JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS
V.   INDUSTRY SEMINARS AND SPEECHES – SHORT TERM
     A.   Appraisal Organizations
          6.   1974
               b.   "A Guide to Real Estate Investment
                    Financial Analysis", sponsored by
                    Florida West Coast Chapter 89 – SREA,
                    January 10, 1974

A GUIDE TO REAL ESTATE INVESTMENT FINANCIAL ANALYSIS

Florida West Coast Chapter 89 - Society of Real Estate Appraisers
Holiday Airport Inn
Tampa, Florida
January 10, 1974

Instructed by Professor James A. Graaskamp
University of Wisconsin School of Business

MORNING SESSION: 9:00 A.M.

   I.   Basic Elements of Real Estate Financial Analysis

  II.   Evolution of Real Estate Appraisal Income Analysis

 III.   The Basic Elements of After-Tax Cash Flow Analysis

COFFEE BREAK: 10:30 A.M.

  IV.   Working through a Basic Problem for an Income Property

   V.   Computer Analysis of an Income Property

LUNCHEON: 12:00 Noon

AFTERNOON SESSION: 1:00 P.M.

   I.   What Is Yield?

  II.   What Is Risk Analysis?

 III.   Risk Analysis Applied to a Mortgage Loan Application

COFFEE BREAK: 2:30 P.M.

  IV.   Risk Analysis Applied to a Limited Partnership Prospectu

   V.   Fair Market Value or Investment Value?

  VI.   Working through a Basic Problem for Land Development Analysis

 VII.   Computer Analysis of a Recreational Land Development

Counterpoint: "There is nothing so disastrous as a rational investment
policy in an irrational world."
John Maynard Keynes

Outline to
Guide to Real Estate Investment Analysis

MORNING SESSION

I. Basic Elements of Real Estate Financial Analysis

    A. The valuation process is a system of models which attempts to predict
        what a prudent man working for his economic betterment would do.

        1. The market comparison approach is a logic model of if/then
            statements.
        2. The cost approach is an aggregation model
        3. The income approach is a simulation model

    B. Simulation requires forecasting the cash cycle of an enterprise.
        Basic elements of a cash cycle forecast are:

        1. The time-line of financial events for an enterprise
        2. Schedules of outlays
        3. Schedules of receipts
        4. Measures of yield
        5. Measures of risk

    C. To make forecasting feasible it is necessary to simplify the future
        transaction pattern to the most important elements. Reducing a
        problem to basic relationships is called modeling. The basic
        considerations of a model as to its usefullness are:

        1. What prediction or decision needs to be made?
        2. What data is available to make it?
        3. What theories and assumptions are available to structure the data?
        4. What are the limitations of the model user?
        5. What are the constraints on communicating the output?
        6. What is the cost/benefit ratio of using the model?

    D. The types of financial modeling decisions typically found in financial
        analysis are:

        1. Economic allocation of all resources
        2. Acceptance or rejection of a specific investment opportunity
        3. Identification of the optimal combination of ingredients for
            a profitable opportunity
        4. Sensitivity analysis of relationship of financial success to
            specific variables
        5. Trade-off decision
        6. Measuring tolerance for and probability of surprise (risk)

    E. Comparison of critical assumptions for two investment valuation
        models or viewpoints in real estate:

        1. The traditional income appraisal began with an economic model
            intended to best allocate the country's investment in capital
            improvements and land. (See Illustration 1, Col. A)

2. The Ellwood valuation model began with the need to accept or reject mortgage loan applications and a correlary question of how much to lend on acceptable properties. (Illustration 1, Col.B)

F. When the viewpoint changes from valuation of a property for a mortgage commitment to an equity commitment the assumptions from the Ellwood approach become too simple, too far removed from reality to be a useful model.

1. The question for the equity investor is which investment has the best probability of maximizing his net spendable cash in the future and his total accumulation of net worth over time with an acceptable level of risk and hassle.
2. Illustration 1, Col. C summarizes the assumptions of modern capital budget decision models.
3. Notice that it is no longer possible to have a single NOI in the numerator or in some cases, a single capitalization rate in the denominator. It will be necessary to do some accounting period by period.

G. Modern money management therefore requires the following inputs to a financial forecast and investment strategy.

1. The time line for significant financial events
2. A schedule and amount of outlays for each period

   a. Capital outlays
   b. Expense outlays
   c. Debt service outlays
   d. Tax outlays

3. A schedule and amounts of receipts for each period

   a. Operating revenues
   b. Sales proceeds
   c. Borrowed funds
   d. Derivative receipts or savings

4. Measures of yield

   a. Periodic dollars of profit
   b. Periodic return in dollars invested
   c. Average periodic return on total resources
   d. Total cumulative dollar increase in net worth

5. Measures of risk

   a. Capacity for absorbing surprise
   b. Range of variation in alternative outcomes
   c. Definition of maximum loss

COMPARISON OF CRITICAL ASSUMPTIONS FOR THREE VALUATION MODELS OR VIEWPOINTS IN REAL ESTATE

Joint Meeting of SRA and AIREA Chapters, Charlotte, N.C.
Wednesday, April 18, 1973

By Professor James A. Graaskamp

Col. A	Col. B	Col. C
Economic Allocation of Resources	Accept or Reject Loan Application or How Much to Lend?	Which Investment Has the Best Probability of Maximizing Net Spendable & Net Worth
1. Instant investment	1. Instant investment	1. Discontinuous series of outlays
2. Productivity limited to net income from parcel before debt and income tax	2. Productivity limited to parcel after debt but before income tax	2. Productivity is net change in spendable cash from all sources after devt and income tax traced to real estate.
3. Continuous income function	3. Continuous income function	3. Discontinuous series of tax classified receipts
4. Recapture from income	4. Recapture from income & resale	4. Payback of equity from spendable cash and debt from net revenue & resale.
5. Projected for full useful life of improvements	5. Projected for normal turnover period 5-10 years of typical investor	5. Projected for elapsed time of outlays and receipts for specific investor time line horizon.
6. Arbitrary discount factor	6. Weighted average Inwood discounting	6. Selected present value discounting based on characteristics of investor and property revenue pattern

3.

II. Basic Money Management Theory

    A.   A real estate purchase is a capital budgeting decision and yet real estate professional societies teach capitalization as if the state of the arts was still the same as it was in 1935. To understand investment analysis is only necessary to calssify an investment as to type and the decision to be made.

    B.   Investment money managers distinguish between a conventional investment and a non-conventional investment by the pattern of outlays and receipts. Investment theory presumes outlays occur at the beginning of a period and proceeds are earned at the end of each period. A period is generally one year but might be a quarter or a month.

        1.   A conventional investment has one or more periods of outlays followed by one or more periods of positive cash proceeds. Negative cash proceeds (losses) are treated as outlays.

        2.   A non-conventional investment has one or more periods of outlays interspersed with periods of positive cash flows.

    C.   Assuming risk to be equal investment decisions attempt to provide a standard for choosing between alternative investment (courses of action) based on yield.

        1.   For an investor with relatively unlimited funds and opportunities, such as an insurance company, the problem is to make accept or reject decisions for many independent investments, generally accepting each if yield is greater than some minimum acceptable rate of discount.

            a.   Substitution theory and the cost of money
            b.   Ellwood theory began as device to screen loan submissions

        2.   Some investors have only enough money for a single site with which to make one investment and they are interested in shaping that investment to make the best profit possible within an acceptable limit of risk. A plant location problem where many sites may be profitable but where one site would be most profitable and only one plant would be built. Or there are engineering decisions to trade off one feature for another such as central air conditioning with higher rents, lower annual costs but higher initial investment as opposed to window air conditioners with average rents, higher depreciation, more responsibility and cost shifted to the tenant and higher finance charges. Such decisions are mutually exclusive, its one or the other.

            a.   Yield methods may give less accurate rankings for mutually exclusive decisions because they reflect average rather than incremental cash flows.
            b.   Mutually exclusive investments often involve marginal revenue versus marginal investment issues.

D. Your appraisal training has already given you some introduction to the problem of defining what is profit and what is recapture of capital and therefore ranking of investments.

   1. Straight line allocates earnings without recognition of a reinvestment rate and produces the lowest value.

   2. Hoskold uses a sinking fund factor to recognize reinvestment at a safe rate and therefore releases more proceeds to income and produces a higher value than straight line approach.

   3. Inwood defines reinvestment to be the same as a discount rate, therefore requiring smaller sinking fund amounts and releasing more to income thereby generating the highest value for the investment.

E. The ranking of alternative investments depends on a definition of yield and works best for pairs of alternatives and disintegrates as the number of alternatives increases. It will be shown by the end of the morning that an investment will be judged by a combination of yield factors in order to correctly define the investment from the standpoint of risk, the cost of money plans for use of the profits, and the viewpoint of the investor. Consider the following alternative measures of yield relative to four investments.

		Net Cash Proceeds Per Year	
Investment	Initial Cost	Year 1	Year 2
A	$10,000	$10,000	
B	10,000	10,000	$1,100
C	10,000	3,762	7,762
D	10,000	5,762	5,762

THE PAYBACK PERIOD

Investment	Payback Period (years)	Ranking
A	1	1
B	1	1
C	1.8	4
C	1.7	3

AVERAGE INCOME ON BOOK VALUE

Invest-ment	Average Proceeds	Average Depreciation*	Average Income (Proceeds less Depreciation)	Average Book†Value	Income on Book Value,%	Ranking
A	$10,000	$10,000	$ 0	$5,000	0	4
B	5,550	5,000	550	5,000	11	3
C	5,762	5,000	762	5,000	15	1
D	5,762	5,000	762	5,000	15	1

* Assuming straight line depreciation, † Investment divided by two.

AVERAGE INCOME ON COST

Investment	Cost	Average Income	Ave. Income on Cost,%	Ranking
A	$10,000	$ 0	0	4
B	10,000	550	5.5	3
C	10,000	762	7.6	1
C	10,000	762	7.6	1

PRESENT VALUE OF THE INVESTMENT Rate of Interest: 30%

Investment	Present Value of Proceeds	Present Value of Outlay	Net Present Value	Ranking
A	$ 9,450	$10,000	$ -570	4
B	10,413	10,000	+413	3
C	10,457	10,000	+457	2
D	10,564	10,000	+564	1

PRESENT VALUE OF THE INVESTMENT Rate of Interest: 30%

Investment	Present Value of Proceeds	Present Value of Outlay	Net Present Value	Ranking
A	$7,692	$10,000	$ -2,308	3
B	8,343	10,000	-1,657	1
C	7,487	10,000	-2,513	4
D	7,842	10,000	-2,158	2

SUMMARY OF RANKING

Measure of Investment Worth	A	B	C	D
Payback Period	1*	1*	4	3
Average Income on Book Value or Cost	4	3	1*	1*
Present Value: at 6%	4	3	2	1
at 30%	3	1	4	2

* Indicates tie between two investments

INCREMENTAL BENEFITS

Investment	Year	Outlays	Cash Flows Proceeds	Yield,%	Net Present Value at 5%
Y	0	$100.00		20	$27.89
	1		$20.00		
	2		120.00		
	0	100.00		25	23.58
	1		100.00		
	2		31.25		

Investment	0	1	2	Present-Value Index
X	$ -1,500	$1,000	$1,000	1.16
Y	-3,100	2,000	2,000	1.12

Investment	0	1	2	Present-Value Index
Y - X	$ -1,600	$1,000	$1,000	1.08

F. The real estate appraiser is generally familiar with investment
    decisions using a net present value method for decision making.
    Note that this method requires assuming a discount rate (9% in
    example below) and a stream of benefits and the object is to compute
    the maximum justified investment. Example:

    An Income Property Costing $50,000 (PVO) Will Have the
    Following Cash Flows:

Year 1	$2,000	Income
Year 2	5,000	Income
Year 3	5,100	Income
Year 4	5,200	Income
Year 5	55,000	Income and Reversion

At 9% What is the Net Present Value (NPV) of the Property?

	Amount	P.V. Factor at 9%	P.V. Benefits (PVB)
Year 1	2,000	.9174	$ 1,834
Year 2	5,000	.8417	4,209
Year 3	5,100	.7722	3,938
Year 4	5,200	.7084	3,684
Year 5	55,000	.6499	35,745
			$49,410

PVB - PVO = NPV

$49,410 - $50,000 = -$590

CONCLUSION: Do Not Buy the Project

G. Many corporations wish to solve for yield when they know the outlay and they know the stream of benefits. The measure of yield which they use is the internal rate of return (IRR). The internal rate is that rate which makes net present value (NPV) equal to 0 or PVB equal to PVO. For example:

An Income Property Costing $20,000 Will Have the Following Cash Flows:

Year 1	2,000	Income
Year 2	3,000	Income
Year 3	3,000	Income
Year 4	3,500	Income
Year 5	20,000	Income and Reversion

Net Present Value at 11%

	Amount	P.V. Factor at 12%	P.V. Benefits (PVB)
Year 1	2,000	.8929	1,785.80
Year 2	3,000	.7972	2,391.60
Year 3	3,000	.7118	2,135.40
Year 4	3,500	.6355	2.224.25
Year 5	20,000	.5674	11,348.00
			19,885.05

PVB - PVC = NPV

$19,885.05 - 20,000 = 114.95

Net Present Value at 11.83750171151%

	Amount	P.V. Factor at 11.83750171151%	P.V. Benefits (PUB)
Year 1	2,000	.89415445	1788.3089
Year 2	3,000	.79951218	2398.5365
Year 3	3,000	.71488738	2144.6621
Year 4	3,500	.63921973	2237.2691
Year 5	20,000	.57156117	11431.2234
			20,000.0000

PVB - PVC = NPV

20,000 - 20,000 = 0

Internal Rate of Return (IRR): That Rate Which Makes NPV = 0
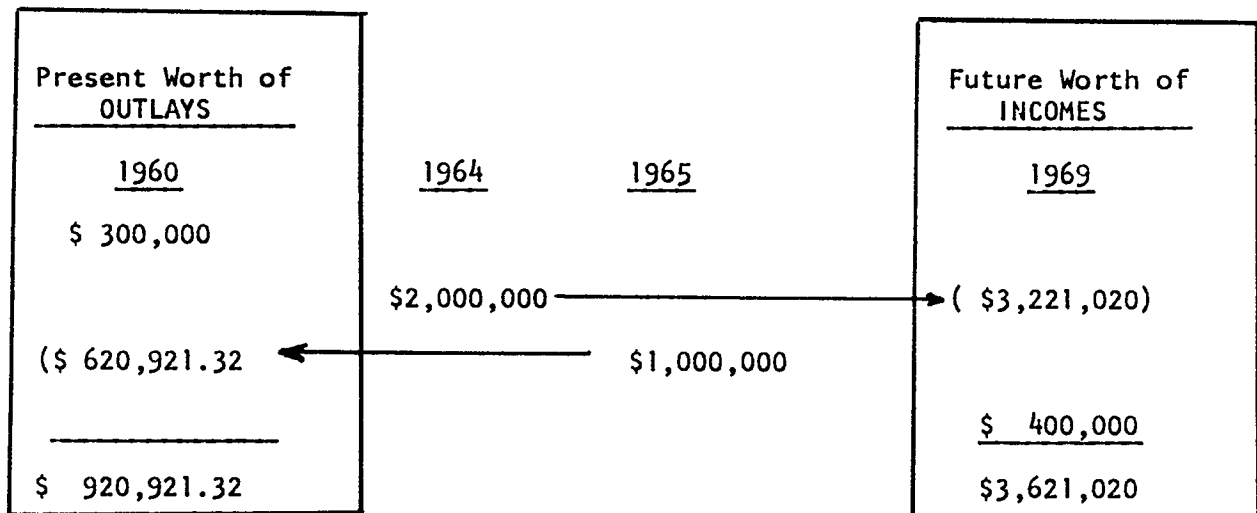   or PVB - PVC

IRR = 11.8375017151

H. Many institutions, however, feel that the internal rate of return
   is misleading or inappropriate for reasons particularly relevant
   to real estate.

   1. The internal rate or Inwood discounting assumes that capital
      recapture is reinvested immediately at the same rate at which
      you are discounting. (Reinvestment rate)

   2. More investments today are non-conventional - a series of outlays
      insterspersed with a series of returns and IRR cannot be computed
      by interpolation and algebraically the equation would have as
      many roots as there was a change in direction in net outlays
      per period versus net receipts.

   3. Equity investment does not occur on a continual basis but
      rather at erratic points in time and much equity money is qualified
      as limited partnership money, money raised by a public offering
      of stock, or participations as a condition of a loan with the
      result that the cost of money changes significantly over time
      and with the size of the project. Thus both the cost of capital
      and the reinvestment rate available for proceeds may differ
      from the yield on a specific investment.

I. The result that has been that development of what is called the
   modified internal rate of return (MIR). In MIR you first determine
   the present value of a series of outlays by discounting at the
   opportunity cost of capital. You then compound receipts forward
   to the end of a forecast period at the reinvestment rate. Having
   determined the present value of the outlay and the future compound
   value of the receipts, it is possible to solve for the internal
   rate of return. Consider the following example:

   Suppose we have the following outlays and incomes:

OUTLAYS:	Jan. 1, 1960	$ 300,000
	Jan. 1, 1965	1,000,000
INCOMES:	Jan. 1, 1964	2,000,000
	Jan. 1, 1969	400,000

   and the cost of capital rate is 10% p.a. compounded annually.

Present Worth of OUTLAYS	1964	1965	Future Worth of INCOMES
__1960__	__1964__	__1965__	__1969__
$ 300,000			
	$2,000,000 ──────────────→		($3,221,020)
($ 620,921.32) ←──────────		$1,000,000	
			$ 400,000
$ 920,921.32			$3,621,020

$$920,921.32 \ (1 + i)^{10} = 3,621,020.00 = 16.43\%$$

III. Basic Elements of After Tax Cash Flow Analysis

   A. There are four kinds of benefit dollars available from investment in real estate.

   1. Cash from operations at the income tax rate
   2. Cash from sales at the capital gains rate
   3. Cash from surplus due to refinancing (non-taxable)
   4. Cash from tax savings on other taxable income

   B. It is desirable to have a systematic method of classifying periodic returns and capital reversions from real estate on a pre-tax and after tax basis. (See outline)

   C. It is useful to use a sample case to see how each element of cash flow is computed and the schedules necessary to support such a presentation. (See attached sample case)

IV. Working Through a Basic Problem for an Income Property With a Simple Computer Model

   A. Busy work computations are the type of thing computers do best and Mini-Mod is an example of a central teaching model. There are many superior computer models which you can use for your client in your office by means of computer terminals. That is what EDUCARE is all about.

   B. A purchase and remodel problem (See "Analysis for Purchase of Apartment House Investment").

SYSTEMATIC ESTIMATION OF FORECAST ANNUAL INCOME FOR AN INCOME-PRODUCING PROPERTY

PART I.   ANNUAL RETURNS TO INVESTOR

BASIC APPRAISAL A LA SRA 201

A.   ESTIMATE POTENTIAL GROSS CASH INCOME: CASH INCOME FROM SPACE SALES

B.   DEDUCTIONS FROM POTENTIAL GROSS
   1.   NORMAL VACANCY
   2.   SEASONAL INCOME LOSS
   3.   COLLECTION   LOSSES
   4.   FRANCHISE FEES, DEPOSITS RETURNED, ETC.

C.   ADD "OTHER" INCOME FROM SERVICE SALES

D.   DERIVE EFFECTIVE GROSS INCOME

E.   DEDUCT OPERATING EXPENSES (ON EXPECTED CASH OUTLAY WITH-OUT ACCRUAL RESERVES)
   1.   FIXED EXPENSES
   2.   VARIABLE EXPENSES
   3.   REPAIRS AND MAINTENANCE
   4.   REPLACEMENTS

F.   DERIVE NET OPERATING INCOME

MORTGAGE EQUITY APPROACH

G.   DEDUCT ANNUAL DEBT SERVICE
   1.   CONTRACT INTEREST
   2.   SUPPLEMENTARY VARIABLE INTEREST
   3.   PRINCIPAL AMORTIZATION

H.   DERIVE CASH THROW--OFF

PART I OF IMV INVESTMENT VALUE APPROACH

I.   ADD BACK PRINCIPAL PAYMENTS AND REPLACEMENTS

J.   DEDUCT TAX DEPRECIATION ALLOWANCE

K.   DERIVE TAXABLE INCOME

L.   DETERMINE MARGINAL INCOME TAX ON REAL ESTATE INCOME

M.   DEDUCT INCOME TAX FROM CASH-THROW OFF (H)

N.   DERIVE AFTER-TAX CASH FLOW

O.   ADD TAX SAVINGS ON OTHER INCOME (IF K IS NEGATIVE)

P.   ADD SURPLUS FROM REFINANCING

Q.   DERIVE SPENDABLE AFTER-TAX CASH

PART II.   RESALE RETURNS TO INVESTOR (OVER)

J. Graaskamp

PART II.   RESALE RETURNS TO INVESTOR

       A.   ESTIMATED RESALE PRICE (EOY)

       B.   DEDUCT BROKER'S COMMISSION AND OTHER TRANSACTION COSTS

       C.   DERIVE EFFECTIVE GROSS PROCEEDS FROM SALE

       D.   DEDUCT ALL CREDIT CLAIMS (EOY) OUTSTANDING
          1.   SHORT AND LONG TERM NOTE BALANCES DUE
          2.   PREPAYMENT PENALTIES
          3.   DEDUCT EQUITY SHARES TO NON-OWNER INTEREST

       E.   DERIVE PRE-TAX REVERSION TO EQUITY

       F.   DEDUCT TAX CLAIMS ON OWNERSHIP INTEREST
          1.   DEDUCT CAPITAL GAINS TAX
          2.   DEDUCT INCOME TAX ON DISALLOWED ACCELERATED
             DEPRECIATION
          3.   DEDUCT SURTAX ON TAXABLE PREFERENTIAL INCOME

       G.   DERIVE AFTER TAX RESALE PROCEEDS TO INVESTOR

A Sample Case

Valuation of a Real Estate Investment
Involving Net Rental Variations, Leverage
Accelerated Depreciation, Investor Tax Considerations
and Price Appreciation

The following real estate investment analysis focuses on a property where the factors of increasing net rentals, leverage, accelerated depreciation, investor tax considerations, and price appreciation all have an important bearing on the property's total investment value. The property analysis incorporates the following assumptions:

(a) First year gross annual income of $140,000 increases by 3% per year for 10 years.

(b) Vacancy allowance is assumed to be 5% of gross income.

(c) Real estate taxes are $10,000 for the first year and increase at a rate of 2% per year.

(d) Expenses are $60,000 for the first year and increase at a rate of 3% per year.

(e) The total cost of the project is $950,000. Improvements are valued at $700,000. Land is valued at $250,000.

(f) Mortgage debt of $600,000 is available. This debt is to be amortized at 8% with annual payments of $54,000.

(g) The improvements will be depreciated through the use of the double declining balance method; the economic life of the improvements is 40 years.

(h) The project value is expected to grow at 3% per year.

(i) The investor's marginal income is taxed at 50%.

(j) An after-tax return on equity investment of 12% is sought.

(k) Capital gains on the sale of the property are taxed at 25%.

Schedule I
Present Value of Spendable Cash After Taxes
And Tax Savings On Other Income

	1	2	3	4	5
Gross Rent	140,000	144,200	148,400	152,600	156,800
Less Vacancy Allowance	7,000	7,210·	7,420	7,630	7,840
Effective Gross Income	133,000	136,990	140,980	144,970	148,960
Less Real Estate Taxes	10,000	10,200	10,400	10,600	10,800
Less Expenses	60,000	61,800	63,600	65,400	67,200
Net Income	63,000	64,990	66,980	68,970	70,960
Less Depreciation	35,000	33,250	31,588	30,008	28,508
Less Interest	48,000	47,520	47,002	46,442	45,837
Taxable Income	-20,000	-15,780	-11,610	- 7,480	- 3,385
Plus Depreciation	35,000	33,250	31,588	30,008	28,508
Less Principal Payments	6,000	6,480	6,998	7,558	8,163
Cash Throw-off	9,000	10,990	12,980	14,970	16,960
Less Taxes	-	-	-	-	-
Cash From Operations	9,000	10,990	12,980	14,970	16,960
Working Capital Loan (Cum Bal)	-	-	-	-	-
Spendable Cash After Taxes	9,000	10,990	12,980	14,970	16,960
Tax Savings on Other Income	10,000	7,890	5,805	3,740	1,693
Spendable Cash After Taxes Plus Tax Savings on Other Income	19,000	18,880	18,785	18,710	18,653
P. V. Factor @ 12%	.8929	.7972	.7118	.6355	.5674
Present Value of Spendable Cash After Taxes plus Tax Savings on other Income	16,965	15,051	13,371	11,890	10,584

6	7	8	9	10
161,000	165,200	169,400	173,600	177,800
8,050	8,260	8,470	8,680	8,890
152,950	156,940	160,930	164,920	168,910
11,000	11,200	11,400	11,600	11,800
69,000	70,800	72,600	74,400	76,200
72,950	74,940	76,930	78,920	81,910
27,082	25,728	24,418	23,221	22,059
45,184	44,479	43,717	42,894	42,006
684	4,733	8,795	12,805	16,845
27,082	25,728	24,418	23,221	22,059
8,816	9,521	10,283	11,106	11,994
18,950	20,940	22,930	24,920	26,910
342	2,366	4,398	6,403	8,423
18,608	18,574	18,544	18,517	18,488
-	-	-	-	-
18,608	18,574	18,544	18,517	18,488

18,608	18,574	18,544	18,517	18,488
.5066	.4523	.4039	.3606	.3220
9,427	8,401	7,490	6,677	5,953

Depreciation, Mortgage Interest, Mortgage Principal, and Market Value Data

Depreciation

700000	665000	631750	600162	570154	541646	514564	488836	464418	441197
.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
35000	33250	31588	30008	28508	27082	25728	24418	23221	22059

Mortgage

	600000	594000	587520	580522	572964	564801	555985	546464	563181	525075
	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
Interest	48000	47520	47002	46442	45837	45184	44479	43717	42894	42006
Principal	6000	6480	6998	7558	8163	8816	9521	10283	11106	11994
Total	54000	54000	54000	54000	54000	54000	54000	54000	54000	54000

Market Value

950000	978500	1007000	1035500	1064000	1092500	1121000	1149500	1178000	1206500

Schedule II
Total Investment Value of
A Real Estate Project

Total Present Value of Spendable Cash After Taxes plus Tax Savings on Other Income at 12% (Schedule I)			$105,809
Present Value of Net Proceeds From Sale of Property			
Total Sales Price		$1,206,500	
Less:			
Taxes on Sale of Property			
Capital Gains Tax	$113,168		
Income Tax	42,345	$155,513	
Unpaid Mortgage Balance	513,081	668,594	
		537,906	
Present Value Factor (12%)		.3220	173,206
Total Present Value of Equity Investment			$279,015
Original Mortgage Balance			$600,000
Total Project Value			$879,015

Example of Computing Taxes
on Sale of Property

Assumptions:

(a) Property held 10 years (120) months
(b) Basis equal to $669,138 (original basis equal to $950,000)
(c) Sales price equal to $1,206,500
(d) Depreciation taken on improvements of $700,000 equal to
   $280,862
(e) Had depreciation been taken on a straight line basis,
   depreciation would have been equal to $175,000
(f) Taxpayer is in the 50% bracket

Procedure for Determination of Tax:

Total Gain Subject to Tax: $537362
Portion Subject to Capital Gains Tax:
   Increase in property value $256,500
   Amount which would have been taken $175,000
      through straight line depreciation
   Allowable accelerated depreciation
      (280,862-175,000) x .20 $ 21,172
                                                         $452,672

Portion Subject to Ordinary Income Tax:
   Non-allowable Accelerated Depreciation
      (280,862-175,000) x .80   84,690
                                                         $537,362

Capital Gains Tax (\$452,672 x .25) $113,168
Income Tax   (\$84,690 x .50)   42,345
   Total Taxes on Sale $155,513

UNIVERSITY OF WISCONSIN
Real Estate Investment Teaching Model
Demonstration Case Study #2

ANALYSIS FOR PURCHASE OF APARTMENT HOUSE INVESTMENT

1. Assume you wish to analyze the investment value at alternative purchase prices
   of a 24 unit apartment building, located at 2575 University Avenue, Madison,
   Wisconsin. The building has twelve two-bedroom apartments that each rent
   furnished for $140 per month and twelve one-bedroom apartments that rent
   each for $125 per month. The building is five years old, unfurnished, in
   need of maintenance and available as is for about $225,000.

2. The building is well located and vacant land in the area is selling for
   about $1700 per unit. This means that $40,000 of the purchase price could
   be designated as land value. In addition to the land and building, the
   purchase price could be allocated to include $12,500 for the elevator and
   $7,200 to the parking stalls.

3. Market analysis indicates that the building would rent very well if all the
   units were carpeted and furnished. For this work it is estimated that
   it would cost $600 per two-bedroom unit and $500 for each one-bedroom unit
   or a total investment of $13,200 by the prospective buyer.

4. The total capital expenditures could be allocated for depreciation purposes
   as follows, keeping in mind that the prospect would be a second user and
   therefore only entitled to a maximum of 125% declining balance except
   for his new investment in furnishing. The percent depreciable and the
   number of years of remaining useful life are reasonable estimates given
   some knowledge of the practices of the Internal Revenue Service and the
   condition of the building:

Land	$40,000		No depreciation allowed	
Parking	7,200	50%	10 yrs.	125%
Elevator	12,500	90%	12 yrs.	125%
Building	165,300	100%	35 yrs.	125%
Furnishings	13,200	100%	7 yrs.	sum of digits
Transaction costs	1,800	100%	35 yrs.	125%

5. After completion of repairs and refurbishing it is anticipated that the two-
   bedroom apartments will rent for $170 a month and the one-bedrooms $150
   per month. The gross rent roll of the building would then be:

   $$\$170 \times 12 \times 12 = 24,480$$

   $$\$150 \times 12 \times 12 = \underline{21,600}$$
   $$\$ \ \overline{46,080}$$

6. During the first year of changeover in ownership, refurbishing and re-leasing
   you estimate that each unit will be vacant about two months, that is about one-
   sixth of the time, (i.e. a vacancy of 17%) so that your average occupancy will

APARTMENT CASE STUDY #2

be 83% of potential for the first year. Thereafter you anticipate a normal vacancy rate of 5%, or an occupancy of 95%. Thus first year extra expenses include an additional 12% of future gross for rental losses.

7. The current real estate and personal property taxes to be paid in the first year following purchase are estimated to be $9,000. The normal current operating expenses, excluding real estate taxes but including management fees, are determined to be $8,400.

8. The property has been poorly maintained and will require additional expenditures of $2100 in the first year to justify the new rent schedule. This deferred maintenance charge will be added to the extra operating expenses of the first year washing it out as a tax deductible expense.

9. The buyer is considering this property because his accountant suggested that with his 30% tax bracket, including state and federal taxes, he should look for some tax shelter to offset some of his other current income. Using the accelerated method of depreciation, this real estate project should satisfy this requirement.

10. The investor feels that while the normal ratio of market value to income in his community ranges between 8% and 11%, proper financing should raise the pre-tax yield on his cash equity to at least 18%. The accountant suggests that if the investor considers the cash saved on deferred income
' taxes due to depreciation, the investor should seek at least 18% to 22% on his investment annually on an after-tax basis. His opportunity cost is 12% as that is his common stock return including capital gains.

11. The financing available to the investor would initially combine the assumption of a first mortgage with a balance of $180,000 with 240 months to run and a second mortgage taken back by the seller to be repaid in ten years, in monthly payments. The investor would plan to refinance both loans at the end of the sixth year of ownership when the prepayment penalty would lapse on the first mortgage. The seller feels he should receive $1000 as points on the second mortgage since that is the discount he will take when he sells the note.

1st Mortgage	180,000 20 year	7 3/4%
	5 year balloon	
Private loan	15,000 10 year	8 1/2% $1000 discount
	5 year balloon	

12. While the seller will pay for title insurance, a survey, and related items the buyer expects to pay about $800 in professional appraisal and legal fees related to this transaction. These fees plus points in #11 equal transaction costs of $1800 which increase original cash required and must be amortized over life of structure.

13. Temporary cash deficits at the end of any month can be covered with bank notes at a rate of 9% per annum and repaid out of positive cash flows when available.

22.

Card 1

Student's Name	Last 2 Digits of Social Security #	Course & Section #'s	Equity Discount Rate	Income Tax Rate	# Cards #3	# Cards #4
MORTGAGE BANKERS SCH		-	.1800	.3000	7	4

Card 2

Project Description	Extraordinary Expenses	Cost of Equity Capital	Staging Multiplier	Staging Year
24 UNIT APT - CASE 2	7625	.1200	.	

Card 3

Component Description	Original Cost	Percent Depreciable	Depreciation Method	Starting Year	Useful Life
LAND	40000	0.0000	00	1	00
BUILDING	165300	1.0000	03	1	35
PARKING	7200	0.5000	03	1	10
FURNISHINGS	13200	1.0000	01	1	07
ELEVATOR	12500	0.8000	03	1	12
TRANSACTION COST	1800	1.0000	03	1	35
7TH YR REFURBISHING	10000	1.0000	01	8	07

Card 4

Mortgage Description	Principal Amount	Monthly Payment	Interest Rate	Bonus Interest Rate	Start	End	Term	Refinanced By Mortgage #
FIRST ASSUMED MORTG.	180000		.0775	.	01	05	20	03
SELLERS 2ND MORTG.	15000		.0850	.	01	05	10	05
REFINANCED FIRST	170000		.0800	0.0400	06	10	20	
REFURBISH CHATTEL	10000	150	.0900	.	08	10		

APARTMEIIT CASE STUDY #2

14. The financial plan is to maintain a highly leveraged position and therefore payoff the original loans at the end of the fifth year by obtaining a new mortgage. To discover some measure of influence of such refinancing on yield to equity and cash flows, the investor will assume that in five years the best loan he could obtain would equal $190,000 for 20 year term at 8$ interest. The age of the building at that time would require granting a bonus interest feature equal to 4% of gross rent as of the beginning of sixth year when the loan begins.

	Gross Rent	Expenses	Rental Growth Rate	Expense Growth Rate
Card Type 5	46080	8400	.0200	.0200

Columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65

	R E Taxes	R E Tax Growth Rate	Project Value Rate of Growth
Card Type 6	9000	.0500	.0100

Columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65

	Vacancy Rate	Working Capital Loan Interest Rate
Card Type 7	.0500	.0900

Columns: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65

To code Depreciation Method, use the following code no's.

    0 = no depreciation
    1 = sum of the digits
    2 = straight line depreciation
    3 = 125% declining balance
    4 = 150% declining balance
    5 = 200% declining balance

HAVE YOU CHECKED CARD I COLS. 61 and 64?

23.

UNIVERSITY OF WISCONSIN SCHOOL OF BUSINESS
Real Estate Investment Teaching Model
February, 1971
Basic Definitions of Model Outputs

1) Current period return on Net Worth before taxes =

$$\frac{\text{Cash Throw-off + Change in Net Worth}}{\text{Net Worth at End of Previous Year}}$$

2) Current period return on net worth after taxes =

Spendable cash + tax savings on other income +

$$\frac{\text{(Change in net worth - change in cap. gains tax)}}{\text{Net worth at the end of previous year less capital gains tax of}}$$
previous year

3) Cash return on original cash equity before taxes =

$$\frac{\text{Cash throw-off}}{\text{Total initial investment less initial mortgage debt}}$$
(This is adjusted for staged projects)

4) Cash return on original equity cash after taxes =
(This is adjusted for staged projects)

$$\frac{\text{Spendable Cash after taxes + Tax savings on other income}}{\text{Total initial investment cost less initial mtge. debt}}$$

5) Net income - market value ratio

$$\frac{\text{Net Income}}{\text{Market Value for the same period}}$$

6) After tax cash recovered - cash equity ratio (payback) =

$$\frac{\text{Accumulated spendable cash after taxes + accumulated tax savings other income}}{\text{Cash equity required}}$$

7) Default ratio =

$$\frac{\text{Operating Exp. + R.E. Taxes + Prin. \& Interest on Mtge. + Working Cap. Loan Prin. Repayment}}{\text{Gross Income}}$$

8) Lender Bonus Interest Rate =

$$\frac{\text{\% of effective gross (not to exceed cash throw-off for period)}}{\text{Balance due on loan at beginning of period}}$$

9) Resale Market Value at End of Year

Total Initial Investment Cost + Additional Staged Investment X
Index for Year

10) Net worth of property =

Market value less balance of loans less working capital loans

11) A. Sales proceeds subject to capital gains tax =

Market value - (Total Capital Investment - Straight-line depreciation -
Allowed excess depreciation)

B. Sales proceeds subject to Income tax =

Cumulative depreciation taken - Straight-line depreciation -
Allowed excess depreciation

C. Taxes on sale = (A X 1/2 Income Tax rate*) + (B X Income Tax Rate)
* Not to exceed 25%

12) Present value of project before taxes =

Original mortgage balance + PV of received stream of cash throw-off
+ PV of net worth if sold at end of year indicated by column number.

13) Present value of project after taxes =

Original mortgage balance + present balue of received stream of spendable
cash after taxes + PV of received tax savings on other income + PV of
(net worth less capital gains tax) if sold at end of year indicated
by column number.

14) Cash Equity Required = $\sum$ \$ components utilized -

$\sum$ face value of mortgages in force

15) For each year N (net worth - cap gains tax) +

$$X = \sqrt{\sum}^{N} \left[(\text{Spendable Cash Aft Taxes} + \text{Tax Savings})*(1. + \text{Cost of Equity Cap})^{N-1} \right]$$

Y = (LOG (X) - LOG (Original Investment)/N

Equity Rate = Exp (Y) - 1.

COMPONENTS	PCT. DEPR	BEGIN USE	USEFUL LIFE	DEPR METHOD	COST				
LAND	.00	1	.	0	$ 40000.	GROSS RENT	$ 46080.	RATE OF GROWTH OF GROSS RENT	.0200
BUILDING	1.00	1	35.	3	$ 165300.	EXPENSES	$ 8400.	RATE OF GROWTH OF EXPENSES	.0200
ELEVATOR	.80	1	9.	3	$ 12500.	R E TAXES	$ 9000.	RATE OF GROWTH OF R E TAXES	.0500
FURNISHINGS	1.00	1	7.	5	$ 13200.	INCOME TAX RATE	.3000	RATE OF GROWTH OF PROJECT VALUE	.0100
PARKING	.50	1	10.	3	$ 7200.	VACANCY RATE	.0500	WORKING CAPITAL LOAN RATE	.0900
TRANSACTION COST	1.00	1	35.	3	$ 1800.	EQUITY DISCOUNT RATE	.1800	EXTRAORDINARY EXPENSES $	7625.
7TH YR REFURBISH	1.00	8	7.	1	$ 10000.	STAGING YR(0),FACTOR	.00	COST OF EQUITY CAPITAL	.1200
TOTAL INITIAL INVESTMENT					$ 240000.				

	1	2	3	4	5	6	7	8	9	10
CASH EQUITY REQUIRED	45000.	45000.	45000.	45000.	45000.	50000.	50000.	50000.	50000.	50000.

FINANCING PLAN

FIRST ASSUMED MORTG $ 180000.
MONTHLY PAYMENT $ 1477. INTEREST RATE .0775 STARTS 1 ENDS 5 BONUS INTEREST .0000 OF GROSS RENT

	1	2	3	4	5	6	7	8	9	10
PRINCIPAL	3919.	4234.	4574.	4942.	5339.	.	.	.	.	.
INTEREST	13812.	13497.	13157.	12790.	12393.	.	.	.	.	.
BALANCE	176080.	171845.	167270.	162328.	156989.	.	.	.	.	.

SELLERS 2ND MORTG. $ 15000.
MONTHLY PAYMENT $ 185. INTEREST RATE .0850 STARTS 1 ENDS 5 BONUS INTEREST .0000 OF GROSS RENT

	1	2	3	4	5	6	7	8	9	10
PRINCIPAL	994.	1082.	1178.	1282.	1396.	.	.	.	.	.
INTEREST	1236.	1148.	1053.	948.	835.	.	.	.	.	.
BALANCE	14005.	12922.	11743.	10460.	9064.	.	.	.	.	.

REFINANCED FIRST $ 190000.
MONTHLY PAYMENT $ 1589. INTEREST RATE .0800 STARTS 6 ENDS 10 BONUS INTEREST .0400 OF GROSS RENT

	1	2	3	4	5	6	7	8	9	10
PRINCIPAL	.	.	.	.	.	4016.	4349.	4710.	5101.	5524.
INTEREST	.	.	.	.	.	15054.	14721.	14360.	13969.	13546.
BALANCE	.	.	.	.	.	185983.	181634.	176924.	171822.	166297.

REFURBISH CHATTEL $ 10000.
MONTHLY PAYMENT $ 150. INTEREST RATE .0900 STARTS 8 ENDS 10 BONUS INTEREST .0000 OF GROSS RENT

	1	2	3	4	5	6	7	8	9	10
PRINCIPAL	.	.	.	.	.	.	.	938.	1026.	1122.
INTEREST	.	.	.	.	.	.	.	861.	773.	677.
BALANCE	.	.	.	.	.	.	.	9061.	8035.	6913.

```
COMPONENTS        PCT. BEGIN USEFUL   DEPR
                  DEPR  USE  LIFE   METHOD    COST        GROSS RENT        $  46080.   RATE OF GROWTH OF GROSS RENT   .0200
  LAND             .00   1     .       0   $  40000.      EXPENSES          $   8400.   RATE OF GROWTH OF EXPENSES     .0200
  BUILDING        1.00   1    35.      3   $ 165300.      R E TAXES         $   9000.   RATE OF GROWTH OF R E TAXES    .0500
  PARKING          .50   1    10.      3   $   7200.      INCOME TAX RATE       .3000   RATE OF GROWTH OF PROJECT VALUE .0100
  FURNISHINGS     1.00   1     7.      1   $  13200.      VACANCY RATE          .0500   WORKING CAPITAL LOAN RATE      .0900
  ELEVATOR         .80   1    12.      3   $  12500.      EQUITY DISCOUNT RATE .1800   EXTRAORDINARY EXPENSES      $  7625.
  TRANSACTION COST 1.00  1    35.      3   $   1800.      STAGING YR( 0),FACTOR  .00   COST OF EQUITY CAPITAL         .1200
  7TH YR REFURBISH 1.00  8     7.      1   $  10000.
TOTAL INITIAL INVESTMENT                  $ 240000.
```

```
                         1        2        3        4        5        6        7        8        9       10
CASH EQUITY REQUIRED   45000.   45000.   45000.   45000.   45000.   70000.   70000.   70000.   70000.   70000.
```

FINANCING PLAN

```
    FIRST ASSUMED MORTG. $ 180000.
               MONTHLY PAYMENT $ 1477.  INTEREST RATE .0775   STARTS  1 ENDS    5  BONUS INTEREST .0000 OF GROSS RENT
                         1        2        3        4        5        6        7        8        9       10
         PRINCIPAL    3919.    4234.    4574.    4942.    5339.      .        .        .        .        .
         INTEREST    13812.   13497.   13157.   12790.   12393.      .        .        .        .        .

         BALANCE    176080.  171845.  167270.  162328.  156989.      .        .        .        .        .
```

```
    SELLERS 2ND MORTG.  $  15000.
               MONTHLY PAYMENT $  185.  INTEREST RATE .0850   STARTS  1 ENDS    5  BONUS INTEREST .0000 OF GROSS RENT
                         1        2        3        4        5        6        7        8        9       10
         PRINCIPAL     994.    1082.    1178.    1282.    1396.      .        .        .        .        .
         INTEREST     1236.    1148.    1053.     948.     835.      .        .        .        .        .

         BALANCE     14005.   12922.   11743.   10460.    9064.      .        .        .        .        .
```

```
    REFINANCED FIRST    $ 170000.
               MONTHLY PAYMENT $ 1421.  INTEREST RATE .0800   STARTS  6 ENDS   10  BONUS INTEREST .0400 OF GROSS RENT
                         1        2        3        4        5        6        7        8        9       10
         PRINCIPAL      .        .        .        .        .     3593.    3891.    4214.    4564.    4943.
         INTEREST       .        .        .        .        .    13470.   13171.   12848.   12499.   12120.

         BALANCE        .        .        .        .        .   166406.  162515.  158300.  153736.  148792.
```

```
    REFURBISH CHATTEL   $  10000.
               MONTHLY PAYMENT $  150.  INTEREST RATE .0900   STARTS  8 ENDS   10  BONUS INTEREST .0000 OF GROSS RENT
                         1        2        3        4        5        6        7        8        9       10
         PRINCIPAL      .        .        .        .        .        .        .      938.    1026.    1122.
         INTEREST       .        .        .        .        .        .        .      861.     773.     677.

         BALANCE        .        .        .        .        .        .        .     9061.    8035.    6913.
```

	1	2	3	4	5	6	7	8	9	10
GROSS RENT	46080.	47001.	47923.	48844.	49766.	50688.	51609.	52531.	53452.	54374.
LESS VACANCY ALLOWANCE	2304.	2350.	2396.	2442.	2488.	2534.	2580.	2626.	2672.	2718.
EFFECTIVE GROSS INCOME	43776.	44651.	45527.	46402.	47278.	48153.	49029.	49904.	50780.	51655.
LESS REAL ESTATE TAXES	9000.	9450.	9900.	10350.	10800.	11250.	11700.	12150.	12600.	13050.
LESS EXPENSES	16025.	8568.	8736.	8904.	9072.	9240.	9408.	9576.	9744.	9912.
NET INCOME	18751.	26633.	26891.	27148.	27406.	27663.	27921.	28178.	28436.	28693.
LESS DEPRECIATION	11469.	10537.	9640.	8775.	7940.	6762.	5942.	7729.	7144.	6571.
LESS INTEREST	15049.	14646.	14210.	13739.	13229.	15497.	15236.	15812.	15411.	14972.
TAXABLE INCOME	-7768.	1449.	3039.	4633.	6236.	5403.	6742.	4637.	5880.	7149.
PLUS DEPRECIATION	11469.	10537.	9640.	8775.	7940.	6762.	5942.	7729.	7144.	6571.
LESS PRINCIPAL PAYMENTS	4914.	5317.	5753.	6224.	6735.	3593.	3891.	5152.	5590.	6065.
CASH THROW-OFF	-1213.	6669.	6926.	7184.	7441.	21582.	8793.	17213.	7434.	7655.
LESS TAXES	.	434.	911.	1390.	1870.	1620.	2022.	1391.	1764.	2144.
CASH FROM OPERATIONS	-1213.	6234.	6014.	5794.	5570.	19961.	6770.	15822.	5670.	5510.
WORKING CAPITAL LOAN(CUM BALANCE)	1213.	.	.	.	.	.	.	.	.	
SPENDABLE CASH AFTER TAXES	.	4911.	6014.	5794.	5570.	19961.	6770.	5822.	5670.	5510.
TAX SAVINGS ON OTHER INCOME	2330.	.	.	.	.	.	.	.	.	.

27.

* * * * * * * * * * * * * * * * * * * * * * * * * * * *

	1	2	3	4	5	6	7	8	9	10
MARKET VALUE	240000.	242400.	244800.	247200.	249600.	252000.	254400.	266800.	269200.	271600.
BALANCE OF LOANS	191298.	184767.	179014.	172789.	166054.	166406.	162515.	167362.	161771.	155706.
NET WORTH OF PROPERTY	48701.	57632.	65785.	74410.	83545.	85593.	91884.	99437.	107428.	115893.
CAPITAL GAIN	7853.	18106.	28359.	38613.	48866.	59119.	69373.	81055.	92566.	103922.
CAPITAL GAINS TAX	1177.	2715.	4253.	5791.	7329.	8867.	10405.	12158.	13884.	15588.
INCOME TAX ON EXCESS DEPRECIATION	1084.	1890.	2426.	2702.	2729.	2401.	1828.	1362.	772.	57.

* * * * * * * * * * * * * * * * * * * * * * * * * * * *

	1	2	3	4	5	6	7	8	9	10
PERCENT INITIAL EQUITY PAYBACK AFTER TAX	.0517	.1609	.2946	.4233	.5471	.6369	.7336	.8168	.8978	.9765
NET INCOME-MARKET VALUE RATIO	.0781	.1098	.1098	.1098	.1098	.1097	.1097	.1056	.1056	.1056
RETURN ON NET WORTH BEFORE TAXES	.0552	.3203	.2616	.2403	.2227	.2828	.1762	.2695	.1551	.1500
RETURN ON NET WORTH AFTER TAXES	.0837	.2476	.2280	.2132	.1993	.2830	.1627	.1517	.1457	.1400
CASH RETURN ON ORIG CASH EQUITY BEF TAX	-.0269	.1482	.1539	.1596	.1653	.3083	.1256	.2459	.1062	.1093
CASH RETURN ON. ORIG CASH EQUITY AFT TAX	.0517	.1091	.1336	.1287	.1237	.2851	.0967	.0831	.0810	.0787
DEFAULT RATIO	.9763	.8339	.8054	.8029	.8004	.7808	.7796	.8126	.8109	.8092
LENDER BONUS INTEREST RATE	.0000	.0000	.0000	.0000	.0000	.0122	.0124	.0129	.0127	.0134

* * * * * * * * * * * * * * * * * * * * * * * * * * * *

	1	2	3	4	5	6	7	8	9	10
PRESENT VALUE OF PROJECT BEFORE TAXES	236272.	241180.	244044.	246091.	247482.	250665.	250564.	252753.	252195.	251580.
PRESENT VALUE OF PROJECT AFTER TAXES	236329.	238585.	240136.	241150.	241708.	244513.	244111.	243513.	242850.	242141.
EQUITY RATE W/ COST OF CAPITAL AT .120	.0837	.1599	.1779	.1821	.1816	.1904	.1838	.1778	.1728	.1684

CASH.FLOW ANALYSIS

10

10.1 FINANCIAL IMPLICATIONS OF DESIGN & MARKET CONSTRAINTS

Real estate decisions for both public and private projects ultimately involve issues relative to the wise management of money over time. Unlike investment in bonds and stock, real estate seldom provides any fixed points in advance relative to total investment required, timing of returns, or standardized formats facilitating comparison or statistical forecasting. In the design stages of a project financial analysis and comparison of alternatives must depend on extensive and detailed assumptions in dollars but these assumptions and the conclusions are highly volatile numbers.

Measurable returns to the investor are generally confined to cash returns. The ultimate feasibility of a project depends on successful management of cash flows to maintain solvency, stability and hopefully a profit surplus appropriate to risk and capital employed. Cash may be generated from rents, sales, financing gambits, or income tax ploys. The sequence of these returns must be matched to the sequence of outlays to measure both business risk and financial risk. Business risk is concerned with the ability to repay financial obligations with interest on schedule. Profit is measured in dollars and yield, as a function of money at work over time. Thus financial management, risk analysis, and comparative profitability all require some minimum set of assumptions in the following areas:

10.2 A time line or calendar of events related to financial assumptions.

10.3 A product mix and revenue sequence.

10.4 A capital budget outlay schedule.

10.5 An operating cost and outlay sequence.

10.6 A financing plan with specific credit terms and contributions.

10.7 Summary sequence of cash outlay and surplus expectations. ‐

10.8 Measurement standards of risk and yield.

10.9 Identification of possible indirect benefits and profit centers.

To simulate the financial consequences of any set of land development assumptions, the University of Wisconsin School of Business and Robert Gibson[1] had developed a cash flow model which combined a variety of features borrowed from capital cost estimating models, critical path network analysis, and investment evaluation models. While all its features and mathematics are too detailed to develop in this case, one set of financial inputs and output are provided as a demonstration of the technique. Many runs of the model were made and further planning would require continual financial revisions to specify the range of alternative outcomes the developer might expect.

Financial inputs can be no more specific than the design detail available at any stage of analysis and yet the quantitative nature of finance and electronic computation may lead to exaggerated

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[1] The computer program used in this study is available to developers from Robert Gibson, 130 Fairview Street, Walworth, Wisconsin, 53189.

credibility inherent in pseudo-accurate detail. With this explicit warning the reader can match some of the brief explanations and assumptions which follow to the computer outputs which form the last half of this chapter.

10.2 A. THE TIME LINE OR CALENDAR OF EVENTS

Development is a process over time and each set of time dimensioned variables have been noted on the computer runs with an Ⓐ . Computer runs are numbered pages 1 to 8

Page 1

To reflect inflation influences on raw land, real estate taxes and capital costs; all assumptions of these items are adjusted annually. Construction costs per feature are expected to rise 5 percent a year. Real estate taxes have been rising in the county at 2 percent a year and there would be an initial increase of 20 percent upon sale of the land from the parent corporation to the developing company. Raw land value was inflated at 1 percent a year net of sales commissions to provide a basis for estimating real estate tax assessed value and liquidating value of the development firm at the end of any specific year. The "Cash Column" is in units of one thousand dollars and states no cash is available for profit distribution unless surplus exceeds $90,000 on the first year, a control to permit internal financing from profits.

Page 2

The capital scheduling of general improvements such as road construction for the clubhouse is indicated by year. The release of title and therefore real estate tax responsibility and carrying charges for land not specifically allocated to lots is also indicated by year under the title "acres dedicated."

Page 3

Timing of borrowing, interest payments, and principal payments on a construction credit line are recorded under first mortgage transaction.

Pages 4 - 7

For each type of sales product a sales price must be set by year together with the estimated number of units which might be sold. Note that no sales are expected for the first year which is reserved for design and construction. Other time line assumptions which do not appear on the output but are required on the input form, include the lead time necessary to produce a lot, the inventory to be maintained in excess of sales and carrying charges on finished inventories. This particular set of assumptions requires six years to build and to complete.

19.

10.3 B. A PRODUCT MIX AND REVENUE SEQUENCE

The revenue cycle begins with the nature of merchandise for sale. For a planned unit development a portion of the product is in the nature of community facilities which may be not directly costed to individual sales units. However, a large portion of land and improvement costs, as well as overhead, can be allocated to specific types of salable products such as home sites or a class of condominium apartments. These specific sales price and allocated capital costs are summarized below and appear on pages 4 to 7 and are noted with (B).

Page 2

Provided a summary statement of land use allocations with approximately 858 acres improved and lotted. Left as wilderness acres in common ownership were 2,442 acres, marred with only trails and picnic areas, etc., which means a ratio of developed acres and wilderness acres of 1:2.8 or about 27 percent. There are a total of 1,460 dwelling units or sites which is a ratio of only one DU for each 2.2 acres of land!

Page 4

One-half acre lots (approximately 100 x 200) with water, electricity and group septic services   900 units

20.

1. Initial sales price $8,000
2. Absorption rate 180 units per
   year
3. Specific allocated improvement
   costs:

    a. 100 feet of half road   350
    b. electrical service   200
    c. water line   250
    d. cluster septic share   500
    e. recreation equipment allowance   25
    f. pedestrian trail at rear of lot   50
    g. contingencies   200
    h. financing charge*   425
        Total capital cost per unit $2,000/lot
4. Gross profit per unit   6,000

Page 5

One-acre lots (approximately 150
x 290) without water and septic.   400 units

1. Initial sales price $5,500
2. Absorption rate 100 units per
   year
3. Specific allocated improvement
   costs:

---

*Allowance for discount on sale of 8 percent land contract for
cash. Marked with * in following references also.

21.

a.	150 feet of half road	525
b.	electrical service	200
c.	recreation equipment allowance	25
d.	pedestrian trail at rear of lot	75
e.	contingencies	200
f.	financing charge*	325
	Total capital cost per unit	$1,350/lot
4. Gross profit per unit		$4,150

Page 6

Studio deluxe condominium (550
square feet living space)   80 units

1. Initial sales price with land $17,900
2. Absorption rate 20 units per year
3. Specific allocated improvement
   costs:

a.	road share plus 2 parking stalls	350
b.	electrical service	200
c.	recreation equipment allowance	25
d.	cluster septic share	500
e.	water line	250
f.	structure @ $15/sf	8,250
g.	financing charge*	1,000
h.	contingencies	200
	Total capital cost per unit	$10,775/unit
4. Gross profit per unit		$ 7,125

22.

Two-bedroom condominium (750
square feet living space)   80 units

1. Initial sales price with land $22,500
2. Absorption rate 20 units per year
3. Specific allocated improvement
   costs:

   a. road share plus 2 parking stalls   350
   b. electrical service   200
   c. recreational equipment allowance   25
   d. cluster septic share   500
   e. water line   250
   f. structure @ $15/sf   11,250
   g. financing charge*   1,000
   h. contingencies   200
           Total capital cost per unit $13,775/unit
4. Gross profit per unit $ 8,725

Total number of salable units of 3,300
acres: 1,460

10.4 C. A CAPITAL BUDGET OUTLAY SCHEDULE

The basic elements of the capital budget and cost estimating
models are a catalog of construction costs, an inventory of land

23.

used and available, and some initial inputs of land and capital
These items are identified on the computer run with Ⓒ .

Page 1

> The catalog of costs for capital budgeting may be placed
> in the computer at any level of detail, in lumps such as
> the clubhouse budget of $100,000 or in modules such as
> "one running foot of 40 foot wide trail area" occupying
> 40 square feet of land and costing $1 per running foot.
> The input forms make it possible to assemble a capital
> budget for any improvement by specifying quantities of
> required items in the catalog. These quantities of input
> are converted by the computer to the cost of general im-
> provement which appear on page 2 or the total cost of
> allocated capital improvement which appear for each pro-
> duct on pages 4-7.

Page 3

> The initial capital resources provided by the parent corpo-
> ration to its development subsidiary can be summarized
> as consisting of a total equity in development of $540,000
> allocated among $330,000 for 3,300 acres at $100 per
> acre, $95,000 for purchase of key parcels owned by others,
> and $115,000 in cash. The price of $100 per acre pro-
> vides more than a $200,000 capital gain to the parent
> corporation which is not included in profit calculations
> by the computer. This information also provides the basis
> for estimating income taxes for the development corpo-
> ration during the life of the project.

125

10.5 D. AN OPERATING COST AND OUTLAY SEQUENCE

Operating costs and allowances can be fixed or can be variable as a function of both construction in process and the level of sales activity. These basic assumptions are itemized below and identified where they appear on the computer outputs with Ⓓ . Since they appear virtually throughout the computer output they are not all identified by page.

1. Organizational legal fees $5,000.
2. Fixed management cost of $75,000 per year, plus
3. Professional fees and construction administration at 10 percent of construction cost in place, plus
4. Sales administration and advertising at 15 percent of sales, plus
5. Sales commission of 15 percent of sales unit cost.
6. Credit line for construction of improvements provided at 12 percent.
7. Working capital loans from parent corporation at 15 percent per annum.
8. On page   it should be noted that a basis for computing both real estate taxes and income tax is provided. The proration formula refers to the need of allocating investment in general improvement to unit sales or dollar sales or some combination of both. In this case general costs were prorated according to sales value of the unit to equalize the gross profit spread and to avoid distortion if higher profit items tended to sell earlier or later during the development. Once other items in the financial plan were firmly established, the computer model would permit testing of alternative sales or financial strategies.

126

10.6 E. A FINANCING PLAN OF SPECIFIC CREDIT TERMS &
EQUITY CONTRIBUTIONS

The financing specifications for this particular demonstration were greatly simplified by the credit rating of the client. While the computer model is designed to provide elaborate combinations of various land development financing terms available today, only a very basic two stage financing program was required. All capital improvements were paid for from a basic credit line which did not exceed $2,000,000 at any time during the project life and which would be closed out during the fifth year. Operating expenses were met out of initial cash capital with a 12 percent opportunity cost and 20 percent yield target, retained earnings, or short term working capital loans available from the parent corporation at 1.25 percent per month.

It was assumed that all sales were cash sales as any consumer credit contracts would be instantly sold to a bank. Fifty percent of all sales were expected to be credit sales and the average discount of $700 per credit sale sold to the bank was distributed to all sales as a $350 component of closing costs on lots with correspondingly higher discounts for condominium mortgages in their closing costs.

10.7 F. SUMMARY SEQUENCE OF CASH OUTLAY &
SURPLUS EXPECTATIONS

With all of the various subcomponents of the development process taking place at once, it is useful to assemble and aggregate these outlays and receipts over time.

127

27.

This summary page includes distributions over the six-year development plan and in total with a percentage analysis. Most items are self-explanatory and therefore discussion will focus on the key line Net Cash After Taxes.

Cash flows are essentially negative until the fifth year because the financing utilizes advances in the form of loans from the parent corporation. With repayment of all debt, cash surpluses available for dividends appear in the fifth and sixth years. The present value by simple discounting of these returns of 20 percent suggests an investment value well in excess of the $540,000 initially required. The internal rate of return, however, when the cost of capital is recognized at 12 percent, is slightly lower at 19.1 percent.

Thus at the preliminary stage of design the project indicates that it can probably provide the targeted rate of return for funds employed but the financial analysis recommends that the design process now refine:

1. The timing of capital expenditure to reduce financing and interest costs.
2. The assumptions of management and general administration costs (excluding sales costs) which are high.
3. The sales price or cost estimates for allocated capital outlay which at 30 percent of sales may be high.

4. The quantity and timing of unit sales which would most certainly not be equal per year as assumed but rather which would peak during the third and fourth years.
5. Assumptions regarding sales to finished inventory ratios and the absence of any sales during the first year when many developers are able to secure deposits on future deliveries.

10.8 G. MEASUREMENT OF STANDARDS OF RISK AND YIELDS

The traditional financial ratios and discounting of future returns or the application of industry rules of thumb would be best applied after plans and financial assumptions were more firmly set by the feedback process of testing and researching the inputs from the designers, the merchandisers, and the financial consultants. This project is marginal with a rate of return of 19 percent until plans can be detailed to assure greater accuracy of capital costs and rate of sale.

10.9 H. IDENTICATION OF POSSIBLE INDIRECT BENEFITS & PROFIT CENTERS

These runs of the computer did not include this but could be expanded to measure profit from business centers beyond those strictly tied to land development. These would include:

1. Possible mobile home franchising,
    estimated sales of 400 units x $600 $240,000
    commission/unit =   gross profit

2. Possible project management con-
    tract with ownership association,
    1,460 property owners at $30 each $43,650
    per year =   net fees
    (Assume assessments at $100/year)

3. Sale of 3,300 acres x $100/acre =
    or a $195,000 profit of a $40/acre
    basis.

4. Interest on working capital loans to
    subsidiary at 1.25 percent/month
    or 15 percent/year.

5. If K-C finances Kimberlands' land
    contracts, assume 50 percent of
    total sales on 5-year land contracts
    x 80 percent loan ratio x allowance
    for 10 percent discount + 8 percent
    per year on-going interest.

29.

130

SUMMARY OF INPUTS

CAPITAL COST COMPONENTS (C)

NAME	PRICE PER UNIT	LAND COVERED	TYPE
10FT 1/2 SURF RD	4.00	20.00	2
SECOND REC BLD	35000.00	1.00	1
ELECT TO SITE	200.00	.00	0
CLUB HOUSE	100000.00	25.00	1
I-D POOL	75000.00	1.00	1
AREA SWM POOL	15000.00	1000.00	2
AREA UTIL BLDG	9000.00	1000.00	2
ENTRANCES + SGNS	30000.00	80000.00	2
1RF OF 40FTW TRL	1.00	40.00	2
STABLE	10000.00	4.00	1
SKEET + RIF RANG	5000.00	1.00	1
DOCKS + LANDINGS	10000.00	.50	1
REC EQUIP	25.00	.00	0
MGR HOUSE	20000.00	.50	1
.1 CLUSTERSEPTIC	500.00	.00	0
WATER WELL	2100.00	.00	0
MAINT FACILITIES	10000.00	2.00	1
RES BLDG COST SF	15.00	.00	0
WILDNERNESS LAND	100.00	2120.00	1
AREA 1 DREDGING	18000.00	.00	0
AREA 2 DREDGING	30000.00	.00	0
CONTINGENCIES	200.00	.00	0
HIKING TRAIL	2000.00	15740.00	2
WATER LINE	250.00	1.00	0

ANNUAL PERCENTAGE INDEXES (A)

YEAR	LAND	R.E. TAXES	CAPITAL COSTS	CASH
1	100.	100.	100.	90.
2	101.	120.	105.	80.
3	102.	123.	110.	70.
4	103.	124.	115.	60.
5	104.	126.	120.	.
6	105.	128.	125.	.
7	106.	130.	130.	.
8	107.	132.	135.	.
9	108.	134.	140.	.
10	109.	136.	145.	.

TYPE CODES
0=NO LAND COVERED
1=LAND COVERED IN ACRES
2=LAND COVERED IN SQUARE FEET

30.

MARGINAL TAX RATE	.4800	(D) CARRYING COST PER RAW ACRE OF LAND	1.00
WORKING CAPITAL INTEREST RATE	.1500	EQUITY RATE OF RETURN--USED IN PRESENT VALUE CALCULATIONS	20.00
REAL ESTATE TAX EQUALIZATION RATE	33.00	PORTFOLIO RATE OF RETURN--OR OPPORTUNITY COST	12.00
REAL ESTATE TAXES PER THOUSAND OF VALUE	90.00	FIXED ADMINISTRATIVE + GENERAL EXPENSES PER YEAR	75000.
PRORATION FORMULA 0/0 TO LAND AREA	.00	ADMIN. + GENERAL EXPENSES AS A 0/0 OF SALES VALUE	15.00
PRORATION FORMULA 0/0 TO SALES VALUE	100.00	ADMIN. + GENERAL EXPENSES AS A 0/0 OF CAPITAL EXPENDITURES	10.00

COSTS OF GENERAL IMPROVEMENTS (A)	1	2	3	4	5	6	7	8	9	10
10FT 1/2 SURF RD	280000.	73500.	77000.	80500.	.	.	.	.	.	.
SECOND REC BLD	.	.	38500.	.	.	.	.	.	.	.
CLUB HOUSE	100000.	.	.	.	.	.	.	.	.	.
I-0 POOL	75000.	.	.	.	.	.	.	.	.	.
AREA SWM POOL	30000.	.	.	.	.	.	.	.	.	.
AREA UTIL BLDG	18000.	.	.	.	.	.	.	.	.	.
ENTRANCES + SGNS	30000.	.	.	.	.	.	.	.	.	.
1RF OF 40FTW TRL	42240.	44352.	.	.	.	.	.	.	.	.
STABLE	10000.	.	.	.	.	.	.	.	.	.
SKEET + RIF RANG	5000.	.	.	.	.	.	.	.	.	.
DOCKS + LANDINGS	20000.	.	.	.	.	.	.	.	.	.
MGR HOUSE	20000.	.	.	.	.	.	.	.	.	.
WATER WELL	6300.	.	.	.	.	.	.	.	.	.
MAINT FACILITIES	10000.	.	.	.	.	.	.	.	.	.
WILDNERNESS LAND	100.	.	.	.	.	.	.	.	.	.
AREA 1 DREDGING	18000.	.	.	.	.	.	.	.	.	.
AREA 2 DREDGING	.	.	33000.	.	.	.	.	.	.	.
HIKING TRAIL	16000.	.	17600.	.	.	.	.	.	.	.
TOTAL	680640.	117852.	166100.	80500.	.	.	.	.	.	.

ACRES DEDICATED (A)	1	2	3	4	5	6	7	8	9	10
GENERAL USE										
10FT 1/2 SURF RD	32.13	8.03	8.03	8.03	.00	.00	.00	.00	.00	.00
SECOND REC BLD	.00	.00	1.00	.00	.00	.00	.00	.00	.00	.00
CLUB HOUSE	25.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
I-0 POOL	1.00	.00	.00	.00	.00	1.00	.00	.00	.00	.00
AREA SWM POOL	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00
AREA UTIL BLDG	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00
ENTRANCES + SGNS	1.83	.00	.00	.00	.00	.00	.00	.00	.00	.00
1RF OF 40FTW TRL	38.78	38.78	.00	.00	.00	.00	.00	.00	.00	.00
STABLE	4.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SKEET + RIF RANG	1.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DOCKS + LANDINGS	1.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MGR HOUSE	.50	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAINT FACILITIES	2.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
WILDNERNESS LAND	2120.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
HIKING TRAIL	2.89	.00	2.89	.00	.00	.00	.00	.00	.00	.00
SPECIFIC USE										
10FT 1/2 SURF RD	.00	16.98	16.98	16.98	16.98	8.26	.00	.00	.00	.00
1RF OF 40FTW TRL	.00	15.15	15.15	15.15	15.15	8.26	.00	.00	.00	.00
TOTAL	2230.24	78.96	44.06	40.17	32.13	16.52	.00	.00	.00	.00

(B)
INITIAL RAW LAND AVAILABLE--   3300.00 ACRES
LAND FOR .5AC LOTS W/UTIL   450.00
LAND FOR 1AC LOT W/0 UTIL   400.00
LAND FOR STUDIO CONDO LUX   4.00
LAND FOR 2 BR CONDOMINIUM   4.00
LAND DEDICATED   2442.08
LAND LEFT FOR OPEN SPACE   -.10

31.

PURCHASE BASIS OF RAW LAND FOR DEVELOPER   425000.   Ⓒ
DEBT OUTSTANDING ON RAW LAND AT START OF DEVELOPMENT   .
BOOK EQUITY IN RAW LAND AT START OF DEVELOPMENT   425000.

RESALE VALUE OF RAW LAND NET OF TRANSFER COSTS   425000.
RESALE EQUITY IN RAW LAND   425000.

INITIAL EQUITY CASH IN DEVELOPMENT ENTITY   115000.
TOTAL EQUITY IN DEVELOPMENT ENTITY   540000.

CASH EXPENSES OF ORGANIZATION   5000. AMORTIZED FOR 5 YEARS--RECOGNIZED IN TAXABLE INCOME
NET CASH FOR DEVELOPMENT   110000. INCLUDED IN YEAR 1 NET CASH AFTER TAXES

FINANCING FOR LAND DEVELOPMENT   Ⓔ

1ST MORTGAGE	AMOUNT--	3000000.	INTEREST RATE--,.1200	MONTHLY PAYMENT--		.RELEASE PAYMENT--	8000.			
	1	2	3	4	5	6	7	8	9	10
PRINCIPAL PAID	.	1504000.	1504000.	1504000.	526390.	.	.	.	.	.
INTEREST	105000.	180728.	127644.	67741.	15824.	.	.	.	.	.
PRINCIPAL RECEIVED	1750010.	1016120.	1107150.	902460.	263250.	.	.	.	.	.
BALANCE	1750010.	1262130.	865280.	263740.	.	.	.	.	.	.

.5AC LOTS W/UTIL

SUMMARY OF INPUTS

(B)

			YEAR	SALES PRICE (A) NO. UNITS SOLD	
LOT SIZE--SQUARE FEET	21780.		1	8000.	.
LOT SIZE--ACRES	.50		2	8000.	180.
PERCENT SOLD FOR CASH EACH YEAR	100.00		3	8400.	180.
0/0 DOWN REQUIRED ON LAND CONTRACT SALES	.00		4	8400.	180.
INTEREST RATE ON LAND CONTRACT SALES	.00		5	8800.	180.
TERM IN YEARS ON LAND CONTRACT SALES	.00		6	8800.	180.
CARRYING COST PER UNIT OF SALES INVENTORY	100.00	(D)	7	.	.
SALES COMMISSIONS 0/0 OF SALES PRICE	15.00		8	.	.
CLOSING COSTS PER UNIT	425.00		9	.	.
CAPITAL COST PER UNIT	1625.00		10	.	.

DEVELOPMENT PERIOD	1	2	3	4	5	6	7	8	9	10
BEGINNING INVENTORY (B)	.	.	45.	45.	45.	45.	.	.	.	.
PRODUCTION STARTS	225.	180.	180.	180.	135.	.	.	.	.	.
PRODUCTION COMPLETIONS	.	225.	180.	180.	180.	135.	.	.	.	.
SALES IN UNITS	.	180.	180.	180.	180.	180.	.	.	.	.
UNITS SOLD FOR CASH	.	180.	180.	180.	180.	180.	.	.	.	.
PRICE PER UNIT	8000.	8000.	8400.	8400.	8800.	8800.	.	.	.	.
REVENUE FROM CASH SALES	.	1440000.	1512000.	1512000.	1584000.	1584000.	.	.	.	.
UNITS SOLD ON LAND CONTRACTS	.	.	.	.	.	.	.	.	.	.
DOWN PAYMENT RECEIVED	.	.	.	.	.	.	.	.	.	.
ACCOUNTS RECEIVABLE ADDED	.	.	.	.	.	.	.	.	.	.
SALES COSTS										
COMMISSIONS PAID	.	216000.	226800.	226800.	237600.	237600.	.	.	.	.
CLOSING COSTS	.	76500.	76500.	76500.	76500.	76500.	.	.	.	.
NET CASH GENERATED FROM SALES	-.	1147500.	1208700.	1208700.	1269900.	1269900.	-.	-.	-.	-.
RUNOFF OF LAND CONTRACT SALES										
INTEREST	.	.	.	.	.	.	.	.	.	.
PRINCIPAL	.	.	.	.	.	.	.	.	.	.
PERIOD END ACCOUNTS RECEIVABLE	.	.	.	.	.	.	.	.	.	.
REAL ESTATE TAXES ON INVENTORY	.	5346.	11226.	11226.	11761.	5880.	.	.	.	.
CARRYING COST OF INVENTORY	.	2250.	4500.	4500.	4500.	2250.	.	.	.	.
CAPITAL COST OF IMPROVEMENTS (C)	365625.	307125.	321750.	336375.	263250.	.	.	.	.	.
TOTAL CASH REVENUE	-365625.	832784.	871224.	856604.	990390.	1261770.	.	.	.	.

33.

1AC LOT W/O UTIL

SUMMARY OF INPUTS

Ⓑ

		YEAR	SALES PRICE Ⓐ NO. UNITS SOLD	
LOT SIZE--SQUARE FEET	43560.	1	5500.	.
LOT SIZE--ACRES	1.00	2	5500.	100.
PERCENT SOLD FOR CASH EACH YEAR	100.00	3	5775.	100.
O/O DOWN REQUIRED ON LAND CONTRACT SALES	.00	4	6050.	100.
INTEREST RATE ON LAND CONTRACT SALES	.00	5	6050.	100.
TERM IN YEARS ON LAND CONTRACT SALES	.00	6	.	.
CARRYING COST PER UNIT OF SALES INVENTORY	100.00 Ⓓ	7	.	.
SALES COMMISSIONS O/O OF SALES PRICE	15.00	8	.	.
CLOSING COSTS PER UNIT	325.00	9	.	.
CAPITAL COST PER UNIT	1100.00	10	.	.

DEVELOPMENT PERIOD Ⓑ	1	2	3	4	5	6	7	8	9	10
BEGINNING INVENTORY	.	.	25.	25.	25.	.	.	.	.	.
PRODUCTION STARTS	125.	100.	100.	75.	.	.	.	.	.	.
PRODUCTION COMPLETIONS	.	125.	100.	100.	75.	.	.	.	.	.
SALES IN UNITS	.	100.	100.	100.	100.	.	.	.	.	.
UNITS SOLD FOR CASH	.	100.	100.	100.	100.	.	.	.	.	.
PRICE PER UNIT	5500.	5500.	5775.	6050.	6050.	.	.	.	.	.
REVENUE FROM CASH SALES	.	550000.	577500.	605000.	605000.	.	.	.	.	.
UNITS SOLD ON LAND CONTRACTS	.	.	.	.	.	.	.	.	.	.
DOWN PAYMENT RECEIVED	.	.	.	.	.	.	.	.	.	.
ACCOUNTS RECEIVABLE ADDED	.	.	.	.	.	.	.	.	.	.
SALES COSTS										
COMMISSIONS PAID	.	82500.	86625.	90750.	90750.	.	.	.	.	.
CLOSING COSTS	.	32500.	32500.	32500.	32500.	.	.	.	.	.
NET CASH GENERATED FROM SALES	.	435000.	458375.	481750.	481750.	.	.	.	.	.
RUNOFF OF LAND CONTRACT SALES										
INTEREST	.	.	.	.	.	.	.	.	.	.
PRINCIPAL	.	.	.	.	.	.	.	.	.	.
PERIOD END ACCOUNTS RECEIVABLE	.	.	.	.	.	.	.	.	.	.
REAL ESTATE TAXES ON INVENTORY	.	2041.	4287.	4492.	2246.	.	.	.	.	.
CARRYING COST OF INVENTORY	.	1250.	2500.	2500.	1250.	.	.	.	.	.
CAPITAL COST OF IMPROVEMENTS	137500.	115500.	121000.	94875.	.	.	.	.	.	.
TOTAL CASH REVENUE	-137500.	316209.	330588.	379883.	478254.	.	.	.	.	.

34.

STUDIO CONDO LUX

SUMMARY OF INPUTS

	Ⓑ		YEAR	SALES PRICEⒶ	NO. UNITS SOLD
LOT SIZE--SQUARE FEET	550.		1	17900.	.
LOT SIZE--ACRES	.01		2	17900.	20.
PERCENT SOLD FOR CASH EACH YEAR	100.00		3	18795.	20.
0/0 DOWN REQUIRED ON LAND CONTRACT SALES	.00		4	19690.	20.
INTEREST RATE ON LAND CONTRACT SALES	.00		5	20585.	20.
TERM IN YEARS ON LAND CONTRACT SALES	.00		6	.	.
CARRYING COST PER UNIT OF SALES INVENTORY	300.00 Ⓓ		7	.	.
SALES COMMISSIONS 0/0 OF SALES PRICE	15.00		8	.	.
CLOSING COSTS PER UNIT	1000.00		9	.	.
CAPITAL COST PER UNIT	9825.00		10	.	.

DEVELOPMENT PERIOD Ⓑ	1	2	3	4	5	6	7	8	9	10
BEGINNING INVENTORY	.	.	5.	5.	5.	.	.	.	.	.
PRODUCTION STARTS	25.	20.	20.	15.	.	.	.	.	.	.
PRODUCTION COMPLETIONS	.	25.	20.	20.	15.	.	.	.	.	.
SALES IN UNITS	.	20.	20.	20.	20.	.	.	.	.	.
UNITS SOLD FOR CASH	.	20.	20.	20.	20.	.	.	.	.	.
PRICE PER UNIT	17900.	17900.	18795.	19690.	20585.	.	.	.	.	.
REVENUE FROM CASH SALES	.	358000.	375900.	393800.	411700.	.	.	.	.	.
UNITS SOLD ON LAND CONTRACTS	.	.	.	.	.	.	.	.	.	.
DOWN PAYMENT RECEIVED	.	.	.	.	.	.	.	.	.	.
ACCOUNTS RECEIVABLE ADDED	.	.	.	.	.	.	.	.	.	.
SALES COSTS										
COMMISSIONS PAID	.	53700.	56385.	59070.	61755.	.	.	.	.	.
CLOSING COSTS	.	20000.	20000.	20000.	20000.	.	.	.	.	.
NET CASH GENERATED FROM SALES	.	284300.	299515.	314730.	329945.	.	.	.	.	.
RUNOFF OF LAND CONTRACT SALES										
INTEREST	.	.	.	.	.	.	.	.	.	.
PRINCIPAL	.	.	.	.	.	.	.	.	.	.
PERIOD END ACCOUNTS RECEIVABLE	.	.	.	.	.	.	.	.	.	.
REAL ESTATE TAXES ON INVENTORY	.	1329.	2791.	2923.	1528.	.	.	.	.	.
CARRYING COST OF INVENTORY	.	750.	1500.	1500.	750.	.	.	.	.	.
CAPITAL COST OF IMPROVEMENTS	245625.	206325.	216150.	169480.	.	.	.	.	.	.
TOTAL CASH REVENUE	-245625.	75896.	79074.	140827.	327667.	.	.	.	.	.

35.

2 BR CONDOMINIUM

SUMMARY OF INPUTS

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		YEAR	SALES PRICE Ⓐ	NO. UNITS SOLD
LOT SIZE--SQUARE FEET	750.	1	22500.	.
LOT SIZE--ACRES	.01	2	22500.	20.
PERCENT SOLD FOR CASH EACH YEAR	100.00	3	23625.	20.
0/0 DOWN REQUIRED ON LAND CONTRACT SALES	.00	4	24750.	20.
INTEREST RATE ON LAND CONTRACT SALES	.00	5	25875.	20.
TERM IN YEARS ON LAND CONTRACT SALES	.00	6	.	.
CARRYING COST PER UNIT OF SALES INVENTORY	300.00 Ⓓ	7	.	.
SALES COMMISSIONS 0/0 OF SALES PRICE	15.00	8	.	.
CLOSING COSTS PER UNIT	1000.00	9	.	.
CAPITAL COST PER UNIT	12825.00	10	.	.

DEVELOPMENT PERIOD Ⓑ	1	2	3	4	5	6	7	8	9	10
BEGINNING INVENTORY	.	.	5.	5.	5.	.	.	.	.	.
PRODUCTION STARTS	25.	20.	20.	15.	.	.	.	.	.	.
PRODUCTION COMPLETIONS	.	25.	20.	20.	15.	.	.	.	.	.
SALES IN UNITS	.	20.	20.	20.	20.	.	.	.	.	.
UNITS SOLD FOR CASH	.	20.	20.	20.	20.	.	.	.	.	.
PRICE PER UNIT	22500.	22500.	23625.	24750.	25875.	.	.	.	.	.
REVENUE FROM CASH SALES	.	450000.	472500.	495000.	517500.	.	.	.	.	.
UNITS SOLD ON LAND CONTRACTS	.	.	.	.	.	.	.	.	.	.
DOWN PAYMENT RECEIVED	.	.	.	.	.	.	.	.	.	.
ACCOUNTS RECEIVABLE ADDED	.	.	.	.	.	.	.	.	.	.
SALES COSTS										
COMMISSIONS PAID	.	67500.	70875.	74250.	77625.	.	.	.	.	.
CLOSING COSTS	.	20000.	20000.	20000.	20000.	.	.	.	.	.
NET CASH GENERATED FROM SALES	.	362500.	381625.	400750.	419875.	.	.	.	.	.
RUNOFF OF LAND CONTRACT SALES										
INTEREST	.	.	.	.	.	.	.	.	.	.
PRINCIPAL	.	.	.	.	.	.	.	.	.	.
PERIOD END ACCOUNTS RECEIVABLE	.	.	.	.	.	.	.	.	.	.
REAL ESTATE TAXES ON INVENTORY	.	1670.	3508.	3675.	1921.	.	.	.	.	.
CARRYING COST OF INVENTORY	.	750.	1500.	1500.	750.	.	.	.	.	.
CAPITAL COST OF IMPROVEMENTS	320625.	269325.	282150.	221230.	.	.	.	.	.	.
TOTAL CASH REVENUE	-320625.	90754.	94466.	174345.	417204.	.	.	.	.	.

36.

AGGREGATE RESULTS

DEVELOPMENT PERIOD	1	2	3	4	5	6	Total	% of sales
REVENUE FROM CASH SALES	.	2798000.	2937900.	3005800.	3118200.	1584000.	13,443,900	100%
DOWNPAYMENT RECEIVED	.	.	.	.	.	.		
ACCOUNTS RECEIVABLE ADDED	.	.	.	.	.	.		
SALES COSTS								
COMMISSIONS PAID	.	419700.	440685.	450870.	467730.	237600.	2,016,585	15
CLOSING COSTS	.	149000.	149000.	149000.	149000.	76500.	672,500	05
RUNOFF OF LAND CONTRACT SALES								
INTEREST	.	.	.	.	.	.		
PRINCIPAL	.	.	.	.	.	.		
PERIOD END ACCOUNTS RECEIVABLE	.	.	.	.	.	.		
CASH FROM OPERATIONS	.	2229300.	2348220.	2405930.	2501470.	1269900.	10,754,820	80
LESS CASH OUTLAYS								
CARRYING COSTS--RAW LAND	1650.	.	.	.	.	.	1,650	00
CARRYING COSTS--INVENTORY	.	5000.	10000.	10000.	7250.	2250.	34,500	00
REAL ESTATE TAX--RAW LAND	6311.	.	.	.	.	.	6,311	00
REAL ESTATE TAXES--INVENTORY	.	10387.	21813.	22317.	17456.	5880.	77,853	01
MANAGEMENT + ADMIN. COSTS	175001.	521312.	551400.	541116.	494055.	237600.	2,520,484	19
NEW ALLOCATED CAPITAL OUTLAYS	1069370.	898275.	941050.	821960.	263250.	.	3,993,905	30
NEW GENERAL CAPITAL OUTLAYS	680640.	117852.	166100.	80500.	.	.	1,045,092	08
NET CASH REVENUE	-1932970.	676488.	657860.	930050.	1719470.	1024170.	3,075,068	23
PROJECT DEBT STRUCTURE								
TOTAL INITIAL BALANCE	.							
BALANCE END OF YEAR	1750010.	1262130.	865280.	263740.	.	.		
TOTAL PRINCIPAL PAYMENTS	.	1504000.	1504000.	1504000.	526990.		5,038,990	37
TOTAL INTEREST PAID ON PROJ.	105000.	207422.	181013.	133550.	81556.		708,541	05
INTEREST ADDED TO LOAN BAL.	.	.	.	.	.	.		
NET CASH FROM DEBT INCURRED	1750010.	1016120.	1107150.	902460.	263250.	.	5,038,990	37
CASH AVAILABLE BEFORE TAXES	-287960.	-18820.	80000.	194960.	1374180.	1024170.	2,366,530	18
CAPITAL COST OF IMPROVEMENTS								
PRORATED TO UNITS SOLD	.	898275.	930354.	941050.	983825.	351000.	4,104,504	31
GENERAL CAPITAL COST								
PRORATED TO UNITS SOLD	.	166181.	220327.	256809.	266412.	135336.	1,045,065	08
LAND COST PRORATED TO UNITS SOLD	.	88452.	92875.	95021.	98574.	50074.	424,996	03
TAXABLE INCOME FROM OPERATIONS	-288960.	331288.	339445.	405089.	551364.	487760.	2,114,946	16
ESTIMATED INCOME TAXES	.	159018.	162933.	194442.	264654.	234124.	1,015,171	08
TAX SAVINGS ON OTHER INCOME	138700.	.	.	.	.	.		

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NET CASH AFTER TAXES	-177960.	-177838.	-82933.	518.	1109530.	790050.	1,900,098	14

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REINVESTED EARNINGS	.	.	.	.	.	.		
WORKING CAPITAL LOAN BALANCE	177960.	355798.	438731.	438213.	.	.		
CASH AFTER TAXES FOR DIVIDENDS	.	.	.	.	671320.	790050.	1,461,370	11
OR REINVESTMENT								
DIVIDENDS PAID	.	.	.	.	671320.	790050.	1,461,370	11
NET AFTER TAX + DEBT REPAYMENT	-1247330.	-754872.	-484430.	-47947.	226103.	30.		
ON BULK SALES								
P.V. AT 20.0/0 OF EQUITY RETURNS	-923860.	-408630.	-164762.	92461.	476237.	649967.		
INTERNAL RATE OF RETURN						19.1%		

37.