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***Real Estate Investment Analysis***  
**International Edition**

**User's Guide**

**RealData® Inc.**  
**P. O. Box 691**  
**Southport, CT 06890**

[www.realdata.com](http://www.realdata.com)

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Real Estate Investment Analysis™ International Edition

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RealData® Inc.

P. O. Box 691

Southport, CT 06890

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## List of Acronyms

APOD	Annual Property Operating Data
ARM	Adjustable Rate Mortgage
BOY	Beginning of Year
CFBT	Cash Flow Before Taxes
CPA	Certified Public Accountant
CPI	Consumer Price Index
DCF	Discounted Cash Flow
EGI	Effective Gross Income
EOY	End of Year
GOI	Gross Operating Income
GRM	Gross Rent Multiplier
IRR	Internal Rate of Return
MFMR	Modified Financial Management Rate of Return
MIRR	Modified Internal Rate of Return
NOI	Net Operating Income
NPV	Net Present Value
PDF	Portable Document File
PV	Present Value
REIA	Real Estate Investment Analysis
TI	Tenant Improvements



## Chapter 1. Introduction and General Information

Thank you for purchasing RealData's *Real Estate Investment Analysis (REIA), International Edition*. 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 chapter completely before you begin working with the program. This introduction will provide you with important information about the program's capabilities.

*REIA* has been designed to assist you in evaluating income-producing property. The analysis is constructed as a multipage 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 begins with a page of general information that includes property name and address, "prepared by" and "prepared for" labels for reports, and choices about currency symbols and units of measure. Next is a *Residential Income Summary* that allows you to estimate the revenue from residential units, followed by a *Unit-by-Unit Income Summary* that helps you project the total annual gross rent you will collect each year from your commercial units. Use the *Unit-by-Unit Income Summary* in situations where you have leases with rent increases that are linked to the CPI or that are fixed but occur scattered throughout various years.

Following the *Unit-by-Unit Income Summary* 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 20-year *Cashflow and Resale Analysis* that allows you to project the pretax consequences of ownership and resale. With it, you can evaluate how different mortgage terms and assumptions about income, expenses, and improvements interact to affect the quality of your investment. Additional sheets include *Lease vs. Buy* comparison and *Rent Roll, CashGraph, and Sensitivity Analysis*.

*REIA* 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.

You can use *REIA* 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, such as starting up the computer and spreadsheet, connecting and using your printer, and locating and saving files.

### What's "International" About the *International Edition*?

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

This international version is based on the *Standard Edition* of our software, which deals very effectively with the needs of U.S. investors. It estimates both before- and after-tax cash flows, capital gains, and rates of return and expresses all monetary amounts as dollars and all space as square feet. In contrast, the *International Edition* has been designed in response to those investors, both from within the U.S. and abroad, who require an analysis that is not dependent on U.S. nomenclature or tax code. Specific features include:

- A complete pretax analysis
- The ability to specify virtually any currency name or symbol; the software will automatically display that name or symbol as needed throughout all worksheets and reports
- The ability to specify rentable area in terms of square meters as well as square feet; again, the appropriate terminology will automatically appear on all worksheets and reports
- The choice of performing mortgage calculations according to the U.S. and European method (monthly accrual of interest) or the Canadian method (semiannual accrual).

Keep in mind that U.S. investors who do not require after-tax calculations can use this edition of *REIA* to perform very comprehensive analyses of any income property.

## System Requirements

*REIA* is an Excel workbook that takes up approximately 2.7 megabytes of space on your hard disk. Each completed analysis that you save will also take up another 2.7 or more megabytes, depending on the amount of data you enter about rental units. You can copy analyses onto high-capacity media for archive purposes or to reclaim disk space. Other requirements include:

- Microsoft Excel 2000 or later
- 700 Mhz computer or greater running Windows 98/NT/2000/XP
- 256 MB of RAM or more recommended
- A laser or ink-jet printer

The *International Edition* is currently available only for Windows operating systems. The Microsoft Excel file delivered with this program will not function correctly on Macintosh systems.

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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.

## Installing REIA

### Installing from CD

1. Place the CD-ROM in the appropriate drive. On most systems, the installer will start automatically. If so, follow the directions on the screen. Otherwise, go to Step 2.
2. Select **Start > Run**.
3. Enter `d:\setup` (where `d:` is the CD-ROM drive).
4. Select **OK**.
5. Follow the directions on the screen.

#### NOTE

**Serial numbers are case-sensitive. When the installer asks for your serial number, be sure to enter the letters in upper or lower case as shown.**

### Installing from Download

1. Open the e-mail with the link to the installer file.
2. Double-click the link and choose the **Save File to Disk** option. We recommend that you save to your **Desktop** location.
3. Double-click on the installer icon to begin the installation process (the file name is `setupreiaint.exe`)
4. Follow the directions on the screen.

#### NOTE

**Serial numbers are case-sensitive. When the installer asks for your serial number, be sure to enter the letters in upper or lower case as shown.**

## Files, Worksheets, and Reports

### Opening and Using Files and Worksheets

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.

Alternatively, select **Start** from the Windows desktop, then **Programs** and then **RealData**. From there, select **REIA International**, or any other RealData program you may have installed.

#### NOTE

**You may see an alert message when you start up *REIA International Edition*. 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. If you obtained your *REIA* program directly from RealData or from an authorized dealer, or if you downloaded it from our secure web site, you have no cause for concern. You must select **Enable Macros** for *REIA* to function. If the message annoys you, you can select an option requesting that it not be displayed.**

You must set your macro security level to medium before opening our programs. If the security level is set on high, then you will not be prompted to enable macros.

To change the macro security setting:

1. Open Microsoft Excel.
2. Select **Tools > Macro > Security** and select the **Security** tab.
3. Set the security to **medium**.
4. Select **OK**. You will now be prompted to enable macros when opening the *REIA* program.

When you open the file you will see a window that displays the program name and version number. The window will close after a few seconds and then 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 “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 *Residential Income Summary* and the *Unit-by-Unit Income Summary* tell the *Annual Property Operating Data* about total rent income, while the *APOD* sends data about expense recoveries back to the *Unit-by-Unit* and they both provide data to the *Cashflow and Resale 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 Figure 1-1:



Figure 1-1 Excel Worksheet Tabs

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



Figure 1-2 REIA Worksheet Tabs

To move to a particular sheet, select the tab or use the **REIA Navigator** or **REIA Toolbar**, which are described in Options Checkboxes for REIA Navigator and REIA Toolbar on page 14. 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 become hidden from view, you can resize the window. Select the middle square in the upper right of the window:



Figure 1-3 Windows Screen Sizing Buttons

If you are still unable to view the worksheet tabs, select **Window**, then **Arrange**; then choose **Tiled** from the list. Select **OK**.

### REIA Menu

The *International Edition* includes the **REIA Menu (Figure 1-4)**, which is added to the Excel menu bar between **Window** and **Help** when you open a *REIA* spreadsheet.

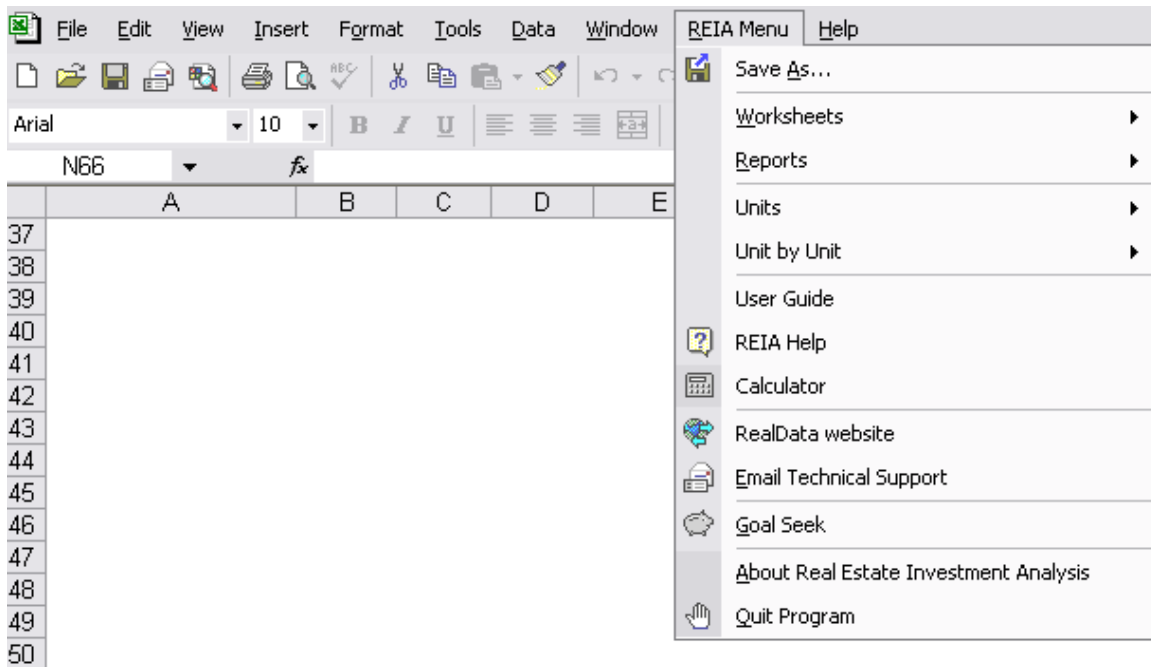


Figure 1-4 Excel Menu Bar with REIA Menu

The first item on the **REIA Menu** is **Save As**. We recommend that you immediately save the template with a new name when beginning a new analysis by using the **Save As** command. This will preserve the original blank template of the program. Should you accidentally overwrite the template, you must reinstall the software.

Next is the **Worksheets** menu, which allows you to move easily to any worksheet within the program.

Below that is the **Reports** menu, which allows you to print any of 11 preformatted reports immediately, regardless of what sheet is currently displayed on the screen (for more information on printing reports, see Printing Reports on page 8).

The next two items pertain to the **Unit-by-Unit** worksheet. With the first option, **Units**, you can move directly to any record on the **Unit-by-Unit** worksheet, regardless of which worksheet is currently in view. The second option, **Unit-by-Unit**, is accessible *only* when you are viewing the **Unit** worksheet. It allows you to add, edit, or delete units.

The next section gives you easy access to three valuable tools. The first is the **User Guide**, which you are reading right now. It requires the Adobe Acrobat Reader (available free at [adobe.com](http://adobe.com)). The second launches the searchable **Help** file. This can give you a quick definition, hint, or rule. You will probably want to check this first before opening the **User Guide**. The last item in this section of the menu provides immediate access to the Windows **Calculator** to help you make simple computations outside of the *REIA* program.

The two items that follow allow you to seek web-based help from us (provided you are connected to the Internet). The first, **RealData website**, will connect you to [www.realdata.com](http://www.realdata.com), where you can check for information that might help you solve a particular problem. **Email Technical Support** makes it easy to send a support ticket to RealData.com if you have a specific question.

With the next item you can access our **Goal Seek** tool. This tool will help you find the purchase price that is necessary to achieve a particular income, selling price, or rate of return. You will find a discussion of this tool in Goal Seek on page 50.

Finally, **Quit** the program from this menu. While **Quit** needs no explanation, be assured that you will be prompted to save your work if you choose this option.

## Printing Reports

You can print reports in a number of ways. You can pull down the **REIA Menu**, select the **Reports** submenu, and choose the report you want to print. (The *APOD* and *Cashflow* items bring up menus with additional report choices.)



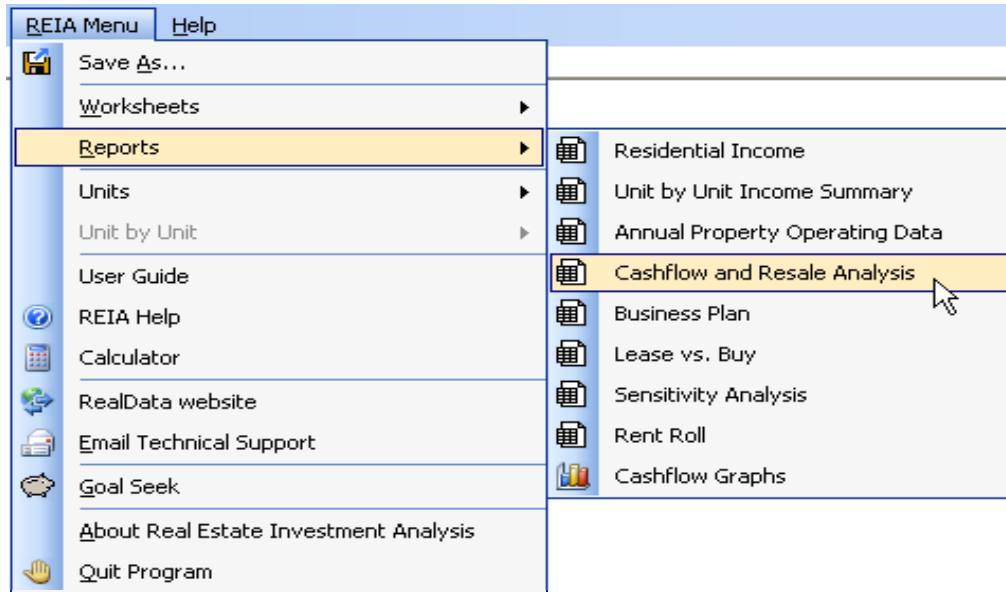


Figure 1-5 Reports Menu

You can also select **Reports** from the **REIA Toolbar**, which gives you the same list of reports.

Finally, you can pull down the Excel **File** menu and choose **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* reporting options or layouts available.

The *International Edition* offers the optional ability to create a PDF (portable document file) when printing. A PDF is an exact digital image of a printed report and can be opened by the Acrobat Reader available free from Adobe®. Now you can create a PDF of a *REIA* report and send it to a client or colleague as a simple e-mail attachment. To print a *REIA* report to a PDF, you must install the RealData PDF printer. This print driver is currently available free on your RealData program CD or via download at [www.realdatal.com](http://www.realdatal.com) (see the *Welcome* page of the program for a direct download link). This driver will work only with RealData programs that include PDF functionality.

### The Print Dialog Box

The print dialog box gives you a wide range of options when you are creating reports. Selecting a report brings up a dialog box that is specific to that report. Each one allows you to choose which device to print to, how many copies to print, whether the printout is in color or black and white, and, if appropriate, an option to select the projected year of sale. An example of the dialog box appears below. For this report you can select individual units as well as the number of years to include in the printout. The nature of the report determines which options are available.

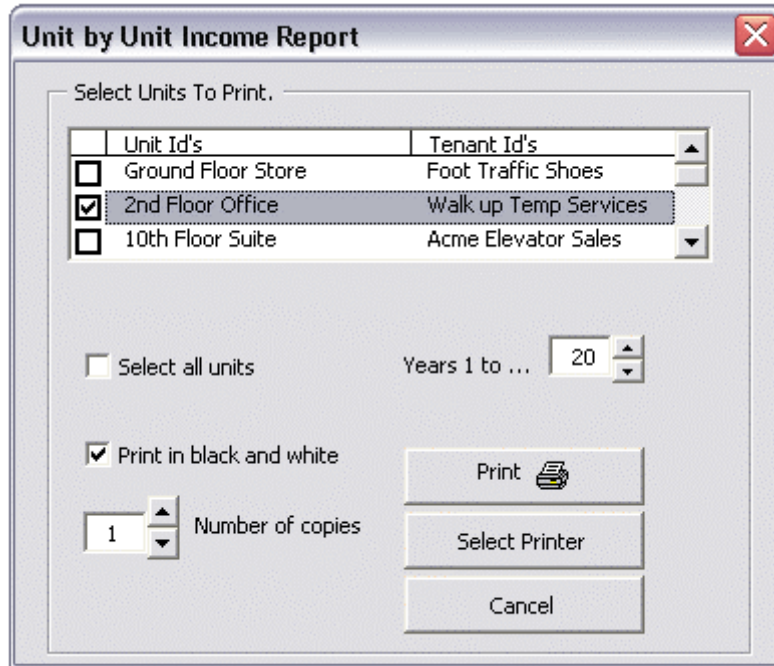


Figure 1-6 Print Dialog Box

### Printing to the RealData PDF Printer

You can print reports to a PDF format for distribution across networks or the Internet. This file format is useful if you need to e-mail your results to a client or colleague. Anyone will be able to view reports in this format provided that they have installed the Adobe Acrobat Reader software, which is free. Please keep in mind that you may *not* send your client a copy of the Excel *REIA* 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—see the *Welcome* page of *REIA* for a direct link) and is also included on RealData software CDs. 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. From any **Print** dialog box used to initiate printing, choose **Select Printer**.
2. Select **RealData PDF Printer**.
3. Select **OK**.
4. Set all the other options in the dialog box the way you want them, e.g., black and white, 15-year analysis. Note that you can logically create only one copy of a file at a time, so “number of copies” has no effect here.
5. Select **Print**. The program will then begin creating the file; this can take some time, especially for the *Unit-by-Unit Summary*.
6. You will be prompted to name the file and select its location. The default is the name of the Excel workbook with a .pdf extension instead of an .xls extension; you will probably want to name it something more useful, like *MiniStoreBusPlan.pdf* or *MainStreetCashFlow.pdf*. This file can be

saved anywhere on your computer, as well as on a floppy disk or other portable storage media. Once saved, these files can be easily attached to e-mail.

7. To view your printout, you need the Adobe Acrobat Reader, available at no charge at [www.adobe.com](http://www.adobe.com/products/acrobat/readstep2.html) (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 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; it does not change the printer for any non-REIA worksheets you are working on, or any other program you have open.**

## Entering Data

Each worksheet, except for those designed as report-only, have 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 probably not all of the data fields.

Most of the fields in *REIA*—thousands of them, in fact—are spreadsheet cells that contain formatting and proprietary formulas. On the visible worksheets, we've displayed these cells in black, locked them, and protected the worksheets to prevent them from being altered. We have also locked the workbook to protect proprietary code of the visual basic modules needed to perform certain program functions. Please understand that these passwords are not available to users.

Throughout the worksheets, we have provided quick reminders of important information in 'cell notes.' You will know that there is a note for a cell if there is a little red triangle  in the upper right corner of the cell. If you hover your cursor over the cell note indicator, a comment will appear that will provide more information about entering data in or near that location. Often the cell note will be at the left end of a row, in the cell where the label for that row appears.

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

- The blue cells are empty, contain editable text, or contain the numeral zero. They are used for common items such as the purchase price or a mortgage amount. Note that some reports have areas that are formatted with blue text to enhance appearance. These are not data-entry areas and are clearly labeled as such.
- The purple cells contain erasable formulas that translate to, "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 (cell **B19** in the *Cashflow and Resale Analysis* worksheet), but purple thereafter. That means you can enter an amount in the first year and it will 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." 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 a purple cell. If you want to restore the formula, it is very easy. Looking again at “**First Mortgage**” on the *Cashflow* worksheet, if you entered 10.00% in year 2, you would be making that entry in cell **C19**. Before you made your entry, the cell had 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.

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

Estimate Selling Price by... (enter rate below)	
<input checked="" type="radio"/> Capitalization of Net Operating Income	11.00%
<input type="radio"/> Appreciation Rate	4.00%
<input type="radio"/> Gross Rent Multiplier	7.00

Check box to pass through expense	Over Base	Amount (Annual)
<input type="checkbox"/> Accounting		0
<input type="checkbox"/> Advertising		0
<input type="checkbox"/> Insurance (fire and liability)		0
<input type="checkbox"/> Janitorial Service		0
<input type="checkbox"/> Lawn/Snow		0
<input type="checkbox"/> Legal		0
<input type="checkbox"/> Licenses		0

Figure 1-7 Radio Buttons & Check Boxes

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

### The 21<sup>st</sup> Year

One final color-coding item: Although *REIA International Edition* is a 20-year pro-forma, we do use a 21<sup>st</sup> year in certain sections. You’ll find that the heading for that 21<sup>st</sup> year has a different color background to distinguish it from the other years.

The reason for the extra year is that 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 20-year analysis, therefore, requires a 21<sup>st</sup> year of income and expense data. You make this choice (i.e., capitalizing the current year’s NOI or the subsequent year’s) on the *Cashflow and Resale Analysis* worksheet, in the “**About the Resale...**” section. See Assumption Three: About the Resale... on page 45 for more information.

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 21. However, if you plan to use the “next-year’s NOI” method of estimating the resale value, then you will need to enter information for the 21<sup>st</sup> year in the following worksheets: *Unit-by-Unit Income Summary*, *APOD*, and *Cashflow and Resale*. *APOD* will require entries only if the expenses for the 21<sup>st</sup> year differ from those for the 20<sup>th</sup>.

### 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.

## Recalculation

*REIA International Edition* 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.
3. Select **Automatic**.

## Chapter 2. Welcome and General

### The Welcome Page

The workbook begins with a *Welcome* page that displays Internet links for technical support, articles and other useful resources. In addition, we urge you to let us know of any change in your e-mail or postal address.

### 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.

### Entering Data in the General Worksheet

#### Options Checkboxes for REIA Navigator and REIA Toolbar

The **REIA Navigator** and **REIA Toolbar** allow you work efficiently within *REIA*. Both are enabled via checkboxes in a box called **Options** near the top of the *General* worksheet; the default setting for the **REIA Navigator** is off, while the default for the **REIA Toolbar** is enabled.

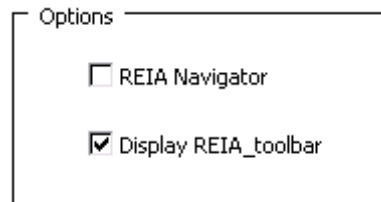


Figure 2-1 REIA Navigator & Toolbar Check Boxes

To use **REIA Navigator**, right-click within any spreadsheet and select **REIA Navigator** from the bottom of the pop-up menu. You will then see a dialog box that allows you to choose any worksheet.

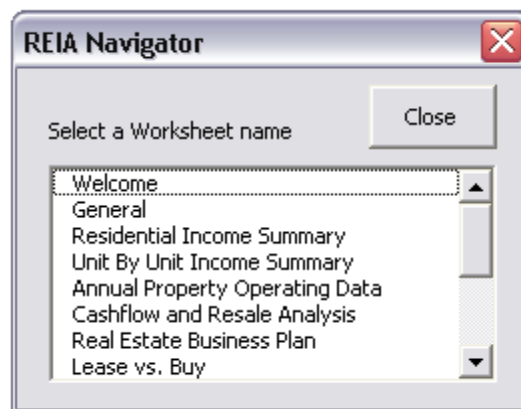


Figure 2-2 REIA Navigator

The **REIA Toolbar** appears automatically when you first open *REIA*. You can move this floating toolbar by clicking on its title bar and dragging it around the screen. You can also change its shape by hovering over any edge until the cursor changes to a double-headed arrow, then clicking and dragging.

Additionally, if you drag it to the top, bottom, or either side of the display, you can lock it into place on that border of your screen. To float it again, select the small vertical bar at the left (or top) end of the toolbar and drag it towards the screen's center. If you do not want to use the toolbar for a session, you can turn it off by selecting the X in the upper right-hand corner of the toolbar. Remove or restore the toolbar by unchecking or checking the box on the *General* worksheet (see Figure 2-1).

The **REIA Toolbar** provides many of the choices available on the **REIA Menu**. You have the ability to navigate to any worksheet through its **Worksheets** menu and you can select and print any report from the **Reports** menu. You can also save your analysis into a new file using the **Save As** option; having this handy feature right on the toolbar will remind you to rename a new analysis to preserve your original scenario. You can also access the new **Goal Seek** tool defined in Goal Seek on page 50), open the program-specific **Help** and **Quit** the program from the toolbar. The final two items apply to the *Unit-by-Unit* worksheet. The **Units** menu allows you to go to the data-entry area for any existing unit; the **Unit-by-Unit** menu, which is active *only* when you have the *Unit-by-Unit* worksheet open, lets you quickly add, edit, or remove units.

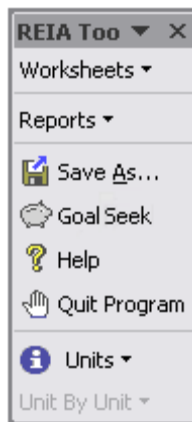


Figure 2-3 REIA Toolbar

## Property Information

The first data field on the *General* worksheet is “**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 calculations of the program.

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

Figure 2-4 Property Name

The second field allows you to specify the property type, such as office building, industrial, mixed-use, etc. Again, this information will appear in various reports.

**Property Type:** [Office Building](#)

Figure 2-5 Property Type

Please note that the property type is for informational purposes only and does not affect the structure, function, or calculations of the program.

## 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 up and down controls to raise or lower the numbers. Your entries will pass through to the other worksheets that use this information to perform calculations. Several of the program's modules perform a 20-year analysis in a columnar format. Your entry for "**Year Analysis Begins**" defines the starting point for that analysis.

*REIA* 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 "**Month Analysis Begins**" field. Wherever appropriate, the program will prorate calculations to be five-twelfths of their annual amounts. (Yes, August through December is 5 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 the date you want to use into the cell.

## Total Rentable Square Feet or Meters – Commercial and Residential

In the next two fields you will enter the total rentable square area of the property. For a strictly commercial property, you will enter the total amount in the first field, while with a purely residential property you will enter the total area in the second field. For a mixed-use property divide the area between the two according to use. A number of reports use 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.

Please note that you must make an entry for total commercial area in order to use the Unit-by-Unit Income Summary.

## Property Location Investor and 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.

## Safe Rate, Reinvestment Rate, and Discount Rate

The next two entries are the "**Safe Rate**" and "**Reinvestment Rate**" for the Modified Internal Rate of Return (MIRR) calculation. *REIA* 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. The rate from a money market or short-term certificate of deposit might be appropriate for the safe rate.

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 in a situation of comparable risk.

Your next entry is for the “**Discount rate**” to be used in the Present Value (PV) calculations in the *Cashflow and Resale Analysis* and in the *Unit-by-Unit Income Summary*. This formula determines the present value of each year’s Net Operating Income (NOI), 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.

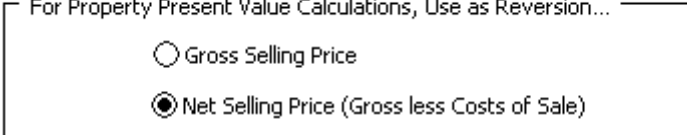
By using the Net Operating Income (NOI) and the resale amount, PV ignores the effects of financing. This is an approach typically employed by commercial appraisers.

The rate that you enter here is the annual rate at which an amount in hand today would have to grow 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 percent. In other words, we would have to put 9,259.26 away at 8 percent today for it to be 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 handling 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.

The discount rate you enter in this field is used to calculate the present value of the income stream from each of the rental units entered in the *Unit-by-Unit Summary*. The results are then shown on the *Rent Roll Report*. Many investors choose to use the local prevailing capitalization rate for properties similar to the subject property as their PV discount rate.

Appraisers may prefer to define reversion as the gross selling price with, or the selling price less, the costs of sale. To accommodate this choice, *REIA* provides a control box with two options. For purposes of the PV 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), as shown in Figure 2-6:



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

Gross Selling Price

Net Selling Price (Gross less Costs of Sale)

Figure 2-6 Reversion

Finally, you will see two boxes that contain features that are specific to this *International Edition* of *REIA*. The box on the right allows you to choose between two different methods of performing mortgage calculations. With the U.S./European method, interest accrues monthly. With the Canadian method, it accrues semiannually.

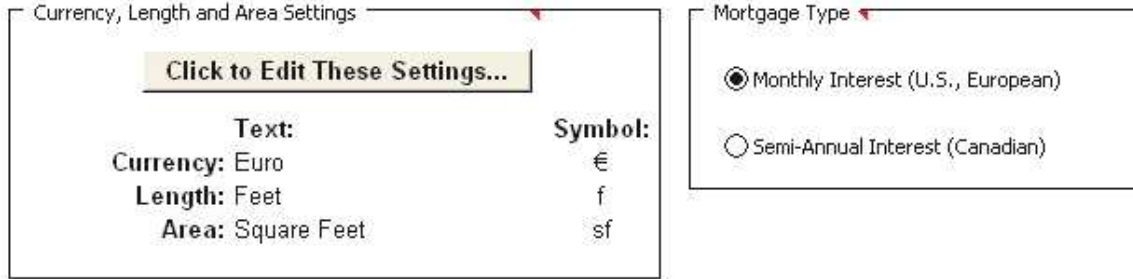


Figure 2-7 International Settings

The box on the left allows you to set the currency symbol and the measures of length and area to be used throughout the program. Please note that you must make these choices prior to entering data into the *Unit-by-Unit Income Summary* (i.e., the module that describes commercial rental units). Begin by clicking the button that allows you to edit the settings. Pull down the box adjacent to “**Select Currency.**” The list that appears will allow you to choose the currency for virtually any country.

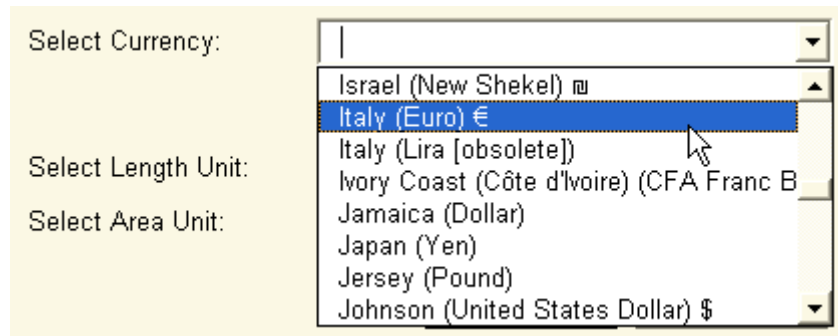


Figure 2-8 Currency Symbol Selection

Use the next two pull-downs to choose the units of length and area that you wish to display and to print in reports.



Figure 2-9 Units of Length and Area

**NOTE**

To underscore the fact that you can select different symbols and units of measure, some examples in the remainder of this User's Guide will display dollars while others will display euros. Likewise, some will show feet, others meters.

The completed *General* worksheet will look something like this:

Property Name: Property Name Here

Property Type: Office Building

Month Analysis Begins: 3 (all first-year calculations will be pro-rated based on starting month)

Year Analysis Begins: 2003

Date of this Report: 01/25/05

Total Rentable Square Meters (commercial): 10,000

Total Rentable Square Meters (residential): 4,000

Property Location (line 1): 878 Main St.  
 (line 2): South Haven, CT 06999

Investor: Elm Development

Report Prepared For: J. P. Lender  
 " " " Second National Bank  
 " " " South Haven, CT 06999

Report Prepared By: RealData, Inc.  
 " " " P. O. Box 691  
 " " " Southport, CT 06890

% Safe Rate for Modified Internal Rate of Return: 4.00%  
 % Reinvest Rate for Modified Internal Rate of Return: 7.00%  
 % Discount Rate for Present Value Calculations: 11.00%

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

Gross Selling Price  
 Net Selling Price (Gross less Costs of Sale)

Currency, Length and Area Settings

**Click to Edit These Settings...**

<b>Text:</b>	<b>Symbol:</b>
Currency: Euro	€
Length: Meters	m
Area: Square Meters	sm

Mortgage Type

Monthly Interest (U.S., European)  
 Semi-Annual Interest (Canadian)

*Figure 2-10 Completed General Worksheet*

## Chapter 3. Residential Income Summary

### What the Residential Income Summary Does

The *Residential Income Summary* produces summaries for up to 25 rental units or groups of units. Here you will be able to make simple projections about current and future rent income. For each unit or group you can provide descriptions of the unit type, along with the number of bedrooms and baths. You can specify the number of units in each group as well as the average rent per unit.

### Entering Data in the Residential Income Summary

Each row in the **Residential Income Summary** represents a rental unit or a group of rental units.

Within each row there are five cells where you can enter data. The first cell is the “**Unit Description.**” You will notice that in the first several rows, we have pre-entered some typical types of residential units. You can use these names if they suit your needs or you can overwrite them with descriptions of your own choosing. All 25 rows will accept entries, not just the rows where we have entered samples.

In the next two cells of each row, you can enter the number of bedrooms and number of baths for each unit. This information is descriptive only and is not used in any calculations.

Next you enter the number of units that you are describing in this row. Then you enter the average monthly rent per unit.

The left portion of the worksheet will look something like this once you have filled it in:

Unit Description	# Bdrms.	# Baths	Total # Units	Ave. Unit Rent, €/mo.	Subtotal €/month
Studio	0	1.0	4	500	2,000
Large Studio	0	1.0	3	600	1,800
One Bedroom	1	1.0	3	700	2,100
Two Bedroom	3	1.0	3	900	2,700
3 Bedroom	3	2.0	1	1,200	1,200
Penthouse	2	2.5	1	1,800	1,800
Loft	3	1.0	1	1,000	1,000

*Figure 3-1 Residential Income Summary - Unit Information*

Your final entry is not on any of the unit rows, but rather near the top of the page:

Annual rate of increase for rents: 2.00%

*Figure 3-2 Annual Rate of Increase for Residential Rents*

Here you will enter the rate at which you believe your rents will increase annually.

Notice that the monthly rent subtotal for each type of unit is calculated as soon as you press **Enter**. The right side of the report details the projections for future years as shown in Figure 3-3:

2003	2004	2005	--- Annual Income (by unit type) ---				2022	2023
			2006	2007	2008	2009		
20,000	24,480	24,970	25,469	25,978	26,498	27,028	34,963	35,663
18,000	22,032	22,473	22,922	23,381	23,848	24,325	31,467	32,096
21,000	25,704	26,218	26,742	27,277	27,823	28,379	36,712	37,446
27,000	33,048	33,709	34,383	35,071	35,772	36,488	47,201	48,145
12,000	14,688	14,982	15,281	15,587	15,899	16,217	20,978	21,398
18,000	22,032	22,473	22,922	23,381	23,848	24,325	31,467	32,096
10,000	12,240	12,485	12,734	12,989	13,249	13,514	17,482	17,831

*Figure 3-3 Residential Rent Projections*

On the *General* worksheet, we chose to begin our analysis in March of 2003, so the income for the first year includes 10 months rent. The remaining years reflect the full 12 months at a 2 percent annual rate of increase.

## Chapter 4. Unit-by-Unit Income Summary

### What the Unit-by-Unit Income Summary Does

*Unit-by-Unit Income Summary* is the worksheet where you make projections about current and future rent income from individual units or groups. For each unit or group of units, you can specify the month, year, and amount of the expected change in rent.

You should use this worksheet if you need to make projections about units or groups that will have rent changes occurring at different points in time or in different amounts. You should also use this worksheet if you want to account for tenant improvements or leasing commissions.

The requirements described here are common with commercial rental units. If you do not have any of these requirements and prefer to skip this worksheet altogether, you can use the residential summary or you can go now to the next worksheet, *Annual Property Operating Data*. On that sheet, you can choose to override whatever totals (if any) come from the *Residential Income Summary* or *Unit-by-Unit Income Summary* and make your own direct entries for the total gross rent each year.

The *Unit-by-Unit Income Summary* can accommodate several thousand individual units or groups of units. Keep in mind, however, that the more units you enter, the more disk space your completed analysis will require. Also, the use of a large number of unit records may require more than the minimum suggested computer memory.

### Entering Data in the Unit-by-Unit Income Summary

#### Summary Section

The summary section of this worksheet appears at the top and displays the property name and type, the date the analysis begins, and the total rentable area. This information is taken from the **General** worksheet. As you enter data about individual units, you will see the calculated total rent each year for all units combined.

	A	B	C	D	E	F
1	Refresh Unit List		Home	Property Name:		
2	Go to:		Add New Unit	Property Type:		
3	Total Rentable Square Feet:	10,000	Edit Unit/Tenant ID	Analysis Begins:		
4	Unallocated Square Feet:	0	Delete	<a href="http://realdata.com">http://realdata.com</a>		
5			Print	2003	2004	2005
6	Year Ending December, ...			148,958	187,345	188,404
8	<b>TOTAL RENT FOR 3 UNITS:</b>					

Figure 4-1 Unit-by-Unit Summary Section

The cell labeled **Unallocated Square Feet (or Meters) (B4)** is a value calculated by the program and equals:

Total Rentable Square Area - Sum of Square Area For All Units Entered

Figure 4-2 Unallocated Square Area Formula

Before you begin your entries, all of the space is unaccounted for and so the unallocated area is the same as the total area (commercial) as entered in cell **C23** on the *General* worksheet. As you enter individual rental units you will specify the area for each and progressively reduce the amount that is unallocated. When you are done entering units there should be no space left unallocated. If there is a positive number left then you have not assigned all of the rentable space to units. If there is a negative number then you have allocated more than the total area.

The “**Unallocated Square (Area)**” serves to alert you to a possible data-entry error, where you may have entered too few units or perhaps a duplicate. The figure is for your guidance only and does not affect any part of the analysis.

Note the **Go to** box and the buttons in the upper left-hand corner of the summary section. Selecting the arrow in the **Go to** drop-down box will summon a list of all the units you have created; selecting the name of the unit you want to view will bring you directly to that unit. (You can also select the unit from the **Unit** drop-down menu on the **REIA Toolbar** or scroll to the unit using the scroll bar on the right side of the screen.)

The buttons are used to make changes to your unit blocks as described in Adding, Editing or Deleting a Unit on page 24.

### The Unit Block

The “unit block,” shown below, is a block of 25 rows you can use to define the income stream from a single unit or from a group of similar units:

UNIT: 100	Tenant: Titanic Financial Services			
Rent Change Schedule	2003	2004	2005	2023
Month of Change (1 - 12)	0	0	3	0
% Change, or New Rate	0.0000	0.0000	0.0300	0.0000
Unit of measure (% Change or €/sf/year or €/sf/month or €/sm or	% Change	% Change	% Change	% Change
Total Base Rent, € (calculated)	52,500	63,000	64,575	72,223
Expense recoveries, based on 42.00% of total rsm	263	1,050	1,226	5,931
Other Revenue	0	0	0	0
Concessions and Abatements	(0)	(8,000)	(0)	(0)
Tenant Improvements, € or €/sm (if 500 or less)	15	0	20	0
Commissions paid: €	0	0	7,786	0
<b>TOTAL UNIT INCOME - 100:</b>	52,763	56,050	65,801	78,154
<b>Unit revenue less capital and leasing costs:</b>	(10,238)	56,050	(25,985)	78,154
<b>PV of net unit revenue @ 11.00% over 20 years:</b>	415,984			

Figure 4-3 The Unit Block

Each of the unit blocks is identical in structure. Note that the window has been split, so that the labels on the left remain in view as you scroll through the years on the right.

It is not essential to enter each individual unit in a separate unit block. For example, you may have a property (such as an apartment building) with several units that are identical in size as well as in current rent and projected future rent. You could aggregate these units, describing them as a group and entering the total square footage, total rent, etc. for the group as a whole into one block. This approach saves unnecessary data input.

## NOTE

If you are planning to perform a Lease vs. Buy Analysis, be sure to enter data for the owner-occupied unit in the first unit block. See Chapter 8 Lease vs. Buy on page 55 for further information.

*Adding, Editing or Deleting a Unit*

You will add unit blocks to the worksheet only as they are needed. Do this using **Add New Unit**, either from the button in the summary section at the top of the worksheet or from the **Unit-by-Unit** menu on the **REIA Menu** or the **REIA Toolbar**. Choosing **Add New Unit** will bring up the **New Unit Required Information** dialog box.

*Figure 4-4 The New Unit Dialog Box*

A value must be entered in each of these fields to create a new unit. As indicated by the word “**Unique**” in parentheses next to **Unit ID**, no two units can have the same ID; however, the same tenant name can be entered for any number of units. In the field labeled “**20xx Initial Rate**,” where “**xx**” is the year, which will be filled in for you with whatever you have chosen as the starting year for the analysis on the *General* worksheet, enter the **rental rate** that is in effect as of the starting month and year of the analysis. You can enter the rate as amount (currency) per square area per year, amount per square area per month, or total amount per month. In the “**Unit of Measure**” field, you will see a drop-down list, shown in Figure 4-5, from which you must pick the type of rate:

*Figure 4-5 New Unit – Unit of Measure*

The final entry is “**Rentable SF or SM.**” You must make an entry here even if you do not charge rent by the square foot or square meter. If you charge in units of currency per month (e.g., dollars per month), as with apartments, then make an estimate of the square area. The list will display whatever currency symbol you have chosen. For the purpose of this graphic we have changed the display to dollars and square feet to



illustrate that the dialog box and the pull-down list will display prompts that are appropriate for your selections.

If you are using this unit block to describe a group of units, such as “1-Bedroom Apartments,” your entry for rentable area should be the total for the units in the group. Likewise, if you are defining their rents in total currency units per month, as you typically would for apartments, enter the total rent for the *group* of units.

However, if these units are commercial and you are charging by the rentable area, then just enter the normal square foot or square meter rate along with the group’s total area. Essentially, you are treating the group of units as if it were one large unit at a given amount-per-square-area rate.

When you select **Add**, a new unit block will appear (the first will be on rows 10–34, the second will be on rows 35–59, etc.). The first row of each unit block is shaded and it contains the information you just entered. Once a unit has been added, the initial rent rate, unit of measure, and rentable area can be changed directly on the worksheet; simply select the entry and enter the new value. However, once you have added your first rental unit, you may no longer change the currency symbol or units of measure on the *General* sheet.

You can also change the unit or tenant name at any time via **Edit Unit/Tenant ID**. As with **Add New Unit**, you can use the button in the upper left corner of the worksheet or you may select **Edit Unit/Tenant ID** from the **REIA Menu** or **REIA Toolbar**. The dialog box that appears has a drop-down menu that allows you to select the unit you want to modify. Just below the dialog box is a set of three radio buttons where you choose which IDs you want to edit. If you select **Edit Unit ID Only** or **Edit Tenant ID Only**, then only the corresponding field will be active.

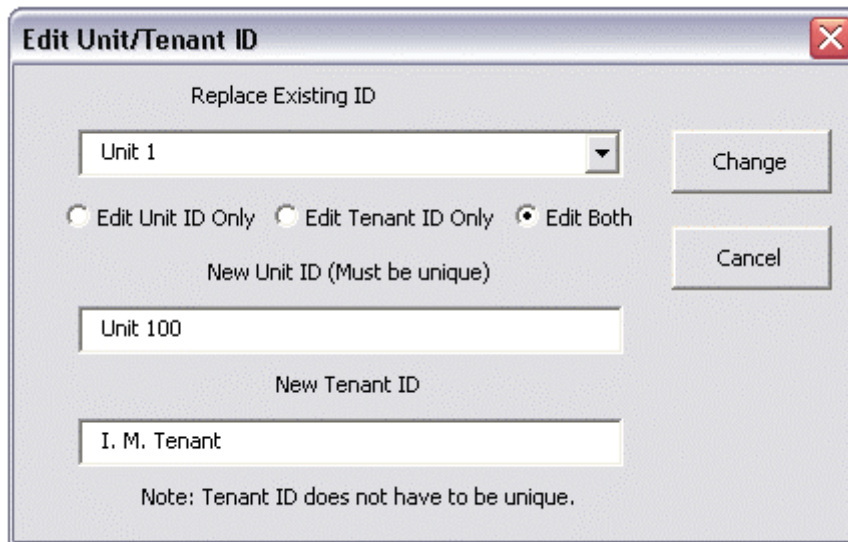


Figure 4-6 Edit Unit/Tenant ID

Similarly, if you want to delete a unit, use the button at the top left of the worksheet or select **Delete Unit** from the **REIA Menu** or **REIA Toolbar** to bring up the **Delete Record** dialog box. You can delete any unit by placing a checkmark in the box to the left of its name and selecting **Delete**. You can use the **Select all** checkbox to delete all the units and clear the *Unit-by-Unit* worksheet.

#### Note

**Once you have deleted a unit it cannot be retrieved!**

**Periodic Rent Changes**

You have now defined the rental rate for this unit or group at the point in time where the analysis begins. Next you can define changes that you project will occur from time to time. In the first unit block, you will enter these changes in rows 14, 15, and 16.

First, find the column for the year in which the rent change will occur. In row 14, under the column heading for that year, enter the “**Month of Change**” as a number from 1 to 12. Directly below that, in row 15, enter the “**% Change or New Rate**.” Your entry here should be a percentage of change (enter 3.75% as .0375) or as a new amount-per-square-foot (or meter)-per-year, unit of currency-per-square-foot-per-month, or total-units of currency-per-month amount. Finally, in row 16, specify the “**Unit of Measure**” for the change you recorded by selecting the cell and choosing the type of change from the drop-down menu.

**NOTE**

**You must make appropriate entries in all three rows (i.e., “Month of Change,” “% Change or New Rate,” and “Unit of Measure”) for the rental increase to take effect.**

**It is very important that the “Unit of Measure” correspond to the amount of change you enter. The program will do exactly what you tell it, so if you enter 17.0000 as the amount and % Change as the unit of measure, you will indeed get a rent increase of 1700 percent.**

Two final notes regarding the rent-change section: You can define only one rent change in a given year. If you need to accommodate more than one, you may be able to use an average rate of increase. To be more precise, you could also use the rows “**Other Revenue**” or “**Concessions and Abatements**” to adjust the total unit income for a particular year.

Keep in mind that you cannot logically change the first year’s rent in a month that is earlier than the month that the analysis begins. If you have an analysis that begins in March of 2003 and you enter a rent change for month 2 of that year, you will see an error message.

Finally, be aware that if you are entering a percentage change you can put in a negative number to define a rent *decrease*. If you were to enter -1.00, that number would indicate a decrease of 100 percent; the new rental rate would become 0. You should not enter a negative percentage change more than -1.00, nor should you enter regular rental rates that are negative amounts.

Note that the pull-down list in this graphic shows dollar signs. If you choose a different unit of currency, that symbol will appear here will appear in its place.

Rent Change Schedule	2003	2004	2005
Month of Change (1 - 12)	0	0	3
% Change, or New Rate	0.0000	0.0000	0.0200
Unit of measure (%change or \$/sf/year or \$/sf/month or \$/mo)	% Change	% Change	% Change
Total Base Rent, \$ (calculated)		71,400	72,590
Expense recoveries, based on 42.00% of total rsf		3,570	3,746
Other Revenue		0	0

Figure 4-7 Rent Change Schedule (Unit Block)

**Total Base Rent**

Once you have added the unit and defined the expected changes, the program will calculate the total base rent.

In the example above (see Figure 4-3), the unit is 4,200 square feet and has a rent of \$17/sf/yr to start. Because the analysis begins in month 3 of 2003 (see Figure 2-3), the total base rent for the first year is \$59,500 (4,200 x 17.00 x 10/12) and for the second year it is \$71,400 (4,200 x 17.00). In the third year, the rent will increase 2 percent in the third month. Hence the total base rent for the third year is comprised of two months at the old rate and ten months at the new rate (4,200 x 17 x 2/12) + (4,200 x 17.34 x 10/12), or \$72,590.

You do not have to make an entry for each year. Make an entry only if you want to indicate a rent change. If you leave the month of change at zero, then no rate change will be effected. The program will assume that the previous year’s rate should continue. If you do enter a number for “**Month of Change**,” however, then you must also make an entry directly below it to indicate what that change should be. Similarly, if you enter an amount or rate of change, then you must enter a month (1–12) when the change will take effect.

**Expense Recoveries**

Row 20 of the first block is labeled “**Expense recoveries —based on x% of total rsf (or rsm).**” The values in this row will all be calculated for you. The percentage of total rentable area is calculated based on the entries you made for this unit’s rentable area and the total commercial space for the property. The expense recoveries themselves will be based on information you provide on the next worksheet, the *Annual Property Operating Data*, in columns X through AB. Since you haven’t entered any data about expenses on that worksheet yet, your expense recoveries should all be zero. Later, when you complete the APOD, you can come back here and see the effects of these calculations.

**Other Revenue and Abatements**

In rows 21 and 22 of the first unit block, you enter the amounts of any additional revenues as well as any concessions or abatements. Enter the amount of an abatement without preceding it by a minus sign.

**Tenant Improvements**

In row 24 of the first unit block, you can enter capital improvements made to this rental unit or group of units. If your entry is greater than 500, the program will consider it to be a dollar amount. If it is 500 or less, the program will treat as a dollar-per-square-foot entry.

A tenant improvement will affect the property’s cash flow in the year it is made. You can also enter other capital improvements that pertain to the property as a whole in the *Cashflow and Resale Analysis*.

Tenant Improvements, € or €/sf (if 500 or less)	20	0	0
---	----	---	---

Figure 4-8 Tenant Improvements (Unit Block)

**Commissions**

In row 27 of the first unit block you will enter the amount of any leasing commission. As with tenant improvements, a commission will affect the property’s cash flow in the year it is paid.

Commissions paid: €	0	0	7,786
---------------------	---	---	-------

Figure 4-9 Commissions (Unit Block)

*Total Unit Income*

The “**Total Unit Income**” equals the “**Total Base Rent**” plus “**Expense Recoveries**” plus “**Other Revenue**” less “**Concessions and Abatements**.”

Because “**Tenant Improvements**” and “**Commissions**” are capital costs, they are accounted for in the *Cashflow and Resale Analysis* module and do not affect the Total Unit Income. However, you may find it interesting to know what is essentially the unit cash flow, so row 33 displays “**Unit revenue less capital and leasing costs**.”

Finally, the unit block shows the present value of the unit income (less capital and leasing costs) over 20 years, discounted at the rate you specified on the *General* worksheet.

<b>TOTAL UNIT INCOME - Unit 1:</b>	53,863	74,970	76,336
<b>Unit revenue less capital and leasing costs:</b>	(9,138)	74,970	(16,403)
<b>PV of net unit revenue @ 11.00% over 20 years:</b>	492,137		

*Figure 4-10 Present Value of Net Unit Revenue*

*The 21<sup>st</sup> Year*

The unit summary includes a 21<sup>st</sup> year. Data need only be entered here if you choose to capitalize next year’s NOI for the resale price. See “The 21<sup>st</sup> Year” on page 12 for more information.

## Reports

There are two reports that derive their information from this worksheet. One is the Unit-by-Unit Income Summary Report, which is the worksheet exactly as you see it on the screen. When you choose the **Unit-by-Unit** report from the **Reports** menu on either the **REIA Menu** or the **REIA Toolbar**, the **Unit-by-Unit Income Report** dialog box opens. You can print one or more unit blocks by checking the boxes next to the relevant units or you can print all the units by checking the **Select all units** box. As with any report, you can switch printers, print multiple copies, and restrict the printout to black and white from this dialog box. You can also reduce the number of years printed from the default of 20 all the way down to 1.

The Rent Roll Report also derives most of its information from the *Unit-by-Unit* module. This report exists as a separate sheet in the workbook, so you may view it on screen as well. There are no data-entry fields on *Rent Roll*. *Rent Roll* can only be printed from the **Reports** menu, found both on the **REIA Menu** and on the **REIA Toolbar**. While there is a scroll box that shows all the unit blocks, you cannot select individual units for this report; all units are printed in the Rent Roll. Otherwise, all the options available when printing the Unit-by-Unit Income Report are available when printing the Rent Roll.

## Chapter 5. Annual Property Operating Data (APOD)

### What the APOD Worksheet Does

The *Annual Property Operating Data* worksheet, which is also commonly called an *APOD* form, allows you to produce a 20-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.

### How to Use the APOD Worksheet

As in the *Residential* and *Unit-by-Unit* summaries, you are able to enter data for 21 years in what is otherwise a 20-year analysis. The reason for this additional year is exactly the same as in the *Unit-by-Unit Summary* and you need to use the 21<sup>st</sup> year only if you plan also to capitalize that year's Net Operating Income (NOI) as your method of estimating resale value for year 20.

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 48 rows. You can then view or print the results of your assumptions; these results will appear in the sections below the data-input area.

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

The worksheet is divided into four similar segments. The top section is where you enter your assumptions. The bottom three sections are where the program translates your assumptions into currency amounts, into currency per square foot or meter, and into currency per unit.

The data-input section of the analysis, in the first 48 rows, allows you to do the following:

- Make certain choices as to how repairs and maintenance will be handled and whether or not to inflate operating expenses on a global basis
- Accept the gross income automatically from the *Residential Income Summary* and/or the *Unit-by-Unit Summary* or to enter it manually
- Enter any line-item expenses
- Make assumptions as to how the gross income and expenses may change annually. The program takes these assumptions and creates a year-by-year matrix of the projected dollar amounts.

#### Note

**Enter data only in rows 17 through 48. The amounts you enter should be annualized amounts, even if the first year of your analysis is a partial year. The calculated dollar values for each year begin on row 61. In the first year, these calculated values are prorated to reflect partial-year amounts if necessary.**

If you do not need to make Unit-by-Unit income projections, you may find this *APOD* section sufficient for both income and expenses.

### Repairs and Maintenance Estimates

The “**Repairs and Maintenance**” estimates box, shown in Figure 5-1, allows you to choose between two methods of handling repairs and maintenance.

Calculate Repairs and Maintenance

as a % of Total Gross Income

as a fixed dollar with % increase

Figure 5-1 Repairs and Maintenance

If you choose the top button, the program will calculate repair costs as a percentage of gross rent. If you choose the bottom button, the program will treat repairs like most other expense items, i.e., a dollar amount that you can increase by a specified percentage each year. The latter choice is the most common approach.

### 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%

Figure 5-2 Operating Expense Annual Rate of Increase

This box provides a shortcut for data entry on the *APOD* worksheet. If you enter a percentage here and then select **Increase**, the program executes a procedure that automatically fills in the expense rows in years 2–20 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 20—so don’t press this button if you’re not sure that you want to replace your 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 and the first-year expenses) with a single rate of increase (the rate you feel will apply to most expenses in most years). After you populate the grid by selecting **Increase**, 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 using **Increase**.

The consequences of these entries are visible in the output sections located at rows 56 and below. There you will find that each first-year expense increases annually by the percentage you specified.

### 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 you can import the income figures from the *Residential Income Summary*, the *Unit-by-Unit Income Summary*, or both. Select the appropriate button to make your choice. With any of the choices, the first-year income will be extrapolated to a full-year amount as shown in Figure 5-3:

	2003	2004	2005	2006	2007	2008
<b>INCOME</b>						
Use Gross Scheduled Rent Income from	<input type="radio"/> Residential Income Summary <input type="radio"/> Unit-by-Unit Income Summary <input checked="" type="radio"/> Both					
	331,150	343,768	356,462	368,283	383,588	388,000
Override Gross Scheduled Income from the row above	300,000.00	0.	0.	0.	0.	0.
Other Income	5,000.00	0.03	0.03	0.03	0.03	0.
Other Income	0.00	0.00	0.00	0.00	0.00	0.

Figure 5-3 Gross Scheduled Rent Income

You can make two kinds of numeric entries in the rows shown above and in virtually all of the rows in this worksheet, including:

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 3 would yield an amount 10 percent higher than that of year 2; -0.1 would yield 10 percent lower than year 2; 0 would signify 0 percent change, thus giving you the same amount you had in year 2.

Note also that the label “**Other Income**” appears (twice) in blue. This means that you may overwrite these labels with different names. For example, you may want to call these lines “Parking Revenue” and “Vending Income.” The new names will be used wherever appropriate in reports.

**Override Gross Scheduled Rent Income from the Income Summaries**

If you want to override the income amounts imported from the *Residential Income Summary* or *Unit-by-Unit*, use the row labeled “**Override Gross Scheduled Rent Income from the row above.**” You can make your entries in either of two ways:

1. If you enter an amount greater than one (1) in a particular year, the program will use your entry for that year and ignore the amounts from the *Residential Income Summary* and from the *Unit-by-Unit* worksheet shown in line 15.
2. If you enter an amount between one (1.00) and negative one (-1.00), your entry will signify a percentage of change over the previous year’s rent. This choice actually can function in either of two ways: If the previous year’s rent amount came from one or both of the income summary worksheets, then this change percentage will be applied against the amount from those sheets. If the previous year’s rent amount came from an override that you entered, then this change percentage will be applied against the amount of the override.

**Other Income**

There are two “**Other Income**” rows. 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.

**Vacancy and Credit Allowance**

In the row labeled “**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.

**Expense**

You enter data into the expense portion of the worksheet in much the same way as you do in the income section. With the exception of two line items, every entry is intended as a currency amount or as a percentage increase over the previous year.

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

Figure 5-4 APOD Expenses - Data Entry Area

“**Property Management**” is handled as a fixed dollar amount if your entry is greater than 1 or as a percentage of GOI (Gross Operating Income) if your entry is between 0 and 1. An entry between 0 and 1 here is *not* a percentage increase over last year; it is instead a percentage of this year’s GOI.

“**Repairs and Maintenance**” are computed as discussed above. If you choose option 1, the program will multiply the Total Gross Income by your entry here (your entry should be between 0 and 1 since it will be used as a percentage of Total Gross Income). If you choose option 2, then your entries in this row are treated like any other expense, (i.e., a dollar amount if greater than 1, or as a percentage increase over the previous year’s amount if between 1.00 and -1.00).

**Property Management**

In the row labeled “**Property Management**,” if your entry is between 0 and 1 it represents a percentage of the GOI. If it is greater than 1, it represents a dollar amount, as entered. Keep in mind that GOI 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.



Other Line Items

All other line items represent a dollar amount (if greater than 1) or a percentage change (if between 1.00 and -1.00). 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 1 begins in July. You enter an annualized expense amount of 150. The actual expense for year 1 will be 75, because we are dealing with a half-year. For year 2, you enter .10 to indicate a 10 percent increase. Year 2, however, is a full year, so the program looks at what year 1 would have been as a full year and increases *that* amount by 10 percent. The correct estimate for year 2 is 165 (75 for 6 months = 150 for 12 months; increasing that amount by 10 percent yields 165).

Now let’s assume that you are not satisfied with your *Unit-by-Unit* analysis (or perhaps chose not to use it at all) and want to make an entirely different set of assumptions about this property’s income. Let’s further assume that the gross income will be 300,000 for a full first year. In your actual projection this figure will be reduced by one-sixth (i.e., two months) because you specified on the *General* worksheet that the analysis is to start in March.

“**Other Income**” will be 5,000 for a full first year (reduced by the program to 4,167 for the 10-month first year) and will rise by 3 percent for the next two years. Vacancy and credit loss will be 3 percent annually. Now your data-input section looks like this:

	2003	2004	2005	2006
<b>INCOME</b>				
Use Gross Scheduled Rent Income from	<input checked="" type="radio"/> Residential Income Summary <input type="radio"/> Unit-by_Unit Income			
	331,150	343,768	356,462	368,283
Override Gross Scheduled Income from the row above	300,000.00	0.	0.	0.
Other Income	5,000.00	0.03	0.03	0.03
Other Income	0.00	0.00	0.00	0.00
<b>VACANCY &amp; CREDIT ALLOWANCE</b>	0.03	0.03	0.03	0.03

Figure 5-5 Partial First-Year Example

NOTE

**When entering information, you don’t necessarily have to make an entry in every column going across, except for Other Income. The first year for each item expects an entry, but each subsequent cell to the right contains an unprotected formula that says, “Use the same value as in the cell for last year.”**

If you make an entry in the first year only, every year thereafter will show the same amount. If you make another entry somewhere in the row, your new entry will erase the formula in that cell. Now the amount changes in the cell where you made your entry and for every year that follows.

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 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).

## Altering Titles in the Income-and-Expense Section

You should be aware that you can rename most of the line items in the *APOD* module. 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 report sections as well.

## Expense Recoveries

A valuable feature of *REIA* is its ability to handle expense recoveries. If you scroll to the right portion of the worksheet (at column X, row 23), you'll see a section that begins like this:

Check box to pass through expense	Over Base	Amount (Annual)
<input type="checkbox"/>	Accounting	0
<input type="checkbox"/>	Advertising	0
<input type="checkbox"/>	Insurance (fire and liability)	0
<input type="checkbox"/>	Janitorial Service	0
<input type="checkbox"/>	Lawn/Snow	0
<input type="checkbox"/>	Legal	0
<input type="checkbox"/>	Licenses	0
<input type="checkbox"/>	Miscellaneous	0

Figure 5-6 Expense Recovery (Pass-Through Check Boxes)

To pass an expense through to the tenants listed on the **Unit-by-Unit Income Summary**, simply click on the check box to the left of the name. A check mark will appear in the box:

<input checked="" type="checkbox"/>	Real Estate	2,000
-------------------------------------	-------------	-------

Figure 5-7 Completed Pass-Through Entry

If the property owner will pay the expense up to a certain base amount and pass the excess on to the tenants, then enter that base in the field to the right of the name (for example, 2,000 in the illustration above). If the full amount of the expense will be passed on to the tenants, then leave this as 0.

You can select as many or as few expenses to pass through as you wish, with these exceptions:

- **Property Management**—This item cannot be treated as a recoverable expense if based on a percentage of income because doing so would result in circular logic (i.e., the management fee typically depends upon the property's gross operating income but the GOI would at the same time be a function of the recovered property management expense). You can pass this expense through only if it is expressed as a dollar amount for every year.
- **Repairs and Maintenance**—If you choose to calculate Repairs and Maintenance “**as a fixed dollar with % increase**” (see Repairs and Maintenance Estimates on page 29), then you can pass this expense through. However, if you chose “**as a % of Total Gross Income**,” then you would receive an Excel error message alerting you to a circular reference. The reason is exactly the same as it was for property management. In short, then, if you are passing Repairs and Maintenance through to the tenants, you must use the fixed dollar with percent increase option.

When you select your recoverable expenses, *REIA* will do the following:

1. For each expense that has been checked off, the program will determine the amount of the expense in excess of the specified base.
2. It will sum those amounts to give the total expense dollars to be passed through for each year.

3. It will then bring those totals back to the *Unit-by-Unit* worksheet.
4. For each tenant and for each year, it will calculate the tenant’s pro-rata share, using the ratio of the tenant’s rentable area to the total property commercial rentable area. Note that the tenant’s ratio is displayed as part of the unit information (e.g., in Row 20 of the first Unit Block):

Expense recoveries, based on 42.00% of total rsm

*Figure 5-8 Expense Recovery Percentage, Unit-by-Unit*

## APOD Results

Once you have finished making all your inputs into the *APOD* you are ready to view the results. These appear in three separate tables: total dollars, dollars per square area, and dollars per unit. The following sections describe these results in more detail.

### Projected Income and Expenses

You saw in Figure 5-5 what the first four years of the data input looks like for our example. If you scroll down now to row 56, you can begin to see the output. Shown below is the income portion of the output. Notice that the program is using your “override” for the first year’s gross income instead of the amount calculated by the *Unit-by-Unit* worksheet.

#### PROJECTED INCOME AND EXPENSES

	2003	2004	2005	2006
<b>INCOME</b>				
Gross Scheduled Rent Income	250,000	343,768	356,462	368,283
Other Income	4,167	5,150	5,305	5,464
Other Income	0	0	0	0
<b>TOTAL GROSS INCOME</b>	<b>254,167</b>	<b>348,918</b>	<b>361,767</b>	<b>373,747</b>
<b>VACANCY &amp; CREDIT ALLOWANCE</b>				
	7,625	10,468	10,853	11,212
<b>GROSS OPERATING INCOME</b>	<b>246,542</b>	<b>338,450</b>	<b>350,914</b>	<b>362,535</b>

*Figure 5-9 Projected Income & Expenses, Partial First-Year Example*

You can scroll down to see all of the report. Figure 5-10 shows the first six years of a completed *APOD* report:

**PROJECTED INCOME AND EXPENSES**

	2003	2004	2005	2006	2007	2008
<b>INCOME</b>						
Gross Scheduled Rent Income	250,000	343,768	356,462	368,283	356,838	361,312
Other Income	4,167	5,150	5,305	5,464	5,628	5,796
Other Income	0	0	0	0	0	0
<b>TOTAL GROSS INCOME</b>	<b>254,167</b>	<b>348,918</b>	<b>361,767</b>	<b>373,747</b>	<b>362,466</b>	<b>367,109</b>
<b>VACANCY &amp; CREDIT ALLOWANCE</b>	<b>7,625</b>	<b>10,468</b>	<b>10,853</b>	<b>11,212</b>	<b>10,874</b>	<b>11,013</b>
<b>GROSS OPERATING INCOME</b>	<b>246,542</b>	<b>338,450</b>	<b>350,914</b>	<b>362,535</b>	<b>351,592</b>	<b>356,095</b>
<b>EXPENSES</b>						
Accounting	1,250	1,530	1,561	1,592	1,624	1,656
Advertising	583	721	743	765	788	811
Insurance (fire and liability)	3,750	4,680	4,867	5,062	5,264	5,475
Janitorial Service	2,500	3,090	3,183	3,278	3,377	3,478
Lawn/Snow	417	510	520	531	541	552
Legal	2,500	3,060	3,121	3,184	3,247	3,312
Licenses	0	0	0	0	0	0
Miscellaneous	417	510	520	531	541	552
Property Management	9,862	13,538	14,037	14,501	14,064	14,244
Repairs and Maintenance	6,500	8,112	8,436	8,774	9,125	9,490
Resident Superintendent	0	0	0	0	0	0
Supplies	500	618	637	656	675	696
Taxes						
Real Estate	7,292	10,500	10,920	11,357	11,811	12,284
Personal Property	0	0	0	0	0	0
Payroll	0	0	0	0	0	0
Other	0	0	0	0	0	0
Trash Removal	0	0	0	0	0	0
Utilities						
Electricity	708	884	919	956	994	1,034
Fuel Oil	0	0	0	0	0	0
Gas	0	0	0	0	0	0
Sewer and Water	917	1,144	1,190	1,237	1,287	1,338
Telephone	0	0	0	0	0	0
Other	0	0	0	0	0	0
<b>TOTAL EXPENSES</b>	<b>37,195</b>	<b>48,897</b>	<b>50,653</b>	<b>52,423</b>	<b>53,338</b>	<b>54,922</b>
<b>NET OPERATING INCOME</b>	<b>209,347</b>	<b>289,553</b>	<b>300,261</b>	<b>310,112</b>	<b>298,253</b>	<b>301,173</b>

*Figure 5-10 Projected Income & Expenses, Total Amount*

In this report, the results are expressed in total currency units (i.e., dollars, euros, pounds, etc.). If you scroll further down the page (beginning in row 100), you will see the second version of the output (Figure 5-11) from this *APOD* model, where all of the values are expressed in terms of currency units per square foot or square meter.

<b>PROJECTED INCOME AND EXPENSES, in dollars per square foot, residential and commercial combined</b>						
	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
<b>INCOME</b>						
Gross Scheduled Rent Income	16.67	22.92	23.76	24.55	23.79	24.09
Other Income	0.28	0.34	0.35	0.36	0.38	0.39
Other Income	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL GROSS INCOME</b>	<b>16.94</b>	<b>23.26</b>	<b>24.12</b>	<b>24.92</b>	<b>24.16</b>	<b>24.47</b>
<b>VACANCY &amp; CREDIT ALLOWANCE</b>	<b>0.51</b>	<b>0.70</b>	<b>0.72</b>	<b>0.75</b>	<b>0.72</b>	<b>0.73</b>
<b>GROSS OPERATING INCOME</b>	<b>16.44</b>	<b>22.56</b>	<b>23.39</b>	<b>24.17</b>	<b>23.44</b>	<b>23.74</b>
<b>EXPENSES</b>						
Accounting	0.08	0.10	0.10	0.11	0.11	0.11
Advertising	0.04	0.05	0.05	0.05	0.05	0.05
Insurance (fire and liability)	0.25	0.31	0.32	0.34	0.35	0.36
Janitorial Service	0.17	0.21	0.21	0.22	0.23	0.23
Lawn/Snow	0.03	0.03	0.03	0.04	0.04	0.04
Legal	0.17	0.20	0.21	0.21	0.22	0.22
Licenses	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous	0.03	0.03	0.03	0.04	0.04	0.04
Property Management	0.66	0.90	0.94	0.97	0.94	0.95
Repairs and Maintenance	0.43	0.54	0.56	0.58	0.61	0.63
Resident Superintendent	0.00	0.00	0.00	0.00	0.00	0.00
Supplies	0.03	0.04	0.04	0.04	0.05	0.05
Taxes						
Real Estate	0.49	0.70	0.73	0.76	0.79	0.82
Personal Property	0.00	0.00	0.00	0.00	0.00	0.00
Payroll	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Trash Removal	0.00	0.00	0.00	0.00	0.00	0.00
Utilities						
Electricity	0.05	0.06	0.06	0.06	0.07	0.07
Fuel Oil	0.00	0.00	0.00	0.00	0.00	0.00
Gas	0.00	0.00	0.00	0.00	0.00	0.00
Sewer and Water	0.06	0.08	0.08	0.08	0.09	0.09
Telephone	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL EXPENSES</b>	<b>2.48</b>	<b>3.26</b>	<b>3.38</b>	<b>3.49</b>	<b>3.56</b>	<b>3.66</b>
<b>NET OPERATING INCOME</b>	<b>13.96</b>	<b>19.30</b>	<b>20.02</b>	<b>20.67</b>	<b>19.88</b>	<b>20.08</b>

Figure 5-11 Projected Income & Expenses, Amount per Square Foot or Meter

Still further down (row 144), you will find a third version (Figure 5-12), expressed as amount per rental unit.

**PROJECTED INCOME AND EXPENSES, in dollars per combined residential and commercial units**

	2003	2004	2005	2006	2007	2008	2009
<b>INCOME</b>							
Gross Scheduled Rent Income	13,158	18,093	18,761	19,383	20,189	20,424	21,067
Other Income	219	271	279	288	296	305	314
Other Income	0	0	0	0	0	0	0
<b>TOTAL GROSS INCOME</b>	<b>13,377</b>	<b>18,364</b>	<b>19,040</b>	<b>19,671</b>	<b>20,485</b>	<b>20,729</b>	<b>21,381</b>
<b>VACANCY &amp; CREDIT ALLOWANC</b>	<b>401</b>	<b>551</b>	<b>571</b>	<b>590</b>	<b>615</b>	<b>622</b>	<b>641</b>
<b>GROSS OPERATING INCOME</b>	<b>12,976</b>	<b>17,813</b>	<b>18,469</b>	<b>19,081</b>	<b>19,870</b>	<b>20,108</b>	<b>20,739</b>
<b>EXPENSES</b>							
Accounting	66	81	82	84	85	87	89
Advertising	31	38	39	40	41	43	44
Insurance (fire and liability)	197	246	256	266	277	288	300
Janitorial Service	132	163	168	173	178	183	189
Lawn/Snow	22	27	27	28	28	29	30
Legal	132	161	164	168	171	174	178
Licenses	0	0	0	0	0	0	0
Miscellaneous	22	27	27	28	28	29	30
Property Management	519	713	739	763	795	804	830
Repairs and Maintenance	342	427	444	462	480	499	519
Resident Superintendent	0	0	0	0	0	0	0
Supplies	26	33	34	35	36	37	38
Taxes							
Real Estate	384	553	575	598	622	647	672
Personal Property	0	0	0	0	0	0	0
Payroll	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Trash Removal	0	0	0	0	0	0	0
Utilities							
Electricity	37	47	48	50	52	54	57
Fuel Oil	0	0	0	0	0	0	0
Gas	0	0	0	0	0	0	0
Sewer and Water	48	60	63	65	68	70	73
Telephone	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
<b>TOTAL EXPENSES</b>	<b>1,958</b>	<b>2,574</b>	<b>2,666</b>	<b>2,759</b>	<b>2,862</b>	<b>2,945</b>	<b>3,047</b>
<b>NET OPERATING INCOME</b>	<b>11,018</b>	<b>15,240</b>	<b>15,803</b>	<b>16,322</b>	<b>17,009</b>	<b>17,162</b>	<b>17,692</b>

*Figure 5-12 Projected Income & Expenses, Amount per Rental Unit*

You can print out the assumptions, or any of the three reports, by choosing the **Reports** menu from either the **REIA Menu** or the **REIA Toolbar**, selecting **Annual Property Operating Data**, and then selecting the appropriate option. Note that you can choose a printer, print multiple copies, and restrict the printout to black and white from this dialog box. These options are available for all reports. The **APOD Reports** dialog box also lets you shorten the report from the full 20 years.

**NOTE**

**When you print the APOD report, the program will automatically remove any expense line items that have zero values for all years.**

## Chapter 6. Cashflow and Resale Analysis

### What Cashflow and Resale Analysis Does

The *Cashflow and Resale Analysis* is the heart of *REIA*. It is a 20-year pro-forma that allows you to project the pretax consequences of ownership and resale. With *Cashflow*, you can evaluate how different mortgage terms and assumptions about income, expenses, and improvements interact to affect the quality of your investment.

### How to Use Cashflow and Resale Analysis

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

1. **About the Purchase...**
2. **About the Financing...**
3. **About the Resale...**
4. **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. If you are satisfied with the results, you can print any of several reports; if not, you can change some or all 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 improvements, 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 and proceeds of resale. 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 you see a positive cash flow?
- How will your cash flows be affected if the rate increases on your adjustable mortgage?
- How many years should you hold the property to maximize your return on investment?

### Entering Data in Cashflow and Resale Analysis

The *Cashflow and Resale Analysis* 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 *Residential Income Summary*, *Unit-by-Unit*, 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*, as described in Assumption Four: About the Operation of the Property... on page 47.

## The Four Assumptions

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

**Assumption 1:** About the Purchase...

**Assumption 2:** About the Financing...

**Assumption 3:** About the Resale...

**Assumption 4:** About the Operation of the Property...

### 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 amount for land and buildings here.

Notice that the next line, “**Required Cash Investment,**” is not displayed in blue. 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 for those loans that are put in place at the same time the analysis begins (always the first loan and optionally the second and third)
4. Other fees connected with the purchase
5. Capital improvements to be made during the first year of the analysis
6. First-year funded reserves

Your mortgage loans (those that are put in place at the same time the analysis begins) 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.**” Enter legal fees for the closing of the purchase here.

The data-entry item, “**Other Fees,**” is provided to cover any one-time fees that are not operating expenses, closing costs, or loan points.

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

*Cashflow and Resale Analysis* has been designed to provide appropriate 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, MIRR 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.



The final item asks for a secure investment rate, such as a government bond. 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 option.

When completed, the section “*About the Purchase...*” should look something like Figure 6-1:

**About the Purchase...**

Purchase Price, Real Property	1,100,000
Required Cash Investment (Calculated Value)	457,300
Closing Costs	8,000
Other Fees	0
Year this Analysis Begins	2003
Month this Report Begins	3
Compare Investment with Secure Investment Earning...	2.50%

*Figure 6-1 About the Purchase*

**Assumption Two: About the Financing...**

**About the Financing...** includes four sections:

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

*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. You may also 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.

<b>First Mortgage</b>	2003	2004	2005
Principal Amount (€ or % of purchase price):	0.65	715,000	=amount used
Annual Interest Rate <input type="checkbox"/> Interest Only	8.50%	9.00%	10.00%
Term of Loan, in Months	360	360	=adjusted term
Monthly Payment, Calculated	5,497.73	5,749.55	6,255.74
Monthly Payment to Override Calculation	0.00	(for fixed-rate only)	
Number of Points	2.00	€ 14,300	=Euro

*Figure 6-2 First Mortgage*

**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 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.

**First Mortgage: Starting Year’s Interest Rate**

In the next row, 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 20 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.

**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 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 8.5 percent. You project that it will change to 9 percent in the second year and to 10 percent in the third year and thereafter. Enter .085 in the column for the first year, .09 in year 2, and .10 in year 3. You will see...

First Mortgage	2003	2004	2005
Principal Amount (€ or % of purchase price):	0.65	715,000	=amount used
Annual Interest Rate <input type="checkbox"/> Interest Only	8.50%	9.00%	10.00%

*Figure 6-3 Entering a Variable Mortgage Rate*

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 2 through 20 in this row. If you want to replace the formula, it is very easy. When you entered 10 percent in year 2 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.

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.

First Mortgage	2003	2004	2005
Principal Amount (€ or % of purchase price):	0.65	715,000	=amount used
Annual Interest Rate <input type="checkbox"/> Interest Only	8.50%	9.00%	10.00%
Term of Loan, in Months	360	360	=adjusted term
Monthly Payment, Calculated	5,497.73	5,749.55	6,255.74

Figure 6-4 Mortgage Term and Calculated Payment

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**

REIA 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 10.5 percent for 5 years. To retire the loan requires 60 monthly payments of 2,149.39. The seller, however, prefers round numbers because they make his checkbook easier to balance. The seller insists on a monthly payment of 2,200.00. The extra 50.61 each month represents additional money paid toward the principal and so accelerates the payoff of the loan. Instead of 60 payments, you need to make only 58.2 payments to retire the mortgage.

Second Mortgage	2003	2004	2005
Year begin: <input type="text" value="2003"/> Month begin: <input type="text" value="4"/>			
Principal Amount (€ or % of purchase price):	100,000.	100,000	=amount used
Annual Interest Rate <input type="checkbox"/> Interest Only	10.50%	10.50%	10.50%
Term of Loan, in Months	60	58.20114302	=adjusted term
Monthly Payment, Calculated	2,149.39	2,200.00	2,200.00
Monthly Payment to Override Calculation	2,200.00	(for fixed-rate only)	
Number of Points	0.00	€ 0	=Euro

Figure 6-5 Mortgage Adjusted Term (Payment Override)

If you use this override, then all of the calculations in the worksheet that are related to the second mortgage will treat this as a loan at 10.5 percent for 58.2 months, with a payment of 2,200 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 20 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 of the mortgage 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.

#### First Mortgage: Loan Points

The final entries for the first mortgage concern loan points. A loan point is an interest premium charged by the lender at the inception of the loan. It is equal to 1 percent of the face amount of the loan. You enter the number of points; the program translates your entry into a currency amount.

Number of Points	2.00	€14,300	=Euro
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*Figure 6-6 Mortgage Points*

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

The data-entry area for the second mortgage is directly below the section for the first mortgage. In general, the items are the same as those for the first mortgage, with one important difference: You can specify that the second mortgage will begin at some point after the starting date of the analysis.

If you do so, the following will occur:

- These mortgages will not reduce your required cash investment on day 1.
- The proceeds of each loan, less points, will add to the cash flow in the year the loan begins.

#### **NOTE**

**With REIA you cannot begin a second or third mortgage after a refinance. If you change the second or third mortgage to a year later than a previously entered refinance, the previous refinance will become unavailable.**

#### *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 functions in precisely the same way as the second mortgage.

#### *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:

Balloon Existing Loans, and Refinance	2003	2004	2005	2006
Balloon all Loans after End of Year...	2008			
Refinance at What % of Market Value	55.00%	(enter 0% to use sum of outstanding loans)		
Sum of All Outstanding Loans, End of Year	798,177	784,867	760,072	732,572
Principal Amount of New Loan (default=sum)	864,600	864,600	= amount used	
Annual Interest Rate (fixed)	10.00%			
Term of Loan, in Years	20			
Monthly Payment, Calculated	8,343.58			
Number of Points	0.00	€ 0	=Euro	

Figure 6-7 Balloon Existing Loans and Refinance

In the first row below the heading, you can 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 2008 here, for example, the program will continue the debt service and interest for the first, second, and third mortgages through the end of year 2008. In 2009, 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 is a calculated value that is shown in row 195 in the **Analysis of Resale**. In our example here, it is 1,572,000, the selling price at the end of year 2008.

To signify 55 percent here, you would enter .55. 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 = sign before the numbers (e.g., =864000/1572000).

Leave this percentage as 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 must 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**” (in row 107). If it is less, the shortfall will show up as a negative number under “**Proceeds of Refinance.**”

In our example, using year 2008, the end of 2008 is the dividing line between the old loans and the new one. Thus, it is in 2009 that the “**Proceeds of Refinance,**” whether positive or negative, will appear and 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.

**Assumption Three: About the Resale...**

The first entry in “*About the Resale...*” is “**Sale Expected at End of Year...**” Select a year from the pull-down list. The *Business Plan* and *CashGraph* worksheets will use this piece of information and tailor themselves 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 percent to a broker and 1 percent to an attorney, then enter .07 here.

Next is a choice of method for projecting the resale price. Select the option you prefer:

Estimate Selling Price by... (enter rate below)

<input checked="" type="radio"/> Capitalization of Net Operating Income	11.50%
<input type="radio"/> Appreciation Rate	4.00%
<input type="radio"/> Gross Rent Multiplier	7.00

Figure 6-8 Estimate Selling Price

If you select the first option, then the program will capitalize the NOI; if you select the second, the program will take the purchase price plus capital improvements and subject them to a rate of appreciation; if you select the third, a gross rent multiplier will be used.

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 appreciation, the rate is a percentage. For gross rent multiplier, it is the number of times you wish to multiply the annual gross rent. Only the entry that corresponds to the method you chose above will be used; the program will ignore the other two. So, for example, if you elect to use capitalization rate as a method of projecting resale value, then your entries for appreciation 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 checked="" type="radio"/> Current Year's Net Operating Income
<input type="radio"/> Next Year's Net Operating Income

Figure 6-9 Capitalize Current or Next Year NOI

Keep in mind that if you select the 20<sup>th</sup> year for “Sale Expected at End of Year...” and choose “Next Year’s Net Operating Income,” then you must be sure also to provide data for the 21<sup>st</sup> year in the Residential Income Summary and Unit-by-Unit Income Summary as well as in the APOD form. Without a Year-21 Net Operating Income, it is not possible to calculate a meaningful Year-20 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 appreciation 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 operating 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 appreciation 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:

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

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 percent.

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

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

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 percent 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.

Row 69 allows you to force a resale value into any or all of the 20 years. If you make an entry in this row (shown below), that entry will take precedence over any other method of calculating the resale value of the property for the year of your entry.

Or, specify selling price for any or all years (entries here overrides calculated estimates)	2003	2004	2005
	0	0	0

Figure 6-10 Override Calculated Resale Price

**Assumption Four: About the Operation of the Property...**

*Income, Expenses, Improvements, Reserves*

The final section for data entry is called “*About the Operation of the Property...*” It begins as shown in Figure 6-15:



<i>About the Operation of the Property...</i>	2003	2004	2005
Gross Income, from APOD, or	153,458	187,546	199,343
Gross Income (override APOD)	0	0	0
Vacancy & Credit Allowance in €, from APOD	4,604	5,626	5,980
Vacancy & Credit Allow.(override APOD; enter as%)	0.00%	0.00%	0.00%
Operating Expenses from APOD, or	34,121	43,796	45,439
Operating Expenses (override APOD)	0	0	0
Capital Improvements	20,000	8,000	0
Funded Reserves	30,000	0	0
% Interest Earned on Reserves	4.00%	4.00%	4.00%
<input checked="" type="checkbox"/> Use reserves to offset negative cash flows?			
<input type="checkbox"/> Apply Funded Reserves (if available) as follows:	0	0	0

Figure 6-11 About the Operation of the Property

Your annual gross income, vacancy, and credit loss and total operating expenses will be imported from the *Annual Property Operating Data* worksheet 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, “**Gross Income (override APOD)**” permits you to enter any annual total rent you want. For any year in which you have made an entry on this line, your entry “overrides” the amount from 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 gross income for each year here and ignore the previous line.

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 “**Operating Expenses**” lines are the same as the “**Gross Income**” lines, importing the dollar amount from the *APOD* and allowing you to override that value with your own currency amount.

The next entry in this section concerns “**Capital Improvements.**” You may make additions or improvements to the property in any or all of the 20 years. Your entries here do *not* repeat automatically across the row.

The program treats improvements 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 1 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 IRR and MIRR.

The next row allows you to override the logic above (i.e., the application of funded reserves to offset negative cash flows).

Apply Funded Reserves (if available) as follows:      0      0      0

*Figure 6-12 Apply Funded Reserves*

If you check this box, then you can specify particular reserve amounts to be applied in given years. In a particular year, the program will apply the amount you specify (or the amount you actually have available, if it is less) regardless of what amount the cash flow is in that year.

This feature is useful if, for example, you set aside money for a future improvement or repair and want to use that reserved money—and not the property's regular cash flow—to make the improvement or repair.

Entries of zero (0) in this row will be ignored whether or not the box is checked.

You can combine this feature with the “offset negative cash flows” directly above if you want the program also to use reserves against negative cash flows as they occur.

## The Completed Worksheet

When the worksheet recalculates after each entry, 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 incorrect interest rate or term.

More important, however, are the sections below the “**Assumptions**.” The first, in rows 91–118, shows the breakdown of the operating cash flows. The second section, in rows 121–163, titled “**Analysis of Resale**,” projects the resale price for each year, performs all of the necessary tax calculations, and computes the pretax sale proceeds. In addition, the IRR, MIRR, and PV calculations appear here.

A more concise version of this same data is the *Summary Cashflow and Resale Analysis*, which is found in rows 167–199. This simpler format can help you focus on the most important data without being distracted by the full complement of supporting detail. This data can also be printed from the **Reports** menu by selecting **Cashflow Summary Report** in the **Cash Flow** and **Resale Reports** dialog box.

## Goal Seek

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 second year and that you want at least an 18 percent IRR before taxes. You scroll down to the row that displays the “**Internal Rate of Return, Before Tax**” (row 135) and see that the sixth year yields 15.31 percent. There are several factors that could improve the IRR, but you choose the most obvious and ask, “What purchase price will give me an 18 percent IRR at the end of year 6?”

While you could answer that question using Excel’s internal goal seek feature, we have made this process much easier for you in *REIA*. Simply select **Goal Seek** from either the **REIA Menu** or the **REIA Toolbar**. You’ll see the **REIA Goal Seek** dialog box:

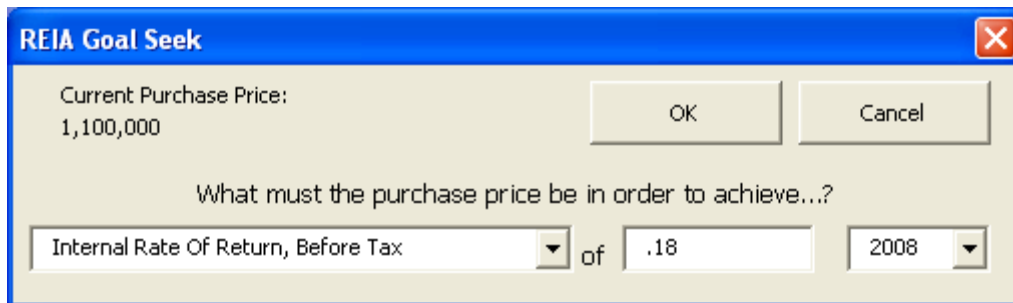


Figure 6-13 Goal Seek Dialog Box

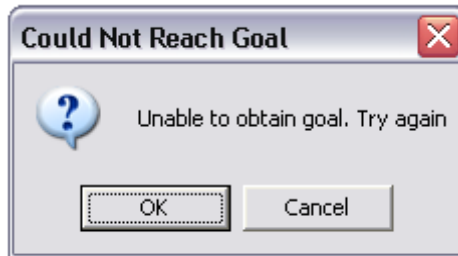
In the upper left corner is the purchase price currently entered in the **About the Purchase...** section of the *Cash Flow Analysis* worksheet. Below that are 3 boxes in which you will enter data to pose your question. Selecting the arrow to the right of the first box gives you a list of 8 different items for which you may solve. In the above example, you would choose the fifth item in the list, **Internal Rate of Return, Before Tax**.

In the second box, you enter the percent return (or dollar amount, if appropriate) you would like to achieve, in this case 18 percent. Please note that for percentages, you should enter 0 . xxxx (i.e., enter 15.25 percent as 0 . 1525). For dollar amounts, omit commas and dollar signs (enter 50,000 as 50000). You will receive an error message if your entry is not in the correct format. Please be aware, however, that if you put in an amount greater than 1 when you are seeking a percentage, the program will calculate the result you have specified; e.g., if you put in 50 as percentage, the program will attempt to calculate what is required to produce a return of 5000 percent.

The third box identifies the year that you would like to achieve the specified return. In the above example, you would select **2008**.

After you have verified that all three entries are as you intend them to be, select **OK**. The program will begin to seek a value for the purchase price that will yield an IRR at or very close to 18 percent in 2008, as you specified. The amount of time required will depend on the speed of your computer, but it can take several minutes.

If a valid result cannot be found, you will receive a message:



*Figure 6-14 Goal Unobtainable Dialog Box*

This will happen if Excel is unable to calculate a result with the conditions you have specified. Note, however, that Goal Seek can return a negative purchase price.

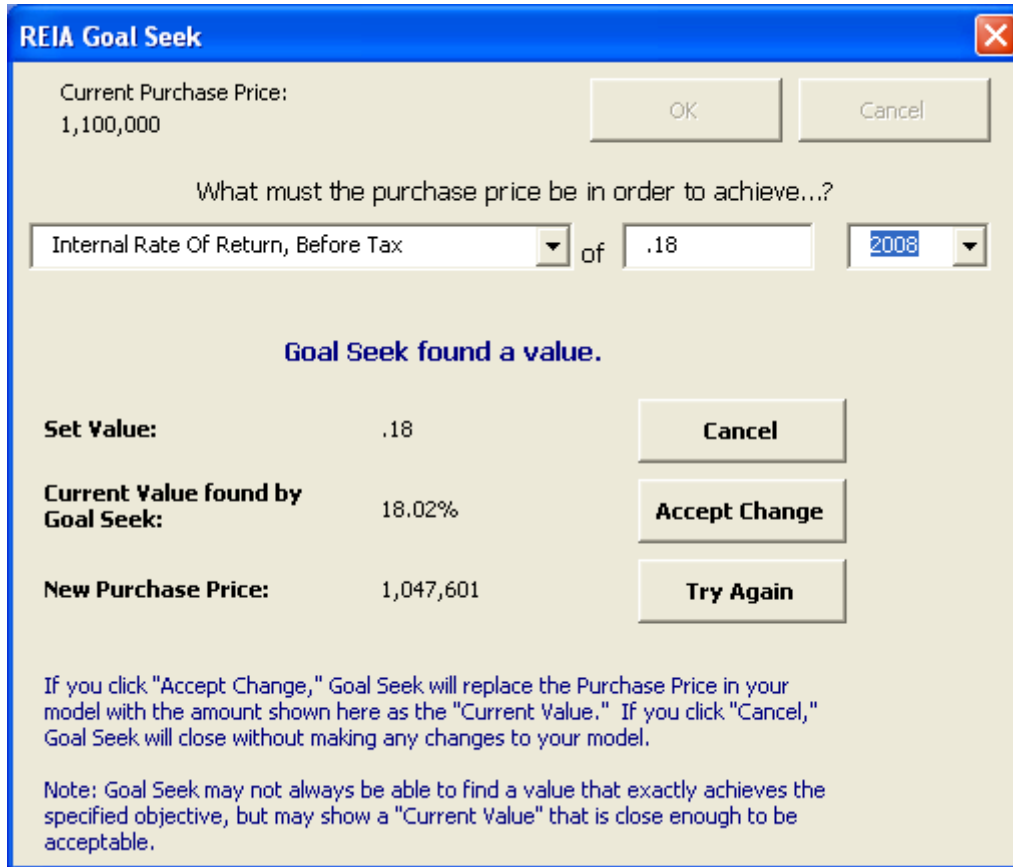
Note also that the *REIA Goal Seek*, which uses Excel's built-in goal seek utility (an iterative "successive approximations" process), can sometimes fail to identify a valid result even though such a result may exist. In such a case, you want to retry with a slightly modified goal.

If the program can find a result, you will see that result displayed beneath your entries (see Figure 6-15). There are three values whose titles are in bold.

The first, "**Set Value**," indicates the rate or amount you are seeking, i.e., your goal, as entered in the middle box (Figure 6-13).

The second "**Current Value Found by Goal Seek**," shows the rate or amount **Goal Seek** identified. This should be close or equal to the first value. In this example, your goal of 18 percent shows as .18 and the **Current Value** found by **Goal Seek** is 18.02 percent. As you can see, the value may not always be exact, but it should be reasonably close.

The final value, "**New Purchase Price**," is the answer you are interested in. You can now see that to achieve an IRR of 18 percent at the end of 2008, you must purchase the property for 1,047,601, instead of the 1,100,000 originally entered.



*Figure 6-15 Goal Seek Results*

Now use one of the three options on the right to specify how you will proceed.

If you choose **Try Again**, you can enter new values (e.g., choose Modified IRR as the variable, change the rate to 16 percent, or examine a five-year scenario) and have **Goal Seek** look for a new purchase price.

If you choose **Cancel**, you exit **Goal Seek** and your workbook remains as it was before you began this process.

If you choose **Accept Change**, **Goal Seek** will replace your original scenario with the one it has computed.

#### NOTE

**When you choose **Accept Change**, **Goal Seek** replaces the previous Purchase Price with the amount shown here. The Excel **Undo** function will not restore the previous purchase price. Be sure you prefer the new scenario—or at least make note of the previous price—before you select **OK**.**

**Goal Seek** has been set up to allow you to search for a purchase price based on variables such as Cap Rate, Cash Flow, Cash on Cash Return, Equity, Return on Equity, IRR, MIRR, and Sale Proceeds.

Keep in mind that you can use Excel's built-in goal seek procedure with other data elements. To access it:

1. Select the cell whose value you want to change.
2. Select **Goal Seek** on the **Tools** menu. You will see in Figure 6-16:

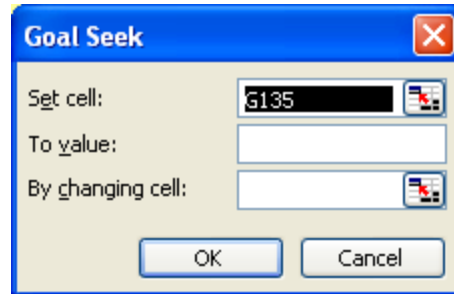


Figure 6-16 Excel's Built-in Goal Seek

3. Because you are already on the cell containing the value you want to change (your goal), the first field is filled in for you.
4. Enter the value you want to achieve in the field, “**To value.**”
5. Finally, select the field, “**By changing cell**” and scroll up until you find the cell that contains the purchase price or some other user-input item that is directly related to the goal.
6. Select the desired field and the program will fill in the cell address for you. (Note: The dollar signs that may appear in these addresses are a spreadsheet convention indicating what is called an “absolute reference.” These signs have no real significance here.)

You can use this goal seek procedure with other data elements. The rules are simple:

- Your goal (the “**Set cell**” field) must be a calculated item. In other words, the cell must have a formula in it.
- The variable (the “**By changing cell**” field) must be a user-input item. In other words, it 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 NOI or the annual property tax expense, on the other hand, would *not* depend on the purchase price.

## Chapter 7. Business Plan

The *Real Estate Business Plan* is the next worksheet. There is no data entry required here. This sheet's intended use is as a report—a presentation that you can give to a partner, lender, or client. You can print this report no matter which worksheet you currently have open. Simply choose **Business Plan** from the **Reports** menu, either from the **REIA Menu** or from the **REIA Toolbar**. This brings up a **Real Estate Business Plan** dialog box that allows you to change the printer, print multiple copies, select the year of sale, and restrict the output to black and white.

Please note that, although some of the material on the Business Plan appears in blue, the use of color in this report is to enhance appearance only and not to signify data-entry cells.

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 one or both of the income summaries or the *Rent Roll* ready to provide.

## Chapter 8. Lease vs. Buy

### What the Lease vs. Buy Analysis does

The *Lease vs. Buy Analysis* module allows you to compare the cost of leasing space from a third party to the cost of purchasing the building and occupying part or all of it for your own use.

### How to Use the Lease vs. Buy Analysis

Most of the information needed for this analysis comes from the previous worksheets, so you will need to complete the *General*, *Unit-by-Unit*, *APOD*, and *Cashflow and Resale* modules as if you were evaluating a property to buy as an investor.

#### NOTE

**There is one special consideration in regard to the Unit-by-Unit information: You must use the first unit block in the *Unit-by-Unit* worksheet (rows 10 through 34) to describe the space you would occupy, using a rent that you could realistically expect to collect for the space if you were not using it for yourself.**

### Entering Data in the Lease vs. Buy Analysis

#### Preliminary Information

The top of the data-entry area looks like this:

Lease Begins / Property Acquired...

Year: 2003  
Month: 3

Terminate lease/sell property, end of year...  ▼

Discount for PV calculations: 11.00%

Rentable Square Feet (from unit-by-unit, first unit): Rentable sf.

Override rentable Square Feet (for user-defined space): 0

*Figure 8-1 Lease vs. Buy Preliminary Information*

#### Starting Date

The program picks up the starting year and month from the *General* worksheet. You must assume that you will use the same starting point for leasing as you would for owning.

**Ending Date**

Next enter an ending date for the lease. You want to keep an “apples-to-apples” comparison and so we assume, whether you purchase and occupy the building or just rent the space, that you will do so for the same period of time. For that reason, we project that if you own the building, you will sell it at the end of the same year that your lease would expire if you simply rented.

In reality, you may choose to keep the building longer if you buy rather than lease, but the resale analysis allows you to define the extent of growth in the building’s equity as of the lease-end date. That equity growth, if any, would be one of the benefits of ownership and must be taken into account to make a sensible lease versus buy comparison.

**Rentable Area**

The rentable area comes from the first unit of the *Unit-by-Unit* model. You might want to override this item—for example, you may plan to subdivide and use only half of the space in that unit. If you make an entry in the next cell, the program will use that entry instead of the amount shown above it.

**Owner Occupant Information**

To the right of the preliminary information is the “**Owner Occupant Selection Box**,” shown here:

Rent Loss Due to Owner Occupancy...

equals first unit on Unit-by-Unit Income Summary

is manually entered below

Figure 8-2 Rent Loss Radio Buttons

**...Equals first unit on Unit-by-Unit Income Summary**

If you occupy a space in a building you purchase, there is a so-called opportunity cost to that decision. You give up the opportunity to collect rent from a tenant. If the amount of rent you must give up in order to occupy the building is in fact the amount in the first unit of the *Unit-by-Unit Summary*, then select the top choice as shown above. The amount of rent you forego by occupying unit 1 is shown here (row 21 in the worksheet):

	2003	2004	2005
For Owner-Occupant...			
Rent value of first unit from unit-by-unit summary:	52,763	56,050	65,801

Figure 8-3 Value of Owner-Occupant Rent (from Unit-by-Unit)

**...Is Manually Entered Below**

If the amount of rent you’ll lose by occupying the building is *different* from the amount normally generated by the first unit, then select the second button (“...is manually entered below”) and enter a user-defined value for the space each year:



	2003	2004	2005
<i>For Owner-Occupant...</i>			
Rent value of first unit from unit-by-unit summary:	52,763	56,050	65,801
...or, user-defined value of owner-occupied space:	0	0	0

Figure 8-4 Value of Owner-Occupant Rent Override

Note that this row is blue; you must enter a value for each year you want to override the carryover from the *Unit-by-Unit* worksheet.

Next you want to specify the amount of rent you would pay if you did not purchase the building, but simply leased as a tenant from a third-party owner. The program will assume that you would pay the same amount that you specified above for the owner-occupant. If you want to use a different amount, enter it here.

*For Lessee...*

Cost to lease space, if different from rent value above:	0	0
--	---	---

Figure 8-5 Lessee Rent Override

Note that the first two years are blue, but the rest are purple. Whatever you enter in the second year will automatically be copied to all the following years.

The program will assume that your rent as a tenant is the same as the rent you would sacrifice as an owner-occupant. If that's true then you don't have to make any entries here. Otherwise, enter the amount of rent you expect to pay each year.

#### NOTE

**If you have a partial first year, the program will display the actual partial-year dollars from the *Unit-by-Unit Summary*. In the example above, for instance, you'll see 52,763 in 2003 and 56,050 in 2004. If you need to make an entry in either of the two rows below—user-defined value of owner-occupied space or cost to lease space—you too should enter partial-first-year dollars.**

In a typical situation, where you are comparing the costs of leasing a space at a market rent to the costs of buying the building and occupying the same space for the same length of time, you will not need to make any entries in these rows, as in the example shown.

The analysis takes your monthly rental payments as a tenant and discounts them back to a single "**Present Value of the Cost to Lease**." It also takes the cash flows that would occur if you owned and occupied the building, breaks those cash flows into equal monthly amounts, and discounts them back to a single "**Present Value of the Cost to Buy and Occupy**." Of course, the same discount rate is used in both scenarios. The Lease vs. Buy report then compares these values and identifies the better option.

## The Lease vs. Buy Report

The report produced by this module is concise and shows clearly the annual cash flows that you would experience as a tenant and as an owner-occupant. If you are an owner, these cash flows include the outlay for your initial investment as well as the proceeds of a sale. As mentioned above, you may in fact choose not to sell, but the potential sale proceeds represent the presumed return on your investment over the same time span as the lease.

Please note that, when you print the report, you will see a pull-down list called "**Anticipated Year of Sale**." This data item will default to the year you chose in "**Terminate Lease/Sell Property**" (Figure 8-1,

above). You can select a different year here. If you do, the change will also appear in “**Terminate Lease/Sell Property.**”

If you are preparing this report for a client, you should find it helpful that it summarizes the analysis in plain English (Figure 8-6):

**(464,749)** = **Present Value of Cost to Lease**  
(assuming lease runs to end of year 2022;  
estimated cash flows are monthly and are discounted at  
11% per year.)

**(321,814)** = **Present Value of Cost to Buy and Occupy**  
(assuming sale at end of year 2022;  
estimated cash flows are monthly, before-tax and are discounted at  
11% per year.)

Positive amounts are net gains; negative amounts are net losses.

**Preferred choice is to buy and occupy.**

*Figure 8-6 Lease vs. Buy Report*

In this particular example, it would cost you 464,749 in discounted dollars to lease the space, but 321,814 to purchase and occupy. The program tells you plainly that the preferred choice is to buy and occupy.

## Chapter 9. Rent Roll Report

The *Rent Roll* worksheet is strictly a report. There are no data-entry fields on this sheet.

The report takes information from the *Unit-by-Unit Income Summary* and presents it in a more concise format. Each unit has a single line on the report, showing the tenant's name, the unit's rentable square footage and its percentage of the total, and the starting rate and the present value of the income stream over 20 years. The report also displays the projected annual rent for each unit.

The top of the report displays the property's total rentable area, as well as the amount and percentage of vacancy. In addition, it lists the number of units and shows the total of all columns except the initial rate.

You have the ability to adjust the height of the rows in the **Rent Roll Report**. You do this by selecting the **Row Height**, found in the drop-down menu at cell **D1**, choosing the value you would prefer and then selecting **Report Rebuild**.

We've included the row-height option because the Rent Roll is built dynamically as records are added to the *Unit-by-Unit Summary*. Depending upon the number of units being reported, you may want to space out the units in the printed report to make it more readable.

There is a second important use for **Report Rebuild**. Because the rows in this report are written to the worksheet by Excel macros whenever a unit is added, deleted, or edited in the *Unit-by-Unit Summary*, it is possible for the *Rent Roll* to get out of sync with the *Unit Summary* should Excel or your entire computer crash while you are working on this file. If you have any reason to believe that the *Rent Roll* is not in line with the *Unit Summary*, just select **Rebuild Report** and, as its name suggests, it will rebuild the report.

You can print the *Rent Roll* by choosing it from the **Reports** menu, found on both the **REIA Menu** and the **REIA Toolbar**. This opens the **Rent Roll** dialog box, which has a read-only list of units at the top. You can scroll through this list, but you cannot choose from this list. The **Rent Roll** report by definition prints *all* of the units; if you want to print a report that includes information about certain units only, use the *Unit-by-Unit Summary Report* instead. You do have the option, as in all reports, to select a printer, print multiple copies, and restrict the printout to black and white. In addition, you can choose how many years of data the report will include.

## Chapter 10. Graphs

The *CashGraph* sheet in the *International Edition* includes:

1. A chart of IRR 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 selecting **Cashflow Graphs** from the **Reports** menu, which is on both the **REIA Menu** and the **REIA Toolbar**. This opens the **Cashflow and Resale Analysis Graphs** dialog box, which lets you choose your printer, the number of copies, and whether the graphs will be in color or black and white. 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 *REIA*. You can place your own graphs on this same worksheet.

## Chapter 11. Sensitivity Analysis

*Sensitivity Analysis* allows you to test a range of potential purchase prices and to show the end-of-year 5, 10, and 20 year pretax IRR, pretax cash flow, and projected resale value for each price.

### NOTE

This report, which includes charts as well as a numeric table, is generated by a macro and then optionally printed. *Sensitivity Analysis* is different from typical worksheets in that it *does not* update itself with each data entry you make. Instead, it must be “built” using the complete set of data in your analysis. If you change a data item, you must regenerate the *Sensitivity Analysis* by selecting **Update**. The macro may take anywhere from a few seconds to a minute or more to run, depending upon the speed of your computer.

When you select **Update** in the upper left corner of the worksheet, you will see the following dialog box:

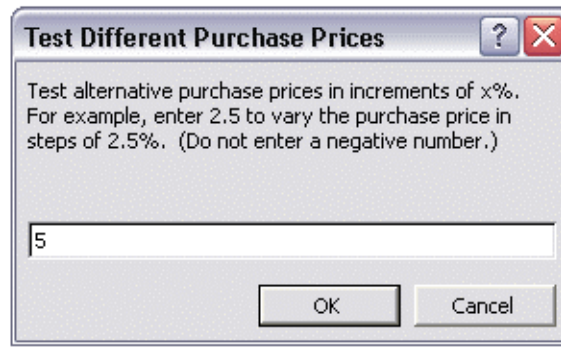


Figure 11-1 Update Sensitivity Analysis

The purchase price you previously entered in cell **B7** of the *Cashflow and Resale Analysis* worksheet will serve as the center of a range of 11 potential purchase prices. Your entry here will instruct the report generator to use five lower amounts and five higher amounts proceeding up and down in increments of whatever percentage you enter in the dialog box.

For example, we used 1,100,000 as the purchase price on the *Cashflow* sheet. If we enter 5, the program will test price increments and decrements of 5 percent, producing the table in Figure 11-2:

Potential Purchase Price	Required Cash Investment	Year 5 IRR	Year 10 IRR	Year 20 IRR	Cash Flow Year 5 Before Taxes	Cash Flow Year 10 Before Taxes	Cash Flow Year 20 Before Taxes	Projected Equity EOY 5	Projected Equity EOY 10	Projected Equity EOY 20
825,000	357,475	30.45%	24.26%	22.04%	78,382	70,363	68,521	1,014,293	826,260	1,155,625
880,000	377,440	27.28%	22.25%	20.25%	74,629	70,363	68,521	979,820	826,260	1,155,625
935,000	397,405	24.24%	20.37%	18.63%	70,875	70,363	68,521	945,349	826,260	1,155,625
990,000	417,370	21.31%	18.59%	17.16%	67,122	70,363	68,521	910,876	826,260	1,155,625
1,045,000	437,335	18.46%	16.90%	15.79%	63,369	70,363	68,521	876,404	826,260	1,155,625
1,100,000	457,300	15.68%	15.26%	14.51%	59,615	70,363	68,521	841,931	826,260	1,155,625
1,155,000	477,265	12.96%	13.71%	13.34%	55,862	70,363	68,521	807,458	826,260	1,155,625
1,210,000	497,230	10.29%	12.23%	12.27%	52,108	70,363	68,521	772,985	826,260	1,155,625
1,265,000	517,195	7.66%	10.82%	11.29%	48,355	70,363	68,521	738,512	826,260	1,155,625
1,320,000	537,160	5.06%	9.47%	10.39%	44,601	70,363	68,521	704,039	826,260	1,155,625
1,375,000	557,125	2.46%	8.18%	9.55%	40,848	70,363	68,521	669,567	826,260	1,155,625

Figure 11-2 Sensitivity Results

There may be circumstances in a particular analysis where the data in one of the columns is not sensitive to changes in the purchase price. For example, if the first mortgage were a fixed dollar amount rather than a percentage of the purchase price, it is unlikely that the cash flow would be affected by changes in that price. In the example above, the property was refinanced after year 5 but before year 10; hence the equity in years 10 and 20 is no longer related to the original purchase price less the original first mortgage.

## Chapter 12. 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.

**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.

**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 that 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.

**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 15-year amortization and a 7-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 15 years. However, the borrower would retire the loan at the end of 7 years by paying the balance outstanding (the balloon) at that time. Also, Balloon Payment.

**BALLOON EXISTING LOANS** - In *REIA*, a section where the user can pay off the principal balances of the first, second, and third mortgages and replace them all with a new (refinance) loan.

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

**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.

**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 BEFORE TAXES (CFBT)** - During a given period, all of a property's cash inflows less all of its cash outflows.

**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.

**DEBT COVERAGE RATIO** - The ratio between the annual net operating income and the 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.

**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.

**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. Also, Gross Income Multiplier.

**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.

**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.

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

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

**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 (after utilization of reserves), 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.

**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."

**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.

**PRESENT VALUE (PV)** - The discounted value of a series of future cash flows. The discount rate is chosen to compensate for the decrease in the value of money over time.

**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.

**REINVESTMENT RATE** - In Modified Internal Rate of Return, the rate at which you believe you could reinvest the positive cash flows from your investment. Also, Risk Rate.

**RENTABLE SQUARE FEET (METERS)** - The portion of a rental property that may be leased to tenants. For example, in a multitenant 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.

**RETURN ON EQUITY** - In *REIA*, the ratio between the Cash Flow before Taxes for a given year and the Projected Selling Price less the sum of all mortgage balances for that year.

**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 the 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. Also, What-If Analysis.

**SOURCES OF FUNDS** - In *REIA*, a listing of the cash and mortgages necessary to acquire the subject property. The total Sources of Funds always equals the total Uses of Funds.

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

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

**USES OF FUNDS** - In *REIA*, a listing of the amounts to be disbursed or set aside at the time of acquiring the subject property. The Uses of Funds includes the purchase price of the real estate, closing costs, all loan points, any other special fees, the cost of any capital additions to be made during the first year, and any funds to be placed in reserve during the first year. The total Uses of Funds always equals the total Sources of Funds.

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

**WHAT-IF ANALYSIS** - See Sensitivity Analysis.

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