

Mass Appraisal:

The Residential Department is responsible for the annual valuation for over 600,000 properties. The Texas Property Tax Code requires properties to be appraised at market value as of Jan. 1. To complete the valuation of the large volume of properties in Tarrant County the Residential Department utilizes mass appraisal. As defined by the Appraisal Foundation mass appraisal is “the process of valuing a universe of properties as of a given date using standard methodology, employing common data, and allowing for statistical testing.”

Notice of Appraised Value:

The Tarrant Appraisal District (TAD) Property Value Notice has three values. A **Market Value, Appraised (Capped) Value, and a Taxable Value.**

Market Value:

The Market Value on the Property Value Notice is the value TAD has calculated using mass appraisal standards that comply with the Uniform Standards of Professional Appraisal Practice to determine a Market Value as defined by the Texas Property Tax Code.

Market Value:

The price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

- exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- both the seller and the purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and
- both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

Appraised (Capped) Value:

The Appraised Value also known as the “Capped” or “Limitation on Residence Homesteads” is the sum of 10 percent of the appraised value of the property for last year; the appraised value of the property last year; and the market value of all new improvements to the property. The appraisal limitation only applies to a residence homestead. It takes effect Jan. 1 of the tax year following the year in which the homeowner qualifies for the homestead exemption.

Taxable Value:

The Taxable Value on the Property Value Notice is the Appraised Value minus any exemption reductions allowed by individual taxing units.

Property Appraisal Protests Concerning Value:

Incorrect Appraised (market) value

All taxable property must be appraised at its market value unless the law provides for a different value.

“Market value” means the price at which a property would transfer for cash or its equivalent under prevailing market conditions if:

- exposed for sale in the open market with a reasonable time for the seller to find a purchaser;
- both the seller and purchaser know of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions on its use; and
- both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other.

Typically in a market value hearing, market sales data is used as evidence by the taxpayer and the district to support their opinions of the property value. A property owner may present other evidence to prove their opinion of value based on condition issues in the form of pictures and estimates/ bids for repairs. Additionally, documents from a recent purchase or fee appraisal serve as useful information in a hearing.

Value is unequal compared with other properties

All taxable property must be appraised equally and uniformly. If a property owner feels that the market value of their property is greater than the median appraised value of a reasonable number of comparable properties, a property owner can protest value unequal.

In a value unequal hearing market sales are typically not used as evidence. In this hearing the appraised value or equity of appropriately adjusted comparable properties are used to arrive at a median value. If the value of the subject property is greater than the median the value of the property is unequal and therefore needs to be lowered.

Approaches to Value:

As the law requires, the chief appraiser must consider the market data (sales), cost, and income methods of appraisal and use the most appropriate method. For the mass appraisal of residential properties the market data and cost approaches are typically used to determine market value.

Market Data (Sales) Comparison Approach:

The market data comparison approach to value is based on sales prices of similar properties. The Residential Department compares the property being appraised to similar properties that have recently sold and then adjusts the comparable properties differences between them and the property being appraised. This approach focuses directly on the actions of buyers and sellers in the marketplace and usually produces the most accurate results in determining market value. A sale is not considered comparable unless the sale occurred within 24 months of the appraisal date, unless there are too few comparable sales within that time span to constitute a representative sample.

Equity Data (Median) Comparison Approach:

The equity data (median) comparison approach is the median market value of a reasonable and representative sample of properties. Texas law requires property values used in determining taxes to be equal and uniform. The equity data (median) comparison approach ensures TAD is equally and uniformly valuing property.

The median value for a sample of properties is the market value in the middle of a numerically ordered list of market values. If the sample contains an even number of properties, the mean of the two middle values is figured to come to a median market value.

Income Approach:

The income approach is based on income and expense data and is used to determine the present worth of future benefits. It seeks to determine what an investor would pay now for a future revenue stream anticipated to be received from the property. The income approach is most suitable for types of properties frequently purchased and held for the purpose of producing income, such as apartments, retail properties and office buildings.

Other Reconciliation (Override):

An override is a value that originates from ARB, Arbitration, Litigation, Rendition, Late Motions, Appraiser, Other, etc.

Cost Approach:

As required by the Property Tax Code TAD uses cost data from generally accepted sources and makes appropriate adjustments for physical, functional and external obsolescence. TAD uses the Moore’s Precision Cost Tables to develop the residential cost materials.

Basic Formula:

$$MV = LV + [RCNLD]$$

MV = Market Value

LV = Land Value

LCM = Local Cost Modifier

RCN = Replacement Cost New

RCNLD = Replacement Cost New Less Depreciation

R = Rate

Q = Square Feet

D = Depreciation

A = Age

U = Unit

RCNLD (Replacement Cost New Less Depreciation):

The sum of all Building and Feature Values with adjustments less the depreciation. Building Values include the building and any features that are attached to it. Feature Values are the features on a property that are not attached to a building.

There are three adjustments that are part of the RCNLD:

1. Local Cost Modifier (LCM):

An adjustment applied to the entire universe of improved residential properties in Tarrant County. The adjustment is applied to the Moore’s Precision Cost Table rates to reflect current market conditions in Tarrant County. The LCM is reviewed annually.

2. Quality Adjustment:

An adjustment applied to the to the Moore’s Precision Cost Table rates to recognize differences between quality of construction in Tarrant County. The Quality Adjustment is reviewed annually.

3. Neighborhood Adjustment:

An adjustment determined by analyzing market conditions of individual neighborhoods in Tarrant County. The Neighborhood Adjustment is reviewed annually.

**Residential Cost Approach for Appraisal Site Buildings
RCNLD Value Buildup:**

$$RCNLD = [(R \times \text{Quality Adj.} \times \text{Neighborhood Adj.}) \times \Phi] - D$$

Building Value Buildup						
Section	Size Type	Size	Unit of Measure	Rate	Value	Total
Appraised Date		7/31/2019				
Calculated Date		3/8/2018				
Ground	Actual Area	1,883	Square Feet	\$65.45		
Local Cost Modifier				1.00		
Quality Adjustment				1.19		
Neighborhood Adjustment				1.31		
Adjusted Base Rate	Actual Area	1,883	Square Feet	\$102.03	\$192,123	
Full Upper	Actual Area	160	Square Feet	\$65.45		
Local Cost Modifier				1.00		
Quality Adjustment				1.19		
Neighborhood Adjustment				1.31		
Adjusted Base Rate	Actual Area	160	Square Feet	\$102.03	\$68,124	
Replacement Cost New						\$208,447
Percent Complete				100.00%		
Normal Depreciation				18.75%		
RCNLD						\$169,363
Traditional						\$169,363
Building Value						\$169,363
Valuation Model	Residential Cost					
Calculated By	System					

1.) Find the RCN for the Building Improvements on the appraisal site:

$$RCN = (R \times \text{Quality Adj.} \times \text{Neighborhood Adj.}) \times \Phi$$

- Base Rate per Square Foot for Building Improvement Sections:
 - The Base Rate per Square Foot is calculated by the system using the corresponding Base Model Rate table.
- Note:** More than likely the improvements total square footage will fall between two of the square footages listed on the Base Model Rate table and a linear interpolation will have to be done to get the exact Rate per Square Foot for the improvement. Building Improvements can have multiple sections. There will be a different section for each floor (Ground, Upper, Lower Level, Basement) or additions to the original structure. In some cases the base rate for each section could be different.

$$R \text{ per} = R_1 + \frac{(\Phi - \Phi_1)(R_2 - R_1)}{\Phi_2 - \Phi_1}$$

\$65.45 is the Base Rate for both the Ground and Upper sections for this example.

- Adjusted Base Rate per Square Foot for Building Improvement:
 - Apply the **Local Cost Modifier**, **Quality Adjustment** and the **Neighborhood Adjustment** to the Base Rate:

Local Cost Modifier	→ 65.45	X 1.00	= 65.45
Quality Adjustment	→ 65.45	X 1.19	= 77.8855
Neighborhood Adjustment	→ 77.8855	X 1.31	= 102.03

\$102.03 is the Adjusted Base Rate for both the Ground and Upper sections for this example.

- Calculate the RCN for the Building Improvement and add the section values together to get one total RCN value:
 - Apply the Adjusted Base Rate to the square footage of each Building Section:
 - Note:** Building Improvements can have multiple sections. There will be a different section for each floor (Ground, Upper, Lower Level, Basement) or additions to the original structure. In some cases the base rate and the adjusted base rate for each section could be different, thus and adjusted base rate would have to be calculated for each section.

$$\begin{array}{r} 102.03 \times 1883 = 192,122.49 \text{ (Ground)} \\ + 102.03 \times 160 = 16,324.80 \text{ (Upper)} \\ \hline \text{Total: } 208,447.29 \end{array}$$

2.) Apply the Percent Complete and Find the RCNLD for the Improvements on the appraisal site to get the Final Improvement Value:

$$RCNLD = RCN - D$$

- Apply the Percent Complete:

$$100.00\% \times 208,447 = 208,447 \text{ or } 1.00 \times 208,447 = 208,447$$

- Find the Depreciation Rate for the improvement the value is being calculated for in the corresponding Depreciation by Condition table.
 - Note:** More than likely the improvements age will fall between two of the ages listed on the depreciation table and a linear interpolation will have to be done to get the exact depreciation.

$$\text{Depreciation R} = R_1 + \frac{(\text{Age} - \text{Age}_1)(R_1 - R_2)}{\text{Age}_1 - \text{Age}_2}$$

- Apply the Depreciation Rate to the RCN to get the Depreciation:

$$D = RCN \times \text{Depreciation Rate}$$

$$208,447 \times 18.75\% = 39,083.81 \text{ or } 208,447 \times 0.1875 = 39,083.81$$

- Once the Depreciation is calculated subtract it from the RCN to arrive at the RCNLD for the Building Improvement:

$$208,447 - 39,084 = 169,363$$

\$169,363 Total Building Value

Note: Due to the Property Value Buildup Report rates being rounded to only two decimal places, a hand calculated Property Value using information from the Property Value Buildup Report may differ from the system calculated value that goes out past two decimal places when calculating.

**Residential Cost Approach for Appraisal Site Related Features
to the Improvement RCNLD Value Buildup:**

$$RCNLD = [(R \times \text{Quality Adj.} \times \text{Neighborhood Adj.}) \times \Phi] - D$$

Garage:

Feature Value Buildup						
Section	Size Type	Size	Unit of Measure	Rate	Value	Total
Appraised Date		7/31/2019				
Calculated Date		3/2/2019				
Garage	Actual Area	651	Square Feet	\$32.16		
Local Cost Modifier				1.00		
Quality Adjustment				1.19		
Adjusted Base Rate	Actual Area	651	Square Feet	\$38.27	\$24,914	
Replacement Cost New						\$24,914
Percent Complete				100.00%		
Normal Depreciation				18.75%		
RCNLD						\$20,243
Feature Value						\$20,243
Valuation Model	Residential Cost					
Calculated By	System					

1.) Find the RCN for the Features attached to the Improvement on the appraisal site:

$$RCN = (R \times \text{Quality Adj.}) \times \text{Unit} (\Phi \text{ or Number of Units}) - D$$

- Find the Base Rate per Unit for the Feature the value is being calculated for in the corresponding Base Model Rate table.
 - Note:** More than likely the features units will fall between two of the units listed on the cost table and a linear interpolation will have to be done to get the exact Rate per unit for the Feature.

$$\text{Rate per Unit} = R_1 + \frac{(\text{Unit} - \text{Unit}_1)(R_2 - R_1)}{\text{Unit}_2 - \text{Unit}_1}$$

\$32.16 is the Base Rate for a Garage in this example.

- Find the Adjusted Base Rate per Square Foot for the Feature
 - Apply the **Local Cost Modifier**, **Quality Adjustment** to the Base Rate:

$$32.16 \times 1.00 = 32.16 \rightarrow 32.16 \times 1.19 = 38.2704$$

\$38.27 is the Adjusted Base Rate for a Garage in this example

- Calculate the RCN for the Attached Feature:
 - Apply the Adjusted Base Rate to the square footage or unit count of the Feature:

$$\text{Garage: } 38.27 \times 651 = 24,913.77$$

2.) Apply the Percent Complete and find the RCNLD for the attached features to get the Final Attached Feature Values:

$$RCNLD = RCN - D$$

- Apply the Percent Complete:

$$\text{Garage: } 100.00\% \times 24,914 = 24,914 \text{ or } 1.00 \times 24,914 = 24,914$$

- Find the Depreciation Rate for the feature the value is being calculated for in the corresponding Depreciation by Condition table.
 - Note:** More than likely the Features age will fall between two of the ages listed on the depreciation table and a linear interpolation will have to be done to get the exact depreciation.

$$\text{Depreciation R} = R_1 + \frac{(\text{Age} - \text{Age}_1)(R_1 - R_2)}{\text{Age}_1 - \text{Age}_2}$$

- Apply the Depreciation Rate to the RCN to get the Depreciation:

$$D = RCN \times \text{Depreciation Rate}$$

$$\text{Garage: } 24,914 \times 18.75\% = 4,671.375 \text{ or } 24,914 \times .1875 = 4,671.375$$

- Once the Depreciation is calculated subtract it from the RCN to arrive at the RCNLD for the Feature:

$$\text{Garage: } 24,914 - 4,671 = 20,243$$

\$20,243 Total Garage Related Feature Value

Note: Due to the Property Value Buildup Report rates being rounded to only two decimal places, a hand calculated Property Value using information from the Property Value Buildup Report may differ from the system calculated value that goes out past two decimal places when calculating.

Residential Cost Approach for Appraisal Site Related Features to the Improvement RCNLD Value Buildup Continued:

RCNLD = [(R x Quality Adj. x Neighborhood Adj.) x ϕ] - D

Pool-Swimming:

Feature Value Buildup

Section	Size Type	Size	Unit of Measure	Rate	Value	Total
Appraised Date		7/31/2018				
Calculated Date		3/2/2018				
Pool-Swimming	Number of Units	1	Units	\$10,000.00		
Local Cost Modifier				1.00		
Quality Adjustment				1.50		
Adjusted Base Rate	Number of Units	1	Units	\$15,000.00	\$15,000	
Replacement Cost New						\$15,000
Percent Complete				100.00%		
Normal Depreciation				0.00%		
RCNLD				0.00%		\$15,000
Feature Value						\$15,000
Valuation Model	Residential Cost					
Calculated By	System					

1.) Find the RCN for the Features Not Attached to the Improvement on the appraisal site:

RCN = (R x Quality Adj.) x Unit (ϕ or Number of Units) - D

- Find the Base Rate per Unit for the Feature the value is being calculated for in the corresponding Base Model Rate table.
Note: More than likely the features units will fall between two of the units listed on the cost table and a linear interpolation will have to be done to get the exact Rate per unit for the Feature.

$$\text{Rate per Unit} = R_1 + \frac{(\text{Unit} - \text{Unit}_2)(R_2 - R_1)}{\text{Unit}_2 - \text{Unit}_1}$$

→ **\$10,000 is the Base Rate for a Pool in this example.**

- Find the Adjusted Base Rate per Square Foot or Unit for the Feature
 - Apply the **Local Cost Modifier** and **Quality Adjustment** to the Base Rate:

Local Cost Modifier → 10,000 x 1.00 = 10,000
Quality Adjustment → 10,000 x 1.50 = 15,000

→ **\$15,000 is the Adjusted Base Rate for a Pool in this example.**

- Calculate the RCN for the Feature:
 - Apply the Adjusted Base Rate to the square footage or unit count of the Feature:

Pool: 15,000 x 1 (unit) = 15,000

2.) Apply the Percent Complete and find the RCNLD for the features on the appraisal site to get the Final Unattached Feature Values:

RCNLD = RCN - D

- Apply the Percent Complete:

→ **Pool: 100.00% x 15,000 = 15,000 or 1.00 x 15,000 = 15,000**

- Find the Depreciation Rate for the feature the value is being calculated for in the corresponding Depreciation by Condition table.
Note: More than likely the Features age will fall between two of the ages listed on the depreciation table and a linear interpolation will have to be done to get the exact depreciation.

$$\text{Depreciation R} = R_1 + \frac{(\text{Age} - \text{Age}_1)(R_2 - R_1)}{\text{Age}_2 - \text{Age}_1}$$

- Apply the Depreciation Rate to the RCN to get the Depreciation:

D = RCN x Depreciation Rate

→ **Pool: 15,000 x 0.00% = 0.00 or 15,000 x .0000 = 0**

- Once the Depreciation is calculated subtract it from the RCN to arrive at the RCNLD for the Feature:

→ **Pool: 15,000 - 0.00 = 15,000**

\$15,000.00 Total Pool-Swimming Related Feature Value ←

Note: Due to the Property Value Buildup Report rates being rounded to only two decimal places, a hand calculated Property Value using information from the Property Value Buildup Report may differ from the system calculated value that goes out past two decimal places when calculating.

Total Related Feature Value:

Once the value for all the Feature Value Buildups for all features related to a building have been calculated add all of the total feature values together to get the total feature value:

Total Garage Related Feature Value:	\$20,243.00
Total Pool-Swimming Related Feature Value:	+ \$15,000.00
Total Related Feature Value:	\$35,243.00

Residential Cost Approach for Land Line Value (LV) Buildup:

LV = (Rating x Size) +/- [(Rating x Size) x Adjustments]

Section	Size Type	Size	Size Type	Rate	Value	Total
Appraised Date		7/31/2018				
Calculated Date		3/2/2018				
Land Calc Method	Per Unit By Attribute Data			\$35,000		
Base Rate	Residential By Flat Value	1	Units	\$35,000	\$35,000	
Size				50.00%		
Adjusted Base Rate	Residential By Flat Value	1	Units	\$52,500.00	\$52,500.00	
Land Value	Residential By Flat Value					\$52,500.00
Valuation Model	Residential Cost					
Calculated By	System					

For residential Land Types without a Land Use (Aq) one of the following will be used:

Land Type	Size Type
Residential By Square Foot	= Site Rating x Square Footage
Residential By Acre	= Site Rating x Acres
Residential By Flat Value	= Site Rating x Units
Residential By Flat Value	= Site Rating x Units
Residential By Frontage	= Site Rating x Frontage Feet
Common Area Land	= Site Rating x Units

- If the residential property has a Land Use (Agricultural Use) the land value will need to be calculated using the Land Use Rating. The Land Use Rating trumps the Site Rating and the Land Use Rating is used in the appraised value calculation.

Land Type	Size Type
Residential By Acre	= Land Use Rating x Acres

Note: The system will calculate the land value with the Site Rating and the Land Use Rating. Both land values are recorded in the system (the law imposes a "rollback" tax on 1-D-1 land when it is taken out of agricultural use. The rollback tax equals the difference between the taxes the owner actually paid in the five years preceding the change in use and the taxes the owner would have paid on his property's market value going 5 years back).

1.) Find the Base Rate for the Land:

→ **\$35,000 is the Base Rate for the Site in this example.**

2.) Find the adjusted Base Rate for the Land:

- Apply any Land Adjustments to the Base Rate:
 - In this example there is a 50.00% size adjustment:

35,000 x 50.00% = 17,500 or 35,000 x .5000 = 17,500

- Apply the size adjustment to the Base Rate:

35,000 + 17,500 = 52,500

→ **\$52,500 is the Adjusted Base Rate for the Site in this example**

3.) Find the Land Size or Number of Land Units:

→ **1.0000 is the Land Units for the site in this example.**

4.) Use the Base Rate, any Land Adjustments, and Size to calculate the Land Value.

→ **52,500 x 1.0000 = 52,500**

\$52,500.00 Final Land Value ←

Total Site Value:

Once the value for all Building Value Buildups, Feature Value Buildups for all features unattached to a building and Land Line Value Buildups have been calculated add all of the total values together to get the total site cost value:

Total Building Value:	\$169,363.00
Total Related Feature Value:	\$35,243.00
Total Land Value:	+ \$52,500.00
Total Site Value:	\$257,106.00

Round to the nearest whole number.

\$257,106 Total Site Value

Note: Due to the Property Value Buildup Report rates being rounded to only two decimal places, a hand calculated Property Value using information from the Property Value Buildup Report may differ from the system calculated value that goes out past two decimal places when calculating.

Residential Sales Comparison Approach:

STEP 1 - Residential Sales Comparable Selection

Aumentum uses a three-step process to select three (3) to six (6) sales comparables with the most like characteristics of the subject property to indicate the property's value.

- 1st Neighborhood is selected in the **Initial Model Selection Filter**.
- 2nd all sales comparables must meet the following **Selection Parameters**:
 - Improvement Style = Subject Improvement Style
 - Improvement Quality = Subject Improvement Quality
 - Sale Date > January 1st of previous tax year
 - Sale Price > 1
- 3rd the system ranks the sales comparables by **Index Value** in ascending order. The most comparable property sales will have a lower index value and the least comparable property sales will have a higher index value. Index values are calculated using the following **Weighting Parameters**:

SUBJECT PROPERTY	WEIGHTING METHOD	SALES COMP	INDEX WEIGHT
Neighborhood	Match	Neighborhood	+400
Sub Market Area	Match	Sub Market Area	+400
Market Area	Match	Market Area	+1000
Quality	Match	Quality	+500
Condition	Match	Condition	+200
Year Built	Difference	Year Built	+Difference x 4.00
Res Actual Area	Difference	Res Actual Area	+Difference x 0.20
Land Value	Difference	Land Value	+Difference x 0.01
Total Feature Value	Difference	Total Feature Value	+Difference x 0.01
Effective Year	Difference	Effective Year	+Difference x 4.00

INDEX VALUE:

	Subject	Comp 1			Comp 2			Comp 3		
		Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2976	\$40.00	(\$3,280.00)	2151	\$40.00	\$29,720.00	3059	\$40.00	(\$6,600.00)
Land Value	\$50,000.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$10,878.00	\$1.00	\$0.00	\$11,104.00	\$1.00	(\$226.00)	\$10,878.00	\$1.00	\$0.00
Pool Value	\$15,000.00	\$0.00	\$1.00	\$15,000.00	\$0.00	\$1.00	\$15,000.00	\$0.00	\$1.00	\$15,000.00
Outbuilding Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1996	0.50%	\$0.00	1994	0.50%	\$2,630.00	1994	0.50%	\$0.00
Sale Date	0	00/00/0000			00/00/0000			00/00/0000		
Sale Price	\$0.00	\$272,600.00 *			\$263,000.00 *			\$238,000.00 *		
Comp Object Index Value	166				166			183		
Indicated Value	\$283,700.00				\$284,320.00			\$295,124.00		

Escalations:

- If the initial search does not return 3 sales comparables the **Model Selection Filter** will then escalate to the following:
 - 1st the **Selection Parameters** will escalate to include the following:
 - Sale Date > January 1st of previous tax year
 - Comp Neighborhood
 - Submarket Area
 - Market Area
 - County
 - 2nd the system ranks the sales comparables by Index Value in ascending order using the same Weighting Parameters above and includes all styles.

STEP 2 - Sales Comparable Grid Adjustments

The equity and sales comparable grids adjust for **Actual Area, Land Value, Feature Value, and Effective Year**.

Actual Area Adjustment:

- Rate for Actual Area adjustments is price per ft² by quality:

Quality	Price per ft ²
Highest	\$120.00
Excellent	\$80.00
Good	\$60.00
Above Average	\$50.00
Average	\$40.00
Low	\$35.00

Land Value Adjustment:

- Adjusted for the difference in value.

Feature Value Adjustment:

- Adjusted for the difference in the total feature value.

Garage Value	
Pool Value	
Outbuilding Value	
+ Other Feature Value	
Total Value	

Example:

Comparable 5 differs from the subject property by 153ft² of actual area, \$595.00 for difference in garage area, a \$15,000.00 added for not having a pool and \$2900.00 adjustment for the difference in effective year.

Actual Area Adj.	153ft ² x \$40 =	\$ - 6120.00
Garage Adj.	\$11114 - \$10878 =	\$ - 595.00
Pool Adj.		\$ 15000.00
Effective Year Adj.	2 x (0.005 x \$290000) =	+ \$ 2900.00
		\$ 11185.00 net adjustment for comparable 5

	Subject	Comp 4			Comp 5			Comp 6		
		Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2108	\$40.00	\$31,440.00	3047	\$40.00	(\$6,120.00)	2261	\$40.00	\$25,320.00
Land Value	\$50,000.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$11,114.00	\$1.00	(\$236.00)	\$11,473.00	\$1.00	(\$595.00)	\$12,561.00	\$1.00	(\$1,683.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00	\$0.00	\$0.00	\$1.00	\$15,000.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1999	0.50%	(\$3,791.87)	1994	0.50%	\$2,900.00	1998	0.50%	(\$2,840.00)
Sale Date	0	00/00/0000			00/00/0000			00/00/0000		
Sale Price	\$0.00	\$252,791.00 *			\$290,000.00 *			\$284,000.00 *		
Comp Object Index Value	183				190			233		
Indicated Value	\$283,700.00				\$280,203.14			\$301,185.00		

STEP 3 - Indicated Value Calculation

The TAD Mass Appraisal Records System uses Inversely Proportional Index Weighting to select comparables for a property. Inversely Proportional Index Weighting is the weighting of a comparable's contribution to the subject property is inversely proportional to its index value relative to the other comps used in the value calculation. Simply speaking, the better the comparable, the lower the Index value and conversely, the poorer the comparable the higher the Index value.

Indicated Value Calculation:

	Subject	Comp 1			Comp 2			Comp 3		
		Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2976	\$40.00	(\$3,280.00)	2151	\$40.00	\$29,720.00	3059	\$40.00	(\$6,600.00)
Land Value	\$50,000.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$10,878.00	\$1.00	\$0.00	\$11,104.00	\$1.00	(\$226.00)	\$10,878.00	\$1.00	\$0.00
Pool Value	\$15,000.00	\$0.00	\$1.00	\$15,000.00	\$0.00	\$1.00	\$15,000.00	\$0.00	\$1.00	\$15,000.00
Outbuilding Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1996	0.50%	\$0.00	1994	0.50%	\$2,630.00	1994	0.50%	\$0.00
Sale Date	0	00/00/0000			00/00/0000			00/00/0000		
Sale Price	\$0.00	\$272,600.00 *			\$263,000.00 *			\$238,000.00 *		
Comp Object Index Value	166				166			183		
Indicated Value	\$283,700.00				\$284,320.00			\$295,124.00		

	Subject	Comp 4			Comp 5			Comp 6		
		Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2108	\$40.00	\$31,440.00	3047	\$40.00	(\$6,120.00)	2261	\$40.00	\$25,320.00
Land Value	\$50,000.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$11,114.00	\$1.00	(\$236.00)	\$11,473.00	\$1.00	(\$595.00)	\$12,561.00	\$1.00	(\$1,683.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00	\$0.00	\$0.00	\$1.00	\$15,000.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1999	0.50%	(\$3,791.87)	1994	0.50%	\$2,900.00	1998	0.50%	(\$2,840.00)
Sale Date	0	00/00/0000			00/00/0000			00/00/0000		
Sale Price	\$0.00	\$252,791.00 *			\$290,000.00 *			\$284,000.00 *		
Comp Object Index Value	183				190			233		
Indicated Value	\$283,700.00				\$280,203.14			\$301,185.00		

Step 1 Add the **Index Value** of all of the comparables together:

- 166
- 166
- 183
- 183
- 190
- + 233
- 1121

Step 2 Divide the **Sum** of the **Index Values** by each comparable **Index Value** to get the **reciprocal** for each comparable:

- 1121/166 or 6.75%
- 1121/166 or 6.75%
- 1121/183 or 6.13%
- 1121/183 or 6.13%
- 1121/190 or 5.90%
- 1121/233 or 4.81%

Step 3 Add the reciprocals of all the comparable **Index Values** together:

- 6.75
- 6.75
- 6.13
- 6.13
- 5.90
- + 4.81
- 36.47

Step 4 Divide each reciprocal by the sum of all the reciprocals to generate a **proportional weighting** appropriate for the index methodology:

- 6.75 ÷ 36.47 = 18.51%
- 6.75 ÷ 36.47 = 18.51%
- 6.13 ÷ 36.47 = 16.81%
- 6.13 ÷ 36.47 = 16.81%
- 5.90 ÷ 36.47 = 16.18%
- 4.81 ÷ 36.47 = 13.19%

Step 5 Multiply the **Calibrated Value** (adjusted value) of each comparable by the **weighting** calculated in **Step 4**:

- .1851 x 284,320 = 52,627.63
- .1851 x 295,124 = 54,627.45
- .1681 x 246,400 = 41,419.84
- .1681 x 280,203 = 47,102.12
- .1618 x 301,185 = 48,731.73
- .1319 x 297,297 = 39,213.47

Step 6 Add the weighted value amount from each comparable together to reach the **Indicated Value**:

- 52,627.63
- 54,627.45
- 41,419.84
- 47,102.12
- 48,731.73
- + 39,213.47
- 283,722.24

Residential Equity Comparison Approach:

STEP 1 - Residential Equity Comparable Selection

Aumentum uses a three-step process to select three (3) to fifteen (9) equity comparables with the most like characteristics of the subject property to indicate the property's value.

- 1st **Neighborhood** is selected in the **Initial Model Selection Filter**.
- 2nd all comparables must meet the following **Selection Parameters**:
 - Improvement Quality = Subject Improvement Quality
- 3rd the system ranks the equity comparables by **Index Value** in ascending order. The most comparable properties will have a lower index value and the least comparable property sales will have a higher index value. Index values are calculated using the following **Weighting Parameters**:

SUBJECT PROPERTY	WEIGHTING METHOD	SALES COMP	INDEX WEIGHT
Neighborhood	Match	Neighborhood	+400
Sub Market Area	Match	Sub Market Area	+400
Market Area	Match	Market Area	+1000
Quality	Match	Quality	+500
Condition	Match	Condition	+200
Year Built	Difference	Year Built	+Difference x 4.00
Total Feature Value	Difference	Total Feature Value	+Difference x 0.01
Effective Year	Difference	Effective Year	+Difference x 4.00

INDEX VALUE:

Subject	Comp 1			Comp 2			Comp 3		
	Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	3078	\$40.00 (\$7,360.00)	2724	\$40.00	\$6,800.00	2686	\$40.00	\$8,320.00
Land Value	\$50,000.00	\$50,000.00	\$1.00 \$0.00	\$75,000.00	\$1.00	(\$25,000.00)	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$11,662.00	\$1.00 (\$784.00)	\$11,022	\$1.00	(\$144.00)	\$11,104.00	\$1.00	(\$228.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00 \$0.00	\$15,000.00	\$1.00	\$0.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1996	0.50% \$0.00	1993	0.50%	\$4,832.63	1994	0.50%	\$2,981.64
Comp Object Index Value	0	36		58		73			
Notified Value	\$314,155.00	\$377,938.00		\$322,175.00		\$296,164.00			
Value/									
Median Value	\$305,767.30								
Indicated Value	\$305,767.00								
		\$369794.00		\$308663.63		\$307219.64			

STEP 2 – Equity Comparable Grid Adjustments

The equity and sales comparable grids adjust for **Actual Area, Land Value, and Feature Value**.

Actual Area Adjustment:

- Rate for Actual Area adjustments is price per ft² by quality:

Quality	Price per ft ²
Highest	\$120.00
Excellent	\$80.00
Good	\$60.00
Above Average	\$50.00
Average	\$40.00
Low	\$35.00

Land Value Adjustment:

- Adjusted for the difference in value.

Feature Value Adjustment:

- Adjusted for the difference in the total feature value.

Garage Value	
Pool Value	
Outbuilding Value	
+ Other Feature Value	
Total Value	

Example:

Comparable 1 differs from the subject property by 184 ft² of Actual Area and \$784.00 for the difference in the Garage Feature Value.

$$184 \text{ ft}^2 \times \$40 = \$7360$$

$$+ \$7360 \text{ (garage feature value difference)}$$

$$= \$8144 \text{ net adjustment for Comparable 1}$$

Subject	Comp 1			Comp 2			Comp 3		
	Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	3078	\$40.00 (\$7,360.00)	2724	\$40.00	\$6,800.00	2686	\$40.00	\$8,320.00
Land Value	\$50,000.00	\$50,000.00	\$1.00 \$0.00	\$75,000.00	\$1.00	(\$25,000.00)	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$11,662.00	\$1.00 (\$784.00)	\$11,022	\$1.00	(\$144.00)	\$11,104.00	\$1.00	(\$228.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00 \$0.00	\$15,000.00	\$1.00	\$0.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1996	0.50% \$0.00	1993	0.50%	\$4,832.63	1994	0.50%	\$2,981.64
Comp Object Index Value	0	36		58		73			
Notified Value	\$314,155.00	\$377,938.00		\$322,175.00		\$296,164.00			
Value/									
Median Value	\$305,767.30								
Indicated Value	\$305,767.00								
		\$369794.00		\$308663.63		\$307219.64			

STEP 3 – Median Value Calculation

Subject	Comp 1			Comp 2			Comp 3		
	Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	3078	\$40.00 (\$7,360.00)	2724	\$40.00	\$6,800.00	2686	\$40.00	\$8,320.00
Land Value	\$50,000.00	\$50,000.00	\$1.00 \$0.00	\$75,000.00	\$1.00	(\$25,000.00)	\$50,000.00	\$1.00	\$0.00
Garage Value	\$10,878.00	\$11,662.00	\$1.00 (\$784.00)	\$11,022	\$1.00	(\$144.00)	\$11,104.00	\$1.00	(\$228.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00 \$0.00	\$15,000.00	\$1.00	\$0.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1996	0.50% \$0.00	1993	0.50%	\$4,832.63	1994	0.50%	\$2,981.64
Comp Object Index Value	0	36		58		73			
Notified Value	\$314,155.00	\$377,938.00		\$322,175.00		\$296,164.00			
Value/									
Median Value	\$305,767.30								
Indicated Value	\$305,767.00								
		\$369794.00		\$308663.63		\$307219.64			

Subject	Comp 4			Comp 5			Comp 6		
	Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2626	\$40.00 (\$1,720.00)	3192	\$40.00	(\$1,920.00)	2492	\$40.00	\$16,080.00
Land Value	\$50,000.00	\$50,000.00	\$1.00 \$0.00	\$50,000.00	\$1.00	\$0.00	\$57,500.00	\$1.00	(\$7,500.00)
Garage Value	\$10,878.00	\$11,114.00	\$1.00 (\$236.00)	\$11,886.00	\$1.00	(\$1,008.00)	\$12,605.00	\$1.00	(\$1,727.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00 \$0.00	\$15,000.00	\$1.00	\$0.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1999	0.50% (\$4,466.70)	2000	0.50%	(\$6,871.42)	1999	0.50%	(\$4,478.68)
Comp Object Index Value	0	77		91		104			
Notified Value	\$314,155.00	\$299,780.00		\$343,571.00		\$298,646.00			
Value/									
Median Value	\$305,767.30								
Indicated Value	\$305,767.00								
		\$305767.30		\$323771.58		\$301019.31			

Subject	Comp 7			Comp 8			Comp 9		
	Value	Rate	Adj	Value	Rate	Adj	Value	Rate	Adj
Actual Area	2894	2377	\$40.00 (\$2,680.00)	2293	\$40.00	\$24,040.00	2201	\$40.00	\$25,300.00
Land Value	\$50,000.00	\$50,000.00	\$1.00 \$0.00	\$50,000.00	\$1.00	\$0.00	\$57,500.00	\$1.00	(\$7,500.00)
Garage Value	\$10,878.00	\$11,104.00	\$1.00 (\$226.00)	\$12,008.00	\$1.00	(\$1,130.00)	\$12,561.00	\$1.00	(\$1,683.00)
Pool Value	\$15,000.00	\$15,000.00	\$1.00 \$0.00	\$15,000.00	\$1.00	\$0.00	\$15,000.00	\$1.00	\$0.00
Outbuilding Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Other Feature Value	\$0.00	\$0.00	\$1.00 \$0.00	\$0.00	\$1.00	\$0.00	\$0.00	\$1.00	\$0.00
Effective Year	1996	1994	0.50% \$2,748.88	1997	0.50%	(\$1,389.20)	1988	0.50%	(\$2,863.77)
Comp Object Index Value	0	119		128		142			
Notified Value	\$314,155.00	\$274,789.00		\$277,839.00		\$286,377.00			
Value/									
Median Value	\$305,767.30								
Indicated Value	\$305,767.00								
		\$297990.89		\$299359.80		\$299650.23			

Step 1 Place the values in numerical order from lowest to highest value:

- \$369,794.00
- \$308,663.63
- \$307,219.64
- \$305,767.30
- \$323,771.58**
- \$301,019.31
- \$297,990.89
- \$299,359.80
- \$299,650.23

Step 2 The median will be the number at the middle of the list.

If there is an even number of values the median will be the mean of the two middle values.

Example: If there are only 8 comparables and the middle two values are \$305,767.30 and \$323,771.58 the median would be determined as follows:

$$\frac{\$305,767.30 + \$323,771.58}{2} = \$629,538.88$$

$$\$629,538.88 / 2 = \$314,769.44$$

The median would then be \$314,769.44