

# Illinois Department of Revenue

Glossaries

and

Formulas

## I-C LAND VALUATION

### GLOSSARY OF TERMS

**AD VALOREM TAX** - "According to Value"; a tax levied according to the value of a property, not according to the ability to pay.

**ABSTRACTION METHOD** - Sales Price – (Replacement Cost New – Depreciation) = Site Value. Provides data to develop Land:Building (L:B) ratio. Uses sales of improved property.

**ALLOCATION METHOD** - Ratio of Land Value to Building Value (L:B). Land is always equal to 1. Based on the Principle of Balance.

**ANTICIPATED USE METHOD** - (Developer Method) - Used with land in transition such as agricultural to residential, commercial or industrial. Estimate Sale Price of all developed lots, subtract the estimated total cost of development, the difference being an estimate of value for the land in an undeveloped state.

**APPRAISAL** - An opinion or estimate of value of property.

**ASSESSMENT** - Official act of discovering, listing, appraising, and entering a value for property on the assessment rolls for ad valorem tax.

**ASSESSED VALUE** - The value placed upon property after multiplying its market value by the level of assessment.

**BUILDING RESIDUAL** - Sales Price - Land Value = Building Value (Residual)

**CAPITALIZATION** - A mathematical process for converting the net income produced by a property into an indication of value. (Present value of future worth) Used in the Income Approach to value.

$$\text{NET INCOME (I in the IRV formula)} = \frac{I}{R \times V}$$

**CAPITALIZATION RATE** (R in IRV formula) consists of the Discount Rate, Recapture Rate, & Effective Tax Rate.

Land Capitalization Rate = Discount Rate & Effective Tax Rate.

Building Capitalization Rate = Discount + Recapture + Effective Tax Rates

## I-C LAND VALUATION

**EFFECTIVE TAX RATE** - The tax rate expressed as a percentage of market value. Found by multiplying the level of assessments by the current local (aggregate) tax rate. Would be applied to the full MV

**DISCOUNT RATE** - Return **ON** Investment (Mortgage Interest Rate)

**RECAPTURE RATE** - Return **OF** Investment (involves depreciation)

**COST APPROACH** - Estimating the value of land as vacant and then estimating the depreciated cost of replacing the improvement.

$$\text{Land Value} + (\text{Replacement Cost New} - \text{Depreciation}) = \text{Market Value}$$

**DEPRECIATION** - Loss in value of improvements from any cause. Land does not depreciate.

**Physical:** wear & tear; use & abuse; action of elements

**Functional:** poor design; excessive frills

**Economic (External):** factors outside of property

**DEPTH FACTOR** - Used to adjust the front foot value of a lot. (Used when the subject lot is at variance to the standard lot depth under the 4-3-2-1 premise.)

$$\frac{\text{FF Value of Subject lot}}{\text{FF Value of Standard lot}} = \text{Depth factor}$$

**FRONT FOOT** - A strip of land one foot wide fronting a street, *etc.*, and running the entire depth of the lot. (50' x 150' FF = 50')

**HIGHEST AND BEST USE** - That (property's) use determined to generate the highest net return to a property over a period of time, provided it is legal, reasonable, profitable, and probable.

**MARKET VALUE** - The most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures.

**MASS APPRAISAL** - The process of valuing a universe of properties as of a given date, using standard methods and allowing for statistical testing.

## I-C LAND VALUATION

**NEIGHBORHOOD** - The immediate environment or area having the most direct impact on a property's value.

**PRINCIPLE OF SUBSTITUTION** - Assumes that a buyer will not pay more for a property than the cost of acquiring an equally desirable substitute property.

**REL (Remaining Economic Life)** -  $\%REL + \%DEP = 100\%$  of MV. May be thought of as the period of time over which a prudent investor would reasonably expect to recapture their investment.

**RESIDUAL** - Remaining Value: Market value - Building Value = Land Value or Land Residual.

**SITE** - Parcel that has been made ready to be used for the purpose for which it was intended.

**UNITS OF COMPARISON** - Used in the Sales Comparison Approach when establishing an appropriate measure of value. Front Foot (FF), Square Foot (SF), and site value are typical units of comparison. The median Unit Value of the most consistent Unit of Comparison is used as an indicator of value when all of the lots have exactly the same features.

**UNIT VALUE** - Found by dividing the Sales Price by number of units

$$\frac{\text{Sales Price}}{\# \text{ of SF}} = \frac{\$10,000}{1,000 \text{ SF}} = \$10 / \text{SF}$$

**4-3-2-1 RULE** -- Assumes that the front of a lot carries a proportionally higher value than the rear portion. (Front 25% of lot equals 40% of the value of the lot) The basis for deriving depth tables.

**65-35 RULE** - Suggests that the utility of a lot is seriously affected by its shape, thus a loss in value. Applies to triangular shaped lots with a right angle; if base is on street, the lot has 65% of the value of a rectangular lot having the same frontage and depth. If apex is on street, lot has 35% value of the rectangular shaped lot.

# I – D MATH FOR ASSESSING OFFICIALS

## GLOSSARY OF TERMS

**ASSESSED VALUE:** The value placed upon property after multiplying its market value by its level of assessment.

**CAPITALIZATION:** A mathematical process for converting the Net Operating Income into an indication of value. (determining the present value of future worth) Used in the Income Approach to value. Formula used:

(I) Net Operating Income 
$$\frac{I}{R \times V}$$

<b>PGI</b>	Potential Gross Income (100% capacity @ economic rent)
<b>- V&amp;C</b>	- Vacancy & Collections Loss
<b>+ MI</b>	+ <u>Miscellaneous Income</u>
<b>EGI</b>	= Effective Gross Income
<b>- EXP</b>	- Allowable Expenses
<b>- RR</b>	- <u>Reserve for Replacement</u>
<b>NI</b>	= <b>Net Operating Income</b>

**CAPITALIZATION RATE:** **R** in the IRV formula. Consists of the **Discount** and **Effective Tax** rates when calculating land income values; consists of the **Discount**, **Effective Tax** and **Recapture** rates when calculating building income values.

**Recapture rate** - often called the “Return Of investment”; rate needed to recover the investment during the remaining economic life (REL) of the building.; using straight line depreciation, calculated by dividing 100 (percent) by the REL of the building.

**Effective Tax rate** - determined by multiplying the level of assessment by the aggregate tax rate supported by that property; used to calculate property taxes by applying the effective tax rate to full market value.

**Discount rate** - often called the “Return On” or “mortgage interest” rate.

**COEFFICIENT OF DISPERSION (COD):** a statistical measure of variation of individual assessment ratios around the median level of assessments (an average error expressed as a percent). It is the most common method used in measuring assessment uniformity.

## I – D MATH FOR ASSESSING OFFICIALS

**COST FACTOR:** a factor used to adjust a manual's cost values to reflect the local cost of materials and labor. Once established, applied throughout jurisdiction. (Sales Price – Land Value = Building Value )

$$\text{Indication of COST FACTOR} = \frac{\text{Building Residual}}{\text{MRCN}}$$

**DATA BANK:** composed of square feet, cubic feet, effective perimeter, square feet wall area, and wall ratio of a building.

**EAVE HEIGHT:** the height of a building from grade-level to the building's eave.

**EFFECTIVE AGE:** The age of an improvement based on that improvement's CDU rating. The typical Economic Life of a building – the Effective Age = the Remaining Economic Life of the building. The Typical Economic Life – the REL = the amount of accrued depreciation.

**EFFECTIVE GROSS INCOME:** potential gross income minus vacancy and credit plus any miscellaneous income.

**EFFECTIVE PERIMETER:** the linear measurement around a building.  
For a rectangle:  $P = 2L + 2W$

**EQUALIZATION FACTOR:** Applied to a property's assessed value. Calculated by dividing 33.33% by the prior (3 year average) median level of assessment. Often called a multiplier.

**EQUALIZED ASSESSED VALUE:** Assessed Value (AV) multiplied by equalization factor(s). Certified assessed values for farm land and farm buildings are already equalized.

**FRAME BAY:** the rectangle or square formed by support columns.

**GROSS INCOME MULTIPLIER:** sales price divided by gross income – a unit of comparison used in the sales comparison approach to value.

**LOAD BEARING:** walls of building support the structure.

**MARKET VALUE:** most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting

## I – D MATH FOR ASSESSING OFFICIALS

prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures.

**MEAN:** The arithmetic average of a set of numbers.

**MEDIAN:** The middle value of a ranked set of numbers.

**MODE:** The number that occurs most frequently in a set of numbers.

**NET INCOME:** Effective gross income minus allowable expenses and reserves for replacement.

**OVERALL HEIGHT:** Height of building from basement floor to eave.

**PARTY WALL:** Common wall shared by two buildings.

**POTENTIAL GROSS INCOME:** Income that a property is capable of producing if 100% occupied, based on market standards.

**REMAINING ECONOMIC LIFE (REL):** The period of time over which a prudent investor would reasonably expect to recapture his or her investment.

$REL \text{ (years)} + DEP \text{ (years)} = \text{Typical Economic Life};$

$REL \text{ (\%)} + DEP \text{ (\%)} = 100\% \text{ MV.}$

**REPLACEMENT COST NEW (RCN):** Represents the current cost of replacing an improvement; **MRCN** represents the Manual's Replacement Cost New; **TRCN** represents True RCN, which is the MRCN adjusted by local factors such as a cost factor.

**RECAPTURE RATE:** The rate of return of an investment – rate used to recover the cost of the improvement over the economic life of that improvement.

**RESERVES FOR REPLACEMENT:** Replacement or repair cost of items (*i.e.* carpet, roof, etc.) pro-rated as an allowable expense to be deducted from effective gross income.

**RESIDUAL:** Remaining value. Sales Price – Land Value = Building Residual or, Sales Price – Building Value = Land Value or Land Residual.

## I – D MATH FOR ASSESSING OFFICIALS

**SHAPE ADJUSTMENT:** Adjustment used to factor construction shape variables on IRPAM schedule necessary to account for area/perimeter ratio variations.

**SIZE ADJUSTMENT:** Adjustment used to factor construction size variables on IRPAM schedule.

**UNITS OF COMPARISON:** Used in the Sales Comparison Approach when establishing an appropriate measure of value. Front Foot (FF) and Square Foot (SF) values are typical units of comparison.

**UNITS OF VALUE:** Found by dividing the Sales Price by the number of units. The Median Value of the most consistent (least % of deviation) used as an indicator of value.

For example: Square Foot Unit of Value is  $\frac{\$10,000}{1000 \text{ SF}} = \$10 / \text{SF}$

**WALL HEIGHT ADJUSTMENT:** adjustment used to factor construction wall height variables on IRPAM schedule.



# I-D MATH FOR ASSESSING OFFICIALS

## FORMULAS

### DATA BANK

**SFGA = L x W** (for a rectangle)

**EP = L + W + L + W** (if non-standard shape, add all sides)

**CF = Sum of CF of each floor (SFFA x H)**

If all floors have the same SFFA, **CF = SFGA x OH**

**SFWA = Sum of SFWA of each floor (Perimeter x H)**

If all floors have the same SFFA, **SFWA = EP x OH**

**WALL RATIO =  $\frac{CF}{SFWA}$**

**FLOOR SIZE ADJUSTMENT FACTOR:  $FS = \frac{SFFA}{SFGA}$**

**BASE PRICE ADJUSTMENT FACTOR: BPA = SIZE X SHAPE X WEIGHT**

**RATE OF DEPRECIATION =  $\frac{\text{Depreciation as a \%}}{\text{Depreciation in years}}$**

**MARKET VALUE = GIM x PGI**

**COEFFICIENT OF DISPERSION (COD) =  $\frac{\text{Average Deviation}}{\text{Median}} \times 100 (\%)$**

**SALES RATIO =  $\frac{\text{Prior Year's Assessed Value}}{\text{Current Year's Selling Price}}$**

**EQUALIZATION FACTOR =  $\frac{\text{Statutory Level (33.33\%)}}{\text{Prior 3-year Average Median Level}}$**

L = Levy  
 A = Equalized Assessed Value  
 R = Tax Rate

**$\frac{L}{A \times R}$**

**EFFECTIVE TAX RATE = Aggregate Rate X Level of Assessments**

# I – E INTRODUCTION TO SALES RATIO STUDIES

## GLOSSARY OF TERMS

**AD VALOREM** - according to value

**APPRAISAL** - opinion of value, supported by evidence

**ARM'S LENGTH SALE** - a sale between two parties, neither of whom is related to or under abnormal pressure from the other

**ASSESSED VALUE** – the value placed upon property after multiplying its market value by the level of assessment

**ASSESSMENT** - official act of discovering, listing, appraising, and entering a value for property on the assessment rolls for ad valorem tax

**ASSESSMENT LEVEL** - percentage of full value at which property is being assessed. This may refer to the statutory level (33 1/3%) or the actual level as inferred from a sales ratio study

**BOARD OF REVIEW** - an appeal agency in each county, consists of 3 members; commission counties - county commissioners; in other counties members are appointed by the county board, or are elected

**CLASSIFICATION** - the practice of classifying various types of property according to use, and assigning different assessment levels to each class. Purpose is to tax various kinds of property at different effective tax rates though the nominal rate is the same.

**COEFFICIENT OF CONCENTRATION (COC)** – the percentage of observations falling within 10% of the median level of assessments, a high COC indicates more uniformity

**COEFFICIENT OF DISPERSION (COD)** - a statistical measure of variation of individual assessment ratios around the median level of assessments. (an average error expressed as a %) (an indicator of assessment uniformity found by dividing the average deviation by the median)

**COEFFICIENT OF VARIATION (COV)** – a statistical measure of variation of individual assessment ratios around the mean assessment ratio.

**EFFECTIVE TAX RATE** – ratio of taxes billed to market value. Generally found by multiplying the level of assessment by the local current tax rate. Expressed as a percentage, applied to the full market value (if Level of assessments is 33.33% & if local rate is 6%; Effective Tax Rate = 2%; if Market Value \$90,000, tax = \$1800)

## **I-E INTRODUCTION TO SALES RATIO STUDIES**

**EQUALIZATION** - the application of a uniform % increase or decrease to assessed values of various areas or classes of property to bring assessment levels, on the average, to a uniform level of market value

**EQUALIZATION FACTOR** - factor applied to assessed valuation of each county that raises or lowers the level of assessments to the mandated level of 33 1/3% of market value (intra-county factors may be used by a county to bring all property to a uniform level. Factors are sometimes referred to as multipliers) (not applied to farm land, buildings and coal rights)

**EQUALIZED ASSESSED VALUE** - assessed value multiplied by any applicable equalization factor; can form tax base from which tax rate is calculated; for farm acreage, farm buildings, and coal rights the final assessed value is the equalized value

**EXEMPTION** - removal of property from the tax base; may be a partial (a homestead) or complete (church building used exclusively for religious use)

**EXTENSION** - the process in which the county clerk determines the tax rate needed to raise the revenue (levy) certified by each taxing district. The actual dollar amount billed to property taxpayers in district

**GENERAL ASSESSMENT YEAR** - the assessment year that occurs every 4 years in which all property assessments are reviewed, formerly known as quadrennial year

**LEVEL OF ASSESSMENTS** - ratio of assessed value to the sale price

**LEVY** - The amount of money a taxing body certifies to be raised from the property tax to meet its operating expenses

**MARKET VALUE (Full Value)** - the most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures.

**MEAN** – an arithmetic average

**MEDIAN** – the middle value of a group of numbers after they have been ranked

**MEDIAN ABSOLUTE DEVIATION (MAD)** – the median of the absolute deviations from the median as a percentage of the median

**MODE** – the number that occurs most frequently in a set of numbers

## **I-E INTRODUCTION TO SALES RATIO STUDIES**

**OUTLIER** - observations that have unusual values, that is, differ markedly from the median.

**OVERLAPPING TAXING DISTRICTS** - taxing districts that are located in more than one county

**PRICE-RELATED DIFFERENTIAL (PRD)** - measures a pattern of inequity in assessments related to the value of property

**QUARTILES** - the values that divide a set of data into four equal parts (25%, 50%, 75%, 100%) when the data are arrayed in ascending order.

**SALES RATIO STUDY** - an analysis of the percentage relationship of assessed value (AV) to market value; ratio equals prior year assessed value divided by the current year sales price (SP) (Minimum of 25 useable sales/appraisals required).

**STATE PROPERTY TAX APPEAL BOARD (PTAB)** - the highest state quasi-judicial body which hears appeals from taxpayers and taxing bodies on property tax assessment decisions by the county Board of Review

**TAX BASE** - composed of the Equalized Assessed Value (EAV) of all locally assessed property, less all qualified exemptions, plus the value of any state assessed property

**TAX RATE** - the amount of tax due stated as a percentage of the tax base, derived by dividing the levy by the EAV. (some districts have a maximum statutory rate; the sum of the fund rates equals the total district rate)

**TAX YEAR** - refers to the year of assessment

**TAXING BODY** - a governmental organization that levies a property tax

**TAXING DISTRICT** - a territorial area under the taxing body's jurisdiction

**33 1/3%** - Means 33 1/3% of the actual value of real property as determined by the Department of Revenue's Assessment/Sales Ratio studies for the 3 most recent years preceding the assessment year, adjusted to take into account the implementation of any changes in assessment levels since the data for such studies were calculated

**URBAN WEIGHTED METHOD** - non-farm values; used in determining a county's median level of assessment by dividing the county's total assessed value (AV) by the county's total Estimate of Full Value (EFV); this is the preferred method of calculating a county multiplier.

# I-E INTRODUCTION TO SALES RATIO STUDIES

## FORMULAS FOR SALES RATIO STUDIES

$$\text{SALES RATIO} = \frac{\text{Prior Year AV}}{\text{Current Year SP}} \times 100\%$$

$$\text{COEFFICIENT OF DISPERSION (COD)} = \frac{\text{Average Deviation}}{\text{Median}} \times 100(\%)$$

$$\text{MEDIAN ABSOLUTE DEVIATION (MAD)} = \frac{\text{Median Deviation}}{\text{Median of Sales Ratios}} \times 100(\%)$$

$$\text{COEFFICIENT OF CONCENTRATION (COC)} =$$

$$\frac{\text{Number of Sales Ratios within 10\% of the median}}{\text{Total Number of Sales Ratios}} \times 100(\%)$$

$$\text{PRICE-RELATED DIFFERENTIAL (PRD):}$$

$$\text{Sales-Based Average Ratio} = \frac{\text{Sum of AV's}}{\text{Sum of SP's}} \times 100\%$$

$$\text{Mean Assessment Ratio} = \frac{\text{Sum of the Sales Ratios}}{\text{Number of Ratios}}$$

$$\text{Price-Related Differential} = \frac{\text{Mean Assessment Ratio}}{\text{Sales-Based Average Ratio}}$$

$$\text{EQUALIZATION FACTOR} = \frac{\text{Desired Level (33.33\%)}}{\text{Prior 3-Year Average Median Level}}$$

# I-F INTRODUCTION TO FARM ASSESSMENTS

## FARM ASSESSMENTS GLOSSARY

**ACTUAL AGE** – the number of years that have elapsed from the year of construction to the present date

**AD VALOREM** – according to value

**AGRICULTURAL ECONOMIC VALUE** – determined by dividing the net return to the land by the 5-year moving average of the Federal Land Bank farmland mortgage interest rate.

**ASSESSED VALUE (AV)** – the value placed upon property after multiplying its market value by the level of assessment.

**CONTRIBUTORY VALUE (CV)** – the amount that contributes to the productivity of a farm as value in use. Wasteland is assessed according to its contributory value; farm buildings are assessed according to their contributory value to the productivity to the farm based on their current use. For farm buildings, contributory value is found by multiplying Replacement Cost New by the Remaining Economic Life. **CV = RCN X REL**

**COST APPROACH** – estimating the value of the land as if it were vacant and then estimating the depreciated cost of replacing the improvement(s)

**CROPLAND** – includes all lands from which crops are harvested or hay cut; all lands in orchards, citrus groves, vineyards, and nursery and greenhouse crops; land in rotational pasture and grazing land that could have been used for crops without additional improvements; land used for cover crops, legumes, and soil improvement grasses, but not harvested and not pastured; land on which crops failed; land in cultivated summer fallow; and idle cropland.

**DEPRECIATION** – loss of value from any cause (physical depreciation, functional obsolescence, economic obsolescence)

**EAVES** – lower edge of a roof, overhanging the side walls of a building.

**ECONOMIC LIFE** – estimated period over which it is anticipated that a property may profitably be used. The period over which property will yield a return on and of the investment, over and above the economic rent due to land. This period can never exceed the physical life of the property and generally is shorter than physical life or endurance

## I-F INTRODUCTION TO FARM ASSESSMENTS

**EFFECTIVE AGE** – age of an improvement based on the improvement's CDU rating; effective age does not always equal actual age

**EQUALIZED ASSESSED VALUE (EAV)** — assessed value multiplied by any applicable equalization factor(s). The aggregate tax rate is applied to the EAV. For farm buildings, **EAV = CV x 33 ⅓ %**.

**FARM** – when used in connection with valuing land and buildings for an agricultural use, any property used solely for the growing and harvesting of crops; for the feeding, breeding and management of livestock; for dairying or for any other agricultural or horticultural use or combination thereof; including, but not limited to, hay, grain, fruit, truck or vegetable crops, floriculture, mushroom growing, plant or tree nurseries, orchards, forestry, sod farming and greenhouses; the keeping, raising and feeding of livestock or poultry, including dairying, poultry, swine, sheep, beef cattle, ponies or horses, fur farming, bees, fish and wildlife farming.

**CONVENTIONAL FARM** – the tending of all major and minor Illinois field crops, pasturing, foresting, livestock, and other activities associated with basic agriculture

**INTENSIVE FARM** – farm practices for which the per acre income and expenditures are significantly higher than in conventional farm use. Intensive farm use often requires significantly more labor than conventional farm use.

**GAMBREL ROOF** – roof whose slope on each side is interrupted by an obtuse angle that forms two pitches on each side, the lower slope being steeper than the upper (red barn roof)

**IDLE LAND** – land that is not put into a qualified farm use as the result of a management decision, including neglect.

**INCOME APPROACH** – value of income-producing property derived from the income which it is capable of producing

**MARKET VALUE** – most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures

## I-F INTRODUCTION TO FARM ASSESSMENTS

**OTHER FARMLAND** – includes woodland pasture; woodland including grass waterways, windbreaks, woodlots, timber tracts, cutover and deforested land, and farm building lots other than homesites.

**PERMANENT PASTURE** – any pastureland except woodland pasture, and certain exclusions such as rotational pasture and grazing land that could have been used for crops without additional improvements.

**PROPERTY INDEX NUMBER (PIN)** — 14 numbers which reflect the geographical location, legal description, and special use of a parcel of land

**PROPERTY RECORD CARD (PRC)** — used to record individual property appraisals used for assessment

**QUALITY GRADE** – used to adjust schedules in the manual for differences in the quality of construction materials and workmanship

**REMAINING ECONOMIC LIFE (REL)** — period over which a prudent investor would reasonably expect to recapture his investment.  
For farm buildings,

$$\text{REL} = \frac{\text{RPL}}{\text{TLE}}$$

**REMAINING PHYSICAL LIFE (RPL)** – the tangible life span that an improvement should have remaining given its current effective age and considering its physical deterioration along with ordinary maintenance.

**REPLACEMENT COST NEW (RCN)**– represents current cost of replacing an improvement; Manual RCN is the replacement cost new as calculated from the Illinois Real Property Appraisal Manual (IRPAM); True RCN is the replacement cost new after adjusting for the local market, including factors such as the cost, design, neighborhood, and appraiser factors.

**SALES COMPARISON APPROACH** – the value of properties can be reliably estimated by observing and analyzing the selling prices of comparable properties

**SOIL ASSOCIATION MAPS** – a grouping of individual soils that are generally found together.

**SOIL PRODUCTIVITY** – the capacity of soil to grow crops or plants under specified environmental conditions influenced by soil properties, climatic conditions and management inputs. The soil productivity indexing system



## **I-F INTRODUCTION TO FARM ASSESSMENTS**

assigns a number (PI) which compares a soil's potential to produce crops to the potential of the Muscatune soil.

**TRACT** – may consist of several parcels (not necessarily adjoining) which make up a farm.

**TYPICAL LIFE EXPECTANCY (TLE)** – the amount of time in which a building can typically expect to function economically. Typical Life Expectancy for farm buildings is found on the Typical Life Expectancy schedule.

**WASTELAND** – that portion of a qualified farm tract which is not put into in cropland, permanent pasture, or other farmland as the result of soil limitations and not as the result of a management decision

# I-I INTRODUCTION TO PROPERTY TAX

## GLOSSARY

<b>Abatement</b>	a reduction in a tax. For example, a unit of government may reduce its levy by filing an appropriate resolution with the County Clerk prior to extension.
<b>Ad Valorem</b>	according to value
<b>Aggregate Rate</b>	the sum of all taxing district rates applicable to a tax code
<b>Appraisal</b>	an opinion of value, supported by evidence
<b>Assessed Value</b>	the value placed on property for tax purposes and used as a basis for distribution of the tax burden. Most of the time this amount is subject to the State-issued equalization factor and the deduction of the homestead exemption on residential parcels.
<b>Assessment</b>	official act of discovering, listing, appraising property, and entering a value for it on the assessment rolls for <i>ad valorem</i> tax purposes.
<b>Assessment Uniformity</b>	the degree to which different properties are assessed at equal percentages of Market Value (This is the foundation of Assessment practices).
<b>Board of Review</b>	an appeal agency in each county, consisting of three members; in commission counties, the county commissioners or their appointees; in other counties, usually appointed by the County Board. The Board of Review is a review and equalizing agency.
<b>Capitalization</b>	a mathematical process for converting the net income produced by a property into an indication of value. Used in the Income Approach to value.
<b>Certificate of Error</b>	a certificate issued by the assessing official and approved by the court to correct an error in the tax bill

## I-I INTRODUCTION TO PROPERTY TAX

<b>Chief County Assessment Officer</b>	the individual appointed by a County Board, or elected in a county, to review township assessors in completing original assessments and to review their work. The Chief County Assessment Officer has the power to revise and equalize assessments and is the Clerk of the Board of Review. In commission counties, the Chief County Assessment Officer makes the original assessment.
<b>Coefficient of Dispersion (COD)</b>	a statistical measure of variation of individual assessment ratios around the median level of assessments. (An average error expressed as a percent of the median; an indicator of assessment uniformity found by dividing the average deviation by the median.)
<b>County Assessor</b>	an individual elected to oversee the assessment process in a county. In practice, a county assessor is responsible for making initial assessments, rather than township assessors
<b>Delinquent Taxes</b>	past due and unpaid taxes
<b>Effective Tax Rate</b>	the ratio of taxes billed to the market value, generally expressed as a percentage
<b>Equalization</b>	the application of a uniform percentage increase or decrease to assessed values of various areas or classes of property to bring assessment levels, on the average, to a uniform level of the market value
<b>Equalization Factor</b>	the factor that must be applied to local assessments to bring about the percentage increase or decrease that will result in an equalized assessed value equal to one-third of the market value of taxable property in a jurisdiction (other than farm acreage and farm buildings and coal rights).
<b>Equalized Assessed Value (EAV)</b>	the assessed value multiplied by the State equalization factor. This gives property value from which the tax rate is calculated after deducting all qualified homestead exemptions. For farm acreage, farm buildings, and coal rights, the final assessed value is the equalized assessed value. Individual tax bills are calculated by multiplying the individual district's tax rates by the equalized assessed value after all qualifying exemptions have been removed.

## I-I INTRODUCTION TO PROPERTY TAX

<b>Exemption</b>	the removal of property from the tax base. An exemption may be partial, as a homestead exemption, or complete as, for example, for a church building used exclusively for religious purposes.
<b>Extension</b>	the process in which the County Clerk determines the tax rate needed to raise the revenue (levy) certified by each taxing district in the county. Also, the actual dollar amount billed to property taxpayers in a district.
<b>Forfeited Taxes</b>	taxes which received judgment for sale of delinquent taxes but were not purchased at the tax sale and remain unpaid
<b>Judgment</b>	court ordered authorization to sell delinquent taxes
<b>Level of Assessments</b>	Ratio of assessed value to the sale price
<b>Levy</b>	the amount of money a taxing body certifies to the County Clerk to be raised by property taxes
<b>Market Value</b>	the most probable sales price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures.
<b>Median</b>	middle value of a ranked set of numbers
<b>Mill Rate</b>	one tenth of a cent (.001%)
<b>Over-the-counter Sales</b>	forfeited taxes purchased after the Annual Tax Sale upon application to the County Clerk
<b>Overlapping Taxing Districts</b>	taxing districts that are located in more than one county

## I-I INTRODUCTION TO PROPERTY TAX

<b>Partial Redemption</b>	a procedure used under the Forfeiture Section
<b>Property Index Number</b>	a brief legal description of a particular parcel by numerical reference to parcels on assessment maps. It is a fourteen-digit number. The first two digits refer to the geographical township; the second two, to the section in which the parcel is located; the next three, to the block number; the next three digits identify the parcel within the block; the last four digits identify the use of the parcel.
<b>Redemption</b>	the payment by owner or interested party, of sold taxes, interest, costs, and penalties, following a tax sale
<b>Sale in Error</b>	real property which has been sold but later declared by the court to be an improper order for sale
<b>Sales Ratio Study</b>	an analysis of the percentage relationship of assessed value to market value. Ratio equals prior year assessed value divided by the current year sales price. Minimum of 25 useable sales/appraisals required
<b>Scavenger Sale</b>	the sale at which taxes, that have been delinquent or forfeited for two or more years, are sold
<b>State Property Tax Appeal Board</b>	the State quasi-judicial body which hears appeals from taxpayers and taxing bodies on property tax assessment decisions of County Boards of Review
<b>Subsequent Taxes</b>	current year taxes paid by the tax purchaser who holds a previous year's Certificate of Purchase. The subsequent taxes are added to the judgment record for the original sale year.
<b>Taxing Body</b>	a governmental organization that levies a property tax
<b>Taxing District</b>	a territorial area under the taxing body's jurisdiction
<b>Tax Base</b>	composed of the Equalized Assessed Value (EAV) of locally assessed property, less all qualified exemptions, plus the value of any State-assessed property

## I-I INTRODUCTION TO PROPERTY TAX

<b>Tax Rate</b>	the amount of tax due stated in terms of a percentage of the tax base. Example: \$6.81 per \$100 of equalized assessed valuation (equal to 6.81%).
<b>Tax Sale</b>	the process by which delinquent taxes are annually sold
<b>Tax Year</b>	refers to year of assessment. The tax year for 2007 refers to assessments based on January 1, 2007 values; taxes billed in the calendar year 2008.
<b>Warrant</b>	a commission or document giving authority to do something. A collector's warrant gives the authority to collect the tax.
<b>33 1/3 %</b>	means 33 1/3 % of the actual value of real property as determined by the Department of Revenue's Assessment/Sales Ratio studies for the three most recent years preceding the assessment year, adjusted to take into account the implementation of any changes in assessment levels since the data for such studies were calculated.

# I-I INTRODUCTION TO PROPERTY TAX

## PROPERTY TAX FORMULAS

### ASSESSMENT

INCOME APPROACH :

$$\frac{I}{R \times V}$$

Effective Tax Rate = Aggregate Rate X Level of Assessments

Effective Tax Rate =  $\frac{\text{Taxes Billed}}{\text{Market Value}}$  (Definition)

COST APPROACH:  $\text{Market Value} = \text{Land Value} + (\text{RCN} - \text{DEP})$

### EQUALIZATION:

Equalization Factor =  $\frac{\text{Desired Level (33.33\%)}}{\text{Prior 3-Year Average Median Level}}$

### SALES RATIO STUDIES:

SALES RATIO for each sale =  $\frac{\text{Assessed Value} \times 100\%}{\text{Sale Price}}$

COEFFICIENT OF DISPERSION (COD) =  $\frac{\text{Average Deviation} \times 100\%}{\text{Median}}$

### LEVY:

L = Levy  
A = Equalized Assessed Value  
R = Tax Rate

$$\frac{L}{A \times R}$$

# I-M INTRODUCTION TO MAPPING FOR ASSESSORS

## Glossary

**Aerial Photograph** - Any photograph taken from the air.

**Aerial Mosaic** - An assembly of aerial photographs to form a continuous photographic representation of a portion of the earth's surface.

**Back sight** - surveying sight taken backward; a sight or reading taken by a surveyor back toward a position from which a previous sight has been made

**Base Line, Sectionalized Land** - Base line is a parallel of latitude, or approximately a parallel of latitude, running through an arbitrary point chosen as the starting point for all sectionalized land within a given area.

**Bearing** - Direction of a line measured as the acute angle from a reference meridian; usually expressed in the form "S 30° E" or "N 58° W".

**Boundary** - A line that marks the outermost extent of an area, or a subdivision between areas.

**Cadastral map** - A map that shows the size, shape and extent of each land parcel in a prescribed geographical area, for purposes of describing and recording ownership.

**Cartography** - The science and art of making maps.

**Chain** - A land surveyor's measure -- 66 feet, or 100 links.

**Commencing** - Informative term of beginning and/or origin.

**Degree** - One/360th of the circumference of a circle.

**Description** - The exact location of a piece of property stated in terms of lot, block, and tract, or by metes and bounds.

**Government Survey (U.S. Rectangular Land Survey)** - In 1785 the U.S. Congress authorized the first land survey of the United States. It specified that this survey should divide the land into portions approximately 6 miles



## I-M INTRODUCTION TO MAPPING FOR ASSESSORS

square. These portions are referred to as townships. The townships are surveyed from an east-west base line and from north-south principal meridians. Townships are laid off from the base lines and meridians. To identify the townships, each is given an identification in which it was referred to by its relation to the base line and meridian. Horizontal tiers of townships are laid off north and south from the base line and numbered consecutively. Vertical columns of townships called ranges are laid off to the east and west of the principal meridians and numbered accordingly. The townships can be identified by listing the township tier number and the range number, such as Township 2 North, Range 2 West. Each township is usually divided into 36 sections, each approximately one mile square and containing approximately 640 acres. This may vary considerably at rivers or where base lines or meridians converge, etc., but generally holds true.

**Grantee** - one to whom a grant is made (buyer).

**Grantor** - the person by whom a grant is made (seller).

**Index Maps** - (1) A map of smaller scale on which are depicted the location (with accompanying designations) of specific data, such as larger-scale topographic quadrangles or geodetic control. (2) A map showing the location and numbers of flight strips and photographs, made by assembling individual photographs into their proper relative positions and copying the assembly photographically at a reduced scale.

**Latitude** - angular arc distance north or south of the Equator along a meridian of longitude.

**Line** - Boundary, course or extension between points; may consist of straight or curvilinear segments.

**Link** - linear measurement equivalent to 1/100th of a chain equal to 0.66 feet or 7.92 inches.

**Longitude** - Angular arc distance east or west of the Prime Meridian along a parallel of latitude.

**Map** - A representation (usually on a flat medium) of all or a portion of the earth, showing the relative size and position of features to some given scale or projection. A map may emphasize, generalize, or omit the

## I-M INTRODUCTION TO MAPPING FOR ASSESSORS

representation of certain features to satisfy specific requirements. Maps are frequently categorized and referred to according to the type of information which they are designed primarily to convey, to distinguish them from maps or others types.

**Map projection** - involves the transformation of a 3-dimensional form into a 2-dimensional plane; they record the curved surface of the Earth on a flat display. They may be cylindrical, conical or azimuthal (planar). This is the field of cartography

**Meridian Line** - A meridian line is any line running due north and south. Since meridian lines converge at the North Pole, no two meridians are parallel. Practically within the limits of a property survey, all lines shown as north or south are considered parallel.

**Metes and Bounds** - precise description of the boundary lines of parcel of land. Not described by reference to a lot or block shown on a map, but described by starting at a known point and describing the bearings and distances of the lines forming the boundaries of the property.

**Monuments** - Monuments are tangible landmarks indicating boundaries. (1) Physical Monument - A physical monument is an existing feature such as a stone or stake but not the line of an adjoiner. (2) Natural Monuments - A natural monument is a naturally occurring object such as a lake, river, tree, boulder, or hill. (3) Artificial Monument - An artificial monument is a man-made object such as a stake, fence, set stone, etc. (4) Record Monument - An adjoiner property called for in a deed such as a street or particular parcel of land. (5) Legal Monument - Any monument controlling in a legal description. It is often limited in meaning so as to be synonymous with record monument.

**More or Less** - The words "more or less" in their ordinary use are to be taken as words of caution, denoting some uncertainty in the mind of one using them and a desire not to misrepresent. When used in connection with quantity and distance, "more or less" are words of safety and precaution, intended merely to cover some slight or unimportant inaccuracy.

**Natural Boundary** - Any existing boundary that can be readily identified and located, e.g., the boundary line of an adjacent parcel of land, a river

## I-M INTRODUCTION TO MAPPING FOR ASSESSORS

boundary, ditch, wall, bluff, etc. Courses and distances, as a general rule, give way to a call for a natural boundary, because a natural boundary, if fixed, is unchangeable, and more likely to be the true call than courses and distances

**Parcel** - In land ownership mapping for assessment purposes, a parcel is usually held to be a tract of land under one identical ownership. It may be a combination of two or more tracts acquired by separate deeds.

**Planimetric map** - A map representing only the 2-dimensional, horizontal position of features measured on plane surfaces.

**Plat Map** - Usually a survey drawing of an individual parcel of land showing special characteristics and the locations of any buildings thereon.

**Point** - "Point" in a boundary is the extremity of a line; spatial location without defined dimensions.

**Point of Beginning** - The reference point from which the description point begins.

**Pole** - 5.5 yards; 16.5 feet; one rod.

**Political Township** - township units set up by government agencies. They can be changed at any time and do not necessarily correspond with congressional township boundaries.

**Prime Meridian (Principal Meridian)** - Zero Longitude at Greenwich, England. It is the line from which all other lines of longitude are measured. This includes the line that runs 180° away from Greenwich also known as the International Date Line.

**Property Index Number** - a series of groupings of numbers that describe the geographic location and use of a specific tax parcel.

**Public Lands Surveys, or Public Land Survey System (PLSS)** - In general, the survey of Federal or State lands or the lands of any other public body. The term, however, is commonly used to designate the cadastral survey of the public lands of the U.S.; originally the Government Land Office (G.L.O.) surveys; the present surveys executed by the Bureau

## I-M INTRODUCTION TO MAPPING FOR ASSESSORS

of Land Management (B.L.M.). Synonymous with rectangular surveys of the U.S. lands; or the rectangular survey system.

**Quarter Section** - A 160 acre block of land, 1/4 of a section.

**Range** - A vertical column of townships in the rectangular survey system.

**Rod** (or pole) - Is a surveyor's lineal measure of 16 1/2 feet, or 1/4 of a chain.

**Scale** - Relative ratio of map to ground distances.

**Section** - A one square mile block of land containing 640 acres, or one thirty-sixth of a township.

**Section Number** - these are numbers assigned to the one square miles units within a survey township. A standard survey township will contain 36 sections.

**Standard Parallels** - Standard parallels, or correction lines, are parallels of latitude at intervals of 24 miles north or south of the base line.

**State Plane Coordinate Systems** - The plane-rectangular coordinate system established by the U.S. Coast and Geodetic Survey, one for each State in the Union, for use in defining positions of geodetic stations in terms of plane-rectangular (X and Y) Coordinates. Each state is covered by one or more zones, over each of which is placed a grid upon a conformal map projection.

**Subdivision** - A tract of land divided, by means of a map, into lots, or lots and blocks, for the purpose of resale, generally for residential or agricultural purposes.

**Survey** - The act or operation of making measurements for determining the relative position of points, on, above, or beneath the earth's surface; also, the results of such operations. Photogrammetric survey - A method of surveying that uses either ground photographs or aerial photographs. Aerial survey - A survey using aerial photographs. Ground survey - A survey made by ground methods. A ground survey may or may not include the use of photographs.

## I-M INTRODUCTION TO MAPPING FOR ASSESSORS

**Tax Map** - a picture of one or more parcels of land showing the boundaries of subdivisions of land, with the length thereof, and the areas of individual tracts for the purpose of describing and recording ownership. It is a graphical representation on a flat surface of some portion of the earth's surface. It shows the relative size and position of the land with respect to the other properties, roads, highways and major topographic features relating to the value and use of the land.

**Topographic map** - A map which represents the horizontal and vertical positions of the land features; distinguished from a planimetric map by the addition of relief in measurable form.

**Township (congressional township)** - Township is a nearly square area of land containing 36 sections.

**Traverse** - A method of surveying in which a sequence of lengths and directions of lines between points are measured.

## II-A INTERMEDIATE RESIDENTIAL ASSESSMENT PRACTICES

### GLOSSARY

**AD VALOREM** – according to value

**ACTUAL AGE** – the number of years that have elapsed from the year of construction to the present date

**ASSESSED VALUE** – the value placed upon property after multiplying its market value by the level of assessment (33 ⅓ %)

**ATTIC** – space between the top of the ceiling joists and the roof. For assessment purposes, an “attic” is “an attic accessible by a stationary permanent staircase.”

**CANTILEVER** – beam or slab supported at one end only, or which projects beyond its support.

**CDU RATING** – modifies the normal age depreciation of an improvement according to the appraiser's determination of the improvement's condition, desirability, and utility

**COST APPROACH** – estimating the value of the land as if it were vacant and then estimating the depreciated cost of replacing the improvement(s)

**COST FACTOR** – used to adjust the schedules in the manual for differences in local construction labor and material rates

$$\text{Indication of Cost Factor} = \frac{\text{Building Residual}}{\text{MRCN}}$$

**DEPRECIATION** – loss of value from any cause (physical depreciation, functional obsolescence, economic obsolescence)

**DEPTH FACTOR** – factor used to adjust front foot price of a lot because the front portion of lot is deemed more valuable than the rear portion

**EAVES** – lower edge of a roof, overhanging the side walls of a building.

**ECONOMIC LIFE** – estimated period over which it is anticipated that a property may profitably be used. The period over which property will yield a return on and of the investment, over and above the economic rent due to land. This period can never exceed the physical life of the property and generally is shorter than physical life or endurance

## II-A INTERMEDIATE RESIDENTIAL ASSESSMENT PRACTICES

**EFFECTIVE AGE** – age of an improvement based on the improvement's CDU rating; effective age does not always equal actual age

**EQUALIZED ASSESSED VALUE (EAV)** — assessed value multiplied by any applicable equalization factor(s)

**FRAMING** – wood, steel, or concrete load-bearing skeleton of a structure.

**FRONT FOOT PRICE** – supposes that each foot of lot frontage is worth the same dollar amount; used to indicate lot value

**GRADE** – indicates plane of ground surface; also denotes established street and sidewalk planes

**IMPROVEMENT** – any structure attached to, lying upon or within the land that may not be removed without physical stress

**INCOME APPROACH** – value of income-producing property derived from the income which it is capable of producing

**IRV FORMULA** – formula for income approach to value  $\frac{I}{R \times V}$

**JOIST** – one of a series of parallel beams to support floor and ceiling loads, supported in turn by larger beams, girders, or bearing walls.

**LEGAL DESCRIPTION** – a description in words judged legally sufficient to locate and identify a parcel of land

**LEVEL OF ASSESSMENTS** – ratio of assessed value to sale price

**MARKET VALUE** – most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures

**MEDIAN** – middle value of a ranked group of numbers

**ON-CENTER (o.c.)** – center-to-center distance from one structural member to another; term used for spacing studs, steel columns, posts, joists, rafters, etc.

**OVERHANG** – upper level projection of a building; extends beyond the lower structure.

## II-A INTERMEDIATE RESIDENTIAL ASSESSMENT PRACTICES

**PROPERTY INDEX NUMBER (PIN)** — 14 numbers which reflect the geographical location, legal description, and special use of a parcel of land

**PROPERTY RECORD CARD (PRC)** — used to record individual property appraisals used for assessment

**QUALITY GRADE** – used to adjust schedules in the manual for differences in the quality of construction materials and workmanship

**REMAINING ECONOMIC LIFE (REL)** — period over which a prudent investor would reasonably expect to recapture his investment

$$\text{REL} = \frac{\text{Building Residual}}{\text{TRCN}}$$

**REPLACEMENT COST NEW (RCN)**— represents current cost of replacing an improvement; Manual RCN is the replacement cost new as calculated from the Illinois Real Property Appraisal Manual (IRPAM); True RCN is the replacement cost new after adjusting for the local market, including factors such as the cost, design, neighborhood, and appraiser factors.

### ROOF STYLES:

**GABLE ROOF** – a roof forming an inverted V.

**GAMBREL ROOF** – roof whose slope on each side is interrupted by an obtuse angle that forms two pitches on each side, the lower slope being steeper than the upper (red barn roof)

**HIPPED ROOF** – a pitched roof having sloping ends rather than gable ends

**MANSARD ROOF** – roof type with two slopes (pitches) on each of four sides; lower slopes are steeper than upper.

**SAWTOOTH ROOF** – a roof with a profile similar to the teeth in a saw composed of a series of single-pitch roofs, whose shorter or vertical side has windows for light and air.

**SALES COMPARISON APPROACH** – the value of properties can be reliably estimated by observing and analyzing the selling prices of comparable properties

**SHEATHING** – first covering of boards, plywood, or wallboard placed over exterior wall studding or roof rafters



## **II-A INTERMEDIATE RESIDENTIAL ASSESSMENT PRACTICES**

**STUD** – inner parallel vertical wood or steel framing of walls and partitions.

**TRUSS** – structural component composed of a combination of members, such as beams, bars and ties, usually arranged in triangular units to form a rigid framework for supporting loads over a span.

## II-B INTERMEDIATE COMMERCIAL ASSESSMENT PRACTICES

### GLOSSARY

**AD VALOREM** – according to value

**ALLOWABLE EXPENSES** – legitimate expenses that can be deducted from effective gross income in order to arrive at net income; for assessment purposes, depreciation, mortgage interest, and property taxes are not allowable expenses

**BEARING WALL** – wall that supports the floors, roof, or any vertical load in a building in addition to its own weight

**CAPITALIZATION** – process of converting net income of a property into an indication of its value

**COMPONENT-IN-PLACE** – used to cost out buildings by analyzing and pricing each component part of the building

**COMPARABLES** – recently sold properties that are similar in many aspects to a property being appraised

**CONSTRUCTION WEIGHT ADJUSTMENT** – adjustment used to factor construction weight variables on IRPAM schedule – necessary because the larger a building's frame size, the more expensive is its construction cost

**CUBIC FEET** – length x height x width

**DATA BANK** – composed of square feet, effective perimeter, cubic feet, square feet wall area, and wall ratio of a building

**EAVES** – lower edge of a roof, overhanging the side walls of a building.

**EAVE HEIGHT** – the height of a building from grade-level to the building's eave

**ECONOMIC LIFE** – estimated period over which it is anticipated that a property may profitably be used. The period over which property will yield a return on and of the investment, over and above the economic rent due to land. This period can never exceed the physical life of the property and generally is shorter than physical life or endurance

## II-B INTERMEDIATE COMMERCIAL ASSESSMENT PRACTICES

**EFFECTIVE GROSS INCOME** – potential gross income minus vacancy and credit

**EFFECTIVE PERIMETER** –the linear measurement around a building  
 $P = 2L + 2W$

**FRAME BAY** – the rectangle or square formed by support columns

**FRAMING** – wood, steel, or concrete load-bearing skeleton of a structure.

**GRADE** – indicates plane of ground surface; also denotes established street and sidewalk planes

**GROSS INCOME MULTIPLIER** – a unit of comparison in the market approach to value comparison; sales price divided by gross income

**LOAD-BEARING (L/B) WALL** – weight of wall and portion of floor/roof load are supported by the wall, remainder is supported by the interior framing

**MARKET VALUE** – most probable sale price of a property in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures

**NET INCOME** – effective gross income minus allowable expenses and reserves for replacement

**ON-CENTER (oc)** – center-to-center distance from one structural member to another; term used for spacing studs, steel columns, posts, joists, rafters, etc.

**OVERALL HEIGHT** – height of building from basement floor to eave

**PARTY WALL** – common wall shared by two buildings; party wall adjustment 60% (actual length of wall x 60%)

**POTENTIAL GROSS INCOME** – income that a property is capable of producing if 100% occupied based on market standards

## II-B INTERMEDIATE COMMERCIAL ASSESSMENT PRACTICES

**RECAPTURE RATE**– rate used to recover the cost of the improvement over the economic life of that improvement; the rate of return of an investment

**REMAINING ECONOMIC LIFE (REL)** — period over which a prudent investor would reasonably expect to recapture his investment

$$\text{REL} = \frac{\text{Building Residual}}{\text{TRCN}}$$

**REPLACEMENT COST NEW (RCN)**– represents current cost of replacing an improvement; Manual RCN is the replacement cost new as calculated from the Illinois Real Property Appraisal Manual (IRPAM); True RCN is the replacement cost new after adjusting for the local market, including factors such as the cost, design, neighborhood, and appraiser factors.

**RESERVES FOR REPLACEMENT** – replacement or repair cost of items (i.e. refrigerator, carpet, roof, etc.) pro-rated as an allowable expense to be deducted from effective gross income

**SHAPE ADJUSTMENT** – adjustment used to factor construction shape variables on IRPAM schedule; necessary to account for area/perimeter ratio variations

**SIZE ADJUSTMENT** – adjustment used to factor construction size variables on IRPAM schedule

**WALL HEIGHT ADJUSTMENT** – adjustment used to factor construction wall height variables on IRPAM schedule

## II-B INTERMEDIATE COMMERCIAL ASSESSMENT PRACTICES

### DATA BANK

$$\text{SFGA} = L \times W$$

$$\text{EP} = L + W + L + W$$

$$\text{CF} = \text{Sum of CF of each floor (SFFA} \times H)$$

$$\text{SFWA} = \text{Sum of SFWA of each floor (Perimeter} \times H)$$

$$\text{Wall Ratio} = \frac{\text{CF}}{\text{SFWA}}$$

## II-D INTERMEDIATE MATH FOR ASSESSORS

### GLOSSARY OF TERMS

**ABSTRACTION METHOD:** Uses sales of improved property to provide data to develop Land to Building (L:B) ratio. Sales Price - (RCN-Depreciation) = Site value L is always equal to 1. B will equal the Building Value divided by the Land Value.

**ALLOCATION METHOD:** Based on the Principle of Balance. A ratio of land value to building value (L:B) where the L always equals 1; the value of B will equal the BV divided by the LV.

**ANTICIPATED USE METHOD:** Used with land in transition such as agricultural to residential, commercial or industrial; called the Developer's Method. Estimate the Sale Price of all developed lots and subtract the estimated total cost of development. The difference represents the estimate of the value for the land in an undeveloped state.

**ASSESSED VALUE:** The value placed upon property after multiplying its market value by its level of assessment.

**CAPITALIZATION:** A mathematical process for converting the Net Operating Income into an indication of value. (determining the present value of future worth) Used in the Income Approach to Value. Formula used:

$$(I) \text{ Net Operating Income} \qquad \frac{I}{R \times V}$$

PGI	Potential Gross Income (100% capacity @ market or econ rent)
<u>- V&amp;C</u>	Vacancy & Collections Loss
EGI	Effective Gross Income
- Exp	Allowable Expenses
<u>- RR</u>	<u>Reserve for Replacement</u>
NI	Net Operating Income

**CAPITALIZATION RATE:** R in the IRV formula. Consists of the Discount and Effective Tax rates when calculating land income values; consists of the Discount, Effective Tax and Recapture rates when calculating building income values.

**Discount rate** - often called the return On the investment or mortgage

## II-D INTERMEDIATE MATH FOR ASSESSORS

interest rate. May be calculated by using the Band of Investment Method that provides a weighted rate.

**Effective Tax rate** – Ratio of taxes billed to market value. Determined by multiplying the level of assessment by the aggregate tax rate supported by that property; used to calculate property taxes by applying the effective tax rate to full market value.

**Recapture rate** - often called the return Of investment; rate needed to recover the investment during the remaining economic life (REL) of the building; using straight line depreciation, calculated by dividing 100 (amount of the investment) by the REL of the building

**COEFFICIENT OF DISPERSION (COD):** The most common method used in measuring assessment uniformity.

**CONTRIBUTORY VALUE:** Used in the valuing of farm buildings. Calculated by multiplying a farm building's RCN by its REL.

**COST FACTOR:** a factor used to adjust a manual's cost values to reflect the local cost of materials and labor. Once it is established, it is applied throughout the jurisdiction.  $(SP - LV = BV \quad \frac{BV}{MRCN} = \text{cost factor indicator})$

**DEPTH FACTOR:** Used to adjust the Front Foot value of a lot when the subject lot is at variance to the standard lot depth. Calculated by:  
 $\frac{\text{FF value of Subject Lot}}{\text{FF Value of the Standard Lot}}$  or determined by the use of Depth Tables

**EFFECTIVE AGE:** The age of an improvement based on that improvement's CDU rating. The typical Economic Life of a building – the Effective Age = the Remaining Economic Life of the building. The Typical Economic Life – the REL = the amount of accrued depreciation.

**EQUALIZATION FACTOR:** Applied to a property's assessed value. Calculated by dividing 33.33% by the prior (3-year average) median level of assessment.  
Often called a multiplier.

**EQUALIZED ASSESSED VALUE:** Assessed Value (AV) multiplied by

## II-D INTERMEDIATE MATH FOR ASSESSORS

equalization factor(s). Assessed values for farm land and farm buildings are also their EAV's.

Certified EAV's: Annual values that are certified by DOR to be applied to farm land PI's 60-130.

**FARM LAND ASSESSMENT:** Based on productivity and use.

Cropland - assessed at Full Certified EAV of corresponding adjusted PI.

Permanent Pasture - assessed at 1/3 of its EAV as cropland.

Other Farmland - assessed at 1/6 of its EAV as cropland.

Contributory Wasteland - assessed at 1/6 of the lowest certified EAV.

Non-Contributory Wasteland - carries a 0 assessment.

Farmland assessments not subject to state multipliers.

**FARM BUILDING ASSESSMENT:** Based on a modified cost approach.

( $RCN \times REL = CV$ ;  $CV \times 33 \frac{1}{3}\% = AV$ )

RCN - Calculated on a building of like utility (current use)

REL - Calculated by dividing the Remaining Physical Life (RPL) by the  
Typical Life Expectancy (existing structure)

CV - Contributory Value

Farm building assessments not subject to state multipliers.

**FRONT FOOT:** A strip of land one foot wide fronting a street, *etc.*, and running the entire depth of the lot. (Lot dimensions : 50' x 150' There are 50 FF.)

**FRONT FOOT VALUE:** Assumes that each foot of lot frontage is worth the same dollar amount.  $\text{Sales Price} \div \# \text{ FF} = \$/\text{FF value}$ . A unit of value that may be used when using the Market/Sales Comparison Approach.

**PRICE-RELATED DIFFERENTIAL:** Another method of measuring assessment uniformity; used to measure an indication of a tendency of assessment bias relating to the value of property.

**MEDIAN:** The middle value of a ranked set of numbers.

**METES AND BOUNDS:** Precise description of the boundary lines of a parcel of land. Not described by reference to a lot or block shown on a map, but described by starting at a known point and describing the bearings and



## II-D INTERMEDIATE MATH FOR ASSESSORS

distances of the lines forming the boundaries of the property.

**PRODUCTIVITY INDEX NUMBERS (SOIL PI):** A scale based on average level management used to determine the relative capacity of soils to produce crops.

Farmland is assessed based on a soil's PI, or adjusted PI, and its use.

**RCN: Replacement Cost New.** MRCN represents the Manual's Replacement Cost New; TRCN represents True RCN, which is the MRCN adjusted by a cost factor.

**REL: Remaining Economic Life.** May be thought of as the period of time over which a prudent investor would reasonably expect to recapture their investment.

$\%REL + \%DEP = 100\% MV;$

$REL \text{ (years)} + DEP \text{ (years)} = \text{Typical Economic Life.}$

**RESIDUAL:** Remaining value. Sales Price – Land Value = Building Residual or Building Value ( $SP - BV = LV$  or Land Residual).

**RPL: Remaining Physical Life.** Used in calculating the REL factor when assessing farm buildings. Found by subtracting the Actual Age or Effective Age from the Typical Life Expectancy of the existing structure.

**SALES RATIO STUDY** -- used to indicate the percentage relationship of assessed value to actual market value for real property in certain categories and in geographical areas.

**SLOPE & EROSION FACTORS:** Used to adjust a soil's PI number if slope, erosion or both exist.  $PI \# \times \text{factor} = \text{Adjusted PI.}$   $\text{Adjusted PI} \times \text{Certified EAV} = \text{Assessed Value.}$

**TRENDING FACTOR:** Used to adjust sale prices when combining existing sales of other years with the current year sales ratios. Found by dividing the least current year county's median level of assessment by the most current year county's median level of assessment.

**UNITS OF COMPARISON:** Used in the Sales Comparison Approach when establishing an appropriate measure of value. Front Foot (FF) and Square Foot (SF) values are typical units of comparison.

## II-D INTERMEDIATE MATH FOR ASSESSORS

**UNITS OF VALUE:** Found by dividing the Sales Price by the number of units.

$\frac{\$10,000}{1000 \text{ SF}} = \$10/\text{SF}$  The Median Value of the most consistent (least % of deviation) Unit of Comparison is used as an indicator of value.

**4-3-2-1- RULE:** Assumes that the front of a lot carries a proportionally higher value than the rear portion. The basis for deriving depth tables to be used when the Front Foot is the unit value.

**65-35 RULE:** Suggests that the utility of a lot is seriously affected by its shape, thus a loss in value. Applies to right-angle triangular shaped lots; if base is on the frontage, the lot has 65% of the value of a rectangular lot having the same frontage and depth, if the apex is located on the frontage, the lot has 35% of the value of a rectangular lot having the same frontage and depth.

## II-E INTRODUCTION TO EQUALIZATION

### GLOSSARY OF TERMS

**AD VALOREM** - According to value

**APPRAISAL** - An opinion of value, supported by evidence

**ARM'S LENGTH SALE** - A sale between two parties, neither of whom is related to or under abnormal pressure from the other

**ASSESSED VALUE** - The value placed on property for tax purposes and used as a basis for division of the tax burden. This amount is subject to the state issued equalization factor

**ASSESSMENT** - Official act of discovering, listing, appraising, and entering a value for property on the assessment rolls for ad valorem tax

**ASSESSMENT LEVEL** - The percentage of full value at which property is being assessed. This may refer to the statutory level (33 1/3%) or the actual level as inferred from a sales ratio study

**BOARD OF REVIEW** - An appeal agency in each county. Consists of 3 members; in commission counties - county commissioners or appointed by the county commissioners; in other counties members are appointed by the county board, or are elected

**CLASSIFICATION** - The practice of classifying various types of property according to use, and assigning different assessment levels to each class. Purpose is to tax various kinds of property at different effective tax rates though the nominal rate is the same.

**COEFFICIENT OF DISPERSION (COD)** - A statistical measure of variation of individual assessment ratios around the median level of assessments. (An average error expressed as a percent; an indicator of assessment uniformity found by dividing the average deviation by the median)

**CLASS WEIGHT** - Found by dividing the number of each class parcels by the total number of class parcels

**CLASS REASSESSMENT FACTOR** - The degree of change due to

## II-E INTRODUCTION TO EQUALIZATION

reassessment, found by dividing the current comparable class assessed value by the prior comparable class assessed value

**CLASS CONTRIBUTION** - The adjusted change factor, found by multiplying the class weight by the class reassessment factor

**EFFECTIVE TAX RATE** – Ratio of taxes billed to Market Value. Found by multiplying the level of assessment by the local current tax rate. Expressed as a percentage, applied to the full market value (if Level of assessments is 33.33% & local rate is 6%, Effective Tax Rate = 2%).

**EQUALIZATION** - The application of a uniform percent increase or decrease to assessed values of various areas or classes of property to bring assessment levels, on the average, to a uniform level of market value; the process of providing uniform average level of assessments between townships and/or counties

**EQUALIZATION FACTOR** - The factor applied to assessed valuation of each county that raises or lowers the level of assessments to the mandated level of  $33\frac{1}{3}\%$  of market value. Intra-county factors may be used by a county to bring all property to a uniform level. Factors are sometimes referred to as multipliers. (Not applied to farm land, buildings and coal rights)

**EQUALIZED ASSESSED VALUE** - Assessed value multiplied by an equalization factor. Can form Tax Base from which Tax Rate is calculated. For farm acreage, farm buildings, and coal rights, the final assessed value is the equalized value

**EXEMPTION** - Removal of property from the tax base. May be a partial (*e.g.* a homestead) or complete (*e.g.* a church building used exclusive for religious use)

**EXTENSION** - The process in which the county clerk determines the tax rate needed to raise the revenue (Levy) certified by each taxing district; the actual dollar amount billed to property taxpayers in the district

**GENERAL ASSESSMENT YEAR** - The assessment year that occurs every 4 years when all property assessments are reviewed

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**PRICE-RELATED DIFFERENTIAL (PRD)** - Used to measure a pattern of inequity in assessments related to the value of property

**LEVEL OF ASSESSMENTS** - Ratio of assessed value to the sale price

**LEVY** - The amount of money a taxing body certifies to be raised from the property tax to meet its operating expenses

**MARKET VALUE (Full Value)** - The most probable sale price estimated in terms of money in a competitive and open market, assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the transaction is not affected by undue pressures.

**MEDIAN** - Middle value of a ranked set of numbers

**OVERLAPPING TAXING DISTRICTS** - Taxing districts that are located in more than one county

**RANDOM SAMPLING** - An alternate method of determining a township reassessment factor

**SALES RATIO STUDY** - An analysis of the percentage relationship of assessed value to market value. Ratio equals prior year AV divided by the current year SP. Minimum of 25 useable sales/appraisals required

**STATE PROPERTY TAX APPEAL BOARD (PTAB)** - The highest state quasi-judicial body which hears appeals from taxpayers and taxing bodies on property tax assessment decisions by the county Board of Review

**TAXING BODY** - A governmental organization that levies a property tax

**TAXING DISTRICT** - A territorial area under the taxing body's jurisdiction

**TAX CODE** - A number used by the county clerk that refers to a specific combination of taxing bodies

**TAX BASE** - Composed of the Equalized Assessed Value (EAV) of locally assessed property, less all qualified exemptions, plus the value of any State assessed property

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**TAX RATE** - The amount of tax due stated in a percentage of the tax base. Derived by dividing the levy by the EAV. Some districts have a maximum statutory rate. The sum of the fund rates equals the total district rate

**TAX YEAR** - Refers to year of assessment. The tax year for 2007 refers to assessments based on January 1, 2007 values; taxes billed in the calendar year 2008.

**33 1/3%** - Means 33 1/3 % of the actual value of real property as determined by the Department Of Revenue's Assessment/Sales Ratio studies for the three years preceding the assessment year, adjusted to take into account the implementation of any changes in assessment levels since the data for such studies were calculated

**TOWNSHIP WEIGHTED REASSESSMENT FACTOR** - The sum of the class contributions. This is the percent adjustment that will be applied to the previous 3 years' assessed values. (Note: 1. If a township equalization factor has been applied and the difference between the two is less than 1%, the township equalization factor will be used instead of the township reassessment factor; 2. If the township reassessment factor is less than 1%, a factor of 1.000 will be used)

**WEIGHTED PARCEL REASSESSMENT**- Used in calculating a reassessment adjustment factor. Each class (Residential-Commercial-Industrial) has an influence on the final township reassessment factor in relation to the number of parcels in that class

**URBAN WEIGHTED METHOD** - Non-farm values; Used in determining a county's median level of assessment by dividing the county's total assessed value (AV) by the county's total Estimate of Full Value (EFV). This is the preferred method of calculating a county multiplier.