

# *Real Estate Investment Analysis*

## **Version 11.0 “Lite” User’s Guide**

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## List of Acronyms

AGI	Adjusted Gross Income
AMT	Alternative Minimum Tax
APOD	Annual Property Operating Data
ARM	Adjustable Rate Mortgage
CFAT	Cash Flow After Taxes
CFBT	Cash Flow Before Taxes
CPA	Certified Public Accountant
CPI	Consumer Price Index
DCF	Discounted Cash Flow
EGI	Effective Gross Income
GOI	Gross Operating Income
GP	General Partner
GRM	Gross Rent Multiplier
IRA	Individual Retirement Account
IRR	Internal Rate of Return
LP	Limited Partner
MFMRR	Modified Financial Management Rate of Return
MIRR	Modified Internal Rate of Return
NOI	Net Operating Income
NPV	Net Present Value
PV	Present Value
REIA	<i>Real Estate Investment Analysis, Version 11.0</i>
RSF	Rentable Square Feet
TI	Tenant Improvements

# 1 Introduction and General Information

Thank you for purchasing RealData's *Real Estate Investment Analysis, Version 11.0 "Lite."* We are certain that you will find this easy-to-use application to be a powerful and versatile partner in your investment work.

Please review this manual and, in particular, read this section completely before you begin working with the program. This introduction will provide you with important information about the program's capabilities. Additionally, an extensive glossary of real estate terms can be found at the back of this manual.

*Real Estate Investment Analysis* has been designed to assist you in evaluating income-producing property. The analysis is constructed as a multi-page Microsoft Excel workbook. Each page has a particular focus, but all of the pages are linked and share data. You use only those sections that are pertinent to the property you are analyzing.

The program includes an easy-to-use *Rent Roll* that helps you project the total annual gross rent you will collect each year from your investment property.

Following the rent roll is an income-and-expense module we call the *Annual Property Operating Data* worksheet. Here you can make projections about individual operating expenses as well as vacancy and credit losses. Next is a ten-year *Cashflow and Resale Analysis* that allows you to project the before-tax and after-tax consequences of ownership and resale. With it, you can evaluate how different mortgage terms, depreciation options and assumptions about income, expenses and improvements interact to affect the quality of your investment.

*Real Estate Investment Analysis* operates in conjunction with the popular Microsoft Excel spreadsheet program. You do not need to be an expert user of your spreadsheet software to make effective use of these models. On the contrary, you can simply "fill in the blanks" to produce a complete presentation in just minutes.

Using Excel as the engine to drive a sophisticated model like ours puts extraordinary power and flexibility into your hands. We do not lock you out of this model, and so anything that you can do with Excel you can do with *Investment Analysis*: attach a subsidiary workbook of your own, design a new report or chart, add comments or footnotes, change formatting or even create links to your word processor.

While you will need spreadsheet skills if you want to customize the model, you can use *Real Estate Investment Analysis* as designed without advanced skills as long as you have a basic familiarity with Excel. We do assume that you are comfortable with some of the standard features and functions of your computer as well, such as starting up the computer and spreadsheet, connecting and using your printer, and locating and copying files.

## 1.1 What's New in Real Estate Investment Analysis, Version 11.0 "Lite"

Previous releases of *Real Estate Investment Analysis* have been used to analyze every imaginable type of income-producing real estate investment: apartment houses, multi-family dwellings, office and professional buildings, industrial parks and shopping centers.

Enhancements in *Real Estate Investment Analysis, Version 11.0* add functionality to what was already a very powerful program. New features include:

- Simplified data entry throughout the program
- Expanded Rent Roll
- Improved reports
- Updated for new tax rules in the Jobs and Growth Tax Relief Reconciliation Act of 2003
- New navigation menu with links to report printing, worksheets, user guide and more
- Ability to configure reports, select printer including printing to Adobe Acrobat PDF format

This "Lite" release offers a streamlined version of our standard *REIA 11.0* as requested by many of our customers. We have replaced the *Lease-by-Lease Income Summary* with a much simpler *Rent Roll* and we have removed some of the more esoteric data-entry items as well as the *Partnership Analysis* and *Lease vs. Buy Analysis*. The result is a program that is significantly smaller in size, and therefore much faster to load, use and print. It is the perfect choice for the entrepreneurial investor dealing with less complex investment scenarios, or for the professional who wants to make a quick preliminary analysis before spending the time on a more detailed examination of a property.

## 1.2 System Requirements

*Real Estate Investment Analysis "Lite"* is an Excel workbook that takes up less than 650k of space on your hard disk. Each completed analysis that you save will also take up another 650k. You can copy analyses onto diskettes for archive purposes to reclaim disk space. Other requirements include:

- Microsoft Excel 97 or later for Windows; Excel 2001, v.X or 2004 for Macintosh
- Windows computer running Windows 2000, XP or Vista, Macintosh computer running OS X
- 512 mb of RAM or greater
- A laser or ink-jet printer

## 1.3 License Information

Please read the enclosed license agreement. By installing the software, you accept the terms of the license. This software is not returnable once you have completed its purchase online. It is also not returnable once you have received it on compact disc or diskette, along with a serial number or password.

Please note that you may make backup copies as you need for your own use.

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You can also register online at <http://realdata.com/register.htm>.

## 1.4 Additional Disclaimers

**In addition to other disclaimers contained in our license agreement and this user's guide, be aware that RealData, Inc. is not in the business of providing tax, legal, investment or professional advice of any kind. The program is not intended for the preparation of tax returns.**

**The tax calculations performed by the program, and our explanations of them, are based on most but not all of the general rules contained in the Tax Reform Act of 1986, the Revenue Reconciliation Act of 1993, the Taxpayer Relief Act of 1997, Jobs and Growth Tax Relief Reconciliation Act of 2003 and subsequent tax legislation. These acts also contain many specific cases and special exceptions not dealt with by this program or its documentation. In addition, there are likely to be additional regulations written; future official interpretations issued; and technical corrections passed into law.**

**The user should also be aware that financial activities outside the investment being analyzed may interact with the subject investment to produce tax consequences not anticipated by this program.**

**The program does not take into account the impact of other investments, possible liability under the Alternative Minimum Tax, the At-Risk Rules, investment interest limitations, or possible future-year indexing of tax brackets.**

## 1.5 Installing Real Estate Investment Analysis

### 1.5.1 With Windows:

- 1 Place the CD in the disk drive
- 2 Press the **Start** button and choose **Run**
- 3 Type **d:setup** (where **d** is the name of your CD-ROM drive) and click **Browse**
- 4 Click **OK**
- 5 Follow the instructions on the screen

***NOTE:*** *When the installer asks for your serial number, be sure to type it exactly as shown; the serial number is case-sensitive.*

### 1.5.2 With Apple Macintosh:

- 1 Place the CD in the CD-ROM drive

- 2 Double-click the **reia11lite** icon
- 3 Enter the installer password you received with your purchase
- 4 A navigation box will appear; use it to select the destination for you installed software, then choose “Extract.”

***NOTE:*** *When the installer asks for your password, be sure to type it exactly as shown; the serial number is case-sensitive.*

## 1.6 Files, Worksheets and Reports

### 1.6.1 Opening and Using Files and Worksheets

Except for some very minor differences, *Real Estate Investment Analysis* works the same with Excel for Windows and Excel for Macintosh. The file names differ slightly (**REIA 11.0LT** on the Macintosh; **REIA11LT.XLT** on Windows). Some fonts and column widths are different, and to accommodate these variances we have abbreviated some of the labels and text you see on screen differently in the two versions.

There are also differences in how you start up the program. If you are using the Windows version, you may have chosen during the installation to place an icon on the desktop. If so, you can simply double-click that icon to start the program.

You can also press the **Start** button in Windows, select **Programs** and then **RealData**. There you can choose **REIA Lite**, as well as any other RealData program you may have installed.

***NOTE:*** You may see an alert message when you start up *Real Estate Investment Analysis*. The message warns you that you are loading a workbook that contains macros, and that malevolent individuals can embed viruses in such files to harm your computer. Excel displays this message when it loads *any* file that contains macros. It is not reacting to a security threat that it has found in our program. You must choose **Enable Macros** for the automated print functions to work.

Assuming, of course, that you obtained your *REIA* program in a sealed package, either directly from RealData or from an authorized dealer, or that you downloaded it from our secure web site, you have no cause for concern. Click on the button, “**Enable macros**” to continue loading the *REIA* program. If the message annoys you, you can check a box requesting that it not be displayed.

With the Macintosh, or with Windows98 or later, you can also start up your Excel program, pull down the **File** menu and choose **Open**. Find the *Real Estate Investment* file and select it. Once again, if you are using a Macintosh, the file is called **REIA 11.0LT**. If you are using Windows, it is called **REIA11LT.XLT**.

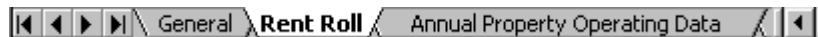
When you open the file you should see the first page of an Excel workbook. The entire analysis resides in this one workbook file. The *workbook* is a collection of *worksheets* that have been bound together. Each sheet has a specific purpose, and you literally turn the page to move from one part of the analysis to another.

While each sheet has a purpose, they are all also interconnected and share information. For example, the *Rent Roll* tells the *Annual Property Operating Data* about total rent, while the *APOD* sends data to the *Cashflow Analysis*. The real advantage is that you don't have to worry about keeping any of this straight. The program does it for you.

Moving from one page to another is very simple. Excel uses notebook tabs as a means of guiding you to the various sheets that make up a file. A generic Excel workbook has tabs that look like these:



The *Investment Analysis* tabs have names, but they are a bit long, so you won't be able to see more than two or three tabs at a time:



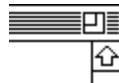
To move to a particular sheet you simply click on its tab. You can also use the arrows to the left of the tabs to scroll through the rest of the tab names. These arrows will take you forward and back through all of the tabs.

If the tabs — or any portion of your spreadsheet window — ever becomes hidden from view, you can resize the window.

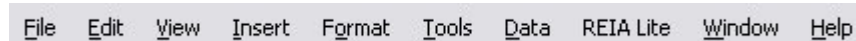
With Windows, click on the square in the upper right of the window:



With the Macintosh, use the resizing box:



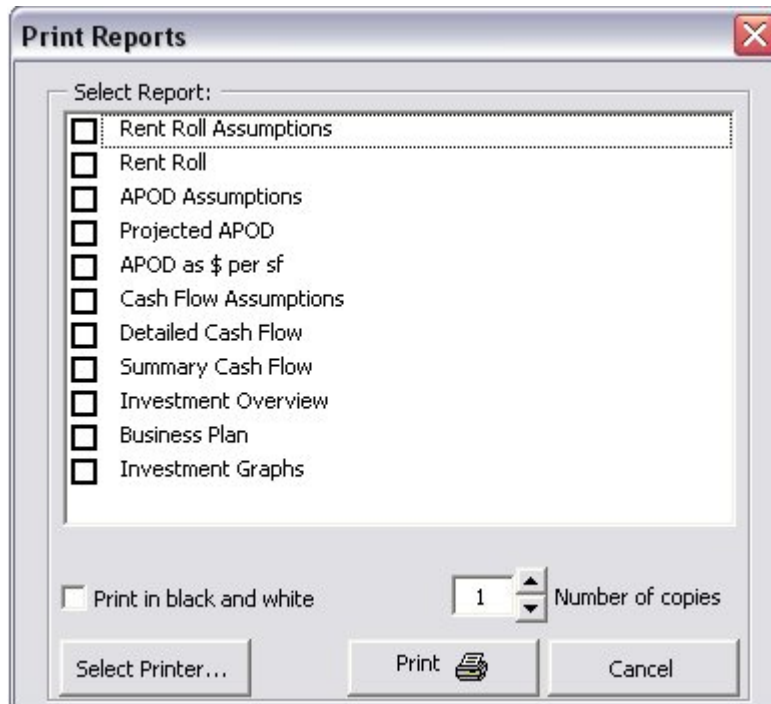
Notice the two special menus to the right of center of the menu bar: **Reports** and **Save**.



The **REIA Lite** menu allows you to print any of 11 pre-formatted reports immediately, regardless of what sheet is currently on the screen.

## 1.6.2 Printing Reports

To print reports, pull down the **REIA Lite** menu and choose Reports. A screen will appear which provides you with the choice of printing one or more reports as well as color or black/white and the number of copies.



You can also print parts of any visible worksheet by pulling down the Excel **File** menu and choosing **Print**. You will probably use this method only if you want to print a particular range or to select printing options that are not part of the standard report formats. Be aware that if you use the Excel **Print** menu, you will not have any of the built-in *REIA Lite* reporting options or layouts available.

Note *REIA Lite* gives you optionally the ability to create a PDF (portable document file) when printing from the **REIA Lite** menu. See below for more information.

Remember that we assume you are using a laser or ink-jet printer with scalable fonts when you print these pre-formatted reports. The reports will lay out very nicely on most printers. Although it is unlikely that you will have to make any adjustments, you can do so if necessary. The simplest adjustment is to alter the worksheet's scaling to improve the report's fit on the page.

### 1.6.3 The Print Dialog Box

The print dialog box gives you a number of options when you are creating reports. It allows you to choose which device to print to, the number of copies to print and whether the output should be in color or black and white.

### 1.6.4 Printing to the RealData PDF Printer

You can to print reports to a PDF file format and send them to a client or colleague as a simple email attachment. A PDF is an exact digital image of a printed report and can be opened by the Acrobat Reader available free from Adobe®. To print a *REIA Lite* report to a PDF, you must first install the RealData PDF printer. This print driver is currently available free on your RealData program CD or via download at [www.realdatab.com](http://www.realdatab.com). This driver will work only with RealData programs that include PDF functionality. Please keep in mind that you may *not* send your client a copy of the Excel *REIA Lite* workbook. That Excel file is in fact the program, which is licensed only for use by you, the user.

To create PDFs, first install the RealData PDF Printer, which is available as a separate installer file. The installer file, setuppdf.exe, is available at no charge from the RealData web site (in the Downloads section) and is also included on RealData software CDs. Again, please note that the RealData PDF Printer will work only with those RealData software products that have been enabled for this purpose.

To print a PDF (after the driver has been installed as described above):

1. Go to the **REIA Lite** menu and choose **Reports**
2. From any **Print** dialog box used to initiate printing, choose **Select Printer**.
3. Select **RealData PDF Printer**.
4. Select **OK**.
5. Select whether or not you want to print in black and white. Note that you can logically create only one copy of a file at a time, so “number of copies” has no effect here.
6. Select **Print**. The program will then begin creating the file.
7. You will be prompted to name the file and to select a location where it should be saved. Name the file something meaningful, like MiniStoreBusPlan.pdf or MainStreetCashFlow.pdf. This file can be saved anywhere on your computer, on a floppy disk or on other portable storage media. Once saved, this file can be easily attached to email.
8. To view your printout, you need the Adobe Acrobat Reader, available at no charge at [www.adobe.com](http://www.adobe.com) (the exact link was <http://www.adobe.com/products/acrobat/readstep2.html> when this guide was published). Once this software is installed, just double-click on the PDF file and Acrobat will open the file automatically.

#### Note

**The Print Dialog Box lets you easily select the printer you want to use, e.g., the RealData PDF Printer. Once you have clicked OK, this printer will remain active for this analysis as long as you have it open or until you change the selected printer. However, if you close the workbook then the next time you open it, the printer choice will revert to the default printer for your computer. Also be aware that this selection only applies to *REIA Lite*; it does not change the printer for any non-*REIA* worksheets you are working on, or any other program you have open.**

### 1.6.5 Entering Data

Each worksheet has areas that you will use to enter data. Much of the rest of this *User's Guide* will be devoted to discussing the information that you will enter. Depending upon the property you are analyzing, you'll use some but certainly not all of the data fields.

Most of the fields in *Real Estate Investment Analysis* — thousands of them, in fact — are spreadsheet cells containing formulas and formatting that you would certainly not want to erase accidentally. We've displayed these cells in black, locked them and protected the worksheets (without a password) to prevent you from changing a formula unintentionally. If you are a knowledgeable Excel user and want to change a formula — or, more likely, change a label or a format — unprotect the worksheet and you will have complete access to its inner workings.

Please understand, however, that you do so at your own risk. If you unprotect a sheet and then find you are getting results you did not expect, you may have altered or deleted a formula inadvertently. If this happens you must reinstall the program from the original disk. Please understand that we cannot provide product support for alterations, or for a copy of the program that has been altered.

To make entering information easier, we have also color-coded the data-entry cells. Cells that appear blue or light purple are available for input, as follows:

- The blue cells are empty or contain **0**. They are used for common items such as the purchase price or a mortgage amount.
- The purple cells contain an erasable formula that means, "Use whatever value is in the cell to my left." These erasable formulas serve as a typing shortcut and can be found in areas where you are likely to want to enter the same information for each year.

For example, the interest rate for the first mortgage has a blue data-entry cell in the first year, but purple thereafter. That means you can enter an amount in the first year and it would automatically duplicate itself in each subsequent year, without your having to type it in. If you wanted to change the rate in the sixth year, however, you could simply type over the formula in that year and enter a new rate — remember we said the formula was "erasable."

In addition to the blue and purple cells, you'll find radio buttons and check boxes like the ones shown below:

Depreciation Type	
<input type="radio"/> 27.5-Year Straight Line for Residential only	
<input checked="" type="radio"/> 39-Year Straight Line for Non-Residential only	
<input type="radio"/> Optional 40-Year Straight Line for Residential or Non-Residential	
<input type="radio"/> Other Straight Line	100 years

<input checked="" type="checkbox"/> Investor participates actively?
<input type="checkbox"/> Investor qualifies as a real estate professional according to Revenue Reconciliation Act of 1993?

We've bordered items like these in blue wherever possible, to remind you that they too are for data entry.

One final color-coding item: Although the *Investment Analysis* is a 10-year pro-forma, we do use an eleventh year in certain sections. You'll find that the heading for that eleventh year has a different color background to distinguish it from the other years.

**NOTE:** When entering numeric data into the program, always enter numbers only. Do not type dollar signs, commas or letters along with numbers, or you will see the error message, "#Value!" in the current or dependent cells. Excel will not recognize such entries as numbers and will alert you with this error

message, which often cascades to cells throughout the program.

## 1.6.6 Recalculation

*REIA Lite* is set for automatic recalculation. If you notice that your worksheet does *not* fill in with calculated values as you make each entry, then the automatic recalculation has been turned off.

To turn recalculation back on:

1. Select **Options** from the **Tools** drop-down menu
2. Select the **Calculation** tab.

Select **Automatic**.

## 2 Welcome and General

### 2.1 The Welcome Page

The workbook begins with a *Welcome* page that displays Internet links for registration, technical support, articles and other useful resources. We invite you to use the registration link immediately so that you can receive support and notification of future updates. In addition, we urge you to let us know of any change in your email or postal address.

### 2.2 What the General Worksheet Does

The analysis begins with the next sheet, which is called *General*. On this page you will enter information that is used throughout the analysis and on most reports.

### 2.3 The Data Entry Section

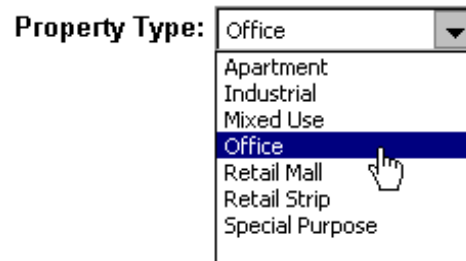
#### 2.3.1 Property Information

The first field is the “**Property Name**.” Your entry here will be used in the heading or cover page of each of the reports. Notice the placeholder text, “Property Name Here.” Be sure to type something meaningful in this cell, or the placeholder will appear on all of your reports. This field is used only as a label for

reports and does not affect the appearance or calculations of the program.

**Property Name:** [The RealData Building](#)

The second field is a pull-down that allows you to name the property type. Again, this information will appear in various reports but does not affect any calculations. The pull-down displays these choices:



If you want to edit this list of names, you can do so. Scroll to the bottom of the page to cells **A73** through **A79**. You can edit the existing names, or you can add one new name in cell **A80**.

### 2.3.2 Month and Year Analysis Begins, Date of Report

In the next two fields you will enter the month and the year that the analysis will begin. You can type directly into the fields, or you can use the “spinners” to raise or lower the numbers. Your entries will pass through to the other worksheets that need this information to perform calculations. Several of the program’s modules perform a 10-year analysis in a columnar format. Your entry for “**Year Analysis Begins**” defines the starting point for that analysis.

*Real Estate Investment Analysis* can handle a partial first year. For example, if you are expecting to acquire a property in August of the first year enter **8** in the field, “**Month Analysis Begins.**” Wherever appropriate, the program will prorate calculations to be five-twelfths of their annual amounts. (Yes, August through December is five months.)

The next entry, “**Date of this Report,**” has no effect on calculations. It is strictly a label that will appear on various reports. Please note that unlike the other data-entry items on this page, this one appears in purple instead of blue. Purple fields contain formulas that we have purposely left unprotected so that you can erase them. In this case, the field has a formula that reads your computer’s clock and inserts today’s date. If you do not want to use the current date, just type what you want into the cell.

### 2.3.3 Total Rentable Square Feet

In the next field you will enter the total rentable square footage (rsf) of the property. A number of reports need this information to perform calculations, and so we urge you not to omit it.

If your property is an apartment building, it is likely that you may be unaccustomed to thinking of it in terms of rentable square feet. Nonetheless, it is worth the effort to estimate the area so that you can produce more meaningful reports.

### 2.3.4 Property Location; Investor; Report Prepared For and By

The next several items – “**Property Location**,” “**Investor**,” “**Report Prepared For**” and “**Report Prepared By**” – are again labels that will be used on various reports. Be sure to type over or delete any of the placeholder text you see in these fields.

### 2.3.5 Safe Rate, Reinvestment Rate, Discount Rate

Your next two entries are the “**Safe Rate**” and “**Reinvestment Rate**” for the Modified Internal Rate of Return (MIRR) calculation. *Real Estate Investment Analysis* provides the MIRR calculation as an alternative to conventional Internal Rate of Return (IRR) which usually will fail to yield a result in a situation where there are negative cash flows. The MIRR calculation takes any negative cash flows (after utilization of reserves), zeroes them out and discounts them at the safe rate back to day one of the investment period. The discounted amount is treated as additional capital needed on day one. Therefore, you can consider the safe rate to be the interest rate at which you can put money aside, in a secure and reasonably liquid form, so that it will grow to meet the amount needed to cover the negative cash flows.

MIRR also takes positive cash flows and compounds them forward to the sale year, using the reinvestment rate (also known as the risk rate). A criticism of conventional IRR is that it assumes the investor can reinvest all positive cash flows at the same rate that the property yields (i.e., at the internal rate of return). Often this is not true, especially when cash flows are too small to reinvest in a comparable piece of real estate. The reinvestment rate, therefore, is the rate at which you believe you could reinvest your positive cash flows.

Your next entry is for the discount rate to be used in the present value calculation in the *Cashflow and Resale Analysis*. This formula determines the present value of each year’s net operating income, as well as that of the final reversion (i.e., resale) value of the property; it then sums these present values to equal the present value of the entire income stream.

By using the Net Operating Income (NOI) and the resale amount, PV ignores the effects of both financing and taxation. This is an approach typically employed by commercial appraisers.

The rate that you enter here is the annual rate at which an amount in hand today would have to grow in order to be equal to the given NOI or reversion amount. For example, a NOI of \$10,000 at the end of one year would have a PV of \$9,259.26 at 8%. In other words, we would have to put \$9,259.26 away at 8% today to have it worth \$10,000 next year.

The purpose of the PV calculation is to estimate the present worth of the future income stream. The rate that we choose is our way of accommodating for the fact that money to be received in the future is less valuable than money received today. Therefore, future income must be “discounted” so that we can accurately apprehend its present worth. Because we will hold this property over a period of time, we will also receive income spread over this period of time. We compute the discounted present value of each “chunk” of income, and when we add up all of these present values we have the PV of the entire income stream.

Appraisers may prefer to define reversion as the gross selling price or as the selling price less the costs of sale. To accommodate this choice, *REIA* provides a control box with two options. For purposes of the Present Value calculation you may elect to define “reversion” as the gross selling price or as the net

selling price, i.e., gross amount less costs of sale:

For Property Present Value Calculations, Use as Reversion...

Gross Selling Price

Net Selling Price (Gross less Costs of Sale)

## 3 Rent Roll

### 3.1 What the Rent Roll Does

The *Rent Roll* produces income estimates for up to 25 groups of rental units and for the property as a whole. For each group you enter the number of square feet per unit, the number of units in the group, the number of bedrooms per unit, the number of bathrooms per unit and the average rent per unit for the first year (specified as \$ / Month, \$ / SF / Month, \$ / SF / Year or \$ / Year). For each group, you then specify a new average rent or a rate of inflation for future years.

### 3.2 Rent Roll - Data Entry Section

Data entry in the *Rent Roll* worksheet is very straightforward. You will make all of your entries in rows 11 through 35.

Before you begin, collect the data about the rental units of the property you are analyzing. Specifically, you will want square footage, current monthly rent amounts and any scheduled rent changes. It is also useful to collect numbers of bedrooms and bathrooms, though this is not required.

You should group the rental units in a way that is meaningful to you. All of the units in a group should have the same square footage, the same number of bedrooms, the same number of bathrooms and the same rent. You can leave the numbers of bedrooms and bathrooms as 0 if you are not concerned with these figures.

Some sample group descriptions appear in rows 11 to 17, column A. You can use any of these that are applicable to this property, or you can edit them to suit your needs. You can also enter new group descriptions in rows 18 to 35, column A.

Unit Description	SF	Qty of			Rate as . . .	2007	2008
		Units	Bedrooms	Baths			
Studio	0	0	0	0	\$ / Month	0.00	0.00
Large Studio	0	0	0	0	\$ / Month	0.00	0.00
One Bedroom	700	7	1	1	\$ / Month	950.00	0.02
Two Bedroom	900	5	2	1	\$ / Month	1,150.00	0.02
3 Bedroom	0	0	0	0	\$ / Month	0.00	0.00
Penthouse	0	0	0	0	\$ / Month	0.00	0.00
Loft	0	0	0	0	\$ / Month	0.00	0.00

In columns B through E, enter the number of square feet per unit, the number of units in the group, the number of bedrooms per unit and the number of bathrooms per unit.

In column F, specify how you will enter the rent, as \$ / Month, \$ / SF / Month, \$ / SF / Year or \$ / Year. Then enter the average rent per unit for the first year in column H.

If you do nothing further, the program will copy the same rent across the row and use it for every year. (Notice that the cells in years 2 through 10 appear in purple. These cells contain unprotected (i.e., erasable) formulas that each say, "Use the value in the cell to my left.")

However, you may want to estimate that the rent will increase in the future. In years 2 through 10 for each group, you can make two kinds of entries in the purple cells:

- 1 An entry greater than one (1) signifies the actual dollar amount for the new average rent in that year.
- 2 An entry between one (1.00) and negative one (-1.00) signifies a percentage change over the full-year dollar amount from the previous year. For example, an entry of **0.1** in year three would yield an amount 10% higher than that of year two; **-0.1** would yield 10% lower than year two; and **0** would signify 0% change, and thus give you the same amount you had in year two.

Keep in mind that this feature of entries that repeat automatically across a row is provided simply as a saver of keystrokes. These cells are all unprotected and therefore open for keyboard input. Remember, too, that these cells can be identified by their light purple color. Once you overwrite the formula in one of these cells, it is gone. If you really want it back, put the cursor on that cell, type an equal sign (=), then type the reference of the cell to the immediate left (e.g., if you are in cell J13, type in =I13).

Typically, you would want to specify the average rent in the same way for all 25 groups. For example, if you will be using \$ / SF / Month for one group, you would probably want to use it for all the other groups also. There is a button labeled “Set All” at the top of the worksheet to accomplish this quickly. Use the dropdown menu to the left of this button to select how the rent will be specified. Then press “Set All” to copy this value into column F for all 25 groups.

### 3.3 The Eleventh Year

The *Rent Roll* includes an eleventh year. An increasingly common method of estimating the value of an income property is to capitalize *next* year’s net operating income rather than that of the current year. A ten-year analysis, therefore, requires an eleventh year of income and expense data.

If you plan to use this method of estimating the resale value, then you will need to enter information for the eleventh year. If you choose to estimate value by capitalizing the current year’s NOI, or by one of the other methods provided, then you will not need data for year 11.

### 3.4 Reports

This worksheet produces two reports. One of these is *Rent Roll Assumptions*, which is the data entry section at the top. The other is *Rent Roll Report*, which takes the average rents and rates of increase you have entered and displays them as annual dollar amounts. You can view this report at any time by scrolling down to rows 39 and following.

You can print any of the program’s reports by pulling down the **Reports** menu and selecting it from the list.

## 4 Annual Property Operating Data (APOD)

### 4.1 What the APOD worksheet does

The *Annual Property Operating Data* worksheet, which is also commonly called an APOD form, allows you to produce a 10-year operating statement for the subject property. This report is very similar to an income statement or a profit-and-loss statement for a business.

### 4.2 How to use the APOD worksheet

As in the *Rent Roll*, you are able to enter data for eleven years, in what is otherwise a 10-year analysis. The reason for this additional year is exactly the same as in the *Rent Roll*, and you need to use it only if you plan also to capitalize the eleventh year's Net Operating Income (NOI) as your method of estimating resale value for year 10.

When you use this worksheet, you will enter your assumptions about income, vacancy and operating expenses in the top portion of the sheet, which covers the first 47 rows. You can then view or print the results of your assumptions; these results will appear in the sections below the data-input area.

### 4.3 Entering Data in the Annual Property Operating Data Worksheet

The worksheet is divided into three similar segments. The top section is where you enter your assumptions. The bottom two sections are where the program translates your assumptions into dollar amounts and into dollars per square foot.

The data input section of the analysis, which is the first 45 rows, allows you to do the following:

- Choose whether or not to inflate operating expenses on a global basis
- Enter information about line-item expenses
- Make assumptions as to how expenses may change annually. The program takes these assumptions and creates a year-by-year matrix of the projected dollar amounts.

#### 4.3.1 Increase All Operating Expenses

To the right is the “**Increase All Operating Expenses**” box, shown below:

Increase All Operating Expenses

To increase all operating expenses (except property management) by an annual rate automatically, click button.

**Annual rate of increase:**      2.00%

This box provides a shortcut for data entry on the *APOD* worksheet. (Please note that this feature has been revised in Version 11 and operates differently from that in previous releases.) If you enter a percentage here and then click the “Increase” button, the program executes a procedure that automatically fills in the expense rows in years 2-10 below with that percentage increase. When it does so, it also erases any other entries you may have had in the expense rows for years 2 through 10 – so, don't press this button if you're not sure that you want to replace you existing

entries.

The purpose of this feature is to save you the necessity of making repetitive entries. You can use this feature to fill in the entire grid (except for property management) with a single rate of increase (the rate you feel will apply to most expenses in most years). After you populate the grid by pressing the "Increase" button, you can still fine-tune your assumptions by manually changing any individual items. In other words, you can manually overwrite any of the entries that were made by the "Increase" button.

The consequences of these entries are visible in the output sections located at rows 55 and below. There you will find that the each first year expense increases annually by the percentage you specified.

### 4.3.2 Income and Expense Assumptions

The Income and Expense Assumptions section is shown below. At the top of the assumptions section are items concerning income. Notice that the gross income figures from the *Rent Roll* worksheet appear here. The first-year income has been extrapolated to a full-year amount. No data entry is required in the Gross Scheduled Rent Income row. If you want to change the amount, do so by making a change on the *Rent Roll* worksheet.

	2001	2002	2003	2004
<b>INCOME</b>				
Gross Scheduled Rent Income	205,200.00	207,870.00	211,487.10	215,518.53
Other Income	3,000.00	0.02	0.03	0.00
<b>VACANCY &amp; CREDIT ALLOWANCE</b>				
	0.03	0.03	0.03	0.03

#### 4.3.2.1 Other Income

Miscellaneous revenue tends to be irregular, so we do not have "Other Income" repeat itself automatically across the row. You must actually make an entry in every year that you want to project such income.

#### 4.3.2.2 Vacancy and Credit Allowance

In the row, "Vacancy and Credit Allowance," if your entry is between 0 and 1 it represents a percentage of the Total Gross Income. If it is greater than 1, it represents a dollar amount, as entered.

In our example, "Other Income" is \$3,000 for a full first year (reduced by the program to \$4,167 for the 10-month first year) and will rise by 2% and 3% over the next two years. Vacancy and credit loss will be 3% annually.

### 4.3.3 Expense

With the exception of Property Management, you can make two kinds of entries in the expense rows:

- 1 An entry greater than one (1) signifying an actual dollar amount for that item in that year.
- 2 An entry between one (1.00) and negative one (-1.00) signifying a percentage change over the full-year dollar amount from the previous year. For example, an entry of **0.1** in year three would yield an amount 10% higher than that of year two; **-0.1** would yield 10% lower than year 2; and **0** would signify 0% change, and thus give you the same amount you had in year two.

Keep in mind that this feature of entries that repeat automatically across a row is provided simply as a saver of keystrokes. These cells are all unprotected and therefore open for keyboard input. Remember, too, that these cells can be identified by their light purple color. Once you overwrite the formula in one of these cells, it is gone. If you really want it back, put the cursor on that cell, type an equal sign (=), then type the reference of the cell to the immediate left (e.g., if you are in cell E35, type in =D35).

You must enter a dollar amount for the first year of an expense (you must not enter a percentage increase in the first year because there is no prior year upon which to base the increase). Even if you are using a partial first year, enter the full or “annualized” amount for the first year for each expense. The program will translate the entry into the correct dollar amount for the partial year. Also, keep in mind that a percentage increase for the second year will be applied to the fully annualized amount of the first year. For example, let’s say that year one begins in July. You enter an annualized expense amount of **150**. The actual expense for year one will be \$75, because we are dealing with half a year. For year two, you enter **.10** to indicate a 10% increase. Year two, however, is a full year, so the program looks at what year one would have been as a full year and increases *that* amount by 10%. The correct estimate for year two is \$165 (\$75 for 6 months = \$150 for 12 months; increasing that amount by 10% yields \$165).

<b>EXPENSES</b>				
Accounting	1,500.00	0.02	0.02	0.02
Advertising	700.00	800.00	800.00	800.00
Insurance (fire and liab.)	4,500.00	0.04	0.04	0.04
Janitorial Service	3,000.00	0.03	0.03	0.03
Lawn/Snow	500.00	0.02	0.02	0.02
Legal	3,000.00	0.02	0.02	0.02
Licenses	0.00	0.00	0.00	0.00
Miscellaneous	500.00	0.02	0.02	0.02
Property Management	0.04	0.04	0.04	0.04
Repairs and Maintenance	7,800.00	0.04	0.04	0.04
Resident Superintendent	0.00	0.00	0.00	0.00
Supplies	600.00	0.03	0.03	0.03
<b>Taxes</b>				
Real Estate	8,750.00	10,500.00	0.04	0.04
Personal Property	0.00	0.00	0.00	0.00
Payroll	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00
Trash Removal	0.00	0.00	0.00	0.00
<b>Utilities</b>				
Electricity	850.00	0.04	0.04	0.04
Fuel Oil	0.00	0.00	0.00	0.00
Gas	0.00	0.00	0.00	0.00
Sewer and Water	1,100.00	0.04	0.04	0.04
Telephone	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00

“**Property Management**” is an exception: If your entry is between 0 and 1, it represents a percentage of the Gross Operating Income (GOI). If it is greater than 1, it represents a dollar amount, as entered. Keep in mind that Gross Operating Income represents the Gross Scheduled Rent Income less the Vacancy and Credit Allowance. In other words, we assume that the property management fee, if paid as a percentage, will represent a portion of the rent you actually expect to collect.

#### 4.3.4 Altering Titles

You should be aware that you can rename most of the line items in this model. You can type over any of the expense items whose names appear in blue in the data-entry section. A name change in the data input section of the worksheet will cause the name to change automatically in the bottom sections as well.

### 4.4 APOD Results

Once you have finished making all your inputs into the *APOD* model you can view the output. The next sections describe how *Real Estate Investment Analysis* will present the results of your entries.

#### 4.4.1 Projected Income and Expenses

You saw, above, what the first four years of the data input looks like for our example. If you scroll down now to row 55, you can begin to see the output. You can continue to scroll down to see all of the report. Below is the first four years of the completed *APOD* report:

**PROJECTED INCOME AND EXPENSES**

**The RealData Building**

	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>INCOME</b>				
Gross Scheduled Rent Income	171,000	207,870	211,487	215,519
Other Income	2,500	0	0	0
<b>TOTAL GROSS INCOME</b>	<b>173,500</b>	<b>207,870</b>	<b>211,487</b>	<b>215,519</b>
<b>VACANCY &amp; CREDIT ALLOWANCE</b>	<b>5,205</b>	<b>6,236</b>	<b>6,345</b>	<b>6,466</b>
<b>GROSS OPERATING INCOME</b>	<b>168,295</b>	<b>201,634</b>	<b>205,143</b>	<b>209,053</b>
<b>EXPENSES</b>				
Accounting	1,250	1,530	1,561	1,592
Advertising	583	800	800	800
Insurance (fire and liab.)	3,750	4,680	4,867	5,062
Janitorial Service	2,500	3,090	3,183	3,278
Lawn/Snow	417	510	520	531
Legal	2,500	3,060	3,121	3,184
Licenses	0	0	0	0
Miscellaneous	417	510	520	531
Property Management	6,732	8,065	8,206	8,362
Repairs and Maintenance	6,500	8,112	8,436	8,774
Resident Superintendent	0	0	0	0
Supplies	500	618	637	656
Taxes				
Real Estate	7,292	10,500	10,920	11,357
Personal Property	0	0	0	0
Payroll	0	0	0	0
Other	0	0	0	0
Trash Removal	0	0	0	0
Utilities				
Electricity	708	884	919	956
Fuel Oil	0	0	0	0
Gas	0	0	0	0
Sewer and Water	917	1,144	1,190	1,237
Telephone	0	0	0	0
Other	0	0	0	0
<b>TOTAL EXPENSES</b>	<b>34,065</b>	<b>43,503</b>	<b>44,880</b>	<b>46,319</b>
<b>NET OPERATING INCOME</b>	<b>134,230</b>	<b>158,131</b>	<b>160,263</b>	<b>162,734</b>

In this report, the results are expressed in total dollars. If you scroll further down the page to row 98, you will see another version of the output from this *APOD* model, where all of the values are expressed in terms of dollars per square foot.

You can print out the assumptions, or either of the two reports using the “**Print**” buttons, located at the top of the model or by pulling down the **Reports** menu and choosing the appropriate selection.

**NOTE:** When you print the APOD report, the program will automatically remove any expense line items that have zero values for all years. This feature is new in Version 11.0.

## 5 Cashflow and Resale Analysis

### 5.1 What Cashflow and Resale Analysis Does

The *Cashflow and Resale Analysis* is the heart of *Real Estate Investment Analysis*. It is a 10-year pro-forma that allows you to project the before-tax and after-tax consequences of ownership and resale. With *Cashflow* you can evaluate how different mortgage terms, depreciation options and assumptions about income, expenses and improvements interact to affect the quality of your investment.

### 5.2 How to use Cashflow and Resale Analysis

At the top of the worksheet, in a section called *Assumptions*, you enter pertinent information under five headings:

- 1 About the Purchase...
- 2 About the Financing...
- 3 About the Resale...
- 4 About the Taxes...
- 5 About the Operation of the Property...

Detailed instructions for entering data into these sections follow. When you have completed your data entry, you can view your results. Then, print any of several reports or change some of your assumptions to analyze the project further.

For a relatively simple transaction, you may need to enter only a few facts about the purchase price, financing, income and expenses. For a more complex project, you may choose to enter additional information about a refinanced mortgage, capital additions and funded reserves. The *Cashflow* model is straightforward enough to handle the simpler investment without burdensome detail, yet powerful enough to provide a comprehensive analysis of the more complex transaction.

When you complete your entries in this worksheet, you will have a complete summary of cash flows, proceeds of resale and tax implications. If you want to analyze “What if?...” scenarios, you can alter any one or more of the assumptions directly on your screen and recalculate the entire model in just seconds. *Cashflow and Resale Analysis* makes it easy for you to answer questions such as:

- When will I see a positive cash flow?
- How will my cash flows be affected if the rate increases on my adjustable mortgage?
- How many years should I hold the property to maximize my return on investment?

### 5.3 Entering Data in Cashflow and Resale Analysis

The *Cashflow* model reads several pieces of information from previous worksheets and automatically transfers them to the *Cashflow* model, including:

- The name and type of the property
- The month and year that the analysis begins
- The annual gross income
- Any vacancy and/or credit losses
- The annual operating expenses

Any changes to the month, year, or name and type of the property, must be made in the *General* worksheet. However, on the *Cashflow* worksheet, you can override the gross income, vacancy or operating expense figures that came from prior sheets. You do not have to use the *Rent Roll* or *APOD* worksheets as your source of gross income or expense data. You can manually enter this information (as total annual amounts) directly onto *Cashflow*. See the section below, “About the Operation of the Property.”

## 5.4 The Five Assumptions

The following sections provide detailed instructions on the “Five Assumptions,” listed below:

<b>Assumption 1:</b>	About the Purchase...
<b>Assumption 2:</b>	About the Financing...
<b>Assumption 3:</b>	About the Resale...
<b>Assumption 4:</b>	About the Taxes...
<b>Assumption 5:</b>	About the Operation of the Property...

### 5.4.1 Assumption One: About the Purchase...

Begin your data entry with the section headed “About the Purchase....” Throughout the worksheet, you should see certain cells appear as a distinctive blue or purple color. These are the cells in which you may enter data. The first is “**Purchase Price, Real Property.**” Enter the dollar amount for land and buildings here.

Notice that the next line, “**Cash Investment,**” does not have a bright color. You do not have to enter the cash required. It will be calculated for you, and shown both here and in the *Business Plan* report.

The cash investment calculation is made as follows: At the beginning of your investment holding period, you will need funds to pay for the following items:

- 1 The purchase of the real estate
- 2 Closing costs
- 3 Loan points
- 4 Improvements (i.e., capital additions) to be made immediately after purchase
- 5 First-year funded reserves

Your mortgage loans will pay for some, and probably most, of what is listed here. The rest is your required cash investment.

The next entry is “**Closing Costs, Capitalized.**” Normally, legal fees for the purchase of investment real estate are payable immediately, but must be amortized over the useful life of the property. *Cashflow* will add your closing costs to the depreciable basis of the building for the purpose of this calculation..

The next two items — the year and month that the analysis begins — are picked up from the *General* worksheet and are displayed as a reminder. You do not have to enter them here.

*Cashflow* has been designed to provide appropriate tax and mortgage calculations for projections that begin in any month of the first year.

Please note that, if you run an analysis with a partial first year, then the IRR and PV calculations will use an estimated full year amount for the first year’s cash flow. This estimate extrapolates the

partial-year cash flow with one exception: It assumes that the amount put into a reserve fund will be the same whether the first year is full or partial.

**NOTE:** Although the label here warns you to use 1997 or later as the starting year, you can in fact use 1994 or later if you recognize the significance of the warning. The program calculates the capital gains tax upon resale using the rules contained in the Taxpayer Relief Act of 1997. Different rules applied to 1994-6, so if you were “projecting” a sale in one of those years, you would get an incorrect tax on the sale. Since Version 11 of this program was released in 2000, it is unlikely that you would be concerned about a sale in a prior year, and the capital gain tax in that prior year would therefore have no significance.

The final item asks for a Treasury Bill (T-Bill) rate. The program, in a simple investment overview, will compare the return produced by this property with that from the same initial cash investment in a risk-free T-Bill.

When completed, the section, *About the Purchase...* should look something like this:

***About the Purchase...***

Purchase Price, Real Property	1,200,000
Cash Investment (Calculated)	389,400
Closing Costs, Capitalized	8,000
Year this Analysis Begins (1997 or later)	2001
Month this Report Begins	3
Compare Investment with Treasury Note Earning...	4.50%

### 5.4.2 Assumption Two: About the Financing...

“About the Financing...” includes four sections:

- First Mortgage
- Second Mortgage
- Third Mortgage
- Balloon and Refinance

#### 5.4.2.1 About the Financing...: The First Mortgage

In the First Mortgage section, you enter information about the principal amount, the interest rate, the term and the number of points. In addition, you may override the payment calculated by the program by manually entering a payment amount. Notice also that the name, “First Mortgage,” is in blue. You can edit the name of this loan here; its new name will appear throughout the program’s various reports. The same is true of the second and third mortgages.

***About the Financing...***

<b>First Mortgage</b>	<b>2001</b>	<b>2001</b>	<b>2003</b>
Principal Amount (\$ or % of purchase price)	0.6	720,000	=amount used
Annual Interest Rate <input type="checkbox"/> Interest Only	9.00%	9.50%	10.00%
Term of Loan, in Months	240	240	=adjusted term
Monthly Payment, Calculated	6,478.03	6,705.01	6,927.56
Monthly Payment to Override Calculation	0.00	(for fixed-rate only)	
Number of Points	2.00	\$14,400	=dollar amount

#### 5.4.2.1.1 First Mortgage: Principal Amount

For the first mortgage, your entry for the beginning principal amount may be entered as:

- A number greater than one (1): If you enter a number greater than 1, the program will interpret it as the actual dollar amount of the mortgage.
- A number less than or equal to one (1.00): If your entry is a decimal amount that is less than or equal to 1 (e.g. 0.75), the program will take this to mean that the mortgage amount should be a percentage of the purchase price.

#### 5.4.2.1.2 First Mortgage: Starting Year's Interest Rate

In the next row you enter the interest rate for this loan. The cell for the first year's interest rate contains a zero. You enter the beginning rate here.

Notice that there is a check box, "**Interest Only**," next to the label, "**Annual Interest Rate**." If you mark this box, the program will treat this loan as interest-only (unamortized), using the rate you specified for the first year as the rate for all 10 years. If this loan is interest only, then your entry for the first-year's interest rate is the *only* rate you should enter in this row.

#### 5.4.2.1.3 First Mortgage: Subsequent Years' Interest Rates

If your loan has a fixed rate, or if it is interest only, then you will not make any interest-rate entries after the first year. If your loan has an adjustable rate and is not interest-only, however, you can make assumptions as to how its rate will change.

After the first cell, every cell in the interest-rate row has an erasable formula that makes it equal to the previous year's interest rate. These are among the few unprotected formulas in the worksheet, and they are shown in light purple. If you make an entry in the first year only, the amount in the first year will copy itself across the row, and every year will show the same interest rate.

If you make another entry somewhere in the row, your entry will erase the formula for that cell. When the model recalculates, the interest rate will change for the year of your entry and for every year that follows.

For example, assume that your loan begins at 9%. You project that it will change to 9.5% in the second year and to 10% in the third year. Enter **.09** in the column for the first year, **.095** in year two and **.10** in year three. You will see...

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
0.6	540,000	=amount used							
9.00%	9.50%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

You do not have to enter a rate for each year, but only when a change occurs. This new rate will be used for each subsequent year until you make another entry in the row.

Keep in mind that you are erasing the unprotected formula whenever you make an entry in years two through ten in this row. If you want to replace the formula, it is very easy. When you entered **9.50%** in year two in the example above, you were making that entry in cell C19. Go back to cell C19. The cell used to have a formula that said, "This cell equals the cell immediately to the left." Since the cell to the left is B19, the formula you erased was simply **=B19**. Type this in; the cell will once again equal whatever rate is used for the previous year.

Whenever you specify an interest rate change, that change will go into effect at the beginning of the year and will apply to the entire year. If you expect the change to occur some time in mid-year, then use an average rate for the year. Using an average rate will usually yield debt service and interest calculations very close to actual.

#### 5.4.2.1.4 First Mortgage: Term of the Loan

After you complete your entries for interest rate, enter the term of the loan in months. No entry is required if this is an interest-only loan. The payment amount will appear on the line “**Monthly Payment, Calculated.**” Note that the payment changes if the interest rate changes:

	2001	2002	2003	2004
	0.6	720,000	=amount used	
	9.00%	9.50%	10.00%	10.00%
	240	240	=adjusted term	
	6,478.03	6,705.01	6,927.56	6,927.56

#### 5.4.2.1.5 First Mortgage: Payment to Override Calculation

The next entry is titled, “**Monthly Payment to Override Calculation.**” This feature is not one that you will use in every transaction, because it is intended to accommodate two rather specific situations:

#### **Situation 1: The Actual Monthly Mortgage Payment is Different from the Calculated Amount**

*Real Estate Investment Analysis* accommodates the situation where the actual monthly mortgage payment to be used is slightly different from the calculated amount. For example, suppose that the seller agrees to take back a \$100,000 second mortgage at 10% for 15 years. To retire the loan requires 180 monthly payments of \$1,074.61. The seller, however, prefers round numbers because they make his checkbook easier to balance. The seller insists on a monthly payment of \$1,100. The extra \$35.39 each month represents additional money paid toward the principal, and so accelerates the payoff of the loan. Instead of 180 payments, you need to make only 170.75 payments to retire the mortgage.

<b>Second Mortgage</b>	2001	2002	2003	2004
Principal Amount (\$ or % of purchase price)	100,000.	100,000	=amount used	
Annual Interest Rate <input type="checkbox"/> Interest Only	10.00%	10.00%	10.00%	10.00%
Term of Loan, in Months	180	170.7554754	=adjusted term	
Monthly Payment, Calculated	1,074.61	1,071.70	1,067.64	1,062.82
Monthly Payment to Override Calculation	1,100.00	(for fixed-rate only)		
Number of Points	2	\$2,000	=dollar amount	

If you use this override, then all of the calculations in the worksheet that are related to the first mortgage will treat this as a loan at 10% for 170.75 months, with a payment of \$1,100 per month. By overriding the payment amount, you have redefined the length of the loan.

**NOTE:** If you use this override feature, there are certain restrictions you must be aware of:

- 1 You must maintain the interest rate as fixed for all ten years. If you change the interest rate from its original amount, erroneous interest and payoff calculations may result.
- 2 You may not override the calculated payment if this is an interest-only mortgage. By definition, an interest-only mortgage involves a level debt service equal to the amount of the interest, and no reduction or increase of the principal. If you use a different payment amount, then it is no longer an interest-only loan.
- 3 The monthly payment you use as an override must be at least large enough to cover the monthly interest. In other words, you may not enter a payment that would cause the mortgage balance to grow instead of reduce each month (called “negative amortization”).

### Situation 2: You Have an Assumed Mortgage

The second situation where you might choose to override the calculated payment is in the case of an assumed mortgage. If you enter the principal amount you are assuming, the interest rate being charged and your actual monthly payment (in the “override” cell), then the program will make all of the correct calculations for that assumed loan. You can leave the term as zero. However, if you do make an entry for the term it will be ignored, because the program will use the calculated “adjusted term.” As in the previous example, the adjusted term represents the true number of months needed to retire the loan on the terms specified. Once again, this feature may only be used with fixed-rate loans.

#### 5.4.2.1.6 First Mortgage: Loan Points

The final entry for the first mortgage is “**Number of Points.**” A loan point is an interest premium charged by the lender at the inception of the loan. It is equal to 1% of the face amount of the loan. You enter the number of points; the program translates your entry into a dollar amount.

Number of Points	2	\$14,400	=dollar amount
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For the purpose of tax calculations, points are amortized over the term of the loan.

#### 5.4.2.2 About the Financing...: The Second Mortgage

The data-entry area for the second mortgage is directly below the section for the first mortgage. The second mortgage functions in precisely the same way as the first. (See the screen image above.)

#### 5.4.2.3 About the Financing...: The Third Mortgage

The data-entry area for the third mortgage is directly below the section for the second. The third mortgage also functions in precisely the same way as the first and second.

#### 5.4.2.4 About the Financing...: Balloon Existing Loans and Refinance

Here you can elect to pay off all existing loans at the end of any year, and replace them with one new loan:

<b>Balloon Existing Loans, and Refinance</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Balloon all Loans after End of Year...)	2006			
Refinance at What % of Market Value	65.00%	(enter 0% to use sum of outstanding loans)		
Sum of All Outstanding Loans, End of Year	821,080	803,733	785,453	765,259
Principal Amount of New Loan (default=sum)	922,720	922,720	= amount used (note: 0 % o	
Annual Interest Rate (fixed)	10.00%			
Term of Loan, in Years	20			
Monthly Payment, Calculated	8,904.45			

In the first row below the heading, you can use the pulldown to select the year at the end of which all of the loans should be “ballooned” (i.e., paid off before completion of the full term). If you select **2006** here, for example, the program will continue the debt service and interest for the first, second and third mortgages through the end of 2006. In the following year, these will be replaced by the debt service and interest for the new loan.

In the second row is “**Refinance at What % of Market Value?**”

Market value is defined here as the property’s projected selling price at the end of the year in which the refinance occurs. This value is shown in the Analysis of Resale. In our example here, it is \$1,331,449, the selling price at the end of year six.

To signify 65% here you would enter **.65**. If you have a particular dollar amount of the loan in mind, rather than a percentage of value, you could simply type that dollar figure divided by the projected selling price into the cell. Excel requires that you type an equal sign (=) before the numbers.

Leave this percentage as zero (**0**) if you want to refinance for exactly the sum of all outstanding loans. When the model recalculates, the third row will display the sum of the year-end balances for all three of the original loans. In other words, this row shows the total amount that needs to be borrowed to pay off all of the existing mortgages.

If the entry you make results in a loan that is more than the total outstanding indebtedness, then the excess will be added to your cash flow, under the heading, “Proceeds of Refinance.” If it is less, the shortfall will show up as a negative number under “**Proceeds of Refinance**”.

In our example using year 2006, the end of 2006 is the dividing line between the old loans and the new one. Thus, it is in 2007 that the Proceeds of Refinance, whether positive or negative, will appear and will affect the cash flow.

The remaining three entries are straightforward. The first is **the annual interest rate**, which must be a fixed rate. The next is the **term of the loan**, expressed in *years* (not in months). Upon recalculation, the program will display the monthly payment amount. The final entry is the **number of points**.

### 5.4.3 Assumption Three: About the Resale...

The first entry in “*About the Resale...*” is “**Sale Expected at End of Year....**” Use the pulldown to select the appropriate year. The *Business Plan* report will use this piece of information and tailor itself to show only the information that is relevant to the holding period you specify.

The next entry is for the cost of sale, as a percentage of the selling price. Fees paid to a real estate broker and to an attorney would be considered costs of sale. Your entry here represents the combined costs. If you expect to pay 6% to a broker and 1% to an attorney, then enter **.07** here.

Next is a choice of method for projecting the resale price. Click on the button that corresponds to the choice you want:

Estimate Selling Price by...	(enter rate below)
<input checked="" type="radio"/> Capitalization of Net Operating Income	12.00%
<input type="radio"/> Inflation Rate	4.00%
<input type="radio"/> Gross Rent Multiplier	7.00

If you select the first option, then the program will capitalize the Net Operating Income; if you select the second, the program will take the purchase price plus capital improvements and subject them to a rate of inflation; and if you select the third, the program will apply a gross rent multiplier.

Whichever option you select, you must also specify an accompanying rate. The program will ignore rates entered alongside the choices you did not select.

For capitalization and inflation, the rate is a percentage. For gross rent multiplier, it is the number of times you wish to multiply the gross rent. Only the entry that corresponds to the method you chose above will be used; the other two will be ignored by the program. So, for example, if you elect to use capitalization rate as a method of projecting resale value, then your entries for inflation rate and rent multiplier will have no effect.

If you elect to use capitalization of income as the method of estimating the property's resale value, you can choose whether to use the current year's net operating income or the NOI of the subsequent year.

To Estimate Resale Price, Capitalize...
<input type="radio"/> Current Year's Net Operating Income
<input checked="" type="radio"/> Next Year's Net Operating Income

Keep in mind that, if you choose "**Next Year's Net Operating Income**," then you must be sure also to provide data for the eleventh year in the *Rent Roll* and the *APOD* form. Without a year-eleven Net Operating Income, it is not possible to calculate a meaningful year-ten resale value.

Users often call RealData for advice in choosing a method of projection or for an explanation of income capitalization. Although it is beyond the scope of this manual and of our product support line to provide detailed instruction in these topics, we can offer some basic guidance:

The gross rent multiplier is certainly the simplest of the three options. It was more common to use this technique when in-depth methods of analysis were available only through long hours of manual calculation or with access to large computers. However, there are still situations where it is effective. The best time to use it is when it works. If you have a group of properties that are very similar, such as commercial or industrial condominium units, then their relative values may

be in direct proportion to their gross incomes. If you can identify such a relationship among comparable properties, then it may be appropriate to use this method in analyzing your subject property.

The use of inflation as a predictor of future value is generally most appropriate when the desirability of the subject property is based on something other than its stream of rental income. For example, consider a single-user property such as a small retail building on a main thoroughfare. The owner of a business that operates as a tenant in such a location is probably willing to spend more for the building than an investor would pay. In general, rate of inflation as a measure of future value may be appropriate when comparable sales work well as a measure of present value (i.e., “Commercial buildings on Main Street are selling for \$200 per square foot; by next year they will be up to \$225.”).

Capitalization of income is probably the method preferred for most situations. It assumes that an investment property’s value bears a direct relationship to the property’s ability to throw off net income. To use capitalization rate, in short, is to subscribe to this logic:

“I am buying this property with the expectation that its income will represent a return on my investment. It is reasonable to assume that whoever buys the property from me in the future will have a similar expectation. The amount that he or she might be willing to pay is the price that permits the property to yield the new investor’s desired capitalization rate.”

The investment, then, is not so much the tangible real estate, but rather the expected income stream. Mathematically, a property’s simple capitalization rate is as follows:

$$\text{Capitalization Rate} = \frac{\text{Net Operating Income}}{\text{Present Value}}$$

NOI is the gross scheduled income less vacancy and credit loss and less operating expenses. Mortgage payments are not considered to be operating expenses, so the NOI is the net income that you would realize if you bought the property for all cash. If you purchase a property for \$100,000 and have a NOI of \$10,000, your simple capitalization rate is 10%.

To use capitalization to predict value requires just a transposition of the formula:

$$\text{Present Value} = \frac{\text{Net Operating Income}}{\text{Capitalization Rate}}$$

The projected value in any given year is equal to the expected NOI for that year divided by the investor’s required capitalization rate. If you project that the property will yield a NOI of \$27,000 in year 10, and that a new buyer will require a 9% rate of return (capitalization rate), then *Cashflow* will estimate a resale price of \$300,000.

Our review here has been limited to simple capitalization rates, and has not dealt with the effects of financing. For a more complete discussion of this topic, you should consult a text in income-property valuation.

#### **5.4.4 Assumption Four: About the Taxes...**

There have been numerous changes in the tax laws since *Real Estate Investment Analysis* was first released in the early 1980s. Three of these – the Tax Reform Act of 1986, the Revenue Reconciliation Act of 1993 and the Taxpayer Relief Act of 1997 – have had significant impact on real estate investing.

The Tax Reform Act of 1986 imposed dramatic changes on our Federal tax structure in general, and upon the real estate industry in particular.

A good part of the rationale behind those changes in the tax law was the desire to curb the use of real estate as a means of sheltering ordinary income from taxation. Prior to Tax Reform, “economic deals” (i.e., investments whose primary purpose is to throw off income or long-term gain) had been eclipsed by “tax-shelter deals” (investments whose goal is to generate losses that shield other income from taxes). Tax benefit tended to replace economic benefit as the motive for investment.

As explanations go, this one is an oversimplification. Investments are seldom purely economic or purely tax shelter. What *is* fairly simple and easy to see, however, is that the Tax Reform Act removed or reduced enough of the special tax benefits from real estate so as to eliminate tax sheltering as a primary motive for investment. But by no means did it eliminate all motives. The real economic benefits intrinsic to good properties have remained as sufficient motivation to careful investors.

There was another, more subtle change that merits attention. Before Tax Reform, it was commonplace to evaluate individual investment opportunities in isolation. The investor would determine the property's taxable income or loss and apply his or her marginal tax bracket to that amount. A property would typically hold the same implications for one 50%-bracket taxpayer as it would for another.

Under Tax Reform it became more likely that an investor's other dealings — salary, interest and dividends, productive investments, losing investments — might interact with the tax consequences of a new property being analyzed.

For example, you may (as discussed in greater detail below) be eligible to make use of a “passive loss allowance” with respect to your real estate investments. This allowance is the total amount of losses from passive investments, such as real estate, that you can deduct in a given year. Suppose further that you already own one property and are evaluating the possibility of buying another. To determine whether losses from the new property may be deducted in the current year or must be carried forward, you need to know whether your first property has used up all of your allowance. And the amount of that allowance itself can change, based on changes in your gross income.

The Tax Reform Act had the most profound effect on real estate investing in a generation. Subsequent laws have attempted to fine-tune the tax code's relationship with real estate.

The Revenue Reconciliation Act of 1993 introduced the concept of the real estate professional. This provision, as discussed in greater detail below, allows certain individuals to offset all real estate losses against ordinary income. It also lengthened the useful life of non-residential property, thus reducing annual deductions for depreciation.

The Taxpayer Relief Act of 1997 made sweeping changes in the tax code, but provided only one significant item of relief for real estate investors: a modification of the capital gains tax. Prior to 1986, investors could exclude 50% of the amount of long-term gains. That exclusion was

eliminated with Tax Reform. The 1993 law set a maximum of 28% on the capital gains tax. The 1997 law created a complex matrix of rules that generally reduced the tax on capital gains, although lengthening the amount of time an investor needed to hold a property to obtain long-term gain treatment. A more detailed explanation of the new rules is found below.

Version 11.0 of *Real Estate Investment Analysis* goes a long way toward keeping these tax changes sorted out but nothing short of a complete personal audit of all your financial dealings will reveal *every* possible interaction of tax rules. Even though one can usually predict what effects a particular medication will have, a physician or pharmacist is still likely to ask if you are currently taking anything else. Your financial health can benefit from the same kind of caution. Consult your tax attorney or CPA about the possibility of your investments interacting.

#### 5.4.4.1 Major Provisions Affecting Real Estate

##### 5.4.4.1.1 Depreciation

Residential real estate placed in service since 1987 must be depreciated as 27.5-year property. As of 1994, non-residential property must be depreciated over 39 years. All real estate now uses straight-line only, with the half-month convention (i.e., the property is assumed to be placed in service in the middle of its first month, disposed of in the middle of its last month and depreciated accordingly). Accelerated depreciation is no longer allowed.

Personal property attached to real estate will most likely fall under a 7-year class. Such property is typically depreciated under the 200% declining balance method, with switchover to straight line at the optimum time, and using a half-year convention (unless placed in service in the last quarter of the year, in which case a half-quarter convention applies). In most cases you can elect to use these new rules for property placed in service after July 31, 1986.

##### 5.4.4.1.2 Capital Gains

Prior to the Tax Reform Act, taxpayers could exclude 50% of long-term capital gains from their income. Starting in 1987, capital gains were taxed at the same rate as ordinary income. A subsequent bill made the maximum tax on net capital gains 28%.

New capital gains rules were enacted as part of the Taxpayer Relief Act of 1997 and are significantly more complex than any in a generation.

There is one set of rules for taxpayers in the 15% bracket and another for taxpayers at 28% or higher. Both groups pay tax on capital gains at ordinary income rates if they hold their property 12 months or less. They both pay at ordinary rates but at a maximum of 28% if they hold their property more than 12 months but not more than 18.

If the sale occurs after 18 months, the gain is considered long-term. Previously the holding period was 12 months. The 15% taxpayer pays a maximum of 10% on a long-term gain, or if he or she has held the property for more than 5 years, a maximum of 8%.

After 18 months, the taxpayer in the 28% or greater bracket pays a maximum of 20% on a long-term gain, unless he or she acquired the property after the year 2000 and also held it for more than 5 years, in which case the maximum tax would be 18%.

<p><b>NOTE:</b> Sales that occurred after May 6, 1997 but before July 29, 1997, where the property was held more than 12 months are also treated as long-term capital gains and qualify for the 20% or</p>
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10% maximums. Since *Real Estate Investment Analysis* assumes all sales to occur at the end of a year, this provision is not relevant to any of the program's calculations.

Apparently concerned that this might all be too simple, Congress also made a special rule for real estate only: That portion of a long-term capital gain attributable to prior deductions for depreciation would be taxed at a rate of not more than 25%, with the balance taxed at whichever of the other four rates (i.e., 8%, 10%, 18% or 20%) applied.

#### 5.4.4.1.3 Deductibility of Real Estate Losses

In general, losses from passive activities can only be used to offset income from other passive activities. An exception exists for owners of rental real estate, who may deduct up to \$25,000 of net losses from rental real estate investments in which they participate actively. Note that this "passive loss allowance" applies not to each property owned, but to the net loss from all qualifying properties. This allowance is reduced for taxpayers with Adjusted Gross Income (AGI) over \$100,000. For each \$2 of income in excess of this amount, the passive loss allowance is reduced by \$1; therefore, it is eliminated completely for taxpayers with AGI over \$150,000.

Losses in excess of the allowance are suspended and carried forward to the next tax year. When there is finally a fully taxable disposition of the property, outstanding losses can be deducted against the gain from that disposition, from other passive activity gains or income, or from any other gain or income (in that order).

The Revenue Reconciliation Act of 1993 added a new wrinkle. Beginning in 1994, certain individuals can offset rental real estate losses against all sources of taxable income. To qualify, the taxpayer must spend more than 750 hours per year (and also devote more than half of his or her personal service time for the year) to real property trade or business. In addition, the individual must materially participate in the rental real estate activity.

#### 5.4.4.1.4 At-Risk Rules

Losses from a real estate investment are deductible only up to the amount that the taxpayer could actually lose from engaging in the activity. The amount at-risk includes cash invested and amounts that are borrowed from qualified third-party lenders. ***Real Estate Investment Analysis, 11.0 makes the assumption that the investor is indeed at risk to the extent of any losses that the property may generate.*** The at-risk rules include a number of exceptions and special cases, and so once again we must urge that if you have any question as to whether these rules may affect the deductibility of losses from your investment, you should consult a qualified professional for a specific opinion.

#### 5.4.4.1.5 Alternative Minimum Tax

The Alternative Minimum Tax (AMT) is a tax at a flat rate that is applied to your "AMT Income." If your tax liability under the AMT calculation is higher than under the standard method, you must pay the greater amount.

With regard to real estate, certain common items are considered tax preferences: net passive activity losses; accelerated depreciation on real estate to the extent that it exceeds 40-year straight line; and accelerated depreciation on personal property to the extent that it exceeds 150% declining balance switching to straight line.

**Real Estate Investment Analysis does not attempt to take AMT into account in any of its tax calculations.** There are numerous other considerations with the AMT besides those cited above, and virtually all of them are outside the context of the single real estate investment being analyzed. However, for investors who have been advised of a need to minimize their AMT income, this program does permit the choice of 40-year depreciation.

#### 5.4.4.2 Entering Data in “About the Taxes...”

The first entry is the *depreciable* value of the real estate. Remember that buildings may be depreciated, but land may not, so your entry here reflects the value of the buildings (called “improvements”), but not the value of the land. There are two methods you may use when making your entry here. If you enter 1.00 or less, the program will calculate the depreciable amount as a percentage of the purchase price. If you experiment with different purchase prices, the value of the depreciable improvement will change in proportion.

For example, if the “**Purchase Price, Real Property**” at the top of the worksheet is \$100,000 and you enter **0.75** as the depreciable amount, then the program will use \$75,000. If you change the purchase price to \$90,000, then the depreciable amount will change to 75% of \$90,000, or \$67,500.

Depreciable Amount (\$ Amount or % of Purchase):                    0.75

If your entry is a number greater than 1.00, then the program assumes that you are specifying a fixed dollar amount instead of a percentage. Enter 70,000 here, and that 70,000 will remain even if you choose a different purchase price.

You should keep in mind that closing costs related to the purchase of an investment property must be written off over the useful life of the building. For the purpose of tax calculations, the total depreciable amount used (as shown to the right of your entry) always includes the closing costs as well as the depreciable basis of the real estate itself.

With your next entry, you will choose the method of depreciation to be used.

As noted above, your tax advisor may suggest the use of the 40-year method if you have a potential AMT liability.

The last choice, “**Other Straight Line**,” allows you to specify the number of years to be used. We do not mean to suggest that there is any other choice now available, because as far as we know, there is not.

Whenever the depreciation rules have changed in the past, users have called us to ask if there might be any “quick fix” they could make while they awaited our next program revision. The purpose of the fourth option here is to give you the opportunity to choose an alternative length of time should the rules for depreciable life of real estate change again soon. Obviously, we cannot offer you any assurance that this simple straight-line calculation (with half-month convention) will be consistent with some future regulation, but it may very well satisfy your need for a temporary adjustment if that need should arise.

The next entry is a question concerning the investor's active participation.

<input checked="" type="checkbox"/> Investor participates actively?
<input type="checkbox"/> Investor qualifies as a real estate professional according to Revenue Reconciliation Act of 1993?

The \$25,000 passive loss allowance, discussed above, applies only if you participate actively in your real estate investment. Check the box to indicate that you do, leave it unchecked if you do not.

Please note that there are other reasons why you may not be able to deduct losses generated by this particular investment. Your AGI may exceed \$150,000 or your existing investments may have already absorbed your loss allowance. If the latter is true, or if you prefer not to publicize your AGI on this report, you may leave this top item unchecked to bypass the loss allowance.

Your next entry specifies whether the investor qualifies as a real estate professional as defined by the Revenue Reconciliation Act of 1993, discussed above. Check the box if the investor does qualify, leave it unchecked if he or she does not. If in doubt, assume the investor does not.

The next item is the investor's "**Marginal Tax Bracket.**"

	2001	2002
Marginal Tax Bracket	31.00%	31.00%

Enter the appropriate percentage for each year in the following input row. From the second year on, each cell contains an unprotected formula that assumes you wish to use the same entry as the previous year. You can overwrite any of these cell formulas with a keyboard entry. Remember that you should enter 31% here as **.31**.

The next entry is your estimated AGI (disregarding IRA contribution deductions, taxable social security benefits and passive activity losses) for each year.

	2001	2002
Marginal Tax Bracket	31.00%	31.00%
Investor's estimated Adjusted Gross Income	125,000	125,000

This row of entries is used to determine whether your income makes you ineligible for part or all of the \$25,000 passive loss allowance. If your income is below \$100,000, you are eligible for the entire allowance. Therefore any entry you make between \$0 and \$100,000 is equivalent to any other.

Likewise, if your AGI is above \$150,000, you are eligible for none of the allowance. Again, any entry over \$150,000 will produce the same effect as any other — in this case, to disqualify your use of the allowance.

If your AGI is between \$100,000 and \$150,000, the allowance is phased out at the rate of \$1 for every \$2 of AGI. Therefore, you will need to be concerned about the accuracy of your estimated AGI only if it falls between \$100,000 and \$150,000.

### 5.4.5 Assumption Five: About the Operation of the Property...

The final section for data entry is called *About the Operation of the Property*.

<i>About the Operation of the Property...</i>	2001	2002	2003
Gross Income, from Rent Roll, or Gross Income (override Rent Roll)	173,500 0	207,870 0	211,487 0
Vacancy & Credit Allowance in \$, from APOD Vacancy & Credit Allow.(override APOD; enter as%)	5,205 0.00%	6,236 0.00%	6,345 0.00%
Operating Expenses, from APOD, or Operating Expenses (override APOD)	34,065 0	43,503 0	44,880 0
Capital Additions	0	0	0
Funded Reserves	0	0	0
% Interest Earned on Reserves	0.00%	0.00%	0.00%
<input checked="" type="checkbox"/> Use reserves to offset negative cash flows?			

Your annual gross income, vacancy and credit loss and total operating expenses will be imported from the *Rent Roll* and *Annual Property Operating Data* worksheets and placed into rows as shown above.

Each of those rows has another below it where you can override the information that is being imported. For example, “**Operating Expenses (override APOD)**” permits you to enter any annual total operating expenses you want to use. For any year in which you have made an entry on this line, your entry “overrules” the amount from the *Annual Property Operating Data* (i.e., the *APOD* worksheet) and is used in its place. If you do not care to use the *APOD* analysis at all, you can simply enter your annual expenses for each year here, and ignore the previous line. Likewise, you can enter your total gross income in the row, “Gross Income, Override Rent Roll.”

For the vacancy and credit allowance, you must enter your override as a percentage of the gross income.

**NOTE:** As with the mortgage interest rates in the financing section discussed earlier, you do not have to make an entry, but each subsequent cell to the right has an unprotected formula that says, “Use the same amount as last year.”

If you make an entry in the first year only, every year will show the same amount when the worksheet recalculates. If you make an entry somewhere in the row, your entry will erase the formula for that cell. The amount will change for the year of your entry and for every year that follows.

The next entry in this section concerns “**Capital Additions.**” You may make additions or improvements to the property in any or all of the ten years. Your entries here do not repeat automatically across the row.

**NOTE:** Capital additions are capital *improvements* added to the property, such as the installation of a new roof. The term does *not* mean additional capital invested by the owner.

The program treats additions made in the first year as part of the original capital outlay. The cost of these first-year improvements does not enter into the calculation of the first year's cash flow, but rather into the computation of uses of capital at acquisition.

“**Funded Reserves**” may be entered in the next row. No tax deduction is taken for amounts placed in the reserve account, but the account may earn interest which is taxable annually as ordinary income.

Because it is quite possible that you may choose to fund this account in the first year only, the program will *not* duplicate your first entry throughout the entire row. You can enter non-repeating amounts in any year, or you can enter a formula of any kind if you prefer. As with capital additions, the amount placed in funded reserves in year one is considered to be part of the initial outlay of capital and does not affect the first year's cash flow.

In all likelihood, you will place your reserves in an interest-bearing account. Enter the rate of interest to be earned in the next row. Any entry in this row *will* repeat across unless changed.

You have the ability to choose whether or not money sitting in your reserve fund should be used to offset negative cash flows. If you leave the box unchecked, signifying “No,” then the program allows the money in the reserve account to be held there until the sale of the property. Those funds have no tax consequences, other than taxable interest earned, when they are put into reserve and likewise no tax consequences when recovered upon sale.

On the other hand, if you check the box, signifying “Yes,” then the program will use the money from the reserve fund and automatically apply it against a negative cash flow, should one occur. Of course, it will never take more money out of the reserve fund than is actually there, nor will it use more than required; it will use as much as necessary and available in attempting to zero out a negative cash flow. If you choose this option, then the program will use the cash flow after utilization of reserves when computing the.

## 5.5 The Completed Worksheet

When the worksheet recalculates, some items, as we have seen, will fill in on the “Assumptions” pages. We do this to help you catch obvious errors as you enter information. For example, we calculate and display the amount of a mortgage payment when you enter the terms. If the payment is a tremendous surprise, then you have probably entered an erroneous interest rate or term.

More important, however, are the pages below the “Assumptions.” The first of these provides a year-by-year analysis of the taxable income or loss and of the operating cash flows. The second page, titled “Analysis of Resale,” projects the resale price for each year, performs all of the necessary tax calculations, and computes the before- and after-tax sale proceeds. In addition, the IRR and PV calculations appear on this page.

A more concise version of this same data is the *Summary Report*. This simpler format can help you focus on the most important data without being distracted by the full complement of supporting detail.

The worksheet is quite large, but you can use the “Go to...” key (**F5**) if you want to move directly to any named subsection of any worksheet.

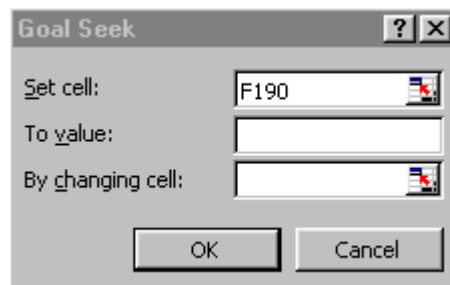
## 5.6 Goal Seeking

When evaluating an income property, you may have a particular investment objective in mind: a minimum acceptable cash-on-cash return or IRR for example.

You typically ask yourself a question such as, “What purchase price will allow me to meet my goal?” It is now easy to answer a question like this without endless manual trial and error.

For example, let’s assume that in the analysis on which you’ve been working, you decide that you don’t want to hold the property beyond the end of the fifth year, and that you want at least a 12.5% IRR before taxes. You scroll down to the row that displays the “Internal Rate of Return, Before Tax” and see that the fifth year yields 11.44%. There are several factors that could improve the IRR, but you choose the most obvious and ask, “What purchase price will give me a 12.5% IRR before taxes at the end of year five?”

To answer that question, just place the cursor on the cell where the IRR for fifth year is displayed. Then pull down the **Tools** menu and choose **Goal Seek**. You’ll see a window like this:



Because you are already on the cell containing the IRR (your goal), the first field is filled in for you. Now enter **.125** in the field, “**To value.**” Finally, click the cursor into the field, “**By changing cell**” and scroll up until you find the cell that contains the purchase price. Click on that field (which is **B7**) and the program will fill in the cell address for you. (Note: If you see dollar signs in these addresses, they are a spreadsheet convention indicating what is called an “absolute reference.” These signs have no real significance here.)

You are telling the program to set the value of the IRR (**F190**) to **.125** (i.e., 12.5%) by trying different values of the purchase price (**B7**). When you click **OK**, the program will begin to home in on a value for the purchase price that will yield an IRR at or very close to 12.5%. The amount of time required depends on the speed of your computer, but it is likely to be at least a few minutes.

Keep in mind that you can use this goal-seeking procedure with other data elements. The rules are simple:

- Your goal (the “Set cell” field) must be a calculated item. This cell must contain a formula.
- The variable (the “By changing cell” field) must be a user input item. The variable must *not* contain a formula.
- The value of the goal must depend, directly or indirectly, on the value of the variable. In our example here, the IRR does depend on the purchase price. The amount of the Net Operating Income or the annual property tax expense, on the other hand, would *not* depend on the purchase price.

## 6 Business Plan

The *Real Estate Business Plan* is the next worksheet. There is no data entry required here. This sheet is intended as a report — a presentation that you can give to a partner, lender or client. To print it, simply click on the “Print Business Plan” button. For convenience, we have provided a copy of this button on the *Cashflow* sheet as well. You can also print this, and any other report, by choosing it from the “**Reports**” menu.

Many users of this program find that the *Business Plan* is the best report to use as an initial presentation to a third party. Unlike most financial reports it is relatively uncluttered and affords the reader an opportunity to gain a quick grasp of the project. In any presentation, it is important to provide enough information to be effective, but not so much that it discourages the recipient from actually reading the document. The *Business Plan* has proven itself to be successful in achieving that reasonable middle ground.

Even if you plan to give someone the *Business Plan* first, you should certainly print several of the more detailed reports and have them ready. When the client asks, “Where did you get this number?” you should have the *APOD* report, the *Cashflow and Resale Analysis* (detailed or summary) and perhaps the *Rent Roll* ready to provide.

## 7 Graphs

*Real Estate Investment Analysis*, Version 11.0, displays five graphs, including:

- 1 A chart showing Internal Rate of Return against cash flow
- 2 The Gross Operating Income, Net Operating Income and Cash Flow Before Taxes
- 3 A comparison of the projected selling price, total outstanding debt, and equity
- 4 A line graph that tracks debt against equity
- 5 A line graph that tracks Gross Income against Total Operating Expenses

You can print these graphs by clicking on the “**Print Graphs**” button at the top of the worksheet, or by selecting “**Investment Graphs**” from the **Reports** menu. Each chart will print on a separate page, in landscape format.

You may want to print these graphs and attach some or all of them to your *Business Plan* report. Also keep in mind that you can use Excel to design your own graphs using the data produced by *Real Estate Investment Analysis*. You can place your own graphs on this same worksheet.

## 8 Glossary

**ABATEMENT** - In a lease, the reduction or elimination of rent for a period of time. For example, as an inducement to a tenant to rent a particular space, the landlord may abate the rent for a period of months while the tenant remodels the space.

**ACCELERATED DEPRECIATION** - Depreciation methods that allow a taxpayer to take faster write-offs than with straight-line during the early part of an asset's useful life.

**ACCUMULATED DEPRECIATION** - The sum of annual depreciation deductions taken to date. Also, accrued depreciation.

**ADJUSTABLE RATE MORTGAGE (ARM)** - A mortgage loan in which the interest rate is not constant over the life of the loan, but is adjusted periodically according to a predetermined formula or index.

**ADJUSTED BASIS** - The original cost of an asset, such as real estate, plus capital improvements, less accumulated depreciation and costs of sale. The taxable gain at the time of sale is, in general, the selling price less the adjusted basis.

**ADJUSTED GROSS INCOME (AGI)** - Gross income less certain adjustments, including IRA, alimony and Keogh deductions. Used to determine the investor's passive loss allowance, which begins to phase out when the investor's AGI reaches \$100,000 and is completely eliminated at \$150,000.

**ALTERNATIVE MINIMUM TAX (AMT)** - A tax that may be triggered if certain tax benefits, such as passive losses and accelerated depreciation, reduce an individual's income tax liability. You must use Federal tax form 6251 to determine if you are subject to the Alternative Minimum Tax. RealData software makes no provision for an investor's potential AMT liability.

**AMORTIZATION** - a) The process through which a loan is retired over time through periodic repayment of the principal. b) The process of taking a partial annual tax deduction for an item that cannot be expensed in a single year. For example, points paid to secure a loan must typically be deducted (amortized) over the life of that loan.

**ANNUAL DEBT SERVICE (ADS)** - The total of all payments on a mortgage loan, including both interest and principal, for a year.

**ANNUAL PROPERTY OPERATING DATA (APOD)** - A form that lists a property's gross income, individual operating expenses and net operating income. An APOD is similar to a business profit-and-loss statement.

**APPRECIATION** - The increase over time in the value of an asset due to economic factors rather than to improvements or additions.

**ASSUMED MORTGAGE** - A mortgage in which the purchaser of a property assumes liability for payment of an existing mortgage loan. Typically the purchaser takes over the existing balance, terms and payment schedule. Many mortgage loans contain a "due on sale" clause which

prohibits assumption by requiring the original borrower to pay off the loan if he or she transfers title of the mortgaged property to a third party.

**AT-RISK RULES** - A provision in the tax code that limits deductions for losses to the amount “at risk,” i.e., to the cash invested plus the amount of notes for which the investor is personally liable. However, the tax code also provides for certain non-recourse real estate loans to be treated as if they were “at risk.” RealData software makes no provision for the possible impact of At-Risk rules.

**BALLOON** - A provision in a loan that requires the principal balance to be paid off in a lump sum before the loan would be retired through normal amortization. For example, a loan may be written with a fifteen-year amortization and a seven-year balloon. The periodic payment amount and the interest and principal portion of each payment are all calculated as if the loan were to run for fifteen years. However, the borrower would retire the loan at the end of seven years by paying the balance outstanding (the balloon) at that time. Also, Balloon Payment.

**BASIS** - The starting point for computing gain or loss on an investment; typically, the original purchase price. See also, Adjusted Basis.

**BOOK VALUE** - An asset’s original basis less accumulated depreciation.

**CAPITAL ADDITION** - An addition to a piece of real estate having a useful life of more than one year, or an improvement that is likely to prolong the life of the property. A capital addition is different from a repair, which maintains rather than increases the life of a property.

**CAPITAL GAIN** - Gain from the sale or disposition of a capital asset, such as real estate. May be long term or short term.

**CAPITAL IMPROVEMENT** - See Capital Addition.

**CAPITALIZATION RATE** - The ratio between a property’s net operating income and the sum of its purchase price (or value) and capital additions. It is a measure of return before consideration of taxes, financing or recovery of capital. If a property has a given NOI, then the higher the capitalization rate demanded by an investor, the lower the value of the property. Also called “cap rate.”

**CASH FLOW AFTER TAXES (CFAT)** - The cash flow before taxes, reduced by the tax liability that the property generates for the owner, or increased by the tax savings.

**CASH FLOW BEFORE TAXES (CFBT)** - During a given period, all of a property’s cash inflows less all of its cash outflows. Inflows are counted whether or not they must be included as taxable income and outflows are counted regardless of deductibility. For example, cash flow is affected by the entire amount of a mortgage payment, even though only the interest portion is deductible. Cash flow is not affected by a depreciation deduction, which is not a cash item. “Cash flow before taxes” ignores the property’s effects on the owner’s income tax liability.

**CASH-ON-CASH RETURN** - The rate of return on an investment measured as the ratio between the cash flow before taxes and the initial cash investment.

**CLOSING COSTS** - Costs paid, typically to an attorney, for documentation and representation in connection with the purchase or sale of a piece of real estate. Title insurance is usually

considered a closing cost, but real estate commissions, loan fees, prepaid interest and fire or liability insurance are not considered closing costs.

**COMMERCIAL PROPERTY** - See Non-Residential Property.

**COMMISSION** - A fee paid, typically to a real estate agent or broker, for negotiating a loan, lease or sale.

**COMPARABLES** - For purposes of valuation, properties that are similar to the subject property and that have been recently sold or leased.

**CONSUMER PRICE INDEX (CPI)** - An index published by the U. S. Bureau of Labor Statistics and widely used as a measure of inflation. The index estimates the cost of buying a fixed group of goods and services and compares that cost to the base year (1982) that was assigned an index value of 100. The CPI is commonly used in escalation clauses of commercial real estate leases so that the rent generated by those leases will keep pace with inflation. Also, cost-of-living index.

**COSTS OF SALE** - Fees typically paid to a broker and/or attorney to effect the sale of a piece of real estate. These costs are not tax deductions as such. Rather, they are an adjustment to the basis of the property and thus affect the taxable gain on sale.

**DEBT COVERAGE RATIO** - The ratio between an income-property's annual net operating income and its annual debt service. Most lenders require a debt coverage ratio of at least 1.2. A property with a 1.2 debt coverage ratio has income before debt service that is 1.2 times as much as the debt service – in other words, the property generates 20 percent more net income than it needs to make its mortgage payments.

**DEBT SERVICE** - The total loan payment, including both interest and principal.

**DEPRECIATION** – In RealData software used interchangeably with “Depreciation Allowance.” Appraisers, however, typically use the term “depreciation” to represent the actual loss in value due to physical wear and tear and to functional and economic obsolescence.

**DEPRECIATION ALLOWANCE** - The amount of the tax deduction that a property owner may take each year until he or she has written off the entire depreciable asset. In real estate, the physical structures are considered depreciable assets, but the land is not. Therefore, there is no depreciation allowance for the value of the land. See also Useful Life.

**DISCOUNT RATE** – The compound interest rate used to reduce expected future cash flows to their estimated present value.

**DISCOUNTED CASH FLOW ANALYSIS (DCF)** - An income-property appraisal technique that estimates value by discounting all expected future cash flows to the present and summing the discounted amounts.

**EFFECTIVE GROSS INCOME (EGI)** - See Gross Operating Income.

**ESCALATION** – A clause in a real estate lease that provides for an adjustment to the rent,

usually based on some external event, such as a rise in the Consumer Price Index (CPI).

**EQUITY** - The difference between a property's value and the balance of the debt against it. A property worth \$1,000,000 with loans totaling \$750,000 has equity of \$250,000.

**EXPENSE STOP** - A provision in a lease where the tenant agrees to pay the excess of certain operating expenses over a base amount. The landlord pays the expense up to the amount of the expense stop and the tenant pays or reimburses the landlord for the rest.

**FAIR MARKET VALUE** - The price at which a property would change hands from a willing seller to a willing buyer, where neither party is under a compulsion to sell or buy and where both have reasonable knowledge of all pertinent facts. Also, Market Value.

**FIRST MORTGAGE** - The first, or senior claim against an asset, as security for repayment of a debt.

**FUNDED RESERVES** - A sum of money put aside so that it will be available to handle an extraordinary expense or improvement. For example, an investor may anticipate the need for a new roof five years after acquisition of a property and place money into a reserve account in advance so that funds are available when needed.

**GENERAL PARTNER (GP)** - The person or entity in a limited partnership that bears unlimited liability and all of the management responsibility of that partnership.

**GROSS OPERATING INCOME (GOI)** - A property's annual Gross Scheduled Income, less allowances for vacancy and credit loss. Also, Effective Gross Income.

**GROSS RENT MULTIPLIER (GRM)** - A method of estimating or expressing a property's value as a multiple of its gross rental income.

**GROSS SCHEDULED INCOME** - The annual income of a property if all rentable space were in fact rented and all rent collected; the total potential income.

**HALF-MONTH CONVENTION** - A provision of the tax code as of this writing that allows only one-half month of depreciation in the month a property is acquired and one-half month in the month it is sold.

**IMPROVEMENT** - See Capital Addition.

**INCOME PROPERTY** - Real property leased to tenants and held for the purpose of generating ongoing rental income.

**INFLATION** - The loss of a currency's purchasing power over time.

**INFLATION RATE** - The annual rate at which a currency loses purchasing power.

**INITIAL INVESTMENT** - The amount of cash invested at the time a property is purchased.

**INTEREST-ONLY MORTGAGE** - A mortgage loan in which the borrower makes periodic payments of interest only and pays the full principal balance at the end of the loan term.

**INTERNAL RATE OF RETURN (IRR)** - The rate of return that discounts all anticipated

future net cash flows (including the reversion) back to a present value that equals the initial investment.

**LEASE** - A contract granting possession of land or a specified part of a building for a specified time in exchange for rent.

**LESSOR** - An owner who leases property to a tenant; landlord.

**LESSEE** - A tenant who leases property from a landlord.

**LIMITED PARTNER (LP)** - An investor in a limited partnership who typically has none of the management responsibility and whose liability is limited to the amount of his or her investment.

**LIMITED PARTNERSHIP** - A partnership having a General Partner who manages the partnership's investments and bears unlimited liability and Limited Partners who have no management control and whose liability typically is limited to the amount of their investment.

**LIMITED PARTNER'S RATIO** - The ratio between the amount invested by a particular limited partner to the total amount invested by all of the limited partners.

**LONG-TERM CAPITAL GAIN** - The gain on an asset held more than 12 months.

**MARGINAL TAX BRACKET** - The rate at which the investor's next dollar of income will be taxed.

**MARKET VALUE** - See Fair Market Value.

**MODIFIED FINANCIAL MANAGEMENT RATE OF RETURN (MFMRR)** - See Modified Internal Rate of Return.

**MODIFIED INTERNAL RATE OF RETURN (MIRR)** – An alternative to conventional Internal Rate of Return (IRR). IRR will usually fail to yield a result in a situation where there are negative cash flows. The MIRR calculation takes any negative cash flows, zeroes them out and discounts them at a safe rate back to day one of the investment period. The discounted amount is treated as additional capital needed on day one. MIRR also takes positive cash flows and compounds them forward to the sale year, using the reinvestment rate (also known as the risk rate).

**MORTGAGE** - A lien against a property that secures a mortgage loan or note.

**MORTGAGEE** - The lender in a mortgage agreement.

**MORTGAGOR** - The borrower in a mortgage agreement.

**NET OPERATING INCOME (NOI)** - A property's Gross Operating Income less the sum of all operating expenses. NOI represents a property's profitability before consideration of taxes, financing or recovery of capital.

**NET PRESENT VALUE (NPV)** - The discounted value of all of a property's future cash flows (including the reversion) less the initial cash investment.

**NON-RESIDENTIAL PROPERTY** - Real property that does not satisfy the definition of

Residential Property; property not primarily intended for use as dwellings.

**OPERATING EXPENSE** - Expense necessary for the maintenance of a piece of real property and to insure its continued ability to produce income. Loan payments, depreciation and capital expenditures are not considered operating expenses.

**OWNER-OCCUPANT** - A property owner who occupies part or all of his or her property.

**PASS THROUGH** - An operating expense that is passed on, in whole or in part, to a tenant. For example, a lease may require that a particular tenant pay a pro-rata share of property taxes in excess of \$10,000. If the tax bill is \$50,000, and the tenant occupies 5 percent of the property's rentable area, then the tenant must pay 5 percent of \$40,000 (the amount of the tax bill over \$10,000), or \$2,000. The landlord treats this as an income item; often call a "recoverable expense."

**PASSIVE ACTIVITY** - A business or rental activity that the taxpayer does not materially participate in managing or running. See also, Passive Loss Allowance.

**PASSIVE LOSS ALLOWANCE** - The dollar amount of losses from passive-activity investments that an individual taxpayer may deduct against ordinary income. In general, losses from passive activities can only be used to offset income from other passive activities. As of this writing an exception exists for owners of rental real estate, who may deduct up to \$25,000 of net losses from rental real estate investments in which they actively participate. This allowance is reduced for taxpayers with Adjusted Gross Income over \$100,000.

**PERSONAL PROPERTY** - Property that is movable, not permanently attached to the real estate. Appliances are personal property.

**POINT(S)** - A fee paid to a lender for the lender's service in making the loan. Typically a point is equal to one percent of the amount of the loan. Points are not deductible as an expense, but must be written off over the life of the loan.

**PREFERRED RETURN** - In a limited partnership a limited partner may be entitled to an annual, non-compounded return on his or her investment before the general partner receives any return.

**PRESENT VALUE (PV)** - The discounted value of a series of future cash flows.

**PRINCIPAL** - The amount of a loan, exclusive of any interest.

**PRO FORMA** - A statement or report of projections about the possible future performance of an income property. A pro forma uses assumptions as to future revenues, expenses, interest rates, tax considerations, etc.

**RECOVERABLE EXPENSE** - See Pass Through.

**REFINANCE** - The process of retiring all existing loans against a property and replacing them with a new loan. In a cash-out refinance, the new loan is greater than the sum of the loans being retired and the borrower receives the difference in cash.

**REHABILITATION TAX CREDIT** - A credit that may be taken against one's total tax liability for

improvements made to certain properties. Credits of up to 20 percent of the improvements made to historic properties and up to 10 percent of the improvements made to non-historic properties are available as of this writing. A variety of conditions and limitations apply, including the dollar value of the improvements in relation to the property's basis, the amount of time allowed for the project, certification requirements, passive loss limitations, alternative minimum tax considerations and others.

**REINVESTMENT RATE** - In Modified Internal Rate of Return, the rate at which the investor believes he or she could reinvest the positive cash flows from his or her investment. Also, Risk Rate.

**RENTABLE SQUARE FEET** - The portion of a rental property that may be leased to tenants. For example, in a multi-tenant office building the office suites themselves contain rentable space, but hallways and stairways outside those suites typically are not included as part of the rentable area.

**RESALE** - See Reversion.

**RESIDENTIAL PROPERTY** - Real estate designed and intended as dwellings, including single- and multi-family homes, but not hotels or motels. A property that combines both residential and non-residential uses must derive at least 80 percent of its gross rental income from dwelling units to be considered residential for purposes of depreciation. If a mixed-use property is owner-occupied, then the fair-market rental value of the owner's unit must be taken into account when determining the residential or non-residential status of the property.

**REVENUE RECONCILIATION ACT** - Tax law passed in 1993, which changed the useful life for non-residential property, introduced the concept of "real estate professional" and limited the tax on capital gains to 28 percent; the capital gains provision was superseded by the Taxpayer Relief Act of 1997 and again by the Jobs and Growth Tax Relief Reconciliation Act of 2003.

**REVERSION** - The value of an investment at the time of its resale.

**RISK RATE** - See Reinvestment Rate.

**SAFE RATE** - In Modified Internal Rate of Return, the interest rate at which you believe you can put money aside in a secure and reasonably liquid form so that it will grow to meet the amount needed to cover future negative cash flows.

**SENSITIVITY ANALYSIS** - An analysis where one or more independent variables is altered to determine the effect on a particular dependent variable. For example, one might test how different rental rates affect the cash flow before taxes, or how different purchase prices affect the internal rate of return.

**SHORT-TERM CAPITAL GAIN** - The gain on an asset held 12 months or less.

**STRAIGHT-LINE DEPRECIATION** - A depreciation method that allows the owner to write off an asset's basis in equal amounts over its useful life. For example, if an asset were to have a 10-year useful life, the straight-line depreciation allowance each year would be 10 percent of the basis. Note that in the tax code as of this writing there exists a so-called half-month convention

for real estate, where the taxpayer is allowed only one-half month depreciation in the month of acquisition and one-half month in the month of resale.

**TAX REFORM ACT OF 1986** - A tax bill that substantially altered the treatment of capital gains, ending the 50 percent capital gain exclusion. The law also introduced the concept of passive activity investments and limited the losses from such activities that could be taken against ordinary income.

**TAX SHELTER** - An investment vehicle that can shield a part of an investor's ordinary income from taxation.

**TAX-DEFERRED EXCHANGE** - A provision of the tax code (sec. 1031) that permits property owners to exchange like-kind properties. If certain criteria are met, the parties can defer recognition of gain or loss and therefore also defer the tax that might have occurred in an outright sale.

**TAXPAYER RELIEF ACT OF 1997** - A revision to the tax code that reduced the maximum tax rate on long-term capital gains from 28 percent to any of a variety of rates (25 percent, 20 percent, 18 percent, 10 percent, or 8 percent), depending upon the tax bracket of the taxpayer, the extent of prior depreciation, the acquisition date of the property and the length of time the property is held.

**TENANT IMPROVEMENTS (TI)** - Improvements made to a rental unit by a landlord for the benefit of a tenant. Such improvements a capital expenditures, not repairs.

**TERM** - The number of periodic payments over which a loan is amortized.

**TREASURY BILL** - A government obligation representing a virtually risk-free investment.

**USEFUL LIFE** - The length of time, as specified in the tax code, over which an asset may be depreciated. The Useful Life for tax purposes is not necessarily the same as the actual physical life expectancy of a particular asset.

**VACANCY AND CREDIT ALLOWANCE** - A deduction from the Gross Scheduled Income for losses due to unoccupied space and uncollected rent.