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A CONTEMPORARY APPROACH TO A REAL ESTATE APPRAISAL REPORT

Joint Seminar of the American Institute
and the Society of Real Estate Appraisers
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- I. A fundamental premise of real estate appraisal is the concept of highest and best use, a premise that views land as a commodity and potential uses for highest profit not necessarily the socially desirable uses.
 - A. The term highest and best use presumes the individual appraiser knows better than society what is best by implication although in fact it boils down to what is the most profitable use which is legal, in demand and within the suitability option of the physical site.
 - B. However, appraisal literature is showing considerable call for redefinition of highest and best use concepts. Consider such key items as:
 1. "Highest and Best Use," William Crouch, The Appraisal Journal, April 1966, pp. 166-176. (Appraiser must prove effective demand and reasonable probability of political permission to use the site.)
 2. "Highest and Best Use - Fact or Fancy," Paul Wendt, The Appraisal Journal, April 1972, pp. 165-174. (Wendt makes the case very well that the opinion of highest and best use must consider so many cash flow variables on an after tax basis that the conclusions must vary with investor type just as judgments and analytical skill must vary by appraiser.)
 3. "The Importance of the Highest & Best Use Analysis," Paul Tischler, The Real Estate Appraiser, May-June 1972. (Tischler argues that proposed use must not only consider highest income to owner but also external costs and economic costs and impact.)
 - C. On a little broader base, the Rockefeller Land Use Commission noted a growing public consensus that land use was central to both environmental balance and social equity and therefore subject to public control first and private development second.
 - D. The definition of fair market value assumes that the buyer is knowledgeable as to all the uses to which it may be put and yet today we are in transition from viewing land as a commodity to land as a public resource.
 1. But the law has always defined private options to use and benefit as those rights which are not preempted by the public since the constitution reserves:
 - a. First claim on productivity - the real estate tax
 - b. First prerogative on use decisions - the police power
 - c. Compensation in cash only for entrenched private rights - eminent domain
 2. Court cases in Wisconsin have held that the land owner does not have inherent right to develop marsh land to the damage of the general public by upsetting the natural environment...

... nothing this court has said or held in prior cases indicates that destroying the natural character of a swamp or a wetland so as to make that location available for human habitation is a reasonable use of that land when the new use, although of a more economical value to the owner, causes a harm to the general public. ... While loss of value is to be considered in determining whether a restriction is a constructive taking, value based upon changing character of the land at the expense of harm to public rights is not an essential factor or controlling. The Land belongs to the people... a little of it to those dead... some to those living... but most of it belongs to those yet to be born..." Just vs. Marinette, 56 Wis 2d 7.

3. Wisconsin courts have held that the owner and the appraiser have constructive notice of soils and suitability for septic tank since the Soil Conservation Service is available in the courthouse, same as the Register of Deeds.
- E. Recognition of the fact that profit maximization must be limited by concerns for physical environment and community priorities for land use has resulted in redefinition of the most basic concept in appraisal; i.e. highest and best use, in the authorized terminology handbook sponsored by the American Institute of Real Estate Appraisers and the Society of Real Estate Appraisers. Compare the 1971 definition with that for 1975:

Highest and best use concept -

"A valuation concept that can be applied to either the land or improvements. It normally is used to mean that use of a parcel of land (without regard to any improvements upon it) that will maximize the owner's wealth by being the most profitable use of the land. The concept of highest and best use can also be applied to a property which has some improvements upon it that have a remaining economic life. In this context, highest and best use can refer to that use of the existing improvements which is most profitable to the owner. It is possible to have two different highest and best uses for the same property: one for the land ignoring the improvements; and another that recognizes the presence of the improvements."

P. 57, Real Estate Appraisal Principles and Terminology, Second Edition, Society of Real Estate Appraisers 1971.

"Highest and Best Use: That reasonable and probable use that will support the highest present value, as defined, as of the effective date of the appraisal. Alternatively, that use, from among reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and which results in highest land value. The definition immediately above applies specifically to the highest and best use of land. It is to be recognized that in cases where a site has existing improvements on it, the highest and best use may very well be determined to

be different from the existing use. The existing use will continue, however, unless and until land value in its highest and best use exceeds the total value of the property in its existing use. Implied within these definitions is recognition of the contribution of that specific use to community environment or to community development goals in addition to wealth maximization of individual property owners. Also implied is that the determination of highest and best use results from the appraisers judgment and analytical skill, i.e., that the determined from analysis represents an opinion, not a fact to be found. In appraisal practice, the concept of highest and best use represents the premise upon which value is based. In the context of most probable selling price (market value) another appropriate term to reflect highest and best use would be most probable use. In the context of investment value an alternative term would be most profitable use." Real Estate Appraisal Terminology, Edited by Byrl H. Boyce, Ph.D. SRPA, Ballinger Publishing Co., Cambridge, Mass. 1975

- F. The purchase of a piece of real estate today involves the acceptance of a great many assumptions about the future. Those who take care to validate these assumptions in a period of transition as to public land use control tend to have the most successful investment.
1. Business decisions today make explicit recognition of their assumptions and the need to act under conditions of uncertainty.
 2. Business risk is the difference between assumptions about the future and realizations, the proforma budget and the end of the year income statement.
 3. Risk management is the control of variance between key assumptions and realizations.
 4. An appraisal is a set of assumptions about the future productivity of a property under conditions of uncertainty.
- G. The concept of highest and best use of land was a commodity concept which did not consider externalities adequately. It is being replaced by concepts of most fitting use and the concept of most probable use.
1. The most fitting use is that use which is the optimal reconciliation of effective consumer demand, the cost of production, and the fiscal and environmental impact on third parties.
 2. Reconciliation involves financial impact analysis on "who pays" and "who benefits" - thus the rash of debate on how to do impact studies.
 3. The most probable use will be something less than the most fitting use depending on topical constraints imposed by current political factors, the state of real estate technology, and short term solvency pressures on consumer, producer, or public agency.
 4. Most probable use means that an appraisal is first a feasibility study of alternative uses for a site in search of a user, an investor, and in need of public consent.
- H. No matter what the field, a decision model must be considered in light of how it fits the following constraints:
1. The question to be answered
 2. The facts available
 3. The theory
 4. Credibility with the decision maker
 5. Facility of the analyst
 6. Cost benefit ratio of method

II. Uncertainty, fixed point values, and central tendency.

- A. Definition of Market Value: "The highest price estimated in terms of money which a property will bring if exposed for sale in the open market, allowing a reasonable time to find a purchaser who buys with knowledge of all the uses to which it is adapted and for which it is capable of being used." The Appraisal of Real Estate, Sixth Edition, American Institute of Real Estate Appraisers, 155 E. Superior Street, Chicago, Illinois 60611, page 25.
1. Competitive market conditions
 2. An informed buyer and seller
 3. No undue pressure on either party
 4. "Rational" or prudent economic behavior by both buyer and seller
 5. A reasonable turnover period
 6. Payment consistent with the standards of behavior of the market
 7. Market Value looks at the transaction from the point of view of the buyer
- B. It should be noted that there is an equal balance between the uses to which it may be put and the viewpoint of the buyer. The element of uncertainty is carefully hedged by a statement of limiting conditions:
1. To hedge the appraisal conclusion with a variety of limiting conditions at a time when the variables for consideration are increasing, is to produce a value conclusion that is almost fictitious.
 2. Since the concept of limiting conditions must be used sparingly lest the appraiser support consistency rather than accuracy, better methods must be found to introduce some tolerance for the conditions of uncertainty which surround the appraisal estimate.
 3. Given all the variables, a more logical appraisal format is required, at the very least.
- C. There may be many questions a client wishes answered, decisions which are the purpose of the appraisal. The appraiser always avoids his clients problem by stating "the purpose of this appraisal is to determine fair market value," thereby redefining the clients problem to the one question the appraiser is prepared to answer.
1. Given all the different applications of an appraisal and the need to broaden the market for appraisal services a more flexible appraisal format is required.
 2. Given all the assumptions under conditions of uncertainty, there is great need to dimension the appraisal answer with the range of alternative transaction prices which might occur.
- D. Purpose is a critical issue - when appraising for the seller isn't it your function to predict the most probable sales price even if the market depends on dummies and doctors? On the other hand the mortgage lender may be more concerned with income value in terms of cash available to pay off the loan once the dummies have been burned and foreclosed.
- E. As a basic premise for reorganization, it can be assumed that the function of the appraisal report is to reflect the clients purposes for which he needs an appraisal:
1. For the mortgage lender, the issue is the liquidating value or probability of future cash returns being adequate to repay the loan, interest, and cost and the distribution of profit centers over time

- to maintain repayment incentive to the borrower.
 2. For the courts eminent domain or assessment appeal, the statement of function leads to the definition of value as the jurisdictional market value.
 3. A report for a would-be buyer or seller might lead to the definition of value as investment market value.
 4. For most cases the appraiser would seek to determine the most probable selling price.
- F. Investment market value is a term coined by Mack Hodges for the present value of future income receipts, considering a specific set of assumptions about the after tax cash flow of property and requires some general description of the investment standards and tax status of buyers interested in a specific type of property, specifically income-investment property.
- G. Investment value, which requires some detail about motivations of a probable or specific buyer, is a special case of the broader concept of "most probable sales price" (Vp). This approach makes the point conclusion explicitly a statement of the central tendency (mode, mean, or median) around which a transaction price is likely to fall. Thus it generally supplies a valuation as a range of prices within which a transaction would most likely occur, similar to but not necessarily a concept of statistical standard error.
- H. Most probable selling price is derivative of the theoretical work of Prof. Richard U. Ratcliff.
1. The quotable definition: "The most probable price is that selling price which is most likely to emerge from a transaction involving the subject property if it were to be exposed for sale in the current market for a reasonable time at terms of sale which are currently predominant for properties of the subject type."
 2. See his article "Is There a 'New School' of Appraisal Thought?", The Appraisal Journal, October 1975.
 3. For the full theory: Valuation for Real Estate Decisions, R. U. Ratcliff, available from Democrat Press, P.O. Box 984, Santa Cruz, California 95060.
- III. The logic of the approach not only makes economic sense but leads to a superior outline for writing and reading an appraisal report. It gives the appraiser more freedom to use whichever technique seem appropriate but deny the appraiser the escape of convenient limiting assumptions and of the perfect market-prudent investor fictions of classic appraisal.
- A. The purpose of the appraisal (assessment, mortgage loan, insurance, etc.) leads to a selection of a value definition.
 - B. Detailed analysis of the property lead to a statement about most probable productive use.
 - C. Most probable use leads to inference about the most probably buyer-type, his motivation, and economic logic.
 - D. Comparability becomes a matter of analyzing a buyer-type rather than only a physical piece of nearby real estate. Buyer-type leads to a choice of valuation for appraisal method. In Ratcliff the basic approaches are:

1. Preferred method is to infer buyer behavior from actual market transactions.
 2. In the absence of adequate market data, the method requires simulation of probably buyer investment analysis or enterprise budgeting.
 3. Note that one or more of the three approaches may be used or some other technique may be utilized. For the next two days we are going to be looking at ways of analyzing productivity, or simulating investment productivity of agricultural property.
 4. Buyer type may be a class of buyers, the property owner next door, or a particular investor with a strong preference for property attributes identified. Past market actions can provide evidence that buyers are not fully informed and that prices are being set by ignorance but it is still probable price.
- E. The relationship of the report format to the choice of methods can be better understood by moving through a report outline provided in Exhibit 1.
1. It is useful to note that this general appraisal report form is very similar to that of a feasibility analysis of a specific site. An appraisal is a special case of the feasibility problem of a site in search of a use which has a market and a customer.
 2. The report provides equal balance between the physical attributes of the site and the investment assumptions of typical buyers.
 3. It forces the appraiser to be explicit about what he means in terms of property management, farm management, tree management, recreational property management or whatever. It requires the appraiser to have some professional ability to identify a program for utilization of the land.

Exhibit 3

Vacant Land Market Comparison
Multi-Family Residential Use Land Price
Mean & Standard Deviation

	Comparable	Land Price/ Comparable Unit	$\bar{X}-X$	$(\bar{X}-X)^2$	Mean Deviation $MD = \frac{\sum \bar{X}-X}{n-1}$	Standard Deviation $S = \sqrt{\frac{\sum (\bar{X}-X)^2}{n-1}}$
Land Price Per:						
Sq. Ft. of Land (Row #1, Ex. #6)	1	\$6.50	.44	.19		
	2	6.06	0	0	$\frac{.92}{4}$	$\sqrt{\frac{.44}{4}}$
	3	5.60	.46	.21		
	4	6.06	0	0		
	5	6.08	.02	.04	\$.23	\$.33
Total		<u>\$30.30</u>	<u>.92</u>	<u>.44</u>		
Mean ($\frac{\sum x_i's}{n}$)		\$ 6.06				
No. of DU Built						
(Row #2, Ex. #6)	1	1976	53	2809		
	2	2000	29	841	$\frac{433}{4}$	$\sqrt{\frac{62341}{4}}$
	3	2020	9	81		
	4	2192	163	26569		
	5	2208	179	32041	\$108	\$249.68
Total		<u>\$10396</u>	<u>433</u>	<u>62341</u>		
Mean		\$ 2079				
Total Gross Bldg. Area Built						
	1	4.23	.15	.02		
	2	3.79	.29	.08	$\frac{1.87}{4}$	$\sqrt{\frac{.92}{4}}$
	3	3.79	.29	.08		
	4	3.72	.36	.13		
	5	4.86	.78	.61	\$.465	\$.48
Total		<u>\$20.39</u>	<u>1.87</u>	<u>.92</u>		
Mean		\$ 4.08				
Total No. Rooms Built						
(Row #3, Ex. #6)	1	1297	9	81		
	2	1263	25	625	$\frac{172}{4}$	$\sqrt{\frac{7440}{4}}$
	3	1327	39	1521		
	4	1226	62	3844		
	5	1325	37	1369	\$43	\$43.13
Total		<u>\$6438</u>	<u>172</u>	<u>7440</u>		
Mean		\$1288				

EXHIBIT #5

Industrial Land Sales Selected as Comparables
to MG & E Subject Parcel

	Date of Sale	Price	Public Record	Square Feet	(Acres)	\$/Sq. Ft.
1. MATC	6/8/67	\$108,750	Confirmed by MATC Finance Director	152,460	(3.5)	.71
2. MATC	1/23/67	75,000	Vol. 828, p. 280	81,828	(1.88)	.92
3. Gorman	12/20/65	17,500	Vol. 436, p. 463	21,060	(.48)	.83
4. Holfman	6/5/64	15,000	Vol. 779, p. 558	17,050	(.39)	.88
5. Garrett	5/31/63	12,000	Vol. 758, p. 226	13,932	(.32)	.86
6. Madison Transit	1/4/68	55,000	Vol. 4, p. 358	211,701	(4.86)	.26
7. Madison Trust	12/28/66	45,000	Vol. 828, p. 204	67,900	(1.56)	.66
8. NW Mutual	9/9/66	117,500	Vol. 824, p. 144	138,521	(3.18)	.85

EXHIBIT #8

Least Squares Regression

Model $Y = a - b X$
 where $Y =$ estimated land value per square foot
 $X =$ weighted quality ratings

Comparables	Y	X	y ²	x ²	XY
1	.71	340	.504	115600	241.400
2	.92	380	.846	114400	349.600
3	.83	380	.689	114400	315.400
4	.88	380	.774	114400	334.400
5	.86	385	.740	148225	331.100
6	.26	235	.068	55225	61.100
7	.66	350	.436	122500	231.000
8	.85	365	.723	133225	310.250
	$\Sigma=5.97$	$\Sigma=2815$	$\Sigma=4.779$	$\Sigma=1007975$	$\Sigma=2174.25$

Step 2: Compute mean of Y and mean of X

$$\bar{Y} = \frac{\Sigma Y}{n} = \frac{5.97}{8} = .746$$

$$\bar{X} = \frac{2815}{8} = 351.875$$

Step 3: Compute Σy^2 , Σx^2 and Σxy

$$\begin{aligned} \Sigma y^2 &= \Sigma Y^2 - n(\bar{Y})^2 \\ &= 4.779 - 8(.746)^2 \\ &= 4.779 - 8(.557) \\ &= 4.779 - 4.452 \\ &= .327 \end{aligned}$$

$$\begin{aligned} \Sigma x^2 &= \Sigma X^2 - n(\bar{X})^2 \\ &= 1007975 - 8(351.875)^2 \\ &= 17446.873 \end{aligned}$$

$$\begin{aligned} \Sigma xy &= \Sigma XY - n\bar{X}\bar{Y} \\ &= 2174.25 - 8(.746)(351.875) \\ &= 2174.25 - 2099.99 \\ &= 74.26 \end{aligned}$$

Step 4: $b = \frac{\Sigma xy}{\Sigma x^2} = \frac{74.26}{17446.873} = .004256$

EXHIBIT #8 continued

$$\begin{aligned} \text{Step 5: } a &= \bar{Y} - b\bar{X} \\ &= .746 - .004256 (351.875) \\ &= -.7517 \end{aligned}$$

$$\begin{aligned} \text{Hence } Y &= -.7517 + .004256 (X) \\ Y_n &= -.7517 + .004256 (310) \\ &= .56765 \text{ say } .57 \end{aligned}$$

Step 6: Compute standard error

$$\begin{aligned} S_{y.x} &= \sqrt{\frac{\sum y^2 - b \sum xy}{n-2}} \\ &= \sqrt{\frac{1327 - .004256 (74.26)}{8-2}} \\ &= \sqrt{\frac{.10949}{6}} \\ &= \sqrt{.001825} \\ &= .042719 \text{ say } \$.04 \end{aligned}$$

Step 7: Compute r^2

$$\begin{aligned} r^2 &= \frac{\sum xy}{\sum x^2 \sum y^2} \\ &= \frac{74.26}{(17446.873) (.327)} \\ &= .9665 \end{aligned}$$

EXHIBIT #7

Quality Scores & Weight Per Category

1. Size (Marketability Factor)	<u>Weight</u>
0 - 1 acre = 5	20
over 1 - 3 = 4	
over 3.5 - 10 = 3	
over 10 - 20 acre = 2	
over 20 acre = 1	
2. Accessibility to all areas (in terms of distance and time) 1-5 where 5 = premium + 3 = average	20
3. Visibility from major artery 1-5	15
4. Availability of sewer/water at site 1-5	15
5. Availability of rail 1-5	10
6. Soils and topography	<u>20</u>
	100%

Exhibit 16

Table of Scores for Comparable Properties

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>Subject</u>
Size	3	4	5	5	5	3	4	4	1
Access	4	4	4	4	4	2	3	3	4
Visibility	5	5	5	5	4	1	1	2	5
Sewer/water	5	5	5	5	5	2	5	5	5
Rail	1	1	1	1	3	1	2	2	4
Soils	2	3	2	2	2	4	5	5	1

<u>Feature</u>	<u>Weight</u>	<u>Weighted Ratings</u>								<u>Subj</u>
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	
Size	20	60	80	100	100	100	60	80	80	20
Access	20	80	80	80	80	80	40	60	60	80
Visibility	15	75	75	75	75	60	15	15	30	75
Sewer/water	15	75	75	75	75	75	30	75	75	75
Rail	10	10	10	10	10	30	10	20	100	40
Soils	20	40	60	40	40	40	80	100	100	20
Total		340	380	380	380	385	235	350	365	310
Price/Sq. Ft.		.71	.92	.83	.88	.86	.26	.66	.85	