Residential Property Value Procedures: How to calculate a value

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 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.

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
- \( R \) = Rate
- \( D \) = Square Feet
- \( LCM \) = Local Cost Modifier
- \( A \) = Depreciation
- \( RCN \) = Replacement Cost New
- \( U \) = Age
- \( RCNLD \) = Replacement Cost New Less Depreciation

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 not 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 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.

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 to the taxpayer and the district to support their opinions of the property value. A recent purchase or fee appraisal is acceptable as evidence in a market value 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.

Property Appraisal Protests Concerning Value:

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.
Residential Cost Approach for Appraisal Site Buildings

**RCNLD** = \((R \times \text{Quality Adj.} \times \text{Neighborhood Adj.}) \times \phi \) – D

### Building Value Buildup

<table>
<thead>
<tr>
<th>Section</th>
<th>Site Type</th>
<th>Size</th>
<th>Unit of Measure</th>
<th>Rate</th>
<th>Value</th>
<th>Total</th>
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<tr>
<td>Replacement Value</td>
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</tr>
<tr>
<td>Replacement</td>
<td>Actual</td>
<td>1883</td>
<td>Square Feet</td>
<td>$65.45</td>
<td>122,122.49</td>
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</tr>
<tr>
<td>Local Cost Modifier</td>
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<td>Quality Adjustment</td>
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<td>Neighborhood Adj.</td>
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<tr>
<td>Replacement Ax.</td>
<td>Actual</td>
<td>1883</td>
<td>Square Feet</td>
<td>$122.03</td>
<td>231,424</td>
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<td>Neighborhood Adj.</td>
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<td>Total</td>
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<tr>
<td>Replacement Ax.</td>
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<td>Square Feet</td>
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</tbody>
</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.
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**RCNLD Value Buildup:**

**RCNLD** = \((R \times \text{Quality Adj.} \times \text{Neighborhood Adj.}) \times \phi \) – D

### Feature Value Buildup

<table>
<thead>
<tr>
<th>Section</th>
<th>Site Type</th>
<th>Unit of Measure</th>
<th>Rate</th>
<th>Value</th>
<th>Total</th>
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**Note:** More than likely the features total 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.

### 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

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

**RCN = (R x Quality Adj. x Neighborhood Adj.) x \phi**

- **Base Rate** per unit for each Feature is calculated using the corresponding Base Model Rate table.
- **Note:** More than likely the features total square footage or unit count of the Feature 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.

**RCN = (R x Quality Adj. x Neighborhood Adj.) x \phi**

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

**RCNLD = RCN – D**

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

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

$LV = \frac{(Rating \times Size) + \left(\left(\frac{Rating}{Size}\right) \times Adjustments\right)}{100}$

For residential Land Types without 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**

1. **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 \text{ or } 35,000 \times 0.5000 = 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:

- 1,000.00 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:

- $2,500 \times 1,000 = 52,500
- $52,500.00 Final Land Value
### Residential Sales Comparison Approach:

The TAD Mass Appraisal Records System uses Inversely Proportional Index Weighting to select comparables for a property. Inversely proportional Index Weighting is the most like characteristics of the subject property to indicate the property's value.

#### Example:

- **Comparables:**
  - 1st Property: $290,000
  - 2nd Property: $50,000
  - 3rd Property: $100,000

#### Step 1: Adjusted for the difference in value.

1. **Effective Year Adjustment:**
   - Effective Year Adj. = \( 2 \times (0.005 \times 290,000) = 2900.00 \)

2. **Rate for Actual Area adjustments is price per ft\(^2\).**
   - **Actual Area Adj.**
     - 1st Property: $35,000
     - 2nd Property: $15,000
     - 3rd Property: $50,000

3. **Adjustment for the difference in effective year.**
   - **Effective Year Adj.**
     - 1st Property: $392,13.47
     - 2nd Property: $47,102.12
     - 3rd Property: $41,419.84

#### Step 2: Feature Value Adjustment:

- **Feature Value Adjustment:**
  - **Land Value Adjustment:**
    - **Actual Area Adj.**
      - 1st Property: $35,000
      - 2nd Property: $15,000
      - 3rd Property: $50,000
  - **Improvement Quality = Subject Improvement Quality**
    - **Improvement Type**
      - 1st Property: $0.00
      - 2nd Property: $1.00
      - 3rd Property: $1.00
  - **Rate for Actual Area adjustments is price per ft\(^2\).**
    - **Actual Area Adj.**
      - 1st Property: $35,000
      - 2nd Property: $15,000
      - 3rd Property: $50,000

#### Step 3: Land Value Adjustment:

- **Land Value Adjustment:**
  - **Sub Market Area Match:**
    - **Outbuilding Value**
      - 1st Property: $0.00
      - 2nd Property: $15,000.00
      - 3rd Property: $50,000.00
  - **Neighborhood:**
    - **Sale Date**
      - 1st Property: January 1
      - 2nd Property: January 1
      - 3rd Property: January 1
  - **Improvement Type**
    - **Condition**
      - 1st Property: Traditional
      - 2nd Property: Traditional
      - 3rd Property: Traditional
  - **Improvement Quality = Subject Improvement Quality**
    - **Improvement Type**
      - 1st Property: Traditional
      - 2nd Property: Traditional
      - 3rd Property: Traditional

#### Step 4: Indicated Value Calculation:

- **Indicated Value Calculation:**
  - **Index Value**
    - 1st Property: $236,000.00
    - 2nd Property: $15,000.00
    - 3rd Property: $50,000.00

#### Step 5: Adjusted for the difference in value.

- **Effective Year Adj.**
  - 1st Property: $392,13.47
  - 2nd Property: $47,102.12
  - 3rd Property: $41,419.84

#### Step 6: Feature Value Adjustment:

- **Feature Value Adjustment:**
  - **Land Value Adjustment:**
    - **Actual Area Adj.**
      - 1st Property: $35,000
      - 2nd Property: $15,000
      - 3rd Property: $50,000
  - **Improvement Quality = Subject Improvement Quality**
    - **Improvement Type**
      - 1st Property: $0.00
      - 2nd Property: $1.00
      - 3rd Property: $1.00
  - **Rate for Actual Area adjustments is price per ft\(^2\).**
    - **Actual Area Adj.**
      - 1st Property: $35,000
      - 2nd Property: $15,000
      - 3rd Property: $50,000

#### Step 7: Selection Parameters:

- **Selection Parameters:**
  - **Step 3 - Indicated Value Calculation**
    - **Index Value**
      - 1st Property: $236,000.00
      - 2nd Property: $15,000.00
      - 3rd Property: $50,000.00
**STEP 1 - Residential Equity Comparable Selection**

Aumentum uses a three-step process to select three (3) to fifteen (15) equity comparables with the most like characteristics to 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 Weights:

<table>
<thead>
<tr>
<th>SUBJECT PROPERTY</th>
<th>WEIGHTING METHOD</th>
<th>SALES COMP</th>
<th>INDEX WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood</td>
<td>Match</td>
<td>Neighborhood</td>
<td>+400</td>
</tr>
<tr>
<td>Sub Market Area</td>
<td>Match</td>
<td>Sub Market Area</td>
<td>+400</td>
</tr>
<tr>
<td>Market Area</td>
<td>Match</td>
<td>Market Area</td>
<td>+1000</td>
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<tr>
<td>Quality</td>
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</tr>
<tr>
<td>Condition</td>
<td>Match</td>
<td>Condition</td>
<td>+200</td>
</tr>
<tr>
<td>Year Built</td>
<td>Difference</td>
<td>Year Built</td>
<td>+Difference x 4.00</td>
</tr>
<tr>
<td>Res Actual Area</td>
<td>Difference</td>
<td>Res Actual Area</td>
<td>+Difference x 0.20</td>
</tr>
<tr>
<td>Land Value</td>
<td>Difference</td>
<td>Land Value</td>
<td>+Difference x 0.01</td>
</tr>
<tr>
<td>Total Feature Value</td>
<td>Difference</td>
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<td>+Difference x 0.01</td>
</tr>
<tr>
<td>Effective Year</td>
<td>Difference</td>
<td>Effective Year</td>
<td>+Difference x 4.00</td>
</tr>
</tbody>
</table>

**INDEX VALUE:**

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<thead>
<tr>
<th>Property</th>
<th>Subject</th>
<th>Comp 1</th>
<th>Comp 2</th>
<th>Comp 3</th>
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</thead>
<tbody>
<tr>
<td>Address</td>
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</tbody>
</table>

**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 ft²
    - 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:** Comparative 1 differs from the subject property by 184 ft² of Actual Area and $784.00 for the difference in the Garage Feature Value.

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

$$+ \$7.784 \text{ (garage feature value difference)}$$

$8144 net adjustment for Comparable 1

**STEP 3 – Median Value Calculation**

<table>
<thead>
<tr>
<th>Property</th>
<th>Subject</th>
<th>Comp 1</th>
<th>Comp 2</th>
<th>Comp 3</th>
</tr>
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<tbody>
<tr>
<td>Address</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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
- $301,019.31
- $297,990.89
- $299,359.80
- $299,650.23

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 $303,771.58 the median would be determined as follows:

$$\frac{305,767.30 + 303,771.58}{2} = 304,774.44$$

$304,774.44

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

$304,774.44

$303,771.58

$303,771.58

$302,782.38

$302,782.38

$301,019.31

$297,990.89

$299,359.80

$299,650.23

The median would then be $314,769.44

Eff. 1/1/2019