Course PT103

Valuation of Real Estate

Chapter 1 Intoduction – The Basics

- The purpose of this text is to introduce the three approaches to valuation of property for tax assessment purposes
 - Cost Approach
 - Market Approach
 - Income Approach

All three approaches lead to estimates of market value (also referred to as "current market value") for property within a municipality

The Maine Consititution requires a "general valuation" at least once every ten years. This requirement does not mean a municipality must contract with a valuation company to do a complete municipal revaluation, but an occasional revaluation can be a valuable tool for maintaining "just value" throughout a municipality. Highest and best use is the legally allowable use that will generate the highest return to the property over time.

- The highest and best use must meet the following 4 criteria
 - Physically possible & Probable
 - Legally permissible
 - Financially feasible
 - Most productive

- The goal of any valuation is to establish "Just Value". Just Value
 means Market Value.
 - The definition of market value as adopted by the Appraisal Institute and the International Association of Assessing Officers is as follows:

The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- A. Buyer and seller are typically motivated:
- B. Both parties are well informed or well advised and acting in what they consider their best interest;
- C. A reasonable time in allowed for exposure to the open market;
- D. Payment is made in terms of cash in U.S. dollars;
- E. And the price represents the normal consideration for the property sold unaffected by special or creative financing or sale concessions granted by anyone associated with the sale.

- Market Approach is the valuation method used most often employed by independent appraisers for purposes of determining value for one parcel of land and all buildings on in. Assessors use this approach to verify the cost approach to valuation by comparing a few comparable sales to the subject property.
- Income Approach to valuation creates an estimate of value based on future income potential of the property.
- Cost Approach to valuation is the primary method assessors use to arrive at and estimate of value for the purposes of mass appraisal.

The Four Great Forces

- Four general forces affect the market value of the property. These forces are called Physical, Economic, Governmental & Social (referred to as P.E.G.S) Each of these forces can affect the value of property either adversely or positively.
 - <u>Physical Forces;</u>
 - Topography
 - Lot Shape, Soil Conditions
 - Access to services (i.e., parks, stores, employment, schools, churches, transportation)
 - Econonic Forces:
 - Income trends
 - Lending policies and interest rates
 - Construction cost
 - Housing prices and rental rates
 - Availability of vacant land.

• Governmental Forces:

- Zoning
- Building Codes
- Municipal Services
- Taxes
- o <u>Social Forces:</u>
 - Population Trends, age distribution
 - Family Sized
 - Education Trends
 - Crime Rates

Economic Principals to Valuation

• The principle of **anticipation** says that market value is the present worth of all anticipated future benefits derived from the property. Those benefits must be either income or amenities. The assessor should not allow personal opinion to influence the determination of anticipated future benefits. This is difficult to determine because of the principle of change.

Economic Principles of Valuation Cont.

- The principle of <u>change</u> says that the market is never constant, because physical, economic, government, and social (PEGS) forces are always at work to change the property.
- The principle of **balance** says that market value is maximized when the four agents of production (land, labor, capital, and management) attain a state of equilibrium. When applied to a neighborhood, this means that the value of a property is at its peak when the neighborhood has all the services it needs. Value is reduced if there are too few or too many services in a neighborhood.
- The principle of <u>competition</u> says that competition is created when the potential for profit, or the existence of new amenities attracts new sellers and buyers to a market. An excess of one type of property will tend to decrease the value of other properties.
- The principle of **conformity** says that the more a property is in harmony with its surroundings, the greater the contributory value. Maximum market value is achieved when there is reasonable similarity among the improvements (houses and other additions to the land) in a neighborhood, and when the residents have similar ages, incomes, education, attitudes, etc.

Economic Principles of Valuation Cont.

- The principle of <u>consistent use</u> says that property must be valued with a single use for the entire property. Improvements to the land must be valued on the same basis. Improvements to the land must contribute to the land value to have any value themselves. It is improper to value a property on a basis of one use for the land and another use or uses for the improvements. For example, if a house is valued as residential property, the driveway should not be valued according to its worth as commercial property.
- The principle of <u>contribution</u> says that the value of one component of a property depends on its contribution to the whole. For example, a residential homeowner spends \$20,000 to erect a garage. If the market value of his property is only increased by \$15,000, then \$15,000 is the value contribution of the garage.
- The principle of <u>diminishing returns</u> says that additional investment in a property will increase the return up to a certain point, and then, beyond this point, the return on additional capital decreases. For example, adding a second bathroom to a house may cost \$10,000 and increase the value of the home by \$15,000, but adding a third bathroom, which would also cost \$10,000, may only increase the value of the home by \$2,000.

Economic Principles of Valuation Cont.

- The principle of **progression and regression** says that the value of lower priced properties may be increased by proximity to better properties of the same type. Likewise, a better quality property will decrease in value by proximity to lower quality properties in the same area.
- The principle of **substitution** says that the market value of a property tends to be set by the cost of acquiring an equally desirable and valuable substitute property. This principle is a fundamental driver of the three approaches to value (cost, market, and income).
- The principle of <u>supply and demand</u> says that the value of a property increases with increased demand and decreases with increased supply. Conversely, the value of a property decreases with decreased demand, such as with a recession and increases with a limitation on supply by, for example, a building moratorium.
- The principle of <u>surplus productivity</u> says the income attributable to land equals the income remaining after the costs of labor, capital, and management have been subtracted.

Chapter 2 Land Valuations

Land Valuation Methods

- The State of Maine requires assessors to determine and report land values separately from the value of improvements (building and other items affixed to the land)
 - Tax maps are the first tool used in valuation of land. Sales of land, supply the necessary underlying valuation data. Plotting land sales on maps helps visualize the array of values throughout the district.
 - Site inspections verifies the use of property and any improvements
 - Establishing a land pricing schedule helps establish equitable land values throughout the jurisdiction.

Depth Factors (DF)

 The adjusted front foot value of a parcel twice as deep as standard is ordinarily less than twice the standard front foot value. The front foot value of a parcel half as deep as standard is ordinarily more than half the standard value. As a result, the calculation of depth factors is usually not a straight correlation. The depth factor calculation used in this text is equal to the square root of the subject lot depth divided by the standard lot depth, or:

Depth Factor = $\sqrt{(parcel depth/standard depth)}$

Where "parcel depth" is the depth of the subject lot and "standard depth" is the depth of a standard lot. For example, the depth factor calculation for a lot that is 125 feet deep in a neighborhood where the standard lot depth is 100 feet is:

 $\mathsf{DF} = \sqrt{(125/100)} = \sqrt{1.25} = 1.12$

If the subject lot depth is equal to the standard depth, the depth factor will be 1.00.

Front Foot Valuation

This method establishes the value of one foot of frontage – usually on a road or a body of water – with a parcel depth equal to a standard size lot for the area. This value is called the front foot value or, sometimes, the unit front foot value.

Depth factors adjust the front foot value for differing parcel depths, so that one front foot of a parcel shallower than the standard depth is valued less than the standard amount. Conversely, one front foot of a parcel deeper than standard will be valued at more than the standard rate by applying a depth factor.

The value of a parcel is equal to the front foot value (FFV) multiplied by the depth factor (DF) multiplied by the number of feet of frontage (FF) for the property.

Value = FFV x DF x FF

Front foot valuation is best suited to properties of consistent size and shape, such as subdivisions or typical downtown lots.

Lot Valuation

To calculate the value of a parcel using the front foot value method, you must perform two steps:

determine or calculate the depth factor (DF); and
 calculate the parcel value.

To calculate the depth factor, use the depth factor equation from above.

DF = $\sqrt{\text{parcel depth/standard depth}}$

To calculate the parcel value, multiply the front foot value by the depth factor and the number of frontage (or front) feet for the parcel.

Parcel Value = (FFV x $\sqrt{\text{parcel depth/standard depth}}$) x FF = FFV x DF x FF

Valuation of Rectangular Parcels

To calculate the value of a rectangular parcel: Multiply the Front Foot Value by the Depth Factor, then Multiply the resulting adjusted Front Foot Value by the Front Feet of the parcel.

Front Feet (FF) X (Front Foot Value (FFV) X Depth Factor (DF) = Lot Value

Calculate the parcels below: Standard Depth = 220' FFV = \$350/ft



Valuation of Rear Rectangular Parcels

To calculate the value of a rear parcel, multiply the front foot value by the difference between the depth factors of the farthest and nearest distances of the parcel from the street, then multiply the resulting adjusted front foot value by the number of front feet in the parcel.



Standard Depth = 200' Front Foot Value = \$300

Valuation of Rear Rectangular Parcels Cont.



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Valuation of Triangular Parcels

The process of valuing Triangular Parcels is the same process as Rectangular Parcels with an additional step required. The application of the "Triangular Factor". This factor presumes that there is a loss of value inherent in triangular shaped parcels as compared with rectangular shaped parcels.

To calculate the value of a Triangular Lot with its' base on the street is a <u>"Delta</u> <u>Triangle".</u> First compute the value as a rectangular lot of identical frontage and depth. Than take <u>60%</u> of the resulting figure as the value attributable to the lot due to it shape. For a Triangular Lot whose Apex on the street is a <u>"Nable Triangle"</u> take <u>30%</u> of resulting figure as the value attributable to the lot due to its shape.

Fr. Ft. X Fr. Ft. Value X Depth Factor X Triangle Factor = Lot Value

Standard Depth = 125' Fr Ft. Value = \$350



Valuation of Triangles Cont.



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Valuation of Triangles Cont.

Calculate the value of each lot below (FFV \$450 Standard Depth – 200')



To calculate the value of a trapezoidal shaped parcels at right angles to the street. Multiply the Front Foot Value by the Depth Factor for the average depth of the parallel sides of the parcel. Multiply the resulting adjusted Front Foot Value by the Frontage of the parcel.



Standard Depth = 125ft Fr Ft Unit Price = \$200



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Compute the Average Depth, Depth Factor and Value of the Parcels



To value a trapezoid shaped parcel that is not at right angles to the street, <u>compute</u> <u>the Rectangular and Triangular portions of the parcel separately and take the</u> <u>some of the computations to find the total value.</u>



Triangle Front Feet = 210' - 125' = 85' **Depth Factor** = $125 \div 125 = 1 \sqrt{1.00}$

85' x (\$200 x 1.00 x .60) = \$10,200
 125' x (\$200 x 1.00) = \$25,000
 Total Parcel Value = \$35,200





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Valuation of Parallelogram Shaped Parcels

Common method to calculate the value of a Parallelogram shaped parcel at an oblique angle to the street is to <u>multiply the Front Foot Value by the</u> <u>Depth Factor for the Perpendicular Depth (effective depth) of the parcel.</u> <u>Then multiply the resulting adjusted Front Foot Value by the number of</u> <u>Front Feet in the parcel.</u>



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Depth Factor: $160' \div 150' = 1.07 \sqrt{1.03}$

Lot Value: 100' x (\$100 x 1.03) = **\$10,300**

Standard Depth = 150 ftFr Ft Unit Value = \$100 Valuation of Parallelogram Shaped Parcels



Valuation of Parallelogram Shaped Parcels



Depth Factor: $100' \div 150' = .67 \sqrt{.82}$

Lot Value: 245′ (\$250 x .82) = **\$50,225 or \$50,200**

Std. Depth = 150' FFV = \$250



Depth Factor: 200′ ÷ 100′ = 2.00 **√1.41**

Lot Value: 120′ (\$150 x 1.41) = **\$25,380 or \$25,400**

Std. Depth = 100' FFV = \$150

Valuation of Parcels with Frontage on Two Streets

Commonly known as through-lots, parcels with frontage on two streets are primarily found in business or commercial areas. This valuation is also applicable in those residential areas where the back frontage is adapted and adaptable for house lots of sufficient size and would comply with building and zoning codes and ordinances.

If the through lot is not of a sufficient depth to compute value on each street, the customary approach is to consider the applicable depth influence range in direct proportion to the unit front foot values of the front and back streets. The first step to determining the value is to find the merge line. The merge line is normally considered to divide a through-lot at a point where the value of a foot will be about the same whether figured on the high or low street unit value.

Valuation of Parcels with Frontage on Two Street Cont.

Steps to Determine the Merge Line:

- 1. Add the front foot values
- 2. Divide the total depth in feet by the total value of the streets
- 3. Multiply this figure by each front foot value separately

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Steps to Determine Merge Line:

\$400 + \$200 = \$600
 180' ÷ \$600 = .30
 \$200 x .30 = 60'
 \$400 x .30 = 120'

Valuing Lot Separately

Find Depth Factor for each lot Front Feet * Front Foot Value * Depth Factor = Lot Value

Lot 1: $120' \div 100 = 1.20 \sqrt{1.10}$

50' * (\$400 * 1.10) = **\$22,000 Lot Value**

Lot 2: $60' \div 100 = .60 \sqrt{.78}$

50' * (\$200 * .78) = \$7,800 Lot Value (Total Parcel Value \$29,800)

Find the merge line and calculate the Value of the following parcels.





1) \$250 + \$180 = \$4302) $150' \div $430 = .35$ 3) \$250 * .35 = 87' \$180 * .35 = 63'Lot 1: $87' \div 150' = .58 \sqrt{.76}$ 125' * (\$250 * .76) = \$23,750Lot 2: $63' \div 150' = .42 \sqrt{.65}$

Standard Depth - 150' Fr Ft Value - \$180

125' * (\$180 * .65) = \$14,625 (Total Parcel Value \$38,400 Rounded)



Find the merge line and calculate the Value of the following parcels.





- 2) $540' \div \$600 = .90$
- 3) \$350 * .90 = 315' \$250 * .90 = 225'

Lot 1: $315' \div 200' = 1.575 \sqrt{1.25}$

240' * (\$350 * 1.25) = **\$105,000**

Lot 2: $225' \div 150' = 1.50 \sqrt{1.22}$

240' * (\$250 * 1.22) = \$73,200 Total Parcel Value \$178,200 Rounded







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Price the lots below, using the methods you learned in previous lessons

Lot A: Triangle Front Feet = 165' - 100' = 65' Depth Factor = $125' \div 125' = 1.00 \sqrt{1.00}$ A) $100' \ast (\$200 \ast 1.00) = \$20,000$ B) $65' \ast (\$200 \ast 1.00 \ast .60) = \$7,800$ <u>Total Parcel Value \\$27,800</u>

Lot B: (B1) Depth Factor = $125' \div 125' = 1.00 \sqrt{1.00}$ Lot Value = 50' * (\$200 * 1.00) = \$10,000

Merge Line: 1) 40 + 200 = 240 2) $225' \div 240 = .94$ 3) $40 \cdot .94 = 37'$ & $200 \cdot .94 = 188'$ (B2): Depth Factor $188' \div 125' = 1.50 \sqrt{1.22}$ Lot Value $100' \cdot (200 \cdot 1.22) = 24,400$ (B3): Depth Factor $37' \div 100' = .37 \sqrt{.61}$ Lot Value $100' \cdot (40 \cdot .61) = 2,440$ <u>Total Parcel Value 36,840 or 36,800</u>

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Lot C: (C1) Depth Factor $100' \div 125' = .80 \sqrt{.89}$ Lot Value $50' \ast (\$200 \ast .89) = \$8,900$ Lot C: $120' + 100' = 220' \div 2 = 110'$ Depth Factor $110' \div 125' = .88 \sqrt{.94}$ Lot Value $100' \ast (\$200 \ast .94) = \$18,800$ Total Parcel Value \$27,700

Lot D: (D1) Triangle Front Feet = 150' - 100' = 50' Depth Factor = $100' \div 100' = 1.00 \sqrt{1.00}$ Lot Value $50' \ast (\$40 \ast 1.00 \ast .30) = \600 (D) $100' \ast (\$40 \ast 1.00) = \$4,000$ <u>Total Parcel Value \$4,600</u>

Lot E: Depth Factor 125' ÷ 100' = 1.25 √1.12 Lot Value 103' * (\$40 * 1.12) = \$4,614 Rounded \$4,600

Lot F: Depth Factor $130' \div 100' = 1.30 \sqrt{1.14}$ Lot Value 50' * (\$40 * 1.14) = \$2,280 Rounded \$2,300



"Main Street" Std. Depth 200' FFV \$375

Lot (A1): Depth Factor = $150' \div 200' = .75 \sqrt{.87}$ Lot Value = 90' * (\$375 * .87) = \$29,362

Lot (A2): Depth Factor = $180' \div 200' = .90 \sqrt{.95}$ Lot Value = $150' \ast (\$375 \ast .95) = \$53,437$

Merge Line: 1) \$250 + \$375 = \$625 2) 270' ÷ \$625 = .43 3) \$250 * .432 = 108' \$375 * .432 = 162'

Lot (A3): Depth Factor = $162' \div 200' = .81 \sqrt{.90}$ Lot Value = 140' * (\$375 * .90) = \$47, 250

Lot (A4): Depth Factor = $108' \div 125' = .86 \sqrt{.93}$ Lot Value = $140' \ast (\$250 \ast .93) = \$32,550$ Total Parcel Value Rounded



Main Screet Std. Depth 200 11 V \$575

Lot B1: Triangle Depth Factor = $170' \div 200' = .85 \sqrt{.92}$ Lot Value = $70' \ast (\$375 \ast .92 \ast .30) = \$7,245$

Lot B: $170' + 240' = 410' \div 2 = 205'$ Depth Factor = $205' \div 200' = 1.02 \sqrt{1.01}$ Lot Value = $170' \ast (\$375 \ast 1.01) = \$64,387$ <u>Total Parcel Value Rounded \$71,600</u>

Lot C: Depth Factor = $180' \div 125' = 1.44 \sqrt{1.20}$ Lot Value = $70' \ast (\$250 \ast 1.20) = \$21,000$

Lot D: $180' + 110' = 290' \div 2 = 145'$ Depth Factor = $145' \div 125' = 1.16 \sqrt{1.08}$ Lot Value = $170' \ast (\$250 \ast 1.08) = \$45,900$

Lot E: $90' + 180' = 270' \div 2 = 135'$ Depth Factor = $135' \div 125' = 1.08 \sqrt{1.04}$ Lot Value = $170' \ast (\$250 \ast 1.04) = \$44,200$

Lot F: $60' + 120' = 180' \div 2 = 90'$ Depth Factor = $90' \div 125' = .72 \sqrt{.85}$ Lot Value = $180' \ast (\$250 \ast .85) = \$38,250$

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