

## **INCOME APPROACH**

The Income Approach considers the return on Investment and is similar to the method that investors typically use to make their investment decisions. It is most directly applicable to income producing property because the expectation of income is the primary motivating factor for the purchase of real estate. Other important considerations are leverage, tax advantages through depreciation, and pride of ownership. In addition, the investor also benefits from equity build-up due to mortgage loan amortization and potential increases in value.

The Income Approach consists of first estimating the probable annual gross income, based upon actual leases or market rentals. From this amount is deducted an allowance for vacancy and rent loss, based upon the property's historical operating experience and/or future projections. Next, all expenses attributable to the real estate are deducted. Also deducted, when appropriate, is a Reserve for Replacement of short-lived components that would normally be replaced during the investment holding period. The resulting net income is then converted into value by capitalization.

### **Gross Income Estimate - \$198,000**

To verify that the subject's projected rentals are at market and to arrive at a projected gross income, we made an examination of the rentals of other similar buildings in the market area. We evaluated the area's rental environment, market orientation, and comparable rental facilities. Our investigation was limited to properties that were similar in style and/or age and had tenant appeal similar to that of the subject property.

It is our determination, after reviewing the general market and studying competitive facilities, that the current rentals are at market. Based upon current rentals, potential gross income for the first year of our analysis, before an allowance for vacancy and rent loss, amounts to \$182,000.

### **Vacancy and Rent Loss - \$9,900**

Even when a building is fully occupied as of the date of the appraisal, it is prudent to anticipate some rent loss over the projection period in order to estimate "stabilized" occupancy. Based upon our analysis of the current rental market and the historical rent loss of the subject, a "stabilized" frictional vacancy rate for the subject property is projected at 5.00% of gross income, or \$9,900.

### Effective Gross Income - \$188,100

Deducting the stabilized vacancy and rent loss of \$9,900 leaves an Effective Gross Income of \$188,100.

#### Stabilized Market Income Schedule

Income Item	Gross Units	Income Per Year	Income Per Unit	Unit of Measure
5 One Bedroom Apts.	5	36,000	7,200.00	Unit
10 Two Bedroom Apts.	10	96,000	9,600.00	Unit
5 Three Bedroom Apts.	<u>5</u>	66,000	13,200.00	Unit
Total Units	20			
Total Income		\$198,000		
Vacancy/Credit Loss		<u>-9,900</u>		
Effective Gross Income		\$188,100		

### Estimate of Expenses - \$86,526

To arrive at a projected Stabilized Net Income, it is necessary to deduct those expenses that are typical and recurring for the subject property. These are expenses paid for by the owner and relate directly to the operation of the real estate. The expenses used in this income analysis were determined after reviewing expenses of the subject property in prior years and comparing the subject's reported expenses with those of other similar properties. Industry ratios and historical expense patterns for similar property types were also considered.

After considering all of the above, a projection of expenses was made. Stabilized expenses for the subject property were estimated at \$86,526.

In our analysis of expenses, we found that certain items fell either above or below what is considered normal for a property of this type. This is not unusual because individual line item expenses vary, depending upon such factors as region, economy, uniqueness of the property, etc. Also, each owner allocates line item expenses differently, which accounts for variances when comparing certain line items in this income analysis to those reported.

## Projected Net Income - \$101,574

Deducting the total estimated stabilized expenses from Effective Gross Income of \$188,100 leaves a Net Income for the subject property of \$101,574.

### Stabilized Market Income Statement

REFERENCE NO: SampleApt  
 PROPERTY: Small Apartment Building

	Amount	% of E.G.I.	Per Net Unit
<b><u>Gross Income</u></b>			
Total Income	\$198,000	105.26%	9,900.00
Vacancy / Credit Loss	<u>-9,900</u>	<u>-5.26%</u>	<u>-495.00</u>
Effective Gross Income	\$188,100	100.00%	9,405.00
<b><u>Fixed</u></b>			
Real Estate Taxes	23,760	12.63%	1,188.00
Insurance	3,960	2.11%	198.00
<b><u>Operating</u></b>			
Water and Sewage	3,960	2.11%	198.00
Electric	9,900	5.26%	495.00
Gas	15,840	8.42%	792.00
Maintenance/Repair	9,900	5.26%	495.00
Management	11,286	6.00%	564.30
<b><u>Other</u></b>			
Advertising	3,960	2.11%	198.00
<b><u>Reserve</u></b>			
Reserve for Replacement	<u>3,960</u>	<u>2.11%</u>	<u>198.00</u>
Total Expenses	<u>\$86,526</u>	<u>46.00%</u>	<u>4,326.30</u>
NET INCOME	\$101,574	54.00%	5,078.70

## Capitalization of Net Income

Capitalization is the process of converting into present value (or obtaining the present worth of) a series of anticipated future periodic installments of net income. It is the procedure of expressing such anticipated future benefits of ownership in dollars and processing them into a present worth at a rate that is attracting purchase capital to competitive investments.

The types of capitalization are Yield Capitalization and Direct Capitalization.<sup>1</sup>

### Yield Capitalization

This method of capitalization uses the discounting procedure to convert future benefits to present value on the premise of a required level of profit or rate of return on invested capital.

### Direct Capitalization

This method is used to convert an estimate of a single year's income expectancy into an indication of value in one direct step.

The Direct Capitalization method, using a rate abstracted from the market was not used because there was insufficient income and expense data available for the known comparable sales. Detailed income and expense histories are vital to abstracting a capitalization rate that is reliable.

We have chosen a yield capitalization method in our analysis of income. Two generally accepted methods of yield capitalization are the **Mortgage Equity Technique** and the **Discounted Cash Flow Method**. In all methods of yield capitalization, the future benefits that will be derived from a property are discounted to their present worth to estimate a "present value". The benefits typically considered consist of periodic net income, the growth in periodic net income, the equity build-up through mortgage loan amortization, and the reversion of the sales proceeds in excess of the mortgage loan balance and other costs at the end of the term. The rate at which these cash flows and reversion are discounted to a present value is designated by various analogous terms. Among them are the Equity Yield Rate, the Internal Rate of Return (IRR) and the Discount Rate. IRR is considered by many financial analysts to be the most comprehensive measure of financial benefits that will be received by the investor during the period of ownership.

---

<sup>1</sup> The Appraisal of Real Estate, American Institute of Real Estate Appraisers, 10th. Edition, Chicago, Il., pg 341-342

## **Mortgage Equity Technique**

A capitalization rate was developed using the Advanced Mortgage Equity Technique. This is an accepted technique when net income is projected to be stable, beginning in the first year of the analysis. In this method, individual components of the capitalization rate are mathematically derived and an overall rate capitalization rate is calculated. This rate is then applied to stable net income to determine the value.

In order to develop the capitalization rate using the Advanced Mortgage Equity Technique, the following projections were made:

Projected Holding Period	10 years
Loan Ratio	70.00%
Loan Term	25 years
Investor Equity Portion	30.00%
Required Investor Yield	11.50%
Growth Rate in Value per year	1.00%
Growth Rate in Income per year	1.00%
Soft Costs in addition to Equity	4.00%
Selling Expenses in Terminal Year	7.00%

## **Final Value by the Income Approach**

A capitalization rate of 10.04% was developed using the projections above. Applying this rate to the subject property's Stabilized Net Income of \$101,574 indicates a value by the Advanced Mortgage Equity Technique of \$1,012,118 ( $\$101,574 / 10.04\%$ ). This value has been rounded to \$1,000,000.

## **Final Value by the Income Approach**

### Stabilized Market Income Statement

REFERENCE NO: SampleApt  
 PROPERTY: Small Apartment Building

	Amount	% of E.G.I.	Per Net Unit
<b><u>Gross Income</u></b>			
Total Income	\$198,000	105.26%	9,900.00
Vacancy / Credit Loss	<u>-9,900</u>	<u>-5.26%</u>	<u>-495.00</u>
Effective Gross Income	\$188,100	100.00%	9,405.00
<b><u>Fixed</u></b>			
Real Estate Taxes	23,760	12.63%	1,188.00
Insurance	3,960	2.11%	198.00
<b><u>Operating</u></b>			
Water and Sewage	3,960	2.11%	198.00
Electric	9,900	5.26%	495.00
Gas	15,840	8.42%	792.00
Maintenance/Repair	9,900	5.26%	495.00
Management	11,286	6.00%	564.30
<b><u>Other</u></b>			
Advertising	3,960	2.11%	198.00
<b><u>Reserve</u></b>			
Reserve for Replacement	<u>3,960</u>	<u>2.11%</u>	<u>198.00</u>
Total Expenses	<u>\$86,526</u>	<u>46.00%</u>	<u>4,326.30</u>
NET INCOME	\$101,574	54.00%	5,078.70

### **CAPITALIZATION**

Stabilized Net Income divided by Capitalization Rate = Value  
 \$101,574 divided by 10.04% = \$1,012,118

### Advanced Mortgage Equity Calculation

REFERENCE NO: SampleApt  
 PROPERTY: Small Apartment Building  
 ANALYSIS DATE: 11-01-02

#### Input Variables

Projected Holding Period	10 Years
Loan Ratio 1	70.00%
Interest Rate	9.00%
Loan Term	25 Years
Investor Equity Portion	30.00%
Required Investor Yield (IRR)	11.500%
Growth Rate in Value per Year	1.000%
Growth Rate in Net Income per Year	1.000%
Soft Costs in Addition to Equity	4.000%
Selling Expenses: Terminal Year	7.000%

#### CALCULATION

Loan 1 x Constant (.70000 x 0.100704)	0.0704925
Equity x Required Yield (.30000 x 0.115000)	<u>0.0345000</u>
	0.1049925
LESS Credit for Equity Build-up	
RATIO x %PAID OFF x SINKING FUND	
Loan 1 70.00 0.1726 0.058377	<u>-0.0070534</u>
BASIC RATE	0.0979391
ADD Amortization of Soft Costs (4.00 x 0.17338)	<u>0.0069351</u>
	0.1048742
LESS Appreciation Factor	-0.0015936
LESS Income Growth Factor	<u>-0.0036919</u>
CAP RATE AT STABLE OPERATION	0.0995887
UNEVEN Cashflow Adjustment Factor	<u>0.0007692</u>
<b>OVERALL RATE - ROUNDED TO</b>	<b>10.04%</b>

## **Discounted Cash Flow Method**

To check the accuracy of the mathematical calculations applied in the Advanced Mortgage Equity Technique, we performed a discounted cash flow analysis, using the same assumptions and variables. Our Discounted Cash Flow Method begins by selecting a "target" IRR. Then the present value of the cash flows is calculated. Several iterations of the calculations are performed until the IRR is found that will equate the present value of the cash flows with the value that was calculated using the Mortgage Equity Technique. There is only one IRR that will produce this result.

Since both the Discounted Cash Method and the Mortgage Equity Technique are methods of "yield capitalization", both utilize the same assumptions as to holding period, mortgage interest rates, income growth rates, etc. Therefore, the Required IRR that was used in the Mortgage Equity Technique and the IRR that is calculated using the Discounted Cash Flow Method should be identical, if calculated properly. Moreover, because each method is independently calculated, one serves to check the other. The results of our discounted cash flow analysis are presented on the following page. They indicate that the mathematical calculations applied in the Mortgage Equity Technique are correct.

### Discounted Cash Flow Methodology

Because we have assumed that the typical investor in the subject property would finance the property at the best prevailing mortgage terms, we discounted the cash flows rather than the net incomes during the projection period. This method recognizes that the typical investor would be most concerned with the "yield" on equity, based upon the annual cash flows; that is, actual cash available after all expenses and debt service. The present value of these total cash flows is equal to the total investment, including closing costs.

Using the subject property as an example, the present value of the discounted cash flows of the equity portion of the investment is \$344,120, which is equal to the sum of the cash equity of \$303,635 and closing costs of \$40,485. Therefore, if we divide the present value of the investment - \$344,120 by the percentage of the equity 34.00% (Cash Equity = 30.00% and Soft Costs = 4.00%), the result is the present value of the property, \$1,012,118 ( $\$344,120/34.00\%$ ).



**Projected Cash Flow Analysis**

REFERENCE NO: SampleApt  
 ANALYSIS DATE: 11-01-02

Indicated Value	\$1,012,118
Less Loans 70.00%	<u>708,482</u>
Equity	303,635
Soft Costs: 4.00%	<u>40,485</u>
Total Investment	\$344,120

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
	11-2002	11-2003	11-2004	11-2005	11-2006	11-2007	11-2008	11-2009	11-2010	11-2011
<b>Cash Flows</b>										
Net Income	93,366	102,590	103,616	104,652	105,698	106,755	107,823	108,901	109,990	111,090
Interest Expense	-63,443	-62,701	-61,890	-61,003	-60,033	-58,971	-57,810	-56,541	-55,152	-53,632
Loan Amortization	-7,904	-8,646	-9,457	-10,344	-11,314	-12,375	-13,536	-14,806	-16,195	-17,714
Cash Flow	22,019	31,243	32,269	33,305	34,352	35,409	36,476	37,554	38,643	39,743
Cash on Cash Yield	6.40%	9.08%	9.38%	9.68%	9.98%	10.29%	10.60%	10.91%	11.23%	11.55%
Debt Coverage Ratio	1.31	1.44	1.45	1.47	1.48	1.50	1.51	1.53	1.54	1.56

**Reversion - Proceeds of Sale at the end of 10 Years**

Future Sale	\$1,126,643
Sale Costs: 7.00%	-78,865
Less Loans	<u>586,191</u>
Reversion	\$461,586

**Internal Rate of Return: 10 Year Holding Period**

Initial Investment	-344,120									
Cash Flow	22,019	31,243	32,269	33,305	34,352	35,409	36,476	37,554	38,643	39,743
Reversion										461,586
INTERNAL RATE OF RETURN	11.500%									

**Present Value of Cash Flows using a Discount Rate of 11.500%**

Cash Flow	22,019	31,243	32,269	33,305	34,352	35,409	36,476	37,554	38,643	39,743
Reversion										<u>461,586</u>
										501,330
Present Value										
Discount Factor	<u>0.896861</u>	<u>0.804360</u>	<u>0.721399</u>	<u>0.646994</u>	<u>0.580264</u>	<u>0.520416</u>	<u>0.466741</u>	<u>0.418602</u>	<u>0.375428</u>	<u>0.336706</u>
Present Value	19,748	25,131	23,279	21,548	19,933	18,427	17,025	15,720	14,508	168,801

P V of CASH FLOWS \$344,120 approximates Initial Investment of \$344,120, based upon a value of \$1,012,118

## Net Present Value Analysis

As a final proof of the calculations performed in both the Mortgage Equity Technique and the Discounted Cash Flow Method, we performed a Net Present Value analysis of the cash flows, using the same Required IRR of 11.50% and Holding Period of 10 years. The net present value of the cash flows, i.e. the Present Value of the cash flows less Initial Cash Investment, is near zero. This verifies that the calculations used in the other methods are correct.

### Proof of Yield on Equity

REFERENCE NO: SampleApt  
 PROPERTY: Small Apartment Building  
 ANALYSIS DATE: 11-01-02

		Required Rate of Return	11.500%
		Holding Period	10 Years
<b>Original Equity</b>	Ratio	Value	
Equity	0.30000	\$1,012,118	\$303,635
Soft Costs	0.04000	\$1,012,118	<u>40,485</u>
		Initial Cash Investment	\$344,120
<b>Terminal Equity</b>		Resale Value	\$1,126,643
		Loan Balance	-586,191
		Sale Expenses	<u>-78,865</u>
		Net Reversion	\$461,586
<b>PROOF</b>			
Year	Cash Flow	Present Value Factor @ 11.500%	Present Value
1	22,019.30	0.8968610	19,748.25
2	31,243.05	0.8043596	25,130.65
3	32,268.96	0.7213988	23,278.79
4	33,305.09	0.6469944	21,548.21
5	34,351.62	0.5802640	19,933.01
6	35,408.60	0.5204162	18,427.21
7	36,476.13	0.4667410	17,024.91
8	37,554.40	0.4186018	15,720.34
9	38,643.37	0.3754276	14,507.79
10	39,743.30	0.3367064	13,381.82
Net Reversion	461,586.22	0.3367064	<u>155,419.00</u>
		Present Value of Cash Flows	344,120.01
		Initial Cash Investment	<u>-344,119.94</u>
		Net Present Value	0.07

## Yield Analysis

To examine the effect upon value of different Internal Rates of Return, we selected a range of yield rates above and below the Internal Rate of Return of 11.50% that was used to calculate the final estimate of value by the Income Approach of \$1,012,118. Applying the same mathematical analysis, but using this selected range of Internal Rates of Return, the results are presented below.

### Yield Range Analysis

REFERENCE NO: SampleApt  
 PROPERTY: Small Apartment Building  
 ANALYSIS DATE: 11-01-02

#### Input Variables

Projected Holding Period	10 Years
Loan Ratio 1	70.00%
Interest Rate	9.00%
Loan Term	25 Years
Investor Equity Portion	30.00%
Yield Range Analyzed (IRR)	8.500% to 14.500%
Soft Costs in Addition to Equity	4.000%
Selling Expenses: Terminal Year	7.000%

<b>Selected IRR</b>	<b>Indicated Value</b>	<b>Required Equity</b>	<b>D.C.R.</b>
8.50%	1,139,015	387,265	1.16
9.00%	1,115,661	379,325	1.19
9.50%	1,093,262	371,709	1.21
10.00%	1,071,759	364,398	1.24
10.50%	1,051,099	357,374	1.26
11.00%	1,031,233	350,619	1.28
<b>11.50%</b>	<b>1,012,118</b>	<b>344,120</b>	<b>1.31</b>
12.00%	993,709	337,861	1.33
12.50%	975,969	331,830	1.36
13.00%	958,862	326,013	1.38
13.50%	942,354	320,400	1.41
14.00%	926,414	314,981	1.43
14.50%	911,013	309,744	1.45

## **Debt Coverage Ratio**

The Debt Coverage Ratio is often considered by lenders when underwriting a loan secured by an income producing property. The formula for the DCR is:

$$\text{Net Income} / \text{Annual Debt Service} = \text{Debt Coverage Ratio}$$

Based upon a stabilized net income of \$101,574 and an annualized loan payment that is based upon a Loan to Value Ratio of 70.00% of value, the indicated DCR for the first year of our analysis is 1.31.