JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS
II.   CLASSES AT THE UNIVERSITY OF WISCONSIN--MADISON
    M.   Business 856: Advanced Appraisal Theory and Practice
       3.   Selected Lecture and Discussion Notes

Fall 1980

I. General administrative comments:

    A. Room 203 - graduate ready room - Friday afternoon cleanup; we are
        seeking lockers and money for a computer port; we need several
        volunteer monitors to make sure door is locked and police bulletin
        boards, etc.

    B. UW Real Estate Club book sales are limited to publishers from which
        we gain significant discounts; mimeographs were formerly favorably
        priced in the School of Business but it may be in the future they
        will have to be done outside of the school by one of the copy services.

    C. The bulletin board in my office will serve as a placement board but
        if someone wants to take responsibility to make copies we can duplicate
        that board in 203.

    D. In 856 we will try to avoid Friday classes exept where I need to make
        up for a missing lecture or two. Fran Larson will therefore meet
        on the following day: (refer to syllabus).

    E. The building which will be our case study for this semester is the
        Commercial State Bank Building - now the Marine Commercial Bank Building
        on the corner of State, Mifflin, and Carroll Streets. We have an
        appointment for 10:00 A.M. on Tuesday, September 9 to inspect the
        premises and take pictures.

        1. Is anybody a cameraman in black and white?
        2. We will prepare one set of negatives and provide everybody
            one set of black and white prints.
        3. We will obtain a copy of blueprints which will be made available
            in Room 203.

II. Upon purchase of your reading materials very carefully check off each
     item on your syllabus. If you have any item that you are missing now
     is the time to make it known because you will be held accountable in
     exams for having read all assignments.

III. In the past the heavy work load in 856 have led students to take incomepletes
     for indefinite periods of time which have become ridiculous. Therefore
     all work in 856 must be completed by the end of registration week for
     the second semester or the grade for the uncompleted work will be 0!
     Late first drafts will be panalized one full grade.

IV. Each of the four writing exercises must be done on time and will be graded.
     Failure to do so will be penalized by ½ grade deduction on your final
     semester grade.

     1. Office hours will be Monday and Wednesday morning from 8:30 to 12:00
         unless I have a 550 lecture.
     2. Copies of the Wendt text are limited and includes my personal copy
     3. We will hold the 201 exam either at the end of this semester or
         registration week the second semester; while you receive credit
         automatically for it with an MS degree, you must take the exam if
         you want to transfer credit to the MAI.

Exhibit 2

Critical Issues That Define Appraisal Process

Function of the Appraisal	Property Rights	Relevant Definition of Value	Allocation of Productivity	Buyer Motivation Presumed
Tax assessment	Fee simple private rights unencumbered	Cash market present value (As opposed to) most probable selling price)	Present value income attributable to land and structures only	Purchase of economic productivity
Mortgage loan (nonparticipating)	Encumbered fee simple private rights plus additional rights pledged	Regulations - market value Underwriting - solvency price or liquidating value	Fixed income pledged from all sources less costs of creative management	Share of economic productivity contributed by capital
Mortgage loan (participatory)	Encumbered title plus nonvested interest in selected future revenues	Present value of all future cash flows	Variable income pledged plus share of reversionary interest	Share of economic productivity contributed by capital plus share in selected management returns plus positioning against devaluation due to changing conditions
Sale of an investment	Encumbered title plus vested entitlements plus going concern profit center opportunities	Most probable price above minimum acceptable alternative opportunity	Returns from land, structures, personalty, and selected entitlements	Increase in spendable cash Increase in liquidity value of estate Positioning to maximize probability of survival of benefits despite changing conditions
Purchase of investments	Encumbered title plus positioning for access to entitlements	Most probable price within perceived peril point limit	Land, structure, personalty, and intangible assets less profit centers for management	Increase in spendable cash Increase in liquidity value of estate Positioning to maximize probability of survival of benefits despite changing conditions
Going concern purchase of a business	Encumbered title plus positioning for access to entitlements plus reduction in risk for business start-up plus control of monopolistic market position controls	Most probable sales price within perceived costs of creating an alternative	Land, structure, personalty, and intangible assets and good will plus artifactual profit centers for management	Increase in spendable cash Increase in liquidity value of estate Positioning to maximize probability of survival of benefits despite changing conditions

COMPARISON OF CRITICAL VALUATION ASSUMPTIONS FOR THREE PRESENT VALUE VIEWPOINTS IN REAL ESTATE

Prepared for Discussion at Feasibility Seminar
St. Petersburg, Florida
by Professor James A. Graaskamp
January 10, 1973

Traditional Income Appraisal

1. Instant investment

2. Productivity limited to net income from parcel before debt and income tax.

3. Continuous income function

4. Recapture from income

5. Projected for full useful life of improvements

6. Arbitrary discount factor

Ellwood Valuation

1. Instant investment

2. Productivity limited to parcel after debt but before income tax.

3. Continuous income function

4. Recapture from income & resale

5. Projected for normal turnover period 5-10 years of typical investor

6. Weighted average Inwood discounting

Modern Capital Theory

1. Discontinuous series of outlays

2. Productivity is net change in spendable cash from all sources after debt and income tax traced to real estate.

3. Discontinuous series of tax classified receipts

4. Payback of equity from spendable cash and debt from net revenue & resale.

5. Projected for elapsed time of outlays and receipts for specific investor time line horizon.

6. Selected present value discounting based on characteristics of investor and property revenue pattern

- 13 -

First Page Is Missing

3. At Wisconsin we use two concepts, one representing the ideal
   solution and one representing the most practical current solution.

   a. 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. Reconciliation involves financial impact
      analysis on "who pays" and "who benefits" - thus the rash
      of debate on how to do impact studies.

   b. 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. In short, the appraiser must demonstrate
      reasonable fit to land use controls, community politics,
      technical design constraints, effective demand, and viable
      cash flows for the project.

B. The term "most probable price" avoids the arrogance of "highest and
   best use" as well as the implication of absolute certainty as to
   the appraisal conclusion. Moreover it recognizes that pure economic
   logic for the property owner will be limited by the impact on
   community as perceived by land use administrators and the impact
   on investment risk as perceived by potential investors in the market.

   1. An appraisal is first a feasibility of a site in search of a use;

   2. Alternative uses suggest alternative tenants and/or buyers

   3. Appraisal must forecast what the most probable buyer will pay
      to benefit from the most probable use

C. Most probable use immediately reduces the market to a particular
   segment of space users and suggests both the tenancy and the investor
   group who will be interested.

   1. Proper market segmentation of possible tenants determines the
      degree of monopoly pricing and stabilized revenues which the
      project may enjoy.

   2. Proper segmentation of the most probable buyer leads to selection
      of relevant comparables or in the absence of sales data, relevant
      assumptions on how the most probable buyer might behave in pricing
      the property.

D. Feasibility is a non-financial concept of fitting a real estate
   solution and service package to a context of public priorities
   and customer needs.

   1. The project must fit the general market, a specific
      consumer group, the environmental limits of the land, the
      nature of existing usable improvements, legal and political
      controls imposed by the public, the need for compatibility
      with the total and natural man-made environment, and the limits
      of physical design construction.

2. Financial viability relates to the reasonableness of a set of financial assumptions which may be bought by a knowledgeable investor, relating proforma estimates of the future to justified investment parameters.

3. Investment risk is the variance between assumptions and future realizations and the sensitivity of success or failure to certain key factors which cannot be confirmed as fact by the appraiser as generalist or by the appraiser who is not clairvoyant.

4. The most probable use is one which will fit basic constraints and provide financial viability with a tolerance for surprise (risk) that is acceptable to investors of a certain type.

E. An Appraisal is a forecast of productivity of a property relative to the needs of a certain buyer group and a prediction of the price at which it would sell to the most probable buyer.

1. Anticipation of an economic behavior by the buyer leads to the highest price he would be willing to pay.

2. Anticipation of the behavior of the seller leads to an estimate of the least he would be willing to accept.

3. Analysis of the influence of outside factors affecting price surply and demand leads to an estimate central tendency between buyer and seller maximum.

4. The upper and lower ranges specify a transaction zone within which a most probable price will occur. The most probable sales price does not need to be at the center of the zone nor do the alternatives need to follow a normal distribution curve. The zone and the distribution most typically are statements of verbal probability.

F. An appriasal is therefore a feasibility study of alternative courses of action and these alternatives are matched to the most probable user/investment group to be seeking such a property opportunity at that time.

The appraisal process as a feasibility study lends itself to the following logical process;

1. What is the problem for which the appraisal is to serve as a benchmark?

2. Which definition of value would best serve the decision process?

3. What does an inventory of site attributes reveal as to the positive and negative contributions of the site to alternative uses?

4. What does an inventory of improvement attributes existing on the site reveal as to the positive and negative contributions of the improvements to alternative uses?

5. What basic alternative use programs or scenarios may be considered as plausible alternatives motivating buyers as of the date of the appraisal?

6. Which alternative use appears to be the most probable use when screened by external factors including effective market demand, political controls, forecasting risk, and potential profitability as percieved by investor/buyers.

7. What is the profile of the most probable buyer/investor for the most probable use to the degree that the profile can define the search for comparable transactions?

8. Could the appraiser simulate the purchase guidelines of a most probable buyer group. if there were no sales which were thought to be comparable and appropriate to the subject situation?

9. What is the value to be justified by the appraiser using normative, traditional measures of what a buyer should do, such as the cost approach or conventional income approach?

II. Property analysis to determine alternative uses.

A. Elements of analysis are approached as an inductive research problem moving progressively from on-site facts to external conditions. The appraiser needs to examine the following elements in sequence:

1. Physical attributes of site and improvement.

2. Legal-political constraints on alternative uses.

3. Basic financial parameters of alternative uses.

4. Existence of effective market demand for remaining alternatives.

5. Comparative risk and return evaluation of alternatives for which there may be demand.

B, A physical analysis of inventory of site and improvement attributes should include the five following subsets:

1. Physical attributes (static) include site dimensions, soils, geology, topography, site improvements and capacity, and on-site flora and fauna.

2. Legal/political attributes including not only zoning and subdividing codes at the local level but also relevent federal, state, or private controls which might direct or restrict site use. As appropriate, the appraiser should note administrative patterns relevant to use of subject site.

3. Linkage attributes identify relationships of site to networks, populations or activities centers that might generate potential demand for the subject property.

4. Dynamic attributes are those attributes which exist in the mind of others in terms of status, anxiety, beauty, imagery, sentimentality or other perceptions which attach to the subject property to the degree that these are economically significant.

5. Environmental attributes of the site relative to off-site natural systems of which the subject property may be a part such as riparian rights, pollution down wind, storm water runoff, etc. Even the shadow cast by the structure off-site may become significant in the era of solar energy. Impacts on others may be perceptual (i.e. dynamic) or fiscal (legal/political) as well.

C. Static site attributes which begin to narrow the potential market to alternative uses should include both the facts and their implications for productive use in such topic areas as:

1. Size, shape, and lot area

2. Topography, soils, geology, slope stability, and potential for subsidance, etc.

3. Water table, wells, streams, ponds, storm water swales, shoreland edges, and bulkhead lines, floor plains designations, etc.

4. Environmental attributes of flora and fauna which might cause environmental impact litigation

5. Concealed utility easements, old foundations, etc.

6. Existing utility services and capacity

7. Access points to public thoroughfares or private right-of-ways

8. Site improvements such as paving, retaining walls, pedestrian paths, culverts, etc.

9. Landmark attributes or historical site features

D. An inventory of legal attributes should move from specific site controls imposed by local zoning ordinances to state and federal regulations as well as private controls which may intervene. The appraiser has an obligation to report foreseeable attitudes or future legislation which will affect administration of these ordinances relative to future uses of the site.

1. All alternative setback lines and building envelope interpretations relative to site

EFFECT OF FEDERAL INCOME TAX REGULATIONS ON HISTORICAL RESTORATION & RENOVATION

	PRE - 1976	1976 - 1978 TAX REFORM ACT OF 1976	1978 - 1981 REVENUE ACT OF 1978	POST - 1981 ECONOMIC RECOVERY TAX ACT OF 1981*
A. CERTIFICA- TION	NO EFFECT: Certification exist- ed, but was not advantageous in terms of tax treatment.	ADVANTAGEOUS: Must Meet One of Three Criteria: 1. It must be listed on the National Register of Historic Places. 2. It must be recognized as being of architectural or historic significance to a National Register Historic District. 3. It must be recognized as being of architectural or historic significance to a state or local historic district that has been certified by the Secretary of the Interior.		
B. RENOVATION (upgrading of building systems to extend the life of the exist- ing build- ing)	DETRIMENTAL: Discouraged build- ing upgrading through non- favorable tax depreciation provisions: -protracted useful life period. -unattractive depreciation schedule options. -land and building value allocation.	ADVANTAGEOUS: Substantial reha- bilitation encouraged by 150% depreciable schedule for com- mercial property and 200% de- preciable schedule for income- producing residential property.	ADVANTAGEOUS: Similar provisions to Tax Reform Act of 1976 with a 10% Investment Tax Credit(ITC)for new capital additions related to rehabilitation of commercial properties only.	ADVANTAGEOUS: The developer may qualify for a 25% Investment Tax Credit for substantially rehabil- itating a certified historic structure. Straight line capital recovery must be claimed over a period of 15, 30, or 45 years. Premature disposal of building may result in recapture of ex- cess depreciation.
C. RESTORA- TION (re- habilitation of a build- ing to its original con- dition in material, workmanship, and detail)	DETRIMENTAL: Discouraged pre- servation through unfavorable tax depreciation provisions: -protracted useful life period. -unattractive depreciation schedule options. -land and building value allocation.	MIXED EFFECT: Restoration costs for income producing residential and commercial properties may qualify for 60 month amorti- zation. Depreciation claimed under the 60 month schedule subject to ordinary tax rate at the time of sale.	MIXED EFFECT: 60 month depre- ciation schedule kept intact. Accelerated depreciation tax- ed at the ordinary income tax rate for deductions in excess of the straight line deprecia- tion claimed during the same period.	MIXED EFFECT: Same as Revenue Act of 1978. Investment Tax Credit of 25% encourages rehabilitation of currently "non competitive" prop- erties. This reduction of the depreciable basis by one-half the amount of the ITC reduces the development incentives avail- able in 1982 but still offers substantial advantages.
D. NON-HISTORIC OLDER BUILD- INGS (up- grading and replacement of building systems)	DETRIMENTAL: Discouraged renovation through unfavor- able tax depreciation provisions: -protracted useful life period. -unattractive depreciation schedule options. -land and building value allocation.	DETRIMENTAL: Discouraged renovation through unfavor- able tax depreciation provisions: -protracted useful life period. -unattractive depreciation schedule options. -land and building value allocation.	ADVANTAGEOUS: Developer may qualify for a 10% Investment Tax Credit for a qualified rehabilitation. No certi- fication of rehabilitation work is necessary. Restric- tions include: 1. Commercial property only. 2. Structure must be at least 20 years old. 3. 75% of external walls remain.	ADVANTAGEOUS: Two additional categories of commercial reno- vation are now eligible for Investment Tax Credit(ITC): 1. 15% Investment Tax Credit if building is 30-40 years old. 2. 20% Investment Tax Credit if building is 40+ years old. Investment tax credit is deducted from building's initial depreciable basis and thus reduces future annual capital recovery deductions.
E. DEMOLITION	DETRIMENTAL: Encouraged destruc- tion of building through tax ad- vantages of crediting the re- maining taxable basis and demolition cost to the next year's depreciation deduc- tion.	ADVANTAGEOUS: Demolition costs and undepreciated basis of de- stroyed building added to the value of the land. If the build- ing was certified, any new build- ing must be straight line depre- ciation for the next 30 years.	ADVANTAGEOUS: Similar to Tax Reform Act of 1976. To avoid demolition penalties, a build- ing within a historic district must be certified as "non- historic."	MIXED EFFECT: Similar provisions to Revenue Act of 1978 with ac- celerated capital recovery for new structures replacing demol- ished historical buildings allowed.

*Note: Amended by the Tax Equity and Fiscal Responsibility Act of 1982.

HISTORICAL PRESERVATION ASPECTS OF
THE ECONOMIC RECOVERY TAX ACT OF 1981

A. Objective of the New Tax Law

　　1. Increase the quantity and quality of preservation.

　　　　a. Encourage developers, landlords, merchants and investors to consider preservation as a development option.

　　　　b. Encourage rehabilitation that protects and emphasizes the building's historic character.

　　2. Stimulate private investment in rehabilitated properties and encourage economic revitalization of historical districts.

　　　　a. Revitalize older localities.

　　　　b. Prevent further deterioration of distressed economic areas.

B. Historic Building Qualifications

　　1. May be certified by the Secretary of the Interior as historic if it is listed in the National Register of Historic Places.

　　2. May be certified if it is located in a registered historic district and the Secretary certifies that the building is of historic significance to the district.

　　3. May be certified if it is recognized as being of architectural or historic significance to a state or local historical district that has been certified by the Secretary of the Interior.

C. Rehabilitation Qualifications:

　　1. The building has been substantially rehabilitated if the rehabilitation expenditures exceed the greater of either the taxpayer's adjusted basis in the property or $5,000 within a 24-month period.

　　2. The building was in use prior to the beginning of rehabilitation.

　　3. 75% of the existing external walls have been retained.

D. Income Tax Credit Eligibility

　　1. The owner of a non-historic commercial building older than 30 years, when expenditures are incurred for qualified rehabilitation.

　　2. The owner of a rehabilitated historic building leased and used by a tax exempt organization or governmental unit.

　　3. A leasee of a building with qualified rehabilitation expenditures incurred by the leasee if, on the date the rehabilitation is completed, the remaining term of the lease is at least 15 years.

E. Investment Tax Credit for Qualified Rehabilitation
    (a direct deduction of taxes due equivalent to amount of investment
    tax credit)

    1. 15% of the rehabilitation costs for structures at least 30 years old.

    2. 20% of the rehabilitation costs for structures at least 40 years old.

    3. 25% of the rehabilitation costs for certified historic structures.

F. Adjustment to Depreciable Basis

    1. The rehabilitation of a non-certified historic structure requires
        that the tax credit be subtracted from the total rehabilitation
        costs in computing the depreciable basis.

    2. The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) amends
        the IRS code for the investment tax credit provisions. Beginning
        January 1, 1983, the depreciable basis for qualified rehabilitation
        projects will still be reduced by the amount of the investment tax
        credit for structures at least 30 years old. However, the
        depreciable basis for certified historical structures will now be
        reduced by one half the amount of the investment tax credit.

G. Recapture

    1. No recapture of the investment tax credit is required for a
        qualified rehabilitated building held by the taxpayer for more
        than five years after the rehabilitation is completed and placed
        in service.

    2. Recapture of a portion of the investment tax credit is required
        for properties held between one and five years.

Ownership Period	Investment Tax Credit Recapture
1 year	100%
2 years	80%
3 years	60%
4 years	40%
5 years	20%

Lecture #2
Real Estate Valuation 856

I. The appraisal process as described by the American Institute is deductive
    in its organization as it moves from the general to the particular.

    A. Refer to mimeo #1

    B. Definition of the problem has to do with property interest to be
        appraised, purpose of the appraisal, and definition of value.

    C. Preliminary survey and appraisal plan is necessary to set fee and
        plan work schedule. Pragmatically it means what kind of data would
        be best, where is it found, and how much will it cost.

        1. Profitable appraisal require access to a data bank from past
            experience or current brokerage.
        2. Special data banks capture business for appraisers who become known
            for certain types of buildings.

    D. Data gathering is most expensive part of appraisal process

    E. General data is usually boilerplate which assumes the ready of the
        appraisal report is from out of town. There are definite relationships
        between economic conditions for the country and the region and value
        but from a writing standpoint these are better established later in
        the report. (ala Ratcliff)

    F. Three approaches represent three different types of market interpretation.
        Correlation is an editorial evaluation of their relevance and reliability
        given the situation.

    G. Final estimate of value is one number subject to a date, limiting
        conditions, and certification by the appraiser as to his objective
        viewpoint - i.e., no vested interest.

II. An outline of the Ratcliff process shows a more logical progression from
    purpose to property to probable buyer to the context in which that buyer
    must negotiate a transaction.

    A. Macro-market factors are selected only when they are relevant to a
        specific type of transaction.

    B. Micro-market analysis is really finding tools which will predict
        what buyers will do by looking at their past behavior or their present
        situation.

        1. How do they think
        2. How do they convert action to a price
        3. What have they done in the past that supports the conclusions in 1 & 2

    C. Simulation may be very simple or very elaborate depending on how the
        buyer is presumed to think and respond and what technique prove the
        cheapest predictive tool with acceptable reliability.

1. By locating the points scored by the subject property on the hand-fit line it is possible to read the price on the verticle axis of the scale.
2. The statistical technique is more useful because it gives you the central tendency and the standard error of the estimate for the regression line.

II. While most of you can do a residential appraisal much more quickly with probably the same accuracy, this technique does illustrate how to relate features and attributes to price with roughly the same emphasis that a possible buyer might place on these features. The linear regression technique is very useful in interpreting and adjusting a few comparable sales for tracts of vacant land and therefore we have created a step by step illustration for you to follow. These statistical techniques are very well explained on page 238-242 of GENERAL APPLIED STATISTICS by Fadil Zuwaylif, published by Addison Wesley.

A. Taking your inventory of physical land features and your knowledge of buyers for that type of site, it should be possible to build a weighted rating on the important elements of SUITABILITY, CAPACITY, COMPATIBILITY, and IMPACT. (See Exhibit D)
    1. For difficult comparisons use a 1,2,3 or 1,3,5 scale with average being the middle number. The weight attached will magnify the result.
    2. A 10 point scale could be adjusted as a 0,2,4,6,8 or 10 using your judgment of how it compares to the best of available. NOTE: IT IS NOT COMPARED TO THE SUBJECT.
    3. While the adjustments are rough, one is relying on the theory of offsetting errors to permit some leveling of these errors in degree. It is simply a way of quantifying your judgment for an organized synthesis which the client can follow and possibly criticize.

B. The next step is to calculate the coefficients of the regression line to convert the points scored by the subject site to a price per gross acre (See Exhibit E).

C. The best way to communicate the results is with a graph as on Exhibit F.

D. Initially the regression equation indicates a central tendency of $2,366 per gross acre. However, probable price requires a statement of range around which transactions might likely fall:
    1. Step VI computes the standard error of the estimate, which in this case is $107 plus or minus. Statistically we could say that 66 times out of 100 times the price should fall between $2259 and $2473.
    2. 95% of the time the probable transaction price will fall between $2152 and $2580.
    3. The appraisers work is not done at this point since he may wish to modify this result by introducing the influence of current regional phenomenon in terms of finance, legislation, etc. as these institutional factors might be expected to modify industrial behavior. (Refer to suggested outline of appraisal in Part IV of the morning session).

E. Step VII computes the correlation coefficient which attempts to
    measure the relationshp of the sample to the true population. In
    this case it is a very high .98 which indicates the data was limited
    (for sales) and perhaps a little artificial.
    1. A small sample of four minus one dependent variable minus one
        as a correction for a small sample gives us only two degrees
        of freedom.
    2. A statistics textbook table of significance indicate this means
        we have a 5% chance of rejecting or excluding the right answer
        in the manner in which we use our standard error. Put another
        way the real distribution of transaction prices could fall around
        a different average price and in different ranges only five
        out of 100 times.

2:30-2:45   REFRESHMENT BREAK

III. As land is brought under public control, the uncertainties surrounding
     sale values must eventually have an impact on site value. Existing uses
     will enjoy monopoly premiums and future uses will be sharply discounted
     for delay, risk, the high front end costs of securing development approval,
     and potential for down zoning.

    A. The future shock of accelerating change in the ground rules of real
        estate are leading the professional to plant both feet and balk
        at any proposed regulation. Instead you as a professional should
        assist in the development of procedures which advance environmental
        objectives and concentrate your attack on regulations which are a
        sham and require you to deliver a product which is not suitable for
        the use intended.
        1. Mortgage loan ratios have been around for years and is a sham
            used by the lenders to simplify their regulatory proces and to
            shift the burden of mortgage lender ignorance and hypocracy on
            the appraiser. Simplistic out-of-date concepts such as this you
            have a professional obligation to resist.
        2. When communities use regulation to exclude low income groups
            or less d esirable land use solely on the basis of environment,
            cast iron zoning, or fiscal impact you have a professional duty
            to speak out in opposition. Appraisers are often not highly
            regarded because of their go-along to get-along attitude. This
            period of trnasition to public land use control gives you an
            excellent opportunity to reestablish yourselves as the economic
            impact analyst of public policy alternatives.
        3. More appraisers should consider seeking career opportunities
            with land regulating agencies. Many of these agencies are
            being staffed with anti-real estate graduates of the planning
            schools who teach an "us against them" type of adversary planning
            without ever finding out anything about real estate enterprise
            and how it works.

    B. The real problem with new regulations such as the development of
        regional impact (DRI Section) of the Florida Environmental Land
        and Water Management Act of 1972 (ELMS) are the two related problems
        of an agreed on data base and expedient processing of development
        plans.
        1. The scope of the entire impact analysis is requiring develop-
            ment of mechanics for review and development of clear concise and
            hopefully graphic standards for impact testing. Pending that the
            DRI may be premature in scope.

2. Regulators are groping for easily understood standards for very
    complex problems but one must hope that they will not find anything
    so simple minded as a mortgage loan ratio.

3. However, let us look at several basic federal systems for environ-
    mental site attributes.

C. If you do any appraisal for or feasibility studies for FHA financed
    projects, the HUD noise assessment guidelines are a must. They
    are also extremely useful for any residential site evaluation.
    (Written by Theodore Schultz and Nancy McMahon, it is available
    from the Superintendent of Documents, U.S. Printing Office,
    Washington, D.C. 20402 - price 70¢ - Stock #2300-1194).
    1. This project involves a 221-d4 on a five lane street in Madison.
        There was a stop light on one corner of the block and a bus lane
        devoted entirely to buses. Automatic application of the guidelines
        determined that trucks are 5% of vehicle count and the stop light
        would multiply that factor by 10 so that the site would be clearly
        unacceptable for residential use.
    2. HUD seriously suggested that the developer should request the
        city to pass an ordinance banning all through truck traffic on
        that segment of University Avenue!
    3. The alternative was to show them that trucks normally did not
        use University Avenue and that the presumption of 5% truck traffic
        was wrong. The city traffic count did not distinguish between
        vehicles. HUD defined any vehicle with dual wheels or a bus - a truck.
    4. The emperical data, analytical form, and simplified chart decision
        making forms Exhibit G.

D. The federal Flood Disaster Protection Act has made it illegal for
    federally regulated lenders to make loans on properties in areas
    identified as flood plain unless the property is covered by flood
    insurance. It went into effect February 28, 1974.
    1. In 15,000 flood prone communities only 2300 currently participate
        in subsidized federal flood insurance.
    2. If the community is to qualify it must provide proof of a building
        permit system which allows for review of new construction.
    3. HUD may identify "special flood hazard areas" where subsequent
        new construction will be ineligible for insurance.
    4. As an aside one can expect that earthquake zones may soon have
        a similar requirement.

E. The action was required as most communities continued to ignore
    the reality of 25 and 50 year high water marks and because the
    nation can seldom afford to provide all types of unnecessary
    financial assistance to those who persist in tempting fate and the
    environmental cycle. (See attached materials)

F. The Office of Interstate Land Sales Regulation affects the sale of
    projects with 50 or more lots or units. A project is to define to
    include a series of plats which are part of a larger master plan or
    are contiguous to eliminate technical avoidance. Exemptions from
    the act are limited and useful current information is available
    from two excellent sources:

I.   Issue For Which Appraisal Is Required

II. Required Definition Of Value

III. Professional Standards Of Practice

>   1. Experience
>   2. Methods
>   3. Reporting Format

IV. Legal Regulations And Controlling Precedence

V.   Restraints Imposed By Litigation Process

>   1. Discovery And Confidentialty
>   2. Desposition
>   3. Presentation To Jury Or Judge
>   4. Vulnerability To Cross Examination

VI. Significance Of Appraisal Conclusion To Cost Of Methodology

<u>Bus. 856</u>

I. Administrative

    A. Reminder -on Tuesday - LAB and time 3:30-5:00 Room 220

    B. State/District Highway office for traffic counts

    C. City of Madison Tally on new retail space on westside

    D. CACI numbers

    E. Market rental from: George Gialiamus, John Fladd, Ron Gross

    F. Downtown Middleton and strip stores across from Minicks.

II. Problem Solving Methods-Chapter Seven

    A. Four Types

        1. Decisions under certainty
        2. Decisions under risk
        3. Decisions under uncertainty
        4. Decisions under conflict

    B. Set Theory-Optimizing

        1. Dominance
        2. Lexographic
        3. Additive Weighting
        4. Effectiveness Index

    C. Non-optimizing

        1. Satisficing
        2. Subjective Limits

III.Risk vs. Uncertainty

    A. Uncertainty Not Have a Probability

    B. Decisions Under Uncertainty

        1. The Mini-max strategy
        2. The Maxi-max strategy
        3. The Hurwicz strategy
        4. Minimizing Maximum regret

IV. Bounded Rationality In Economic Theory means people are capable of rational
    tradeoffs on a limited number of variables--4 to 6, after that it is intuitive.

V. An appraisal is an artificial feasibility study because it defines a profile
    of the investor and assumes market average criteria.

I. Several trends are reestablishing public recognition that appraisal is a pivotal profession for social equity, safety of consumer capital, and efficient allocation capital. These forces include:

A. Terrible losses to the banking system as a result of accomadating appraisers who supported decisions of the lenders motivated by short term, non-real estate concerns.

B. Rising standards of fiduciary responsibility as a result of ERISA and a shift of pension funds toward real estate.

C. Recognition that too much venture capital was allocated to real estate, producing over supply, reducing tax collections, and undermining useful life of existing stock.

II. As a result new methods of private and public control for the procurement of quality appraisal are being instituted or discussed.

A. At the transaction level institutions are using letters od engagement to specify appraisal methods, standards, responsibilities, and the purpose for which the appraisal is required.

B. Letters of engagement reflect specific policies written down by boards of directors, trustees, or policy groups who fear both liability and bad decisions as a result of purchasing poor appraisal work.

C. The Internal Revenue Service and the Securities Exchange Commission have each instituted sanctions and legal actions against appraisers determined not to be independent and exaggerate values.

D. The Federal Home Loan Bank Board has attempted to provide explicit guidelines to loan officers where institutions are insured by FSLDIC. The best known components are Administrative Rule 41-A, B, C, and D.

1. D simply clarifies C, and C was revolutionary for developing a specific set of instructions for those who acquire and evaluate appraisals which support credit and investment decisions. The failure of the lender to obtain acceptable appraisals makes the board od directors and the loan officers personally accountable for violating a fiduciary duty.

2. The appraisal must contain a certificate from the perosn at the instituion who has reviewed the appraisal, that person's title, and the date of approval.

E. Appraisal shall be based upon the following definition of market value:

1. 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, 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:
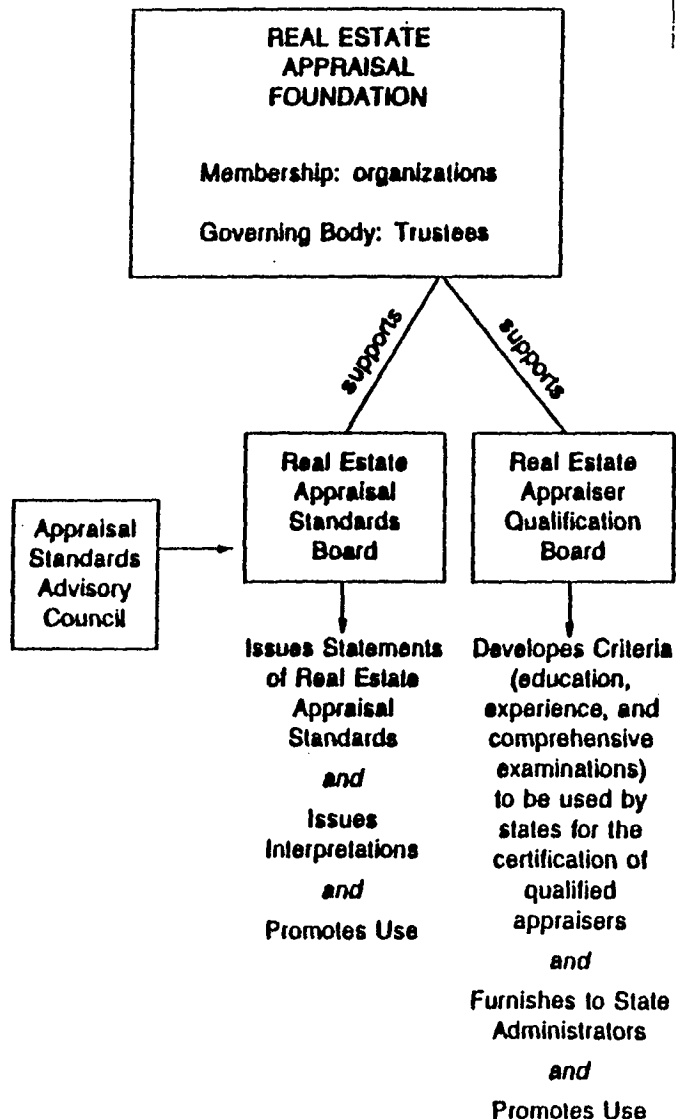
E. 1. a. buyer and seller are typically motivated;

    b. both parties are well informed or well advised,and each acts in what he considers his own best interest;

    c. a resonable time is allowed for exposure in the open market;

    d. payment is made interms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

    e. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

F. Because of appraisla fraud and incompetence as a major factor in the failure of 400-500 S&l's, Congressman Douglas Barnard, Democrat from Georgia, as Chairman fo the House Oversight Committee on Consumer and Banking Affairs conducted a national investigation and is proposing federal legislation on appraisal standards to be followed by any federally insured deposit institation. He reccommends

1. Bank regulatory agencies with express authority to dicipline appraisers who willfully or negligently misrepresent value, including black listing and civil penalties.

2. Establishing appraisal standards for all federally insured lenders (See page 13)

3. Lender accountability

4. Public/Private sector coordination of appraiser certification and review

5. Standard appraisal policies and procedures for government insurers and secondary marketing institutions.

6. Data collection and information sharing of appraisals and appraiser performance;

7. Laws requiring public disclosure of sales transaction data and loan origination.

III. The private response to the Barnard proposals is not suprising but it may be too little too late.

A. Eight major appraisal associations organized into a select committee to produce a watered down statement of appraisla ethics and standards. The confederation is shaky since the SREA nad Mai groups don't agree as to whether the federal government has any role in appraisal standards.

B. Both the federal proposals and the MAI private sector proposal are modeled on the Accounting Industry format

1. Real Estate Appraisal Foundation od Trustees representing appraisal organizations and the general public, which would raise money and appoint two groups.

2. A real estate Appraisers Standards Board to define standards, interpret issues and promote applicationthrough various sanctions

2. It would be advised by a new appraisal standards advisory council.

3. Real Estate Appraisal Qualification Board to develop criteria in terms of education, experience, and examinations to be used by states for certification.

C. The issue is should the federal government appoint the majority of trustees and provide the legal muscle to decertify appraisers—that is finance the high cost of adequate enforcement.

1. The industry is moving quickly to establish a foundation and a standards board to argue that the federal government need not do it. Threee years ago it panned the need for a standards board, and Barnard has forced it to reverse its position.

2. Barnard was hoping to get consent and cooperation from the appraisers, who could avoid heavy funding of the aparatus so that the strong real estate lobbies would support, rather than oppose his legislation.

3. Instead the lines of confrontation have been drawn, and Mr. Barnard will rely on additional scandals to line up Congress and use the Congressional necessity to fund 25 billion in FSLDIC losses to motivate Congress to prevent that disaster form happeneing again.

CHART A

REAL ESTATE APPRAISAL FOUNDATION

Membership: organizations

Governing Body: Trustees

supports / *supports*

Real Estate Appraisal Standards Board

Real Estate Appraiser Qualification Board

Appraisal Standards Advisory Council

Issues Statements of Real Estate Appraisal Standards

and

Issues Interpretations

and

Promotes Use

Developes Criteria (education, experience, and comprehensive examinations) to be used by states for the certification of qualified appraisers

and

Furnishes to State Administrators

and

Promotes Use

State Administrators

Use *Criteria* Developed by the Real Estate Appraiser Qualification Board to:

1. Check education and experience and administer examination (before issuing certificates for state certified real estate appraisers)

2. Supervise continuing education program for renewal of certificates

and

Enforce the Standards developed by the Real Estate Appraisal Standards Board (with penalties for violation)

State and Federal Regulators

Adopt (when appropriate) the Standards Developed by the Real Estate Appraisal Standards Board

and

Restrict Certain Types of Appraisal Services to State Certified Real Estate Appraisers (certified by states that use the criteria developed by the Real Estate Appraiser Qualification Board)

Business 856

CASH FLOW MODEL SIMULATION FOR LAND DEVELOPMENT VALUATION
(Tabs for Worksheet Using Quarterly or Six Month Periods)

1. Market absorption in units (Schedule A)
2. Capture rate of subject project (Appraiser assumption)
3. Number of units sold per period (Line 1 x 2)
4. Average price per unit (Appraiser assumption)
5. Gross sales revenue (Line 3 x 4)

        Less: Discounts for bulk purchase (footnote)
                  Closing costs (footnote)
                  Special assessments paid (footnote)
                  Commissions paid (footnote)
                  Debt release payments on units sold (footnote)
                  Paper taken back by seller (footnote)

6. Net cash from sales

        Plus: Interest income on past period paper (footnote)
                  Miscellaneous income (footnote)
        Less: Administration (footnote)
                  Professional fees (footnote)
                  Interest on outstanding debt (footnote)
                  Real estate taxes on vacant land (footnote)
                  Real estate taxes on unsold units (footnote)
                  Income taxes (optional)

7. Cash available from operations for capital investment

        Plus: Cash available retained from previous period
                  Cash principal from previous period credit sales
                  Cash from new debt
                  Cash from new equity contributions

8. Total cash available for capital improvements and distribution
        Less: Land payments (Schedule B)
                  Construction in place (Schedule C)
                  Contingency (footnote)

9. Cash available for distribution

        Less: Cash retained for internal financing (and taxes) (footnote)

10. Cash distributed to investors
11. Present value discount factor
12. Present value of periodic distributions
13. Present value of residual properties (end of projection series)

COMMUNICATION THROUGH STATISTICS

Statistics uses a combination of both uppercase and lower-case Greek letters that have statistical meanings, English letters that have statistical meanings, and unknowns expressed in English letters. Unknowns are often expressed as a, b, x, or y.

English letters that have specific statistical meanings must be written in italics when the typewriter is equipped with them; otherwise, they should be underlined. Examples follow:

N or $\underline{N}$ (total population or number of observations)

n or $\underline{n}$ (a sample of that population)

P or $\underline{P}$ (probability, as in P < .01 or $\underline{P}$ < .01)[1]

r or $\underline{r}$ (correlation coefficient)

Tests of variance (t test or $\underline{t}$ test, F ratio or $\underline{F}$ ratio)

Never confuse Greek letters with English letters. If Greek letters are not available on the typewriter, they must be carefully drawn with black ink.[2] Particular attention must be given to those that resemble English letters:

x and χ (x and chi)[3]

u and μ (u and mu)

p and ρ (p and rho)

B and β (uppercase B and lowercase beta)

---

[1] Some statisticians prefer a lowercase p.

[2] The Greek letters and symbols used here were done with a commercial product called TYPITS. For a comparatively modest price, the equipment is available for any typewriter at Stemp Typewriter Company, 528 State St., Madison, Wi., and at other stores that have been granted this franchise in other cities.

[3] A common statistical expression is χ^2. This is a lowercase chi; written out, it is "chi-square." At the beginning of a sentence the cee of chi is capitalized.

An equation is a mathematical sentence that has a subject, a verb, and thought-completion words; it therefore requires punctuation. Consider this sentence: "Cubic feet equals length times width times height where C equals cubic feet, ι equals length, w equals width, and h equals height or C equals ιwh, C equals twenty feet times ten feet times eight feet, and therefore C equals one thousand six hundred cubic feet." This thought can be more clearly expressed in a simple equation:

$$C = ι \times w \times h$$

where

C = cubic feet,

$ι$ = length,

w = width, and

h = height

or

C = ιwh,

C = 20' x 10' x 8', and therefore

C = 1,600 cubic feet.

Operational signs as they are used here need a space on either side. However, some expressions use no spaces as in $x(n+2) - y(n+2)$. The decision requires discretion.

The operational line of a fraction must be exactly opposite the = sign. Because the underline symbol is used to make the line, the carriage must be lifted one-half space:

$$x = \frac{2a}{2b} = 6$$

The words "where" and "or" are on separate lines.

Commas follow each part of the equation as they would in a sentence, and a period ends the mathematical sentence.

Times is x, not an English x; a script ι is used for length, not 1 as would appear on most typewriters.

If a long equation must carry over to a second line, divide it at a natural point, put the operational sign on the second line, and begin that line at some logical indentation point. If the part of the solution that follows an equal sign must be divided, begin the second line after the vertical row of equal signs.

Align your equal signs.

Adequate white space is essential to accurate communication.

October 27, 1983

Addendum - Market Comp Lecture - Maple Bluff Valuation

Transformation of the Variable for Age

A. Discovery of Need to Transform Variable
    for Age of House

    1. Had used variable #49 ERA (See Maple Bluff Single
        Family Residential Information Form) which grouped 20
        years of age into a single variable.

        Graph of the relationship of value and age variable:
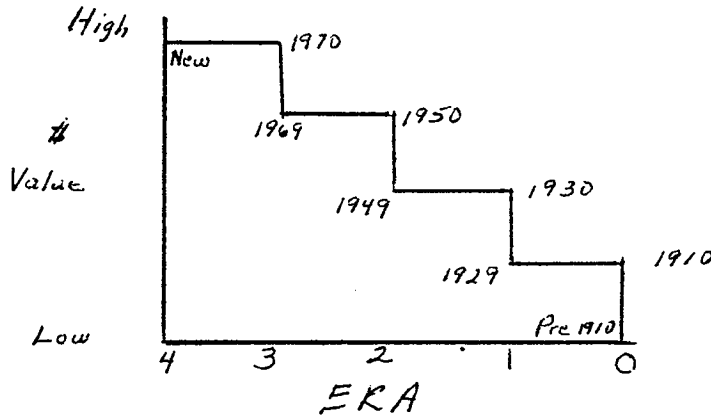
    2. Adjustments were based upon the difference in variable
        value for the subject and the comparable, multiplied by
        .02 of the comparable sale price.

    3. Example:

|	Year Built	ERA	Age/Years	Selling Price
Subject	1910	1	73	?
Comp. A	1949	2	34	$100,000
Comp. B	1930	2	53	$ 95,000

Using ERA variable, the adjustments would be as follows:

ERA

SUBJECT	1	Adjustment Calculation

$$A_1 \quad x \quad (X_{s_1} - X_{c_1})$$

COMP. A	2	[(.02 x $100,000) x (1-2)] = $2,000
COMP. B	2	[(.02 x $95,000) x (1-2)] = $1,900

Thus, the $ adjustments differ by only $100 even though the two comps vary in age by 19 years and both are much newer than the subject.

B. Transformation of Age Variable to Better Reflect Relationship Between Value and Age of House

1. Graph of Relationship Desired
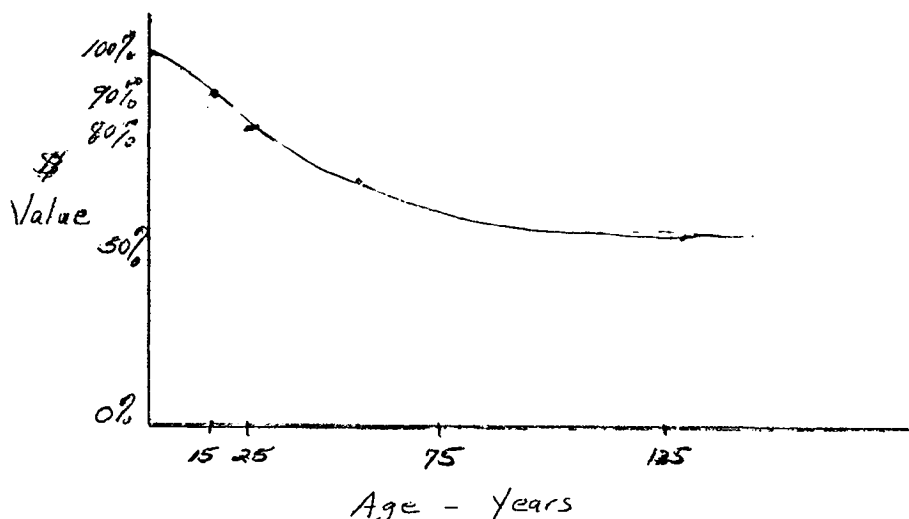
2. Use regression to determine points on the curve which represent value of the age variable called effective age. The larger the variable, the newer the house. The resulting equation solves for the effective age of any house.

3. Because of the nature of this variable, a type 3 adjustment is used to translate the variable into a dollar adjustment. In MKTCOMP a type 1 adjustment uses a dollar amount, and a type 2 adjustment is a

percentage of the selling price. A type 3 adjustment
allows for the use of a separate calculation to solve
for the percent of sale price to be used. In this case
the equation is:

[(Vs/Vc - 1) x .50] x Selling Price = $ adjustment

where Vs = effective age of subject
      Vc = effective age of comparable

4. Example:

	Year Built	Age/Years	Effective Age Variable	Selling Price
Subject	1910	73	56.65	?
Comp A.	1949	34	75.22	$100,000
Comp B.	1930	53	64.77	$ 95,000

Using the Effective Age variable, the $ adjustments would
be as follows:

	ERA	Effective Age	
SUBJECT	1	56.65	Adjustment Calculation [(Vs/Vc - 1) x .50] x Selling Price = Adjustment
COMP. A	2	75.22	[(56.65/75.22 - 1) x .50] x $100,000 = $12,300
COMP. B	2	64.77	[(56.65/64.77 - 1) x .50] x $95,000 = $6,000

Thus, the $ adjustments are more realistic with the
spread and magnitude of dollar adjustments more representative
of the differences in ages among the houses.

A Composite Variable - Kitchen Score

MKTCOMP - Maple Bluff

To capture the several price-sensitive factors in a kitchen, a composite variable is created. (See Variables 72 to 76 on Maple Bluff Residential Form). Upon inspection, the several attributes described in Variables 73 to 76 are scored and the equation shown in the description of Variable 72 is used to calculate the Kitchen score.

Example:

The least desirable kitchen would be scored as follows:

Attribute	Description	Score
Size	Small	1.0
Type	Single wall	1.0
Work Area	Obsolete	.5
Eating Space	None	0

Kitchen Score = (1 x 1 x .5) + 0 = .50

The most desirable kitchen would be scored as follows:

Attribute	Description	Score
Size	Large	3.0
Type	L-shaped with island	5.0
Work Area	Modern	1.0
Eating Space	Breakfast nook	.6

Kitchen Score = (3 x 5 x 1.00) + .6 = 15.6

The difference in kitchen scores between the subject and its comparables are adjusted at $850 per point score. The maximum adjustment is $12,835, or 15.1 x $850.

MARKET COMP THEORY COMPARED TO REGRESSION

I. Common Requirements to be Determined

    A. Variables to survey
    B. Sales comparables available for analysis
    C. Variables which relate to value
    D. Rates of adjustment for difference in variable factors
    E. Comparable sales which are best related to subject property

II. Prediction of Price Through Regression Analysis

$$V_p = b + X_s (A) + \ldots X_{n,s} (A_n)$$

$$V_s = b_o + \sum_f A_f X_{f,s}$$

$$V_k = b_o + \sum_f A_f X_{f,k}$$

$$V'_k = P_k + V_s - V_k$$

$$= P_k + A_1 X_{1s} - A_1 X_{1k} + A_2 X_{2s} - A_2 X_{2k}$$

$$= P_k + A_1 (X_{1s} - X_{1k}) + A_2 (X_{2s} - X_{2k})$$

III. Market Comparison

$$V_k = A_1 \times (X_s - X_k) + A_2 \times (X_{s2} - X_{k2})$$

$$V_p = \text{average of } V'_k$$

IV. Euclidian Distance

$$(\$ \text{ Distance})^2 = (\text{Qual } \$)^2 + (\text{size } \$)^2$$
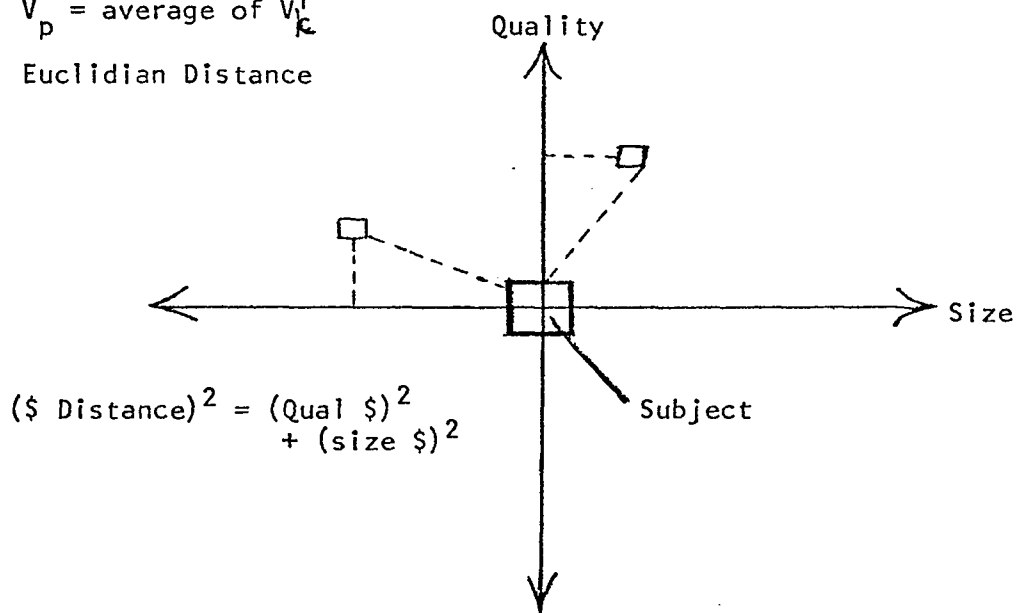
Scale requires conversion of factors to $'s per unit
Market comp permits conversion with:
    $/unit
    $/as % of sale price/unit
    $'s/ transformation unit

4. Note that Exhibit 7 provides an objective scale for most factors so that the reader can understand the score. The weights in this case were corroborated in the narrative of the report from a 1968 study by Real Estate Research Corporation.

C. All calculations for establishing the "a" and "b" factors for linear regression appear in Exhibit #8 and are charted in Exhibit #9.

D. An example using restaurant sites in Madison is provided in Exhibits 10, 11, and 12.

E. An example of a single family appraisal is provided in Exhibits 13, 14, 15, and 16.

F. A fourth example comparing old store buildings in downtown Madison will be provided in a demonstration appraisal.

4. Note that Exhibit 7 provides an objective scale for most factors so that the reader can understand the score. The weights in this case were corroborated in the narrative of the report from a 1968 study by Real Estate Research Corporation.

C. All calculations for establishing the "a" and "b" factors for linear regression appear in Exhibit #8 and are charted in Exhibit #9.

D. An example using restaurant sites in Madison is provided in Exhibits 10, 11, and 12.

E. An example of a single family appraisal is provided in Exhibits 13, 14, 15, and 16.

F. A fourth example comparing old store buildings in downtown Madison will be provided in a demonstration appraisal.

Pyare Square Building

1. Boilers -   Cleaver Brooks
                    Mode 4 Watertube Boiler.
                    2,800,000 BTU/HR
                    Natural gas 3500 CFH
                    Control Circuit 120 volts
                    Blower Motor 460 volts
                    Built in 1976
                    Model M4W-3500, Series 700MG
                    Heat Surface 170 sq. ft.

2. Chiller -   Air Conditioning Unit
                    Tiane Climate Changer
                    250,000 BTU
                    Motor 440,460,480 volts
                    G Electric 414-506 volts

3. Hot Water -   Ruud
                    Ruudglass Commercial
                    67 gallon
                    120,000 BTU/HR
                    Recovery 120.8 gallons 1 hr

4. Diesel Generator - Emergency Power Source
                    Kohler - Electric Plant
                    Model 30RS2 9104A

	Continuous	Standby
KW	25	30
KVA	31.25	104.2
AMP	868	37.5
Cycles	60	
RPM	1800	
120-208 volts		Battery volts 24

5. Fan Units -   5 fan coil units
                    Heating 1 Cooling

6. Elevators -   Westinghouse
                    Capacity 2000 lbs.
                    Maximum No Passengers 13
                    3 elevators
                    Floors can be key operated/locked
                          are

7. Softener - Calgon Burner Model #225BC1¼"
                    Size - flow rate continuous 38 gal 1 min.
                          peak flow rate   50 gal 1 min.

   Valve Serial 12-6-90462   24" x 54" mineral tank
   Serial B4039-68   24" x 60" brine tank
                               100 lbs gravel
   13.5 gal 1 minute backwash flow softening capacity: 225,000 grains
   Flow rise 3.5 gal/minute   188,000 grains
                               75 lbs sold/regeneration   normal
                               TOTAL SIZE: 54" long 36" wide
                                            72" tall

8. Electric Power Into Building
   (volts) 2500 lighting - 1201208 v - 3∅ - 4 w
   (volts) 1000 light/motors 480 v 3∅ 3 w

I. Dilmore has suggested that regression analysis of sales is the most objective method of inferring price as the appraiser makes fewer subjective adjustments.

A. In some cases, regression will reduce the average error, in some cases it will identify useful value predictors, but almost always it increases the range of error. In general, it is more useful in organizing information for the appraisal process than in directly forecasting price.

B. Some of the areas in which it will prove useful are:

1. Automatic identification of non-market transactions.
2. Estimating cost to assemble a group of parcels at a low cost.
3. Converting demand factors to potential market in dollars or households or customers.
4. Establishing the value influence of adverse uses;
5. Identification of compounding influence of certain attributes on value.

C. Regression will not generally provide a measure of an individual attribute's contribution to value.

II. Simple lineal regression expresses a relationship between two variables while a multiple regression equation deals with three or more variables.

Price equals a + bX + cY + residual error

The object is to determine that set of coefficients and variables which will produce the lowest practicable residual error, which is often called the standard error of the estimate.

A. The test of a regression equation is comparison of an estimated price to the actual observed price on a sample and then to predict a price on a similar property which was not included in the sample. Thus, there is a statistical test inherent in the sample and a pragmatic test for the utility of the application.

1. If a is the only known coefficient it is the mean aveaage value of the sample and the point where the mean line crosses the vertical axis.

2. b introduces slope to the mean line which is parallel to the horizontal axis. These coefficients are determined with the least squares method and as a result extreme values in the scatter diagram will cause excess moment on the line because their squared values have so much influence. While prices do not have to homogeneous, they must be more or less continuous along the lineor the line is appropriate to fit only one segment of the data.

B. A sample output of our 1410 regression run is provided.
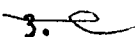
    1. The constant term is the a factor and indicates the steepness of the slope.

    2. To avoid a simultaneous set of equations the degrees of freedom must be greater than zero and preferably at least 30, although this will decrease the reliability below the example to a point where it may not be useful.

    3. The standard error of the estimate is in dollars--the same units as the dependent variable, so that it is affected by a change in the units. A large standard error means a disparity between actual and estimated values and indicates the standard deviation of the disparity. In this case the average price of a home is about $36,000, but to be 95% accurate we could have a range of error of plus or minus $6,000. When an observed sale is three or four standard errors from the estimate, you have identified a sale which was either not a market transaction or compatible with the sample.

$$S_{yx} = \sqrt{\frac{\sum (Y-Y')^2}{n-2}}$$

    4. Total variation equals explained variation plus unexplained variation, the latter associated with independent variables not provided by the statistics directly or by proxy. The coefficient of multiple correlations is the ratio of explained variation to total variation , and the square of that provides a coefficient of multiple determination. (unbiased has adjusted for the statistical error potential in the degrees of freedom)

    5. A basic assumption of linear regression is that all the variables are independent of one another . If they are not, you have co-linearity or multiple colinearity, which would make the results invalid. To reduce that in real estate where multiple colinearity is always present, we use stepwise regression. The first variable is related to price, but the second variable is correlated to the residual error by a least squares technique in which all the variables are tested.

C. Note that variable number 6 in the data bank comes in first with a value of $9.26 and a standard error of $.77. The T value of 11.9 means that the probability of this coefficient being zero is 11.9 standard deviations away, a remote probability. Note that it explains 60% of the difference in price.

    1. Location,factor number 2, kicks in by adding $102 to value for each integer in the code and has a T value of 8.3 and explains 46% of the previously unexplained variants.

    2. The quality factor comes in third, and notice the scientific notation--3.6584 E-03, which means $3,658, and it explains 55% of the unexplained variance.

3.

3. Other variables keep coming in because the F level has been set extremely low. Typically, variables should not go to a point where bhe T value is less than 2.5, or at worst 2.0, which means less than a 5% chance of that coefficient not explaining any real variance at all.

D. These coefficients do not make any sense unless one understands how the data were coded. Some variables are continuous variables, such as square feet of living area; others are discrete (binary Yes-No). Others are discrete but weighted by the coding system. Refer to Bayside tax form.

1. For any particular property, the coefficients could be applied to a continuous variable, to a one recognizing its presence, or a zero so that the product is zero, to a weighted code, or to a transformation.

2. A transformation is a progaammed modification of data to create a fictitious variable . One objective would be to reduce all garaße types to attached or non-attached. Sometimes weighted codes are used to provide a preliminary sort to reduce the data bank to a particular subset such as one-storey houses. Most often transformations are used to convert a curvilinear or exponential relationship to a linear one. For example, the quality factor may be item 22 x item 26 x location (item 11)x floor area (item 17). The more people can afford a better house in a better location, the more conscious they are of quality and appearance. On the other hand, square feet of living space divided by number of rooms will indicate average feet per room or the ppaciousness of the interior. Statisticians can analyze eesiduals and detect certain types of curwilinear problems, but a computer is necessary to do so efficiently.

III. ЕRеference to the second page of computer output will indicate a test of comparison between a computed estimate ▮x of price (CDV) as compared to ▮ctu▮▮x the actual sales price. The first one was wrong by $24.50-- a lucky guess. n he eighth item was wrong by $4,141 with a standard error falling 1.4 standard deviations off the pace. SED equals the actual difference between observed and estimated prices divided by the standard error of the estimate.

A. In Bayside, the standard errofr of the estimate was used to edit the data bank of sales.

B. When the estimate was positive by more than two standard deviations, it was flagged for reappeaisal.

C. When the estimate was three standard errors too low (negative), the property was studied to see what special factors explained the additional price, which might ▮▮ not have been reflected in the independent variables. It appears now that the year improved should also be consődered as a transformation to reflect an old house (pre-1955) ata poor location.

D. Note that certain variables such as railroad or highway abutting are negative but so are shade trees and recreation rooms. This indicates that location may be reflecting shade trees but that some

high price locations reflect other qualities, and that many shade
trees are in the older, lower-priced neighborhoods. Recraeation
rooms may also tend to be present in older or smaller houses which
dont have a family room and that represents an exception to the
average.

Improvement of Students'

General Comments for 856 Appraisals

Describe property with more impact, such as: a three story office and retail building converted from old department store on an inside lot in prime redevelopment block.

You are missing some legal constraints such as Concourse redevelopment district, Capitol View district, etc. What do you mean "grasping the political climate?" Terms of sale don't compute what sales support your pattern? Market inference based on a quality point system - price/quality regression model was true on 25 N. Pinckney and should not be used now.
Report $ amount of taxes, mill rate, and special assessments; note that most value is in the land so the tax advantages are reduced.

The value definition of fair market value with its 6 assumptions should be stated. The seller might accept sale of the equity subject to the existing mortgages but would not accept a rap of a third mortgage or land contract around the existing debt.

Be sure you distinguish between the Capitol Square North Development plan and the TIF district. The redevelopment plan can bring the DCA into play which would permit public purchase for resale to private developers at a writedown. In addition, this should be distinguished from the convention center plan.

Appraisal issue regards a property in transition with development potential and a pivotal position relative to hotel 30 On the Square, or Woolworth site. What next and when are critical issues for appraisal?

You need two definitions of value. ·Evidence of pattern for terms of sale. Date of TIF district? Linkages should develop potential relationship of site to Concourse Hotel elevator lobby, Woolworth site, and 30 On the Square in terms of redevelopment pressure and bargaining position in resale.

What is the financial equivalence that justifies a land contract price of $750,000? Why would seller sell at less money than he owes? How can you be so vague on terms - 10-20%, 10-20 years? You're waffling. Why is fair market value lower than previous purchase price despite improvements added? Who is the most probable buyer? Would the Concourse pay more? Would you sell on terms identical to Brathaus II? Would you appeal assessment?

You should indicate that appraisal is not suited for State or Federal security purposes without review and additional charge and conditions. Real estate taxes are high while your rents are low. Your expense ratio at 55% seems a little high. Misprint on size of lot. Since hotels can pay at least $5,000 per room for raw land - 160 rooms added to the Concourse might indicate a better land value.

Your discussion of Capitol Square North as a redevelopment district should precede your discussion on TIF district #14 and its balance started by the Concourse. What do they plan to do with $10,648,000? Does it matter what DMPI has in mind - what does the City have to do with DMPI? Linkages should explore contiguous ownerships on the block before branching out onto the Square. Whare will the sky bridges go?

What about a scenario involving sale to the Concourse for an interim or purchase by Gordon Rice who trades a part interest for Brathaus II to a parking ramp and conference center?

As we stated in class, linear regression was to be used only to choose a unit of comparison. Then you were to compute a weighted point score per unit price mean. Linear regression was used in 25 N. Pinckney and we criticized it because the standard error was too great and the sample too small to make the error statement significant. Redo your market comparison using QP. Remember that your sales are cash prices so your conclusion must be a cash price.

Since you made no adjustment for time, would it be relevant to consider the impact of TIF 14 and Capitol Square North as an externality leading to a premium for the subject property?

In D you indicated your estimate of probable price is based on gross leasable area and yet your Exhibit XXX says you used gross building area. So what did you do?

Your section of externalities needs to be thought out better and you must conclude with a $ amount of value in the section, even if it is the same as your preliminary estimate so that the reader knows what conclusion you are going to test.

Your value conlcusion needs to be reworked - forget the standard error but don't forget existing financing and costs of sale approaching $50,000.

Your certification should include the most probable price and transaction zone in one paragraph and fair market value in the second paragraph.

Limiting conditions should protect you from R41(c) and state and federal security rules.

The property at 5-7 North Pinckney dated 1977 is too old to sale when
102 State Street and 122 State Street are available for 1985 and 1986.
Adjustment for time with a deflator would be misleading as I think prices
Downtown have declined relative to the value of the dollar.

The price range around the central tendancy is not explained by changes in
the financial terms. The high end of the range would represent a buyer who
expected to benefit from plottage values as a result of assemblage for future
redevelopment. As long as the property shows a positive cash flow, I doubt
that the property would sell for less than the mortgage balance plus a commission.
The real difference in fair market value and most probable price is the
premium paid for plottage value by an adjacent land owner.

If the upper range is a function of terms, then it should be calculated
financially as the present value of the non-market advantage provided by the
seller rather than just a number that is more rather than less.

Any paper which puts 50% of its weight on composition and format requires
an individual and unique paper from each student. There are many opportunities
for a joint effort but photo reproductions of the same paper for a different
student or deliberate changes in format and font to disguise duplicate papers
:arns an automatic C, you will have to read which ever paper was fully graded
o learn all of the corrections since Gennie and I don't owe a duplicate
rading effort if you haven't given . us an equal effort with a unique paper.
:MEMBER - ONE FINAL COPY OF YOUR REPORT WITH GENNIES MARKED UP COPY OF YOUR
 IGINAL PLUS MY TYPEWRITTEN NOTES MUST COME TOGETHER WHEN YOU DELIVER THE
 NAL REPORT.

EXHIBIT 11

Demonstration of Euclidian Distance
For Selection of Best Comparable

Comparable 1 = 2,000 sq. ft. and quality 7 sold for $80,000
Comparable 2 = 3,000 sq. ft. and quality 3 sold for $110,000
Adjustment for difference in size is $20 per sq. ft.
Adjustment for difference in quality is 2% of sales price

subject is 2,700 sq. ft.
within quality rating of 5

½" = 500 sq. ft.

quali₁
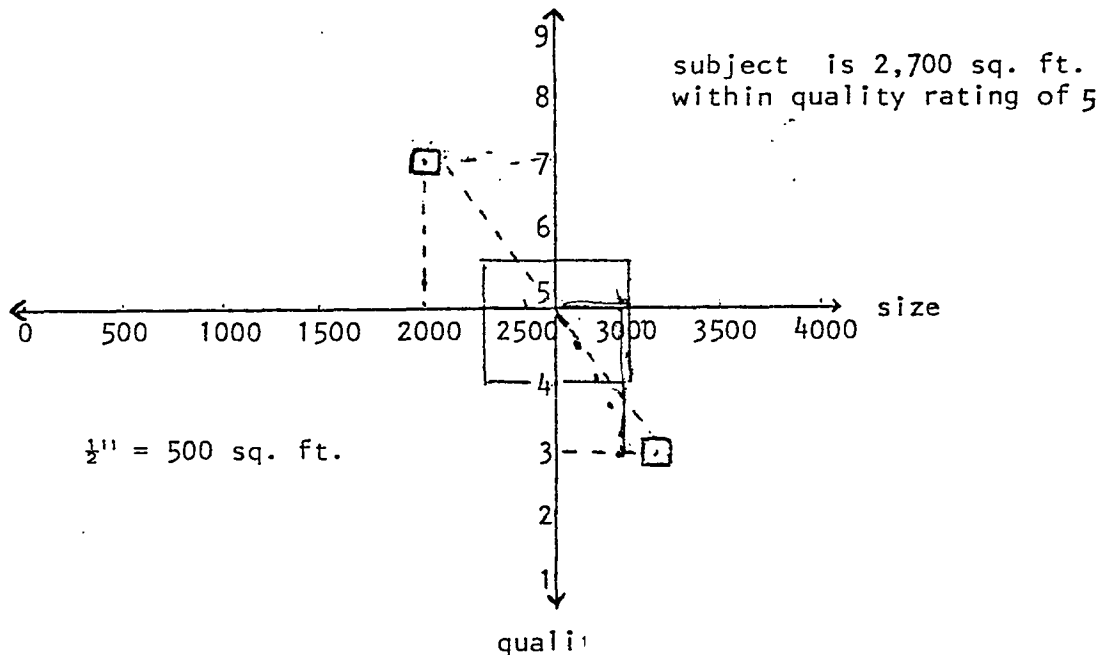
Comp. 1 Euclidian distance dollars

$$= [(2,700-2,000) \; \$20]^2 + [(5-7).02 \times 80,000]^2$$
$$= 14,000^2 + 3200^2 \text{ or } 196,000,000 + 10,240,000$$
$$= \sqrt{206,240,000}$$
$$= 14,361$$

Comp. 2 Euclidian distance in dollars

$$= [(2,700-3,000) \; \$20]^2 + [(5-3).02 \times 110,000]^2$$
$$= 300 \times 20 \text{ or } 6000^2 + 4400^2$$
$$= 36,000,000 + 19,360,000 = \sqrt{55,360,000} = 7440$$

Therefore, Comparable 2 is most comparable to the subject property,
because hypotenuse $\sqrt{55,360,000}$ is shorter than hypotenuse $\sqrt{206,240,000}$

APPRAISAL TESTS

A. Probable Price Ratios

    1. OAR
    2. Price per unit
    3. Unbundled rates of return

B. Operating Trends

    1. Net annual rate of change in net income, gross rents, and expenses
    2. Cash breakeven shift
    3. DCR
    4. Lease expiration table
    5. "As leased" vs. "avialble for lease"
    6. Proportion of revenues from rents, services, passthroughs

C. Resale Price Assumptions

    1. Ratios for new buyer
    2. Financing premises
    3. Age

D. Unbundled Returns - before or after tax

    1. Contract revenue
    2. Rollover revenue

    3. Repayment of debt
    4. PV of original purchase price
    5. PV of increase or decrease in original purchase price

(English system or arbitrary allocation)

Feasibility Analysis	Appraisal Analysis
Will the project really work for a specific investor?	What would the project sell for if it did work for a typical investor?

1. Objectives - decision standards provided by client decision process
   a. Maximize spendable cash of total enterprise
   b. Subjective gratification of specific individual
   c. Adaptation to enterprise management specialties and weaknesses

2. Aggregate market potential opportunity identification

3. Merchandising analysis (Defining competitive edge) and specific user profile

4. Legal-political context
   a. All legal constraints on site, seller, buyer, and user are considered
   b. What is legal is qualified by what is political

5. Physical-technical constraints are examined in terms of what might be

6. Impact on environment and community specifically forecast

7. Financing from buyer viewpoint considering all profit centers

8. Income tax advantages or dis-advantages affecting spendable cash

9. Actual cash revenues and expenses forecasted for each period of time horizon

10. Limiting assumptions of solution
    a. Identification of potential variance and sensitivity of objectives to alternative futures
    b. Responsibility allocated among sources of expertise
    c. Budget & purpose of study edits information scope
    d. Format of analysis determined by structuring of data to lead to desired conclusion or recom-mendation

---

1. Objectives - decision standards provided by theoretical framework
   a. Maximize economic surplus of individual parcel
   b. Prudent behavior of economic man
   c. Average management to isolate return to land & capital

2. Aggregate market potential business climate

3. Merchandising comparison (Defining standard competitive substitute)

4. Legal-political context
   a. Legality assumed
   b. Limited to site use rather than regulations on probable user as alternative buyers are assumed

5. Physical-technical constraints are studied as is or in terms of conventional uses

6. Impact on environment and community assumed acceptable within existing permitted uses

7. Financing from lender viewpoint considering only net income line and below

8. Income tax not considered except implicitly recognized in market comparison

9. Revenues and expenses generally normalized and projected on linear trend for standard period

10. Limiting assumptions of solution
    a. Average outcome without qualification as to alternative futures
    b. Responsibility denied for other areas of expertise
    c. Date of appraisal edits information scope
    d. Format of analysis defined by model of fair market value appraisal report