105,110
230)	SlabSF	Number	Slab component code 621
231)	SPAdjWhenPres	Number	Adjusted Sale Price if present, otherwise Actual Sale Price
232)	SP_SF	Number	Sale Price per square foot
233)	SP_SPSF	String	Sale Price / SP_SF
234)	Sqft_MktAcres	Number	Total Square Feet divided by 43,560
235)	Struct	String	LBCS Structure
236)	StuccoSiding	Number	Stuccco Component code 109
237)	SubjAddLand_Impts	String	Rem_Land / TotParcelOthValue
238)	SubjAgAcres	Number	Subject Total Ag Acres
239)	SubjAgLand_AgImptVal	Number	Subject Ag Land Use Value / Ag Improvement Value
240)	SubjAppealYr_Level	String	Subject Appeal Year / Subject Appeal Level
241)	SubjSaleDate_SalePrice	String	Subject Sale Date / Subject Sale Price
242)	SubjTotalCompValue	Number	Total Final Comp Value, includes all values on parcel.
243)	SubjTotalCostValue	Number	Total Final Cost Value, includes all values on parcel.
244)	SubjTotalMRAValue	Number	Total Final MRA Value, includes all values on parcel.
245)	SubjTotBldgValue	Number	Total Building + Improvement Value on parcel
246)	SubjTotOthCost	Number	SubjTotBldgValue - SubjTotResVal
247)	SubjTotResVal	Number	Subject Res Bldg Value + Oth Impr, child of Res building
248)	SyntheticSiding	Number	Synthetic Component code 111
249)	TaxYear	Number	System Tax Yr for Comp Report Display – Subject & Comps
250)	TaxYearSubj	Number	Tax Year for Comp Report – Subject Only
251)	TimeAdjDiffNbhd	Number	Nbhd Time Trend amount for sale property
252)	TimeAdjSP_Nbhd	Number	Sale Price plus Time trend by Nbhd
253)	TimeAdjDiffSP	Number	SP Time Trend amount for sale property

254)	TimeAdjustSP	Number	Sale Price plus Time trend by SP
255)	TimeFactor	Number	Factor pulled from the Monthly NBHD Trend named table
256)	TimeFactorbySP	Number	Factor pulled from the Time Trend by Sale Price named table
257)	TLA	Number	Use TLA override if present, otherwise use TLA calculated from Sketch
258)	TLAQF	Number	TLA multiplied by QFact
259)	TotAgAcres	Number	Total Ag Acres from Property page
260)	TotalAcres	Number	Total acres from Property page
261)	TotalCostValue	Number	ResBldgRCNLD + OBYCost + LandLinkValue
262)	TotalSqFt	Number	Total Square Feet from Property page
263)	TotLandLink	Number	Accumulated Land Link Value
264)	TotParcelOthValue	Number	Total MH and Other Impt Value on parcel, excluding ResBldg/OBYCost
265)	TotRooms	Number	Total Room from the Resbldg page
266)	TrendbyNbhd	Number	NMFVD X TimeFactor X SPAdjWhenPres
267)	TrendbySP	Number	NMFVD X TimeFactor X SPAdjWhenPres
268)	Twnhse_Condo	Number	Townhouse/Condo indicator – ResType 3(inside unit) or 4(outside unit)
269)	UFLA	Number	Upper Floor Living Area
270)	UFLAI	Number	Integer of UFLA for comp sales report
271)	UFLAQF	Number	UFLA multiplied by QFact
272)	VinylSiding	Number	Vinyl Siding Component codes 107
273)	WallMaterial	String	Exterior Wall Material description
274)	WoodSiding	Number	Wood Siding Component codes 101,103,104,108,112,114
275)	WtArea	Number	Establishes % of MFLA for variables as follows: MFLA = 100% of wt area coefficient multiplied by QFact UFLA = 80% of wtarea coefficient multiplied by QFact Bsmt_FinHigh = 35% of wtarea coefficient multiplied by QFact Bsmt_FinMin = 17% of wtarea coefficient multiplied by QFact EncPorchAll = 30% of wtarea coefficient multiplied by QFact OpenPorch = 20% of wtarea coefficient multiplied by QFact AttGarage = 40% of wtarea coefficient multiplied by QFact BSMTGRSF = 20% of wtarea coefficient multiplied by QFact Carport = 10% of wtarea coefficient multiplied by QFact Deck = 15% of wtarea coefficient multiplied by QFact ***(user must analyze and determine the percentages per county data)***
276)	YearBlt	Number	Year built from the ResBldg page
277)	YearEff	Number	Effective year from the ResBldg page
278)	YrBltRemod	String	YearBlt / Remodel year for Comp Report

1.1 Predefined Variable List

ACSP	Actual sale price.	Number	The sales price for the transfer. When a jurisdiction uses the market setup sale price option of Adjusted When Present, then ACSP should be used whenever the actual sales price is needed.
APACS	Subject Property	String	Appeal Final Action from the most recent appeal
APLVS	Subject Property	String	Appeal Level from the most recent appeal
APSTS	Subject Property	String	Appeal Status from the most recent appeal
APYRS	Subject Property	Number	Appeal Year from the most recent appeal
ASP	Adjusted Sale Price	Number	Adjusted sale price from the transfer dialog. The sale price as adjusted based on appraiser entered sale price adjustments.
BV	Building Value	Number	Property total building value from the final value page.
DSP	Distance Points	Number	The comparability distance as determined using the selection criteria and weights defined by the market analyst.
EXUDT	Extract Update Date	String	The date of the last extract from the sales history record.
LV	Land Value	Number	Property total Land Value from the final value page.
LID	Legacy ID	String	Displays a converted ID from a legacy system.
MR	Map & Routing	String	Displays map and routing number from the property general tab.
MR2	Map & Routing2	String	Displays map on one line and routing on a second line.
MASP	Mkt Adj Sale Price	Number	Market Adjusted Sale Price displays the sale price adjusted for differences between the subject and the sale.
MASPU	Mkt Adj SP by Units	Number	Market Adjusted Sale Price displays the sale price adjusted for differences between the subject and the sale times the number of units.
MV	Market Value	Number	Displays the subject value from the Comparable Sales Approach.
MVU	Mkt Val times Units	Number	Displays the subject value times number of units from the Comparable Sales Approach.
MRAES	MRA Estimate	Number	Displays the estimate of value from the MRA equation
MRAU	MRA Est times Units	Number	Displays the estimate of value from the MRA equation times number of Units
MUN	Municipality	String	Municipality - TBD
NBHD	Neighborhood code	String	Neighborhood code for parcel.
NBHDC	NBHD code	String	To be used only if neighborhood is part of a concatenated variable.
NHCLC	Nbhd Cluster code	String	Neighborhood Cluster code word. To be used if cluster is part of a concatenated variable.
NHCLS	Nbhd Cluster	String	Neighborhood Cluster code
NHGRC	Nbhd Group code	String	Neighborhood Group code to be used if group is part of a concatenated variable.
NHGRP	NBHD Group	String	Neighborhood group code
NHMKA	Market Area	String	Market area code
NHMKC	Market Area Code	String	Market Area code word. To be used if market area is a part of a concatenated variable.
NMFVD	# of months	Number	Number of months between the sale date and the market valuation date as set in the market setup parameters.
OWN	Owner Name	String	Owner Name

OWNS	Subject Property	String	Subject Property Owner Name; 20 characters then truncated
PRID	Property ID	String	Property Number ID.
PRID2	Property ID2	String	Property number wrapped to two lines; recommended for jurisdictions with long property ID's.
QRID	Quick Ref #	String	The system assigned quick reference account ID.
SD	Sale Date	String	Sale Date from transfer tab
SP	Sale Price	Number	Sale Price from transfer tab
SCH	School District	String	School district
STAD	Situs address	String	Situs Address on one line; truncates when the end of the column is reached.
STAD2	Situs Address 2line	String	Street number will print on line 1. Street name will print on line 2
STAD3	Situs Address 3line	String	Street number on the first line and the street prefix and street name, street type and street suffix on the second line and city on the third line.
SUBDV	Subdivision	String	Subdivision
TSDS	Subject Property	String	Sale Date from the most recent transfer
TSPS	Subject Property	Number	Sale Price from the most recent transfer
TV	Total Cost Value	Number	Total Cost Value.
TVALS	Subject Property	String	Transfer Validity Code from the most recent transfer
WE	Weighted estimate	Number	Weighted estimate based on the adjusted sales prices and distance