

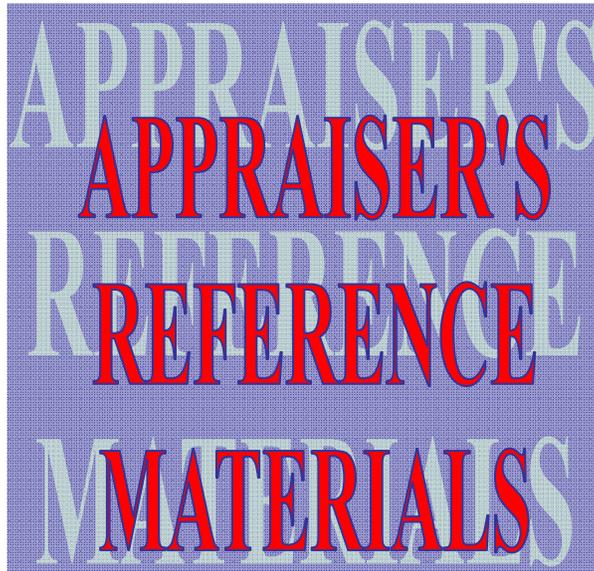


Real Property Tax Administration
Office of Tax and Revenue
1101 4th Street, SW, Suite W550
Washington, DC 20024

Office of the Chief Financial Officer
Office of Tax and Revenue
Real Property Tax Administration

Real Property Assessment Division

2015 GENERAL REASSESSMENT PROGRAM



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February 2014

Disclaimer:

This publication represents a selected compilation of materials developed and used by the Real Property Assessment Division of the Office of Tax and Revenue during the 2015 revaluation of real property in the District of Columbia. As such, it does not purport to be an exhaustive collection of all assessment administration documents and materials. Its primary purpose is designed to be a quick reference guide for the real property assessor in his/her day-to-day work activities. Please feel free to call or fax your comments or suggestions to the contact numbers below. Thank you.

*Standards & Services Unit
Real Property Assessment Division
1101 4th Street, SW, Suite W550
Washington, DC 20024
Phone: (202) 442-6760 Fax: (202) 442-6796*

2015 ARM

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OFFICE OF TAX AND REVENUE
REAL PROPERTY TAX ADMINISTRATION
INTEROFFICE MEMORANDUM

TO: REAL PROPERTY ASSESSMENT DIVISION
FROM: STEPHEN A. CAPPELLO, CHIEF APPRAISER
SUBJECT: TAX YEAR 2015 REASSESSMENT EFFORT
DATE: 2/25/2014

Ladies and Gentlemen:

Once again, we have successfully fulfilled our core responsibility by annually valuing all the property in the District of Columbia for ad valorem purposes. As of January 1, 2014, fair and equitable values have been established for the inventory of 198,650 properties and you have my thanks and gratitude for your monumental effort. Overall, residential values trended upward as indicated by the improving sales of residential properties during the past year. OTR's overall increase in the residential properties was 9.33 percent. The commercial market's growth also showed improvement with a 12.65 percent increase in values. The District continues to benefit by an influx of new residents to the tune of 1,000 per month moving in and also a strong investment in our commercial real estate by both national and international investors. Since last year, the total assessed value of the District increased by almost \$20 billion dollars to a total value of \$213.5 billion for Tax Year 2015.

We will soon begin the defense of the Tax Year 2015 values and I have every reason to believe that you will continue to be well prepared to meet the taxpayers and defend our values with both skill and professionalism. Speaking of appeals, the Real Property Tax Appeals Commission (RPTAC) successfully concluded their second season by rendering fair and impartial decisions. Of the 3,271 appeals filed with RPTAC, 73% were sustained and the average reduction was 9.9%. This is a testament to the quality of your work as evaluated by independent and professional reviewers.

Recall that a performance review audit of the division, in general, and the commercial units in particular, was conducted by the Office the Inspector General. Many good recommendations were made and I am delighted to report that RPAD has implemented several significant enhancements to our processes that were proposed in the review. Chief among the changes has been the redesign of our commercial valuations to include

developing new valuation models and to assigning appraisers to specific property types instead of geographic locations. As we become more experienced with this process, more accurate and consistent values reflecting market value will be the result. Additionally, several recommendations dealt with enhancing our education and training programs. With the assistance of several supervisors, I hope to soon develop an Appraiser Certification Program that will allow for professional growth through extended educational opportunities, training and testing.

As you are aware, we were scheduled to deploy a new version of our Vision CAMA system over the past summer. We came to find the software was not fully stable with our existing systems and chose to delay the installation until such time as issues have been resolved. Much work has been going on behind the scenes and I am hopeful that we will move to version 7.0 of CAMA later this spring or summer. This will give you plenty of time to become familiar with the new program. Recall, the upgrade will enhance and improve our valuations, make data entry more accurate, make sketching much easier and also provide for more transparency to the process.

Our new CFO, Jeffery DeWitt, has made it clear that customer service is one of his main priorities and as such, we will be providing more community outreach this year than has been provided in the past. Plans are in the works to conduct offsite outreach in each of the eight wards during the month of March in addition to honoring our other meeting requests. The ward outreach meetings are during the day and generally end by 6 PM. More information about this will be forthcoming, and I encourage you to participate in these types of activities. Outreach is not our only venue for customer service. We deliver customer service every time we talk to a taxpayer and I am always gratified when I hear reports from taxpayers complementing you for professionally resolving their issues. Remember, the taxpayers of the District are our customers and providing quality customer service is a goal for each of us.

With upcoming appeals, mediations, outreaches, upgrades and new valuation processes, we have quite a challenge ahead of us. I am convinced that the results of these efforts will benefit all of us with even better valuations in the future.

Once again you are to be congratulated and commended for your outstanding performance throughout the previous year. The values are a direct result of the teamwork and professionalism exhibited by you and I have every confidence the upcoming appeal season will bear witness to your extraordinary efforts. Thank you to all - the appraisers, the managers and the support staff of the Real Property Assessment Division. Take pride in your work, I certainly do.

Explanation of Residential Market-oriented Cost Method

Note: The market-oriented cost approach to valuation is further explained and illustrated in the document, *Vision Residential Valuation Process*.

The market-oriented cost approach involved the following:

1. Extracting the CAMA data from approximately 9,200 qualified sales and importing it into SPSS.
2. Building a preliminary regression model that reflects the variables of the CAMA cost approach.
3. Reviewing the results of the preliminary regression to identify candidate market areas where the data was such to allow for successful regression analysis.
4. Eliminating outliers in the candidate areas to better ensure accuracy of the regression results.
5. Establishing time adjustment factors in order to analyze sale prices as of a specific point in time. The city was divided into 4 major market areas for time adjusting sale prices. Market data indicated monthly time adjustment factors over 31+ months (1/1/2011 through 8/6/2013) as follows:

	1/1/11 - 12/31/11	1/1/12 – 12/31/12	1/1/13 – 7/31/13
“Southeast” Neighborhoods (2, 3, 16, 18, 22, 28, 32, 33, 43)	- 0.30% /mo	0.30% /mo	1.10% /mo
“Northeast” Neighborhoods (5, 6, 7, 12, 14, 15, 17, 19, 31, 35, 36, 42, 47, 48, 49, 51, 52, 56, 66)	0.00% /mo	0.70% /mo	2.00% /mo
“Northwest” Neighborhoods (1, 4, 8, 11, 13, 21, 23, 24, 25, 26, 27, 29, 30, 34, 37, 38, 41, 50, 53, 54, 55)	0.00% /mo	0.20% /mo	0.80% /mo
“Downtown” Neighborhoods (9, 10, 20, 39, 40, 46)	0.00% /mo	0.50% /mo	1.50% /mo

6. Building a final regression model, using the time-adjusted sale price as the dependant variable.
7. Calibrating that model using non-linear multiple regression. Variables were included to extract land values from the market.
8. Reviewing the regression predicted values and removing extreme outliers.
9. Examining the predicted-values-to-time-adjusted-sale-price ratios for equitability with respect to lot size, building area, age, use, grade, and location.
10. Entering the coefficients indicated by the regression analysis back into the CAMA program’s cost model.
11. Applying the cost model in CAMA and reviewing the resulting values to ensure they agreed with the predicted values produced by the regression.
12. Performing sales analysis to determine if acceptable levels of assessment were achieved and adjusting rates as necessary.
13. Applying model to inventory and producing old-to-new (outlier) reports and percent change detail analysis reports for appraiser review.
14. Incorporating oversight of the computer aided procedure by our professional staff cited in the *2015 Valuation Review Process*. All projected market value changes are submitted to the staff for their review, refinement, and adjustments.

Explanation of Residential Condominium Valuation Methods

Regression:

The sales comparison approach using multiple regression analysis involved the following:

1. Extracting the CAMA data of qualified sales and importing it into SPSS.
2. Reviewing data to determine what regimes were candidates for regression analysis. As a rule, regimes could be valued using regression where the physical data attributes were complete and adequate sales data existed. Regimes without adequate sales, but with complete data, could be clustered with regimes having similar profiles to allow regression to be used.
3. Exploring the data to determine what variables would likely contribute to the model.
4. Building a base model.
5. Reviewing the results of the base model and eliminating outliers in the candidate regimes to better ensure the accuracy of the regression results.
6. Establishing time adjustment factors in order to analyze sale prices as of a specific point in time.
7. Building a final regression model, using the time-adjusted sale price as the dependant variable.
8. Calibrating that model using multiple regression analysis.
9. Applying the model to the sales, reviewing the predicted values and removing extreme outliers.
10. Performing sales analysis to determine if acceptable levels of assessment were achieved and adjusting rates as necessary.
11. Extracting condominium inventory data and importing into SPSS.
12. Applying model to inventory, and exporting the values back to CAMA, allocating 30% of predicted value to land and 70% of predicted values to improvements.
13. Producing percent change reports for appraiser review.
14. Identifying necessary corrections to data and location adjustments.
15. Repeating process of extracting data, applying model, and exporting back to CAMA to include corrections.

Final Appraiser Review:

At the conclusion of the valuation, several reports are produced showing the results of the reassessment. These reports, reflecting proposed market value changes, are submitted to the assessment staff for their review, refinement and adjustment in accordance with the processes outlined in the 2015 Valuation Review Process document.

The Condominium Regression Model:

ESP= (348.29 * SIZE * SIZE_ADJ * EFFIC_ADJ * COND_ADJ * VIEW_ADJ * BATH_ADJ + PARK_ADJ) * LOC_ADJ.

Estimated Sale Price (ESP) – the value predicted by the model for the parcel, given the variables in the model, the coefficients of those variables and the attributes of the subject unit.

Base Rate (348.29) – base size rate (constant)

Size – the square footage of the unit

Size Adj. – the adjustment for the unit's size being larger or smaller than the base size

The base unit size is 800 sf. The formula for calculating the size adjustment is:
 $((\text{SIZE}^{.67066})/\text{SIZE})/.11064$, where $.11064 = (800^{.67066})/800$. See graph titled Condominium Size Curve.

Efficiency Adj. – if the unit is an efficiency unit, a 0.93 adjustment is applied.

Condition – adjustment for the unit's physical condition

(1) Poor	.75
(2) Fair	.90
(3) Average	1.00
(4) Good	1.08
(5) Very Good	1.17
(6) Excellent	1.25

View – adjustment for the unit's view

(1) Poor	.85
(2) Fair	.94
(3) Average	1.00
(4) Good	1.05
(5) Very Good	1.09
(6) Excellent	1.14

Bath Adj. – adjustment for the unit's number of baths more than one.

$$\text{BATH_ADJ} = 1 + (((\text{FULLBATH} - 1) + (.5 * \text{HALFBATH})) * .08)$$

Example: $2 \frac{1}{2} \text{ baths: } 1 + (((2 - 1) + (.5 * 1)) * .08) = 1.112$
 $3 \text{ baths: } 1 + (((3 - 1) + (.5 * 0)) * .08) = 1.16$

Parking – adjustment for Limited Common Element parking

<u>Outdoor</u>	<u>Covered</u>	<u>Indoor</u>	subject to location adjustment
13,800	19,300	24,800	

Location – adjustment for unit's geographic location

Location adjustments were made for neighborhood, sub-neighborhood, cluster of regimes, or unique regime. The actual location adjustment for any unit may be the combination of one or more of those location factors.

Explanation of Cooperative Valuation Method

Cooperatives are a type of residential property. In a cooperative, a corporation owns the property and the shareholders can use the unit or units represented by their shares. In Washington, DC, cooperatives are assessed according to statute by either of three methods. The first method is by calculating the cumulative value of the leasehold interests (by sales). The second method is to treat the project as if it was a condominium project and reduce the value by 30%. After arriving at either of these values, we further reduce the value an additional 35% according to the statute. The third method is available only to Limited Equity Cooperatives.

Limited-equity cooperatives (LEC) are defined in the DC official Code in § 47-802 (11) as, "one required by a government agency or non-profit to limit the resale price of membership shares to keep the housing affordable for low and moderate income buyers." The assessed value of the improved real property owned by an LEC is the lesser previously described approaches or the annual amount residents pay in carrying charges (excluding subsidies), divided by an appropriate capitalization rate as determined by the Office of Tax and Revenue (OTR).

For tax year 2015, we reviewed all the complexes with sales information and calculated the sales prices per square foot. Only minor time adjustments were deemed necessary for this period. For previous years matched pairs sales were used to calculate the typical percentage increase per month. Multiplying the square footage of the units by the adjusted rates (occasionally they were adjusted for view or parking as sales indicated) would result in the aggregate values which were further reduced for personal property and the result multiplied by 65% to arrive at the assessment.

In complexes where there were no sales, we treated them as if they were condominiums. To do this we would find a condominium as similar as possible to the subject and use the square foot rate that seemed to be appropriate to the square foot of the units or the estimated square footage. We would adjust the square foot rate if the complexes weren't in similar condition or location. We would multiply the rate times the square footage and reduce the result by 30% and then by 35%. The complexes without sales were typically limited equity coops or very small complexes.

2015 Valuation Review Process

As part of the valuation process, initial assessments for all properties will be estimated and preliminary reports will be generated summarizing the results of the valuation effort. Your review, modification and approval of the proposed assessments indicate that they are representative of the estimated market value.

The Valuation Review Process is designed to allow for a thorough review of the new values for the upcoming tax year before notices are sent to property owners.

The purpose of this review is two-fold. First, it allows us the opportunity to correct any errors that may have occurred in the valuation process before they cause administrative difficulties (i.e. public relations problems, unnecessary appeal activity, and the like). Second, the process provides feedback to the CAMA modeling and calibration process.

The process involves examining all assessments with particular attention given to the outliers in a relatively short period of time. As such, the appraiser is primarily concerned with arriving at a reasonable final value estimate for all accounts by focusing attention to the properties on the outlier list, known as the Old-to-New Report. Briefly, the process involves the appraiser of record reviewing a selected group of properties in their neighborhood that, on first inspection, appear to be over or under appraised based on previously determined criteria such as sales price, percent change reports, etc. When this review indicates correct values, no records are changed; however, if the value requires modification, the appraiser will make changes in the CAMA record and on the PRC to correct the situation. If he/she discovers minor discrepancies in the data, it should be noted and corrected or revisited during another inspection program at the discretion of the appraiser. The purpose of this program is not to engage in a detailed analysis of accounts but rather to expeditiously review outlier accounts to improve our estimate of market value.

NOTE: It is advisable that the appraiser has a solid knowledge of CAMA valuation before proceeding with the review process. Please refer to the most current version of the "*CAMA Residential Construction Valuation Guideline*." Along with the report entitled "VISION CAMA Valuation," the guideline will serve as a tutorial for the methodology employed within CAMA for valuing residential property.

Following are some general guidelines to consider while conducting review activity.

1. The valuation review process begins with CAMA producing two reports for each (sub) neighborhood. The first report is the "Old to New" report that shows the old value, new value, percent and dollar change in value from the current assessment to the proposed assessment for specific properties that constitute outliers in the (sub) neighborhood. Included are the individual PRCs for each corresponding account listed in the report where the proposed value increased 10 percentage points or more above the median percent change for the (sub)

neighborhood or decreased 10 percentage points or more below the median percent change. The second report, Percent Change Detail Analysis, contains more specific detail about all of the accounts in the selected (sub) neighborhood.

2. The appraiser will be provided these two individual reports for each of the assigned (sub) neighborhoods, along with individual PRCs from the Old-to-New report.
3. Before individual reviews of the Old-to-New report begins, the appraiser will examine the Percent Change Detail Analysis report for signs of irregularities or general discrepancies based on their knowledge of their neighborhoods. The review entails several tasks as follows:
 - A. Review the "A/S Ratio", when present. The ratios are calculated based on sales over a long period of time. Pay particular attention to sales that occurred during calendar year 2013. These sales will give a better picture of the most recent assessment/sales ratio reflective of the current market conditions. Where the assessed values are not close to the sales prices, fully examine the record, and consider making appropriate changes. The "VC" flag can be used to indicate that a sale has been previously disqualified, possibly rendering an unusual ratio less meaningful. Additionally the review of the "VC" code with an unusual ratio may indicate that a previously qualified sale needs to be now disqualified.
 - B. Examine the "Grade" of the accounts. If there is a two or more departure of grade between the account and the typical grade in the (sub) neighborhood, the appraiser may be concerned.
 - C. Look for extremes in the "Cond" and "% Good" data. Again, on average, these should be relatively consistent throughout the (sub)neighborhood.

The preferred process to follow when conducting individual reviews of accounts contained on the Old-to-New report (residential only) is as follows:

1. The appraiser will examine each record that appears on the "Old to New" report. Each record has been selected for inclusion because the proposed value decreased 3 percentage points or more below the median percent change for the (sub) neighborhood or increased 10 percentage points or more above the median percent change for the (sub) neighborhood. However, PRCs were printed for records where the proposed value decreased 10 percentage points or more below the median percent change for the (sub) neighborhood or increased 10 percentage points or more above the median percent change for the (sub) neighborhood. As a result, there will probably be more accounts listed on the "Old to New" report than printed PRCs. These records constitute the "outliers" of

the (sub) neighborhood. The values may be correct or erroneous, and the purpose of this process is to make that determination.

2. The appraiser, exercising his or her professional skill and judgment, first will conduct a “desk review” of each account appearing on the report. If the value does not seem reasonable perform the following actions:
 - A. Examine the PRC for any missing or incorrectly coded data contained in the Construction Detail section.
 - B. In the Building Summary Section, check the sq. ft. sizes of the areas listed for accuracy and reasonableness.
 - C. Check the Building Cost Section for correct Effective Area, Special Feature RCN and % Good. If any are erroneous, examine their respective sections for details.
 - D. Examine the Special Features/Amenities and Detached Structures sections for accuracy.
 - E. On the front of the PRC, check the Land Line Valuation Section for proper size and value.
 - F. Make use of the Pictometry tool available in the Mobile Video Viewer or the Mapping Apps folder.

3. Several results may occur from the desk review:
 - A. The desk review indicates the value is correct. In this case, note in the column adjacent to the account “OK”, your initials and the date.
 - B. The desk review indicates an erroneous value discovered by examining various reports and records (i.e. Percent Change, CAMA record, etc). In this case, the appraiser makes the correction in the CAMA record, notes the changes made on the PRC in red, notes on the Old-to-New report the new amount, your initials and the date.
 - C. The desk review is inconclusive and a field inspection is in order.

An example may help illustrate scenario “A”, the first situation. Let’s say the Old-to-New report indicates an account has jumped 400%, from \$300,000 to \$1,200,000! That amount of increase seems absolutely erroneous. To determine a possible explanation, the appraiser begins the review by locating the account on the Percent Change Detail Analysis report. After finding the account, the appraiser notices that the properties close to the account have only increased by approximately 20%, the median for the neighborhood. They are approximately similar to the account in size, grade, and condition, but their prior year’s value was \$900,000, while the outlier was only \$300,000. The appraiser would be safe to conclude that the account was grossly under-assessed last year. The low “old” value caused the large increase in value, not an over-assessed new value. To complete the desk review, the appraiser notes on the Old-to-New report, “OK”, his/her initials and the date.

Scenario “B”, the second situation, may find the appraiser reviewing an account that also appears to be over-assessed based on the large increase from old to new value. The appraiser again locates the account on the Percent Change Detail Analysis report and reviews the account in context to other (sub)neighborhood properties. The appraiser discovers that most of the data about the account is similar to the other properties – same use code, similar size, percent good, etc. However, where most of the properties are listed at Grade 4, the account is Grade 7. This would help explain the likelihood that the account is over-assessed. The appraiser would make the change to the grade in the CAMA system, note the new value, make the change on the PRC in red, and document the change on the Old-to-New report by writing the new value, his/her initials and the date in the far right column of the report next to the account.

The last scenario, “C”, results when the appraiser can not immediately explain the reason an account appears on the Old-to-New report. He/she should set aside accounts that will require field inspection and at a point, go to the field for inspection. Upon conclusion of the inspection, the appraiser will document the results in a similar manner to the desk reviews. The actual schedule for field- work will vary and will be coordinated by the appraiser and his/her supervisor.

Records Retention , Old-to-New Reports (residential only) and Percent Change Detail Analysis Reports (residential, residential condominium, commercial) are to be retained for two years, so that the current and proposed years are readily available for review. The retained reports will reflect all necessary dates and initials, indicating the required review and approval. The supervisor for each unit will be responsible for ensuring compliance with the review process within their unit, and for the retention of their unit’s reports for the appropriate period of time. Reports may be discarded when they are no longer the current or proposed year. For example, upon the completion of the tax year (TY) 2015 revaluation, the TY 2013 reports may be discarded, and the reports from TY 2014 (current) and TY 2015 (proposed) must be on file.

Assessment Roll and Property Owner Notification

Upon completion of the annual reassessment and following the detailed final edit by appraisers, the CAMA manager runs a series of edit programs that makes final edits and consistency checks of all accounts. Any problems are returned to appraisers for review or correction. Following corrections, the CAMA Manager completes a final edit and uploads the required information via CAMA extract to the Integrated Tax System.

Annual Assessment Notices to notify property owners may be printed from ITS in batch mode or an extract may be produced for an outside vendor to produce assessment notices.

Market Approach to Land Valuation in Costed Neighborhoods

A non-linear regression model was used to calibrate the residential cost model. It was developed from citywide market analysis of qualified sales. One of the variables calibrated by the model was the land rate. Base land rates were adjusted for location in each sub-neighborhood. Regression analysis calibrated the land and building components of the model at the same time using the same market data. Additionally, the analysis established four size curves for land area. The four size curves indicate that as lot sizes increase, values also increase. However, with land size curve “3” values increase more rapidly with size as compared to land size curve “2”. Land size curve “1” increases at the smallest rate. In all three cases, land rates decrease as land area increases. Market data supports both curves up to approximately 5 times the standard lot size. However, in application, rates are assumed to continue similar decreases beyond that point. Each sub-neighborhood was assigned to one of the three land size curve groups based upon analysis of the qualified sales data. It is important to keep in mind, that land value is only one component of a number of variables that contribute to a property’s sale price and/or estimated market value. In practical terms, it is the combination of all of a property’s attributes, nuances in the market, and buyer preference that contribute to the final market value of a property. It is difficult to isolate some of the contributory elements and value them separately with certainty. Nevertheless, it is required in the District of Columbia that land and building values be separated for assessment purposes. Because of this requirement, it is necessary to create land rate tables for use in the District’s CAMA product. These rates were developed in the regression analysis referred to above. The results of the analysis are applied to the market-oriented cost model in the Vision CAMA system.

Land is calculated in Vision using the following algorithm:

$$\text{Area} * ((\text{Base Rate} * \text{Size Adj}) + \$ \text{Special Adj 1} + \$ \text{Special Adj 2}) * \% \text{Special Adj 1} * \% \text{Special Adj 2}$$

Where:

Area is the lot size expressed in square feet.

Base Rate is the market-derived rate for each sub-neighborhood.

Size Adj is the market-derived adjustment made for the lot size as it relates to the standard size lot for the sub-neighborhood. The look-up along the size curve is based on the ratio of the subject lot size to the standard lot size.

% Special Adj is any adjustment present that is expressed and applied as a percentage adjustment to the rate.

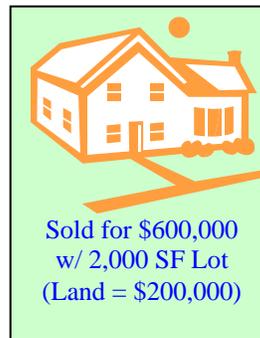
\$ Special Adj is any adjustment present that is expressed and applied as a dollar adjustment to the rate.

Land Rate Development Example

A hypothetical example may help illustrate how regression analysis develops the base land rates and subsequent adjustments to the rates. Suppose two properties in a neighborhood were recently sold. The first, comprised of just a house without land, sold for \$400,000. The second property had the identical house but with a lot of 2,000 square feet (sf.), the typical size for that neighborhood. It sold for \$600,000. In a process similar to adjusting comparables in the sales comparison approach to value, regression analysis identifies the contributory value of the lot to the second property and sets its value to \$200,000. The base land rate of \$100 per sf ($\$200,000/2,000$ sf) will be the basis for lot values for all other properties in that (sub)neighborhood.



Sold for \$ 400,000
(no lot)



Sold for \$600,000
w/ 2,000 SF Lot
(Land = \$200,000)

Next, let us assume another house sells. On this occasion, the house is identical to the previous sale in all respects, except the lot size was 4,000 sf instead of the “standard” (base lot) size of 2,000 sf. This house recently sold for \$700,000, \$100,000 more than a property with the standard lot size. The land component of this sale is \$300,000.



Sold for \$600,000
w/ 2,000 SF Lot
(Land = \$200,000)



Sold for \$700,000 w/ 4,000 SF Lot
(Land = \$300,000)

This sale helps develop size adjustments for non-standard lots in the neighborhood. If no adjustment was made to the land rate, the land component of this sale would be \$400,000 ($4,000$ sf * \$100). The appraisal would overstate the value of the property by \$100,000. An adjustment to the base land rate is necessary to recognize the market response to the departure from the standard lot size. Regression analysis would calculate the appropriate land size adjustment necessary to properly determine the contributory value of the larger lot. Dividing the market-indicated value of the lot by the unadjusted appraised value of the lot ($\$300,000/\$400,000$) yields a factor of 0.75. In this example, CAMA would follow the model:

$$\text{Appraised land value} = \text{Area} * (\text{Base Rate} * \text{Size Adj})$$

or

$$\$300,000 = 4000\text{sf} * (\$100 * .75)$$

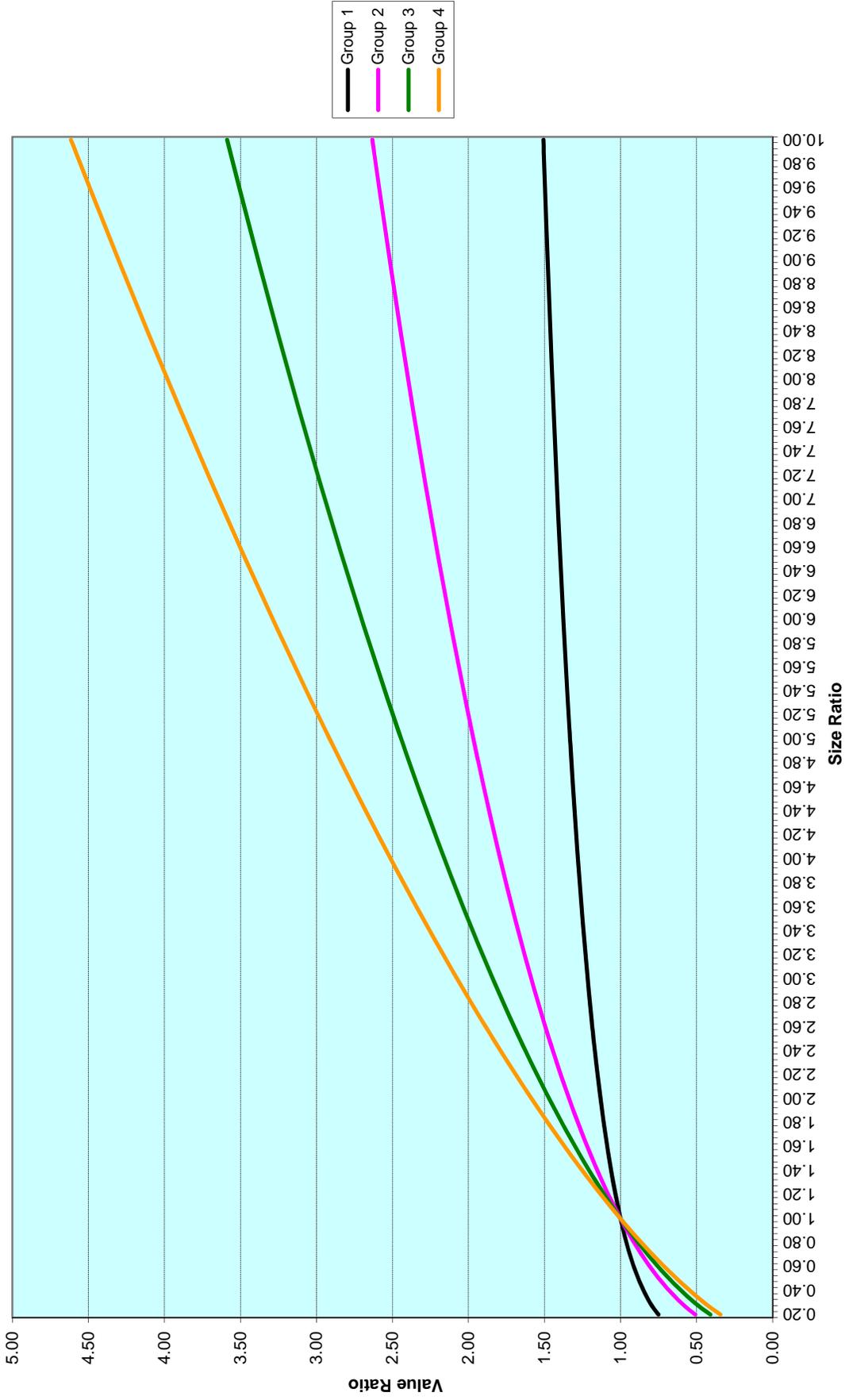
Residential Base Land Rates By Neighborhood

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
1A	4000 sf	\$97.79	\$391,160	LG1
1B	5000 sf	\$85.41	\$427,050	LG1
1C	5000 sf	\$87.38	\$436,900	LG1
2A	2000 sf	\$53.03	\$106,060	LG1
2B	2000 sf	\$57.98	\$115,960	LG1
3	2000 sf	\$49.29	\$98,580	LG1
4A	6700 sf	\$94.23	\$631,340	LG3
4B	10000 sf	\$81.34	\$813,400	LG4
4C	8000 sf	\$93.62	\$748,960	LG4
5A	1700 sf	\$89.97	\$152,950	LG1
5B	1700 sf	\$80.83	\$137,410	LG1
6A	4000 sf	\$59.41	\$237,640	LG1
6B	4000 sf	\$55.42	\$221,680	LG1
6C	2000 sf	\$94.99	\$189,980	LG1
6D	4000 sf	\$59.68	\$238,720	LG1
6E	3000 sf	\$68.23	\$204,690	LG1
7A	2000 sf	\$91.71	\$183,420	LG1
7B	3000 sf	\$62.65	\$187,950	LG1
7C	3000 sf	\$70.52	\$211,560	LG1
7D	5000 sf	\$45.20	\$226,000	LG1
7E	2000 sf	\$112.81	\$225,620	LG1
8A	2000 sf	\$195.81	\$391,620	LG1
8B	2000 sf	\$218.24	\$436,480	LG1
9A	1400 sf	\$292.41	\$409,370	LG2
9B	1400 sf	\$297.44	\$416,420	LG2
9C	1400 sf	\$292.94	\$410,120	LG2
10	1400 sf	\$365.29	\$511,410	LG1
11A	5000 sf	\$82.12	\$410,600	LG1
11B	5000 sf	\$81.46	\$407,300	LG1
11C	5000 sf	\$83.25	\$416,250	LG1
11D	5000 sf	\$77.51	\$387,550	LG1
11E	5000 sf	\$72.25	\$361,250	LG1
12	4000 sf	\$52.02	\$208,080	LG1
13	5000 sf	\$139.39	\$696,950	LG4
14	9000 sf	\$37.25	\$335,250	LG1
15A	1800 sf	\$180.33	\$324,590	LG1
15B	1800 sf	\$163.25	\$293,850	LG1
15C	1800 sf	\$143.69	\$258,640	LG1
15D	1800 sf	\$163.25	\$293,850	LG1
15E	1800 sf	\$175.62	\$316,120	LG3
16A	2400 sf	\$38.23	\$91,750	LG1
16B	2400 sf	\$40.23	\$96,550	LG1
16C	2400 sf	\$38.92	\$93,410	LG1
17	6000 sf	\$59.74	\$358,440	LG1
18A	3000 sf	\$37.96	\$113,880	LG1
18B	3000 sf	\$34.42	\$103,260	LG1
18C	3000 sf	\$33.42	\$100,260	LG1
18D	3000 sf	\$36.65	\$109,950	LG1

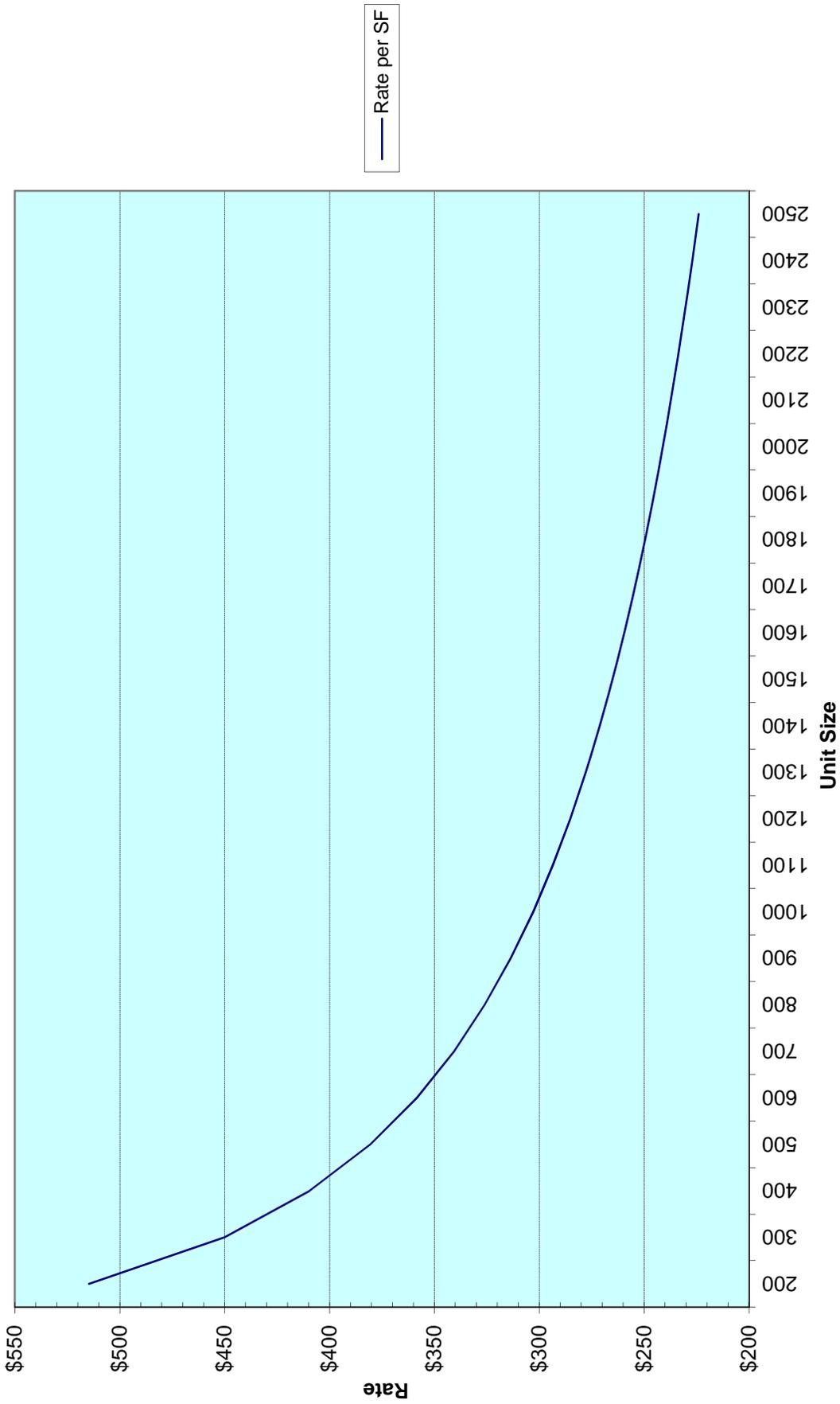
NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
18E	3000 sf	\$32.84	\$98,520	LG1
19A	1800 sf	\$155.78	\$280,400	LG1
19B	1800 sf	\$121.85	\$219,330	LG1
20	1000 sf	\$411.53	\$411,530	LG1
21	9000 sf	\$73.15	\$658,350	LG3
22A	3000 sf	\$34.31	\$102,930	LG1
22B	2400 sf	\$45.01	\$108,020	LG1
22C	3000 sf	\$34.52	\$103,560	LG1
22D	2400 sf	\$48.88	\$117,310	LG1
23	2500 sf	\$158.76	\$396,900	LG1
24	2400 sf	\$191.21	\$458,900	LG1
25A	1800 sf	\$237.15	\$426,870	LG3
25B	1800 sf	\$281.55	\$506,790	LG3
25C	1800 sf	\$264.72	\$476,500	LG3
25D	1800 sf	\$269.33	\$484,790	LG3
25E	1800 sf	\$306.98	\$552,560	LG4
25F	2000 sf	\$273.92	\$547,840	LG4
25G	2000 sf	\$281.00	\$562,000	LG3
25H	2000 sf	\$270.94	\$541,880	LG4
25I	800 sf	\$434.80	\$347,840	LG3
25J	1200 sf	\$343.23	\$411,880	LG4
26	1700 sf	\$228.92	\$389,160	LG1
27	9000 sf	\$36.17	\$325,530	LG1
28A	2400 sf	\$45.25	\$108,600	LG1
28B	5000 sf	\$28.09	\$140,450	LG1
28C	5000 sf	\$29.26	\$146,300	LG1
29A	2000 sf	\$223.33	\$446,660	LG4
29B	2000 sf	\$232.17	\$464,340	LG4
29C	2000 sf	\$235.84	\$471,680	LG3
30A	5000 sf	\$103.13	\$515,650	LG4
30B	5000 sf	\$110.97	\$554,850	LG4
30C	7000 sf	\$93.78	\$656,460	LG4
31A	1800 sf	\$161.62	\$290,920	LG1
31B	1800 sf	\$156.62	\$281,920	LG1
32A	5000 sf	\$24.58	\$122,900	LG1
32B	2000 sf	\$51.51	\$103,020	LG1
33A	2000 sf	\$47.37	\$94,740	LG1
33B	2000 sf	\$56.94	\$113,880	LG1
34	9000 sf	\$106.46	\$958,140	LG4
35	5000 sf	\$43.21	\$216,050	LG1
36A	2000 sf	\$188.71	\$377,420	LG1
36B	2000 sf	\$201.86	\$403,720	LG3
36C	1600 sf	\$230.22	\$368,350	LG1
37	3000 sf	\$139.57	\$418,710	LG3
38	5000 sf	\$132.39	\$661,950	LG4
39A	1500 sf	\$195.83	\$293,750	LG1
39B	1500 sf	\$217.81	\$326,720	LG1
39C	1500 sf	\$242.83	\$364,250	LG1

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
39D	1500 sf	\$185.37	\$278,060	LG1
39E	1200 sf	\$236.15	\$283,380	LG1
39F	1200 sf	\$248.59	\$298,310	LG1
39G	1500 sf	\$158.61	\$237,920	LG1
39H	1500 sf	\$132.56	\$198,840	LG1
39J	1500 sf	\$228.93	\$343,400	LG1
39K	1500 sf	\$252.68	\$379,020	LG1
39L	1200 sf	\$221.58	\$265,900	LG1
39M	1500 sf	\$256.73	\$385,100	LG1
40A	1400 sf	\$186.12	\$260,570	LG1
40B	1400 sf	\$212.82	\$297,950	LG1
40C	1600 sf	\$250.91	\$401,460	LG2
40D	1600 sf	\$306.65	\$490,640	LG2
40E	1600 sf	\$282.75	\$452,400	LG2
40F	1200 sf	\$300.30	\$360,360	LG2
40G	1600 sf	\$225.97	\$361,550	LG1
41	5000 sf	\$98.02	\$490,100	LG2
42A	1800 sf	\$138.78	\$249,800	LG1
42B	1800 sf	\$128.15	\$230,670	LG1
42C	1800 sf	\$119.71	\$215,480	LG1
43A	2000 sf	\$54.91	\$109,820	LG1
43B	2000 sf	\$51.74	\$103,480	LG1
43C	2000 sf	\$52.78	\$105,560	LG1
43D	2000 sf	\$56.97	\$113,940	LG1
46	1200 sf	\$268.32	\$321,980	LG1
47	3000 sf	\$55.39	\$166,170	LG1
48	5000 sf	\$56.00	\$280,000	LG1
49A	3000 sf	\$90.58	\$271,740	LG1
49B	3000 sf	\$82.36	\$247,080	LG1
49C	3000 sf	\$77.34	\$232,020	LG1
50A	10000 sf	\$71.57	\$715,700	LG3
50B	6000 sf	\$89.95	\$539,700	LG2
50C	14000 sf	\$63.39	\$887,460	LG3
50D	15000 sf	\$71.78	\$1,076,700	LG3
51	3000 sf	\$70.68	\$212,040	LG3
52A	1800 sf	\$110.11	\$198,200	LG1
52B	1600 sf	\$116.05	\$185,680	LG1
52C	1600 sf	\$100.26	\$160,420	LG1
53	5000 sf	\$81.34	\$406,700	LG1
54A	6000 sf	\$119.62	\$717,720	LG4
54B	1000 sf	\$305.40	\$305,400	LG1
55	6000 sf	\$99.96	\$599,760	LG2
56A	5000 sf	\$41.19	\$205,950	LG1
56B	5000 sf	\$34.59	\$172,950	LG1
56C	5000 sf	\$36.29	\$181,450	LG1
56D	5000 sf	\$33.75	\$168,750	LG1
66	5000 sf	\$36.99	\$184,950	LG1

Residential Land Size Curves



Condominium Size Curve



Vision[®] CAMA Residential Valuation Process

The market-derived cost approach to the valuation of real estate follows the generic formula of **Market Value = ((RCN-LD) + land value)**, where **RCN** is Replacement Cost New of the improvements and **LD** means Less Depreciation. When properly developed and calibrated, this approach is a reliable indicator of market value especially suited to mass-appraisal CAMA systems.

The following exercise will attempt to illustrate how the Vision[®] CAMA system utilized by the District of Columbia, calculates values using the above model. The first section will illustrate the development of the Replacement Cost New of a typical residence, the second will show the steps involved in determining the amount of depreciation that has accrued to the residence, and the last section will illustrate land or lot valuation.

Replacement Cost New

The Vision[®] CAMA system arrives at a RCN value for residential properties based on a market-calibrated hybrid cost model. The hybrid nature of the model simply means that the model employs both additive and multiplicative variables in its design and specification. The nature of the model will become clearer as we proceed through this exercise. Please also be aware that a model is dynamic in both its specifications and calibration. The specifications, those cost elements that comprise the model, may change from time to time based upon research and market conditions. *As you may discover, the dollar rates, or calibrations, contained here most likely are different from the current model in use.* The model used in this exercise is as follows:

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Where:

RCN = Replacement Cost New

Base Rate = \$ rate based on use code

ABRV = Additive Base Rate Variables

Effective Area = Adjusted SF area of improvement

Size Adjustment = Adjustment factor for deviation from base size

AFRV = Additive Flat Rate Variables

MV = Multiplicative Variables

Several items will be helpful while examining the features of the cost model and they are collected as Appendix "A" of this document. You will need to refer to them often during this exercise. They include the following:

- Sample home's Property Record Card (PRC)
- Cost.dat printout of the sample home
- 2007 CAMA Residential Construction Valuation Guideline

1. First, let's illustrate the calculation of the Effective Area of our sample home.

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Illustration 1 shows the CAMA sketch of the sample home we'll be using throughout this exercise.

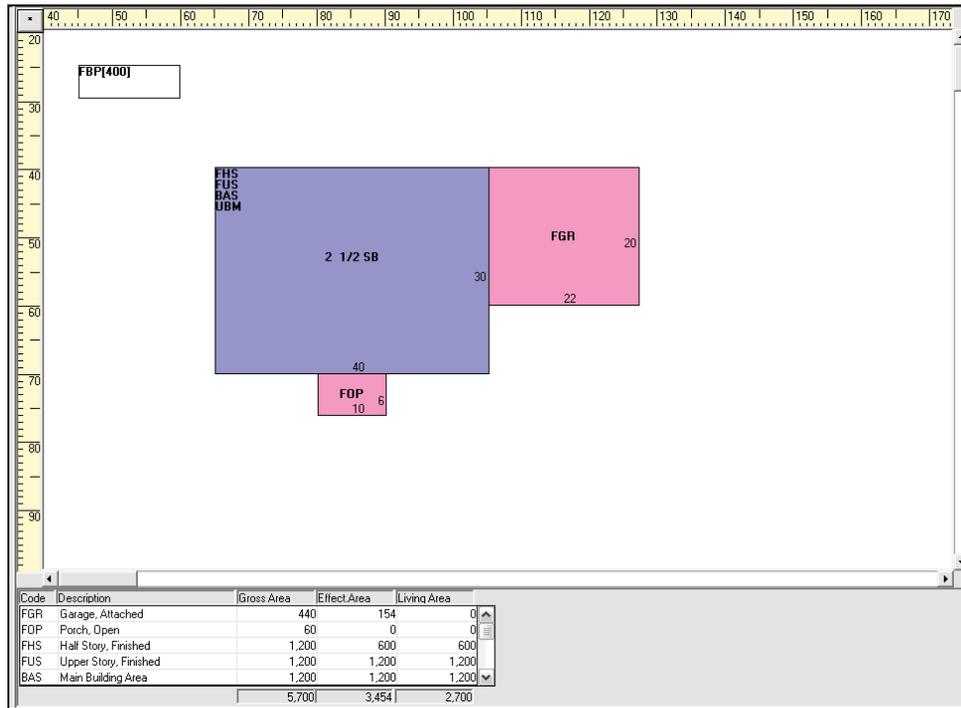


Illustration 1

It is described as a 2½ story single-family detached residence, with basement. It is brick veneer, frame construction with a two-car garage and small porch across the front. The bottom of the sketch screen in CAMA provides the information about the sizes of the various areas of the house.

Code	Description	Gross Area	Effect Area	Living Area
FGR	Garage, Attached	440	154	0
FOP	Porch, Open	60	0	0
FHS	Half Story, Finished	1,200	600	600
FUS	Upper Story, Finished	1,200	1,200	1,200
BAS	Main Building Area	1,200	1,200	1,200
UBM	Basement, Unfinished	1,200	300	0
FBP	Basement, Finished, Partn	400	0	0
		5,700	3,454	2,700

Illustration 2

The Effective Area is comprised of the totals of the base area (Main Building Area @ 1,200 SF), the finished second floor area (Upper Story, Finished @ 1,200 SF), the adjusted area of the finished half story (Half Story, Finished @ 50% of 1200 SF), the adjusted area of the garage (Garage, Attached @ 35% of 440 SF), and the adjusted area of the unfinished basement (Basement, Unfinished @ 30% of 1,200 SF).

The adjustments to the finished half story, garage and unfinished basement take into account these areas are not as expensive as the finished main building area. For example, if the base rate for the finished main building area is \$100/SF, the rate for the garage area may only be \$35/SF. The RCN value of the garage would be calculated as follows:

$$\text{RCN of Garage} = \$15,400 \text{ or } (440 \text{ SF} * \$35)$$

Another way to state the same situation is to adjust the size of the garage to 40% of its measured size and then multiply the resulting, *or effective*, size by the base rate of \$100/SF:

$$\text{RCN of Garage} = \$15,400 \text{ or } [(440 * .35) * \$100]$$

Both methods arrive at the same value for the garage. The first method is more intuitive and easier to explain to taxpayers as it adjusts for the differences in costs for the various areas. The second method again provides the same results but is much easier to model and calculate within a CAMA system, thus the effective area calculations shown here represent the methodology employed in the Vision[®] CAMA system.

Let's take a moment to examine the treatment of the basement in this house. The house has a full-sized basement comprised of 1,200 SF. In addition, the basement contains a finished area (400 SF), and the balance as unfinished. Illustration 3 shows the contribution of the unfinished portion to the effective area calculation. However, notice that the finished portion of the basement is not included in the effective area calculations. The value attributed to this finished area is accounted for as an Additive Flat Rate Variable later in the valuation model. The reason for this methodology is to ensure that the effective area is not erroneously overstated by the amount of any finished area in the basement.

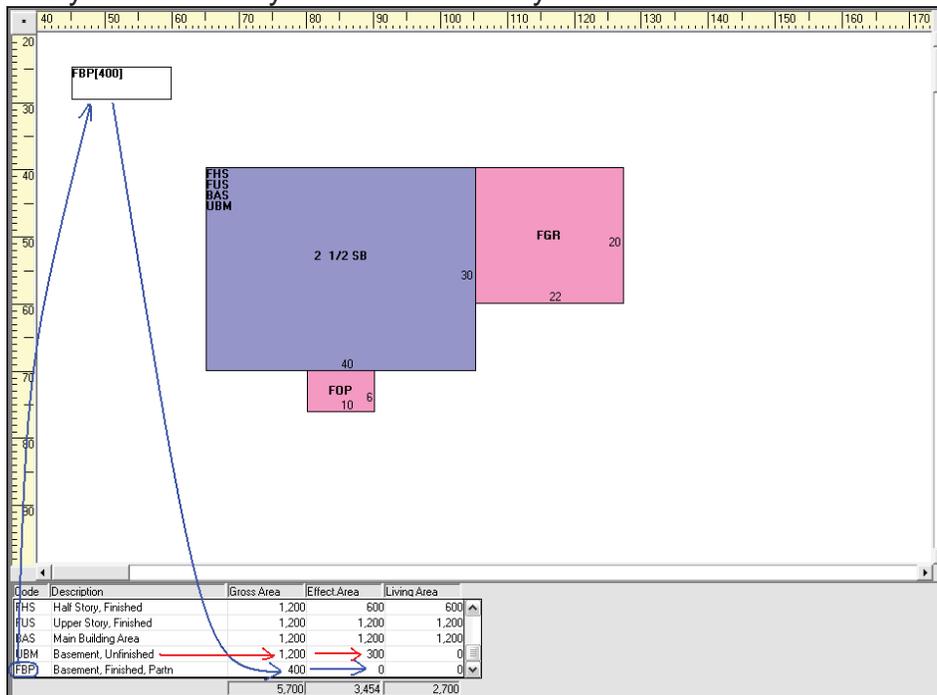


Illustration 3

Finally, the Gross Area shown in Illustration 2 is the total unadjusted size of all the areas that are a part of, and attached to, the home. The Living Area is the unadjusted size of the actual finished living area of the home.

With the inclusion of the Effective Area calculation, our cost model now looks like this:

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * 3,454 * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Effective Area

2. Next, let's look at the selection of the Base Rate for the sample home.

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

The Base Rate is the dollar rate per square foot used in the valuation model that is derived from market analysis and selected based on the Use Code of the building. Our sample home is a "Use Code 012 - Detached", corresponding to a Residential-Detached-Single Family residence. The Base Rate is automatically selected by the CAMA system and the appropriate base rate for the sample home is \$ 149.27. Now the cost model looks like this:

$$\text{Building RCN} = [(\text{\$149.27} + \sum \text{ABRV}_n) * 3,454 * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Base Rate Effective Area

3. The Base Rate of the home is just the start of the valuation process and it will be further modified as more specific features about the home are taken into consideration. Let's look at the first of two types of modifications that will affect the Base Rate, the Additive Base Rate Variables (ABRV).

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Additive Base Rate Variables represent a variety of features found in residential improvements. For example, the value for air conditioning and floor covering are such features. The typical characteristic of these ABRVs is that the features are usually an integral part, and therefore an integral cost, of the whole house. As such, the value of the particular ABRV is added to the Base Rate. Each ABRV incrementally increases the Base Rate by its own square foot rate. So therefore, the $\sum \text{ABRV}_n$ literally means the sum of all the rates for individual features are added to the Base Rate.

Highlighted in Illustration 4 are all the fields in the Construction Detail CAMA screen that can modify the selected Base Rate as ABRVs.

Construction Detail - Residential		
Value Source: C	Living Area/GFA: 3,000	Regression: 0
Primary Occ: 012	Effective Area: 3,454	Income: 0
Structure Class: R	Percent Good: 87	RCNLD: 626,350
Model: 01 Single Family	Total Rooms: 8	Fireplaces: 1 Park Spaces: 0
Style: 6 2.5 Story Fin	Bedrooms: 4	
Stories: 2.5	Bathrooms: 2	
Building Type: 1 Single	Half Baths: 2	Xtra Fixtures: 3
Roof Cover: 3 Shingle	Bath Style: 2 2 2	
Foundation: 2 Average	Kitchens: 1	
Exterior Wall: 15 Face Brick	Eat In Kith: 0 Default	
Exterior Condn: 4 Good	Kitchen Style: 2 0 0	
Heat Type: 1 Forced Air	Grade: 4 Above Average	
AC Type: Y Yes	Overall Condn: 4 Good	
Floor Cover: 11 Hardwood/Carp	View: 3 Average	
Interior Condition: 4 Good	No. Units: 1	

Illustration 4

The Cost.dat sheet of our sample home lists each ABRV under the heading Base Rate Adjustments as follows:

```
*****Base Rate Adjustments*****
AIR CONDITIONING Y (Yes) = 1.8 + BaseRate
EXTERIOR WALL 15 (Face Brick) = 3.95 + BaseRate
FLOOR COVER 11 (Hardwood/Carp) = 4.67 + BaseRate
ROOF COVER 3 (Shingle) = .68 + BaseRate
```

The sum, Σ , is \$11.10 (1.80+3.95+4.67+0.68). This will be added to the Base Rate of \$149.27 to give a modified Base Rate of \$160.37.

Our model now looks like this:

$$\text{Building RCN} = [(\text{\$149.27} + \text{\$11.10}) * 3,454 * \text{Size Adjustment} + \Sigma \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Base Rate
 Σ ABRV_n
Effective Area

4. Next, let us turn our attention to the second type of modification to the Base Rate - the Size Adjustment.

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

The Size Adjustment modifies the Base Rate to account for the size difference between the “standard size” for the “typical” house in the model and the actual size of the sample house. The “standard” size of 1,800 SF for the “typical” house, consisting of a 2-story frame residence, is used as the basis for establishing the initial Base Rates used in CAMA. The adjustment in the Base Rate allows the proper square foot rate to be applied to a house based on its size. It is reasonable to expect that as a house becomes larger than typical, the rate per square foot would decrease and conversely, if the house were smaller than typical, the rate would be higher. This Size Adjustment variable is the component in the model that adjusts for this situation. Our sample home’s Size Adjustment is 0.93906 as listed on the Cost.dat sheet. Now our Base Rate is calculated to be \$150.60 ((149.27+11.10) * 0.93906).

Because the adjustment is less than 1.00, it would be proper to conclude that our sample home is larger than the typical 2-story home in the District of Columbia. Had the sample home been smaller than 1,800 SF, the Size Adjustment would have been greater than 1.00. The use of size adjustments eliminates the need for the traditional cost tables based on size.

The cost model continues to grow, and now looks like this:

$$\text{Building RCN} = [(\text{\$149.27} + \text{\$11.10}) * 3,454 * 0.93906 + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Base Rate \sum ABRV_n Effective Area Size Adjustment

5. We are finished establishing the Base Rate for our sample home and now turn to the Additive Flat Rate Variables (AFRV). This portion of the cost model is relatively straightforward. The individual Additive Flat Rate Variables are summed and the added to the product of the previous calculations.

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)$$

Here is where we make allowances for individual extra features contained in the sample house. Illustration 5 shows some of those features that constitute Additive Flat Rate Variables in the cost model:

Construction Detail - Residential		
Value Source: C	Living Area/GFA: 3,000	Regression: 0
Primary Occ: 012	Effective Area: 3,454	Income: 0
Structure Class: R	Percent Good: 87	RCNLD: 626,350
Model:	01 Single Family	Total Rooms: 8
Style: 6	2.5 Story Fin	Bedrooms: 4
Stories: 2.5		Bathrooms: 2
Building Type: 1	Single	Half Baths: 2
Roof Cover: 3	Shingle	Xtra Fixtures: 3
Foundation: 2	Average	Bath Style: 2 2 2
Exterior Wall: 15	Face Brick	Kitchens: 1
Exterior Condrn: 4	Good	Eat In Kith: 0
Heat Type: 1	Forced Air	Kitchen Style: 2 0 0
AC Type: Y	Yes	Grade: 4
Floor Cover: 11	Hardwood/Carp	Overall Cndtn: 4
Interior Condition: 4	Good	View: 3
		No. Units: 1
		Fireplaces: 1
		Park Spaces: 0

Illustration 5

Unlike the Additive Base Rate Variables (ABRV) described earlier, most of these features are not an integral portion of the whole house, but stand alone, so to speak. Examples include such items as fireplaces, extra bathrooms, and extra kitchens. Again, as with other variables in the cost model, the values of these features are derived from market analysis.

Our sample home has several Additive Flat Rate Variables (AFRVs), including additional bathrooms and a fireplace. The cost for one full bath and one kitchen is always included in the original base rate. Any bathrooms or kitchens over and above the first are accounted for as AFRVs.

The value of an additive flat rate variable is calculated by multiplying the number of "units" by the dollar rate per unit. For example, illustration 5 shows our sample home also has two half baths. The AFRV for the half baths is \$21,440 (2 "units" X \$10,720 per unit) as shown in a portion of the Cost.dat file below.

Also included in the AFRVs are the partitioned finished basement and the small open porch on the front of the house. Recall that in illustration 3, neither of these areas was included in the calculation of the effective area of the house, therefore, their valuations are included here, as AFRVs.

The partitioned finished basement is calculated to be \$18,000. In this case, "units", the gross square footage of 400 SF (shown in the sketch area of the record), are multiplied by the rate of \$45 per SF. The open porch is calculated in a similar manner.

*****Flat Value Additions*****

FULL BATHS OVER 1 = 16000 + RCN
 HALF BATHS = 21440 + RCN
 FIREPLACES = 7100 + RCN
 PARTITIONED FINISHED BASEMENT = 18000 + RCN
 OPEN PORCH = 801 + RCN

The sum, Σ , is \$63,341 (16,000+21,440+7,100+18,000+801) that will be added to the product of the previous portions of the cost formula.

The cost model is almost finished for our sample home, and now looks like this:

$$\text{Building RCN} = [(\$149.27 + \$11.10) * 3,454 * 0.93906 + \$63,341] * (MV_0 * MV_2 * \dots * MV_n)$$

Base Rate
 Σ ABRV_n
Effective Area
Size Adjustment

Σ AFRV_n

6. The last portion of the cost model used to calculate the RCN are the multiplicative variables (MV).

$$\text{Building RCN} = [(\text{Base Rate} + \Sigma \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \Sigma \text{AFRV}_n] * (MV_0 * MV_2 * \dots * MV_n)$$

This portion of the formula can have the largest influence on the cost model. Each multiplicative variable modifies *all* of the cost data that has preceded it. These variables modify the Base Rate, the sum of all the increases to the Base Rate (Σ ABRV_n), the Size Adjustment, and the sum of all the Flat Rate Variables (Σ AFRV_n). This is where such important characteristics as the building grade, building condition, remodeling, and location factors have their impact.

The sample home is graded "Above Average - 4", and consequently has a 1.10 multiplicative factor. This one variable, grade, is going to increase the RCN value of the sample home by 10%. Grade can have a sizable impact on the final value of the building. For example, a "Superior - 8" increases the final rate by 48% over that of an "Average Quality - 3" house.

The condition of the building is also accounted for by the multiplicative variables. The interior, exterior and overall conditions of our sample home are each "Good" and the corresponding multiplicative variable for each is 4.8%. The level of condition may be different for each of the three variables and therefore the coefficients may be different. Please refer to the *2007 CAMA Residential Construction Valuation Guideline --RPAD* for these and all other coefficients used in the valuation model.

Just as construction grade has a significant impact on the final value of a house, so does condition. For example, a house in overall "Poor" condition throughout will have its value reduced by 20.6%, whereas a house in excellent condition throughout will have its value increased by 10.5%. That's a range of over 31%.

Illustration "6" shows a portion of the features that constitute the multiplicative variables in the cost model:

Construction Detail - Residential

Value Source: C Living Area/GFA: 3,000 Regression: 0
 Primary Occ: 012 Effective Area: 3,454 Income: 0
 Structure Class: R Percent Good: 87 RCNLD: 626,350

Model: 01 Single Family Total Rooms: 8 Fireplaces: 1 Park Spaces: 0

Style: 6 2.5 Story Fin Bedrooms: 4
 Stories: 2.5 Bathrooms: 2
 Building Type: 1 Single Half Baths: 2 Xtra Fixtures: 3
 Roof Cover: 3 Shingle Bath Style: 2 2 2
 Foundation: 2 Average Kitchens: 1
 Exterior Wall: 15 Face Brick Eat In Kith: 0 Default
 Exterior Condn: 4 Good Kitchen Style: 2 0 0
 Heat Type: 1 Forced Air Grade: 4 Above Average
 AC Type: Y Yes Overall Cndtn: 4 Good
 Floor Cover: 11 Hardwood/Carp View: 3 Average
 Interior Condition: 4 Good No. Units: 1

Illustration 6

Another important multiplicative variable, Remodel Type, takes into account whether or not the house has been remodeled and to what extent. In addition, the age of the remodel factors into the amount of adjustment applied by this multiplicative variable.

Our sample home was remodeled in 2001. The portion of the CAMA record that captures this information is shown in Illustration 7 below.

Depreciation

Value Source: C Living Area/GFA: 3,000 Regression: 0
 Primary Occ: 012 Effective Area: 3,454 Income: 0
 Structure Class: R Percent Good: 87 RCNLD: 626,350

Year Built: 1937
 CDU: AV
 Remodel Rating: 4
 Year Remodeled: 2001
 Effective Year Built: 1950 Override EYB
 Status: 0
 Percent Complete: 100

Value	Type	Rsn	Date
% Good Ovr			
Misc. Improv			
Cost To Cure			

Remodel Rating

0	Default	
1	Unknown	20%
2	Gut Rehab	
3	Major Renov	11%
4	Remodel	5%
5	Addition	
6	Cosmetic	2%

OK Cancel

Illustration 7

Obviously, a "Gut Rehab" would increase the value of property more than "Cosmetic" changes, and the coefficients listed in the above illustration demonstrate this. Our sample home was remodeled in 2001, indicating that the MV should be five percent. Five percent would be the correct amount if the remodel occurred in 2005, but it actually occurred in 2001, four years earlier. The CAMA model takes into consideration how long ago a remodel occurred and reduces its impact, as it becomes older. The rate of reduction of the MV is five percent per year. After twenty years, a remodel has no affect on value. In this example, our sample home's remodel occurred four years ago and thus the MV is reduced by twenty percent to 4.0% (5%*.80).

The last multiplicative variable, "Sub-Neighborhood Adj A", is the local neighborhood multiplier established within the particular neighborhood where the sample home is located. This variable is going to lower the RCN value of the sample home by 6.3%. The "Sub-Neighborhood Adj" reflects the market-derived fact that location is a very significant factor in the value of real estate. Two otherwise identical homes can have a substantial difference in value based on their locations.

The variables for our sample home are summarized in the Cost.dat file as follows:

```
*****Factor Adjustments*****
OVERALL CONDITION 4 (GOOD) = 1.048 x RCN
EXTERIOR CONDITION 4 (GOOD) = 1.048 x RCN
GRADE 40 (Above Average) = 1.1 x RCN
INTERIOR CONDITION 4 (GOOD) = 1.048 x RCN
REMODEL FACTOR 4 = 1.04 x RCN
SUB-NEIGHBORHOOD ADJ A = .937 x RCN
```

Each MV is multiplied together to determine the combined, or overall, MV. The sample home's MV is 1.2338132 (1.048*1.048*1.1*1.048*1.04*.937).

7. Finally, the Building RCN model is complete and contains the specific data of the sample home used in this demonstration. The market-derived cost model for the sample home is as follow:

$$\begin{aligned}
 \text{Building RCN} &= [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size} \\
 &\quad + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n) \\
 \$719,947 &= [(\$149.27 + \$11.10) * 3,454 * .93906 \\
 &\quad + \$63,341] * (1.2338132)
 \end{aligned}$$

The Cost.dat file shows a summary of the same information.

```

*****Building #1 Calc Start*****
Cost Calculation for pid, bid = 182803,173587
Account Number = 9999 9999
Use Code = 012
Cost Rate Group = R12
Model ID: R06

Section #
Base Rate: 149.27
Size Adjustment: .93906
Effective Area: 3454
Adjusted Base Rate = (149.24 + 11.1) * .93906
Adjusted Base Rate: 150.6
RCN = ((150.6 * 3454) + 63341) * 1.23381334499738
RCN: 719947
    
```

The replacement cost new for our sample home is \$719,947. There is still one thing left to address before we turn our attention to depreciation. Our sample home has a built-in sauna in the basement. This item was not costed as a component of the sample home, but rather as a Special Building Feature, with its own unit price of \$ 12,680. Also, note that the depreciation applied to the Special Building Features is identical to the amount applied to the main building. See illustration 6 below.

Special Building Features									
Value Source: C		Living Area/GFA: 3,000		Regression: 0					
Primary Occ: 012		Effective Area: 3,454		Income: 0					
Structure Class: R		Percent Good: 87		RCNLD: 626,350					
S#	Code	Sub	Description	UOM	Units	Unit Price	Gra	RCN	RCNLD
▶ 1	SN		SALUNA	Count	1	13250	4	14575	12680

Illustration 8

We now know the total replacement cost new (RCN) of our sample home, including the sauna, is \$ 733,197 (\$719,947 + \$13,250).

If the sample home were brand new, we'd be finished, but it was actually built in 1937.

Next, we need to address accrued depreciation . . .

Depreciation

Depreciation is defined as a loss in the upper limits of value from all sources. Typically, three types of depreciation can affect real estate - physical deterioration, functional obsolescence and economic obsolescence. This next portion of the demonstration will illustrate how Vision[®] calculates the amount of depreciation accrued to our sample home.

Several terms come into use when discussing depreciation in CAMA. They are defined as follows:

- Actual Age: The mathematical difference between the Base Year and the actual year the improvement was built to completion.
- Actual Year Built (AYB): The earliest time the main portion of the building was built. It is not affected by subsequent construction.
- Base Year: The year, usually the current year, that the depreciation table is calibrated, such that the age of a building built during the base year would be 0 years old.
- Depreciation Table: A market-driven table that lists the amount of depreciation corresponding to an Effective Year Built and the Base Year predicated upon a specific economic life.
- Effective Age: The mathematical difference, in years, between the Base Year and the Effective Year Built.
- Effective Year Built (EYB): The calculated or apparent year, that an improvement was built that is most often more recent than AYB. The EYB is determined by the condition and quality of the improvement. Subsequent renovation, additions, upgrades and the like, extend an improvements remaining economic life and therefore cause the EYB to be closer to the Base Year than the AYB.
- Percent Good: The mathematical difference between 100 percent and the percent of depreciation. $(100\% - \text{depreciation } \%) = \text{percent good}$

The RCN model used above indicated that our sample home has an RNC of \$733,197. As stated earlier, the home was built in 1937 so there should be some depreciation to deduct from the RCN. We'll use a five-step process to depreciate improvements:

1. Calculate the Actual Age of the improvement
2. Determine the Effective Age of the improvement
3. Determine the improvement's Effective Year Built
4. Look-up Percent Good corresponding to EYB on depreciation table
5. Apply selected depreciation to RCN to determine RCNLD

1. Our first step is to calculate the Actual Age of our sample home. As you are aware, a valuation is always qualified as of a specific date. For ad valorem purposes in the District of Columbia, the valuation date is January 1 immediately preceding the tax year. In our example, the tax year is 2007; therefore, the valuation date is January 1, 2006. This date is also significant in terms of the depreciation accrued to improvements. In the past, the nature of triennial assessments required that base years within a Tri-Group remain unchanged for a period of three years. Now, however, with the return to annual assessments, the base year coincides with the valuation date. The Base Year is used to determine the Actual Age of the sample home. In this case, the sample home's Actual Age is 69 years (2006-1937).

2. The next step is to determine the sample home's Effective Age. Effective Age may or may not represent actual or chronological age. The premise is simple but the application can be confusing. If a home is built and never maintained (painting, re-roof, etc.) or remodeled, the home would quickly depreciate from physical deterioration. The CAMA system would depreciate the home at the fastest rate possible based on the selected Depreciation Table. For example, CAMA uses a 75-year Economic Life Depreciation Table for residential property. If the home were left to rot, the Effective Age would most likely be the same as the Actual Age.

Let's say the owners of our sample home have completely neglected their property from the time it was built in 1937 to the present. Their home would have an effective age of 69 years as indicated on the Depreciation Table below:

Depreciation Table			
Base Year 2006			
Effective Age of Building	% Depr.	% Good	Effective Year Built
0	0	100	2006
1	1	99	2005
2	2	98	2004
3	2	98	2003
4	3	97	2002
5	3	97	2001
6	4	96	2000
7	4	96	1999
8	4	96	1998
9	4	96	1997
10	5	95	1996
11	5	95	1995
12	5	95	1994
13	5	95	1993
14	6	94	1992
15	6	94	1991
16	6	94	1990
17	6	94	1989
18	6	94	1988
44	11	89	1962
45	11	89	1961
46	11	89	1960
47	11	89	1959
48	12	88	1958
49	12	88	1957
50	12	88	1956
51	12	88	1955
52	12	88	1954
53	12	88	1953
54	13	87	1952
55	13	87	1951
56	13	87	1950
57	13	87	1949
58	13	87	1948
59	13	87	1947
60	14	86	1946
61	14	86	1945
62	14	86	1944
63	14	86	1943
64	14	86	1942
65	14	86	1941
70	15	85	1936
75	16	84	1931

Illustration 1

The Actual Year Built (1937) and the Effective Year Built (1937) would be the same and consequently the Effective Age is 70 years. Moving across the table,

we see that a home with an EYB of 1937 has 15 percent depreciation and therefore is 85 Percent Good (100%-15%). If the RCN of our sample home is \$ 733,197, the depreciated value, RCNLD, is only \$ 623,217 (733,197* 0.85).

Note: The depreciation table moves in 5-year periods towards its end; this explains the apparent inconsistencies in 70 years v. 69 years. The Cost.dat file represents the actual numbers used in calculations.

The situation described above rarely, if ever, occurs in the market. People do maintain and renovate their homes and in doing so, extend the home's useful or remaining economic life. As homeowners repair roofs, paint siding, replace windows and furnaces, they *prolong* the life of the home and consequently *decrease* its Effective Age.

Along with the actual age of the sample home, the illustration below shows which variables within CAMA affect the calculation of effective year built.

Construction Detail - Residential			
Value Source: C	Living Area/GFA: 3,000	Regression: 0	
Primary Occ: 012	Effective Area: 3,454	Income: 0	
Structure Class: R	Percent Good: 87	RCNLD: 626,350	
Model:	01 Single Family	Total Rooms:	8
Style:	6 2.5 Story Fin	Fireplaces:	1
Stories:	2.5	Park Spaces:	0
Building Type:	1 Single	Bedrooms:	4
Roof Cover:	3 Shingle	Bathrooms:	2
Foundation:	2 Average	Half Baths:	2
Exterior Wall:	15 Face Brick	Xtra Fixtures:	3
Exterior Cndtn:	4 Good	Bath Style:	2 2 2
Heat Type:	1 Forced Air	Kitchens:	1
AC Type:	Y Yes	Eat In Kith:	0
Floor Cover:	11 Hardwood/Carp	Default:	Default
Interior Condition:	4 Good	Kitchen Style:	2 0 0
		Grade:	4 Above Average
		Overall Cndtn:	4 Good
		View:	3 Average
		No. Units:	1

Illustration 2

All of the features or variables dealing with depreciation, highlighted in Illustration 2 are multiplicative variables. As such, they are multiplied one by the other and then the Actual Age is multiplied by the product of the MVs. Below is the portion of the Cost.dat file that summaries these MV for our sample home.

```
*****Effective Age Adjustments*****
BATH STYLE 2 (Semi-Modern) = .95 * Age
EFF AGE GRADE 40 (Good Quality) = .95 * Age
KITCHEN STYLE 2 (Semi-Modern) = .9 * Age
```

The product of each of these MV adjustments is calculated to be 0.81225 (0.95 * 0.95 * 0.9). This product is then multiplied by the Actual Age to calculate the Effective Age. Recall our sample home's Actual Age is 69 years. The Effective Age is calculated to be 56 years (69 * 0.81225). Instead of CAMA using 69 chronological years to calculate depreciation, it will use 56 years. Below is a portion of the Cost.dat file that shows these calculations.

```
*****
Actual Year Built: 1937
Effective Age = 69 * .81225
Effective Age: 56
Percent Good = 87
RCNLD: 626350
```

3. We're almost finished. Knowing the Effective Age makes the calculation of the Effective Year Built for our sample home very simple. The Effective Year Built is 1950 (2006 – 56).

4. Having established the Effective Year Built, we look up 1950 on the 75-Year Economic Life Depreciation Table and find that the Percent Good is 87% for that year. See Illustration 3 below.

Depreciation Table			
Base Year 2006			
Effective Age of Building	% Depr.	% Good	Effective Year Built
0	0	100	2006
1	1	99	2005
2	2	98	2004
3	2	98	2003
4	3	97	2002
5	3	97	2001
6	4	96	2000
7	4	96	1999
8	4	96	1998

44	11	89	1962
45	11	89	1961
46	11	89	1960
47	11	89	1959
48	12	88	1958
49	12	88	1957
50	12	88	1956
51	12	88	1955
52	12	88	1954
53	12	88	1953
54	13	87	1952
55	13	87	1951
56	13	87	1950
57	13	87	1949
58	13	87	1948

Illustration 3

5. The last step in the process is to simply multiple the RCN by 0.87 and we have RCN LD. The depreciated, market-derived cost approach value of the sample home used in this demonstration is \$ 626,350.

Some closing comments regarding depreciation are in order. Recall from the outset that we defined depreciation as a loss in value resulting from physical deterioration, functional and/or economic obsolescence. The demonstration above dealt only with depreciation attributed to the physical deterioration of the sample home. This, by far, is the most common type of depreciation that exists in residential property. However, occasions may require additional depreciation because of excessive physical deterioration, functional and/or economic obsolescence. One must use caution when invoking these types of depreciation. The market must support any decision regarding the extent of these adjustments. Below illustrates our sample home with an additional ten percent economic obsolescence. A gas station was built across the street from the home, and a recent sale of the next-door neighbor's house showed the impact of this situation.

Depreciation

Value Source: C	Living Area/GFA: 3,000	Regression: 0
Primary Occ: 012	Effective Area: 3,454	Income: 0
Structure Class: R	Percent Good: 77	RCNLD: 554,360

Year Built:

CDU:

Remodel Rating:

Year Remodeled:

Effective Year Built: Override EYB

Status:

Percent Complete:

	Value	Type	Hsn	Date	ID	Comment
% Good Ovr						
Misc. Improv						
Cost To Cure						

Illustration 4

The actual mechanics of adjusting depreciation for functional or economic obsolescence within CAMA are briefly discussed below. If the situation occurs, seek guidance from your supervisor and/or CAMA manager.

Illustration 5 shows the portion of the CAMA screen used to allow for additional depreciation. It is not necessary to make adjustments in the "CDU" field or to override the EYB field. Nor is it necessary to enter information on the lower 1/3 of the screen. The "Status" and "Percent Complete" fields are the only two fields that are utilized to account for additional depreciation.

Depreciation

Value Source: **C** Living Area/GFA: **3,000** Regression: **0**
 Primary Occ: **012** Effective Area: **3,454** Income: **0**
 Structure Class: **R** Percent Good: **77** RCNLD: **554,360**

Year Built:
 CDU:
 Remodel Rating:
 Year Remodeled:
 Effective Year Built: Over
 Status:
 Percent Complete:

	Value	Type	Rsn	Da
% Good Ovr				
Misc. Improv				
Cost To Cure				

Status

- 0 Default
- A Abandoned/Boarded
- B Burned Out
- C Commercial New Const
- E Economic Dep
- F Functional Dep
- G Gut Rehab
- H Data Change
- L Limited Equity
- M Demolition
- N N/A
- NO Normal
- OV Overall Depreciation
- P Physical Depr
- PA Partial Abandon
- R Renovation

Illustration 5

The “Status” field’s pick-list is expanded in Illustration 6 to show only those types of items that have a direct affect on depreciation and the nature of the affect. Notice that only a limited number of Status Codes are functional within CAMA and their affect on depreciation is either to **replace** the existing amount in the “% Good” field or **decrease** the “% Good.” The corresponding numeric amount that will affect the “% Good” is entered in the field called “Percent Complete.” Please note that the field name “Percent Complete” is somewhat erroneous because the word “Complete” has no meaning in this context. This is the field that you will enter the amount to either decrease the existing “% Good” or replace the existing “% Good,” based on the Status Code selected.

Status

Status Codes		
Code	Description	Affect on % Good
0	Default	NONE
A	Abandoned/Boarded	NONE
B	Burned Out	NONE
C	Commercial New Const	REPLACE
E	Economic Dep	DECREASE
F	Functional Dep	DECREASE
G	Gut Rehab	NONE
H	Data Change	NONE
L	Limited Equity	NONE
M	Demolition	NONE
N	N/A	NONE
NO	Normal	NONE
OV	Overall Depreciation	REPLACE
P	Physical Depr	DECREASE
PA	Partial Abandon	NONE
R	Renovation	NONE
T	Order of Taking	NONE
V	Vacant	NONE

Illustration 6

Recall our example of the gas station. The Percent Complete field has "10" as its value. Based on the "E" Status Code, we know that the original depreciation will increase by ten percent resulting in a decrease in Percent Good to 77% (87-10).

Another comment regarding depreciation concerns the impact that the quality of design, material and workmanship have on depreciation. The grade assigned to a home obviously makes a considerable difference in the final RCN, but it also plays a substantial part in determining the amount of depreciation accrued to the home. It is easy to understand that if all other things were equal, a home built with better material and workmanship would age better than one with poorer materials and workmanship. The higher quality the home the more slowly it will deteriorate. Conversely, a shoddily built home will age more quickly than the average home.

Lot Valuation

Now that we've calculated RCN in the first section and the amount of depreciation in the second section, we know the value of our improvements from the formula RCN-LD to be \$639,030.

Next let's turn our attention to the final portion of the process – land or lot valuation. There are several aspects or characteristics to land that affect its value. Needless to say the old adage “Location, Location, Location!” is certainly true, but beyond that there are considerations for such things as lot size, shape, frontage, topography, view, restrictions and the like that influence the final value of land.

Let's once again return to our sample home and examine the details on the PRC to get our first look at the lot valuation.

LAND LINE VALUATION SECTION																
B#	Occ	Description	Zone	Frontage	Depth	Units	SF	I Factor	LT	Price	Size Adj	Site Rating	Adjustments: Special Use	Notes	Land Value	
1	012	Residential Detached Single Fa				6,000	SF	P	1.00	63.14	0.8630	1.00	T:90%	N:0	Poor topo in back; River view	375,060

Illustration 1

Notice that the detail tells us the lot size, the price per unit, and any adjustments that affect the lot. The model used to calculate the value of lots in CAMA is as follows:

$$\text{Lot Value} = [\text{Lot Size} * ((\text{Base Rate} * \text{Size Adjustment}) + \sum \text{Dollar Adjustments}) * \sum \text{Percent Adjustments}]$$

The formula represents the following steps:

1. Determine the base rate for the particular neighborhood where the lot is located and multiply that rate by the 'size adjustment factor';
2. Next, add the adjusted rate in step one to the sum of all dollar amount adjustments;
3. Next, multiply the results by the lot size;
4. Lastly, multiply that result by the product of all percentage adjustments.

Most of this activity can be seen in the Land.Dat file in Appendix A of this document. You may wish to refer to it as we go through this exercise.

Let's expand the discussion and follow the steps of the process to explain the lot valuation of our sample home in more detail.

1. “Determine the base rate for the particular neighborhood where the lot is located and multiply that rate by the 'size adjustment factor'.”

The residential base land rates are different for each (sub)neighborhood in the District. Each year, the current base rates are updated in CAMA and published in the *Appraiser Reference Materials*. In addition to the base rates, the base lot sizes and size curves are included. Our property is located in Chevy Chase, and below shows the portion of the land rate table for that neighborhood:

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
11 A	5,000 sf	\$73.16	\$365,800	LG 1

Illustration 2

The base rate for our property is \$ 73.16 per sf.

The size adjustment factors are also incorporated in CAMA. These factors make allowances for lots whose sizes differ from the standard “base” size for the lots in that particular (sub)neighborhood. Recall that as the size or area of a building or lot increases, the dollar rate per unit typically goes down from the base rate, and conversely, the dollar rate typically increases over the base rate when the area or size is smaller than the standard base rate.

Recall that our lot is 6,000 sf in size. The table states that the Base Lot Size is 5,000, so a size adjustment will be necessary. Intuitively, one would expect that the size adjustment would be less than 100% because the actual lot is larger than the base size lot. CAMA contains the algorithms to calculate the proper size adjustment. Essentially, it determines which “land size curve” is to be used as the basis for determining the adjustment, then it mathematically interpolates and extrapolates the factor from the particular size table associated with the curve based on the amount of difference between the standard size and the actual size.

In the case of our sample home, the size curve is LG 1. This curve is one of the four curves existing in CAMA and its effect on rates is the lowest of the curves. Based on the difference between the base size and the actual size of the lot, CAMA has selected a factor of 0.863 as the adjustment. If the lot were smaller, say 4,000, sf the selected factor would have been 1.198.

So, to finish step 1, we multiply the (sub)neighborhood base land rate by the calculated size adjustment factor to arrive at a size adjusted rate of \$ 63.14 ($\$73.16 * 0.863$).

2. *“Next, add the adjusted rate in step one to the sum of all dollar amount adjustments.”*

If there are any dollar-amount adjustments to the rate, this is the time to make them. For example, you may choose to lower the rate by \$10 per sf on a particular lot in a neighborhood because it is on a busy street corner. In our example, the rate is increased by \$15 per sf because the property has an

excellent view of the river not enjoyed by the other lots in the neighborhood. This adjustment increases the rate to \$78.14 (\$63.14 + \$15.00).

Use caution when making any adjustments to the calculated rates. If adjustments are warranted, seek guidance from your supervisor or CAMA manager.

3. “Next, multiply the resulting rate by the lot size.”

This is an easy step. The land value at this point is \$468,822 (\$78.14 * 6,000).

4. “Lastly, multiply that result by the product of all percentage adjustments.”

As before, here’s where we can reflect adjustment to the lot for such things as topography, view, shape irregularity, and the like. There may be an easement across the back of the lot that affects value. Again be certain that the adjustment is peculiar to just the subject or a few lots in the (sub)neighborhood, otherwise the condition would have been already accounted for in the calculations done by the multiple regression analysis process that generated the original base rates, size curves and standard lot sizes.

Our sample lot had a steep drop-off across the back that the appraiser accounted for by adjusting the final rate by 80 percent. This is the last calculation to determine the subject property’s lot value. The final value of our lot is \$ 375,060 (468,822 * 0.80).

The illustrations below summarize much of the information discussed in this land valuation exercise. Illustration 3 shows a portion of the data entry screen in Vision[®] CAMA and the second, illustration 4, is the Land.dat file with selected information highlighted.

The screenshot shows the 'Land Detail' window in the Vision CAMA software. The interface includes several sections:

- Property Factors:** Topography (1 Level), Mlt Front (0 Default), Alley Access (2 No), Landscaping (0 Default).
- Land Valuation Neighborhoods:** Res. NBHD (11), Sub NBHD (A), GIS Region, Comm. NBHD (11), Sub NBHD (A), Pocket NBHD, Z Contour.
- Building Classification and Land Line Valuation:** A table with columns for Bldg #, Line #, Occupancy, Land Units, Appraised Value, and Assessed Value. The table contains one row: Bldg # 1, Line # 1, Occupancy Residential Detached Single Fa, Land Units 6000, Appraised Value SF 375060, Assessed Value 375060.
- Adjustments (Special Use):** T \$0 80 %, V \$15 100 %.
- Notes:** Poor topo in back; River view.
- Total:** Appraised: \$375,060, Assessed: \$375,060.

Illustration 3

```

OUTPUT FROM STORED PROCEDURE
REPORT GENERATED ON 31-JAN-2006 AT 11:03
Account Number = 9999    9999
Use Code = 012
Recalc Land for PID 182803: Begin
*****
Recalc Land for BldgNum #1 (BID = 173587) Land Line #1
*****
Check for any special use value overrides
Land Use Code = 012
Special Use Value = 0
Special Use Percent = 95
Base District = 9
*****
Find the region for a group and district
Land Group = R
Region = District, Region not defined
Base SubDist = A
ZContour = 0
District Standard Size = 1400
District BasePrice = 238.37
District Size Adjustment = LG2
Land Group based Value Source = C
SizeRatio = 1500 / 1400 * 10000
SizeRatio = 10714.286
*****
Interpolate/Extrapolate from Size adj curve table
HighUnitsSz = 11000
HighPricesSz = .95
LowUnitsSz = 10500
LowPricesSz = .974
adj = .974 + ((.95 - .974) / (11000 - 10500)) * (10714.286 - 10500)
SizeAdj = .9637
District pricing based unit val = 229.72
TotalAdj_a = 1 * 1 * 1 * 1
TotalAdj_a = 1
*****
Special Use adjustment #1
AdjPrice1 = 229.72
TotalAdj1 = .95
*****
Special Use adjustment #2
AdjPrice1 = 244.72
TotalAdj1 = .95
LandVal = 232.48 * 1500
LandVal(Rounded) = 348720

```

Neighborhood 9A

From Land Rate Table

Internal calculations to arrive at adjustment for non-standard base lot size.

Base rate multiplied by size adjustment.
 $(238.37 * 0.9637 = 229.72)$

Adjustments (add \$15/SF for "View" and lower 5% for "Topo")
 $((229.72+15) * 0.95) = 232.48$

Final adjusted rate * Lot size = Land Value

Illustration 4

Some Final Thoughts

We have introduced you to some of the most elementary aspects of property valuation using the District's Vision[®] CAMA system. We have developed the RCN of a fictitious home, reduced its value by the accrued depreciation and finally added the land value component to complete the appraisal. This guideline is merely a small window, a first step, in the complex field of CAMA mass appraisal. A CAMA system robust enough to appraise 180,000 different properties will necessarily be comprehensive and complex. As you explore and utilize the program make certain that you fully understand the ramifications and results of your actions. Your supervisor and/or CAMA manager will always be available to assist you.

Appendix A

1. Property Record Card, SSL 9999 9999
2. Cost.dat print-out, SSL 9999 9999
3. Land.dat print-out, SSL 9999 9999
4. 2008 CAMA Construction Valuation Guideline – Residential

CONSTRUCTION DETAIL			BUILDING SUMMARY SECTION					
Element	Cd.	Chng	Description	Code	Description	Gross	Eff. Area	Living
Occupancy	012		Residential Detached	BAS	Main Building Area	1,200	1,200	1,200
Model	01		Single Family	FBP	Basement, Finished	400	0	0
Grade	4		Above Average	FGR	Garage, Attached	440	154	0
Style	6		2.5 Story Fin	FHS	Half Story, Finish	1,200	600	600
Stories	2.5		Single	FOP	Porch, Open	60	0	0
Building Type	1		Shingle	FUS	Upper Story, Finish	1,200	1,200	1,200
Roof Cover	3		Average	UBM	Basement, Unfinish	1,200	300	0
Foundation	2		Face Brick					
Exterior Wall	15		Good					
Exterior Cndtn	4		Forced Air					
Heat Type	1		Yes					
AC	Y		Hardwood/Carp					
Floor Cover	11		Good					
Interior Cndtn	4							
Total Rooms	8							
Fireplaces	1							
Bedrooms	4							
Full Baths	2							
Half Baths	2							
Extra Fixtures	3							
Bath Style	2							
Kitchens	1							
Kitchen Style	2							
Eat-In Kitchen	0							
Overall Cndtn	4							
View	3							
Off Street Parking	0							
No. Units	1							

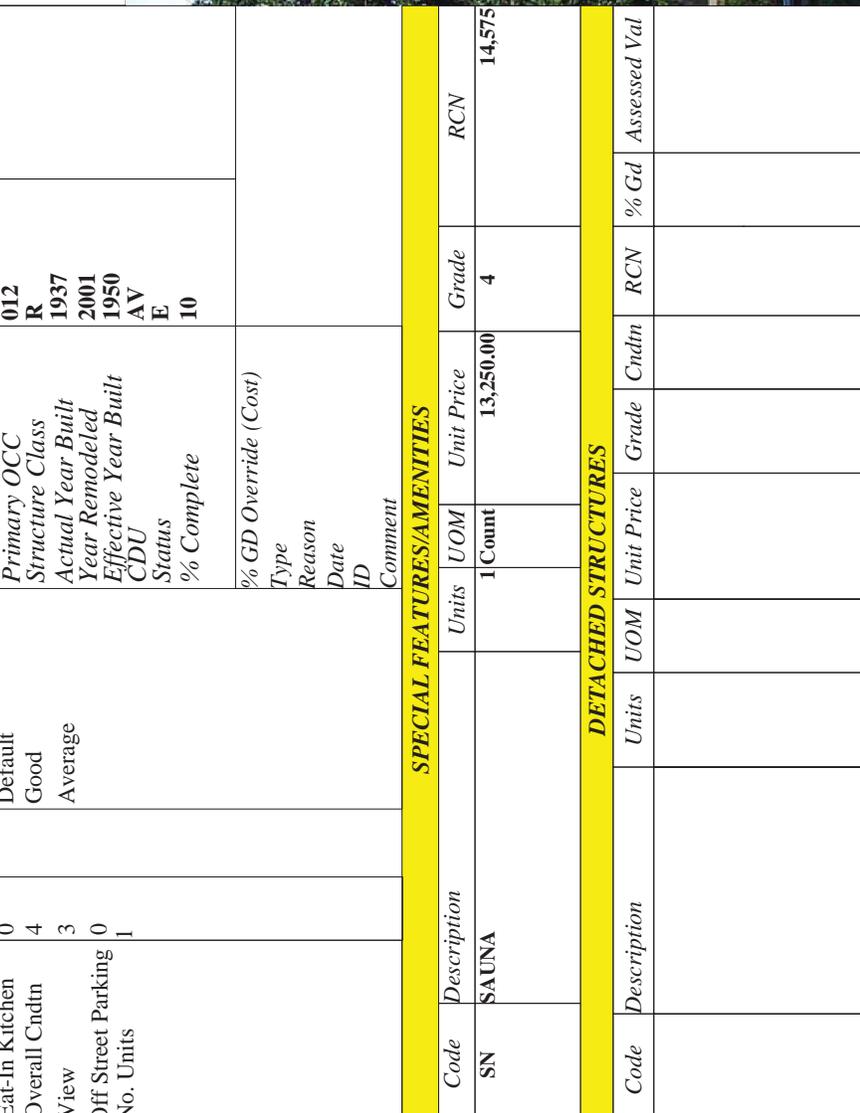
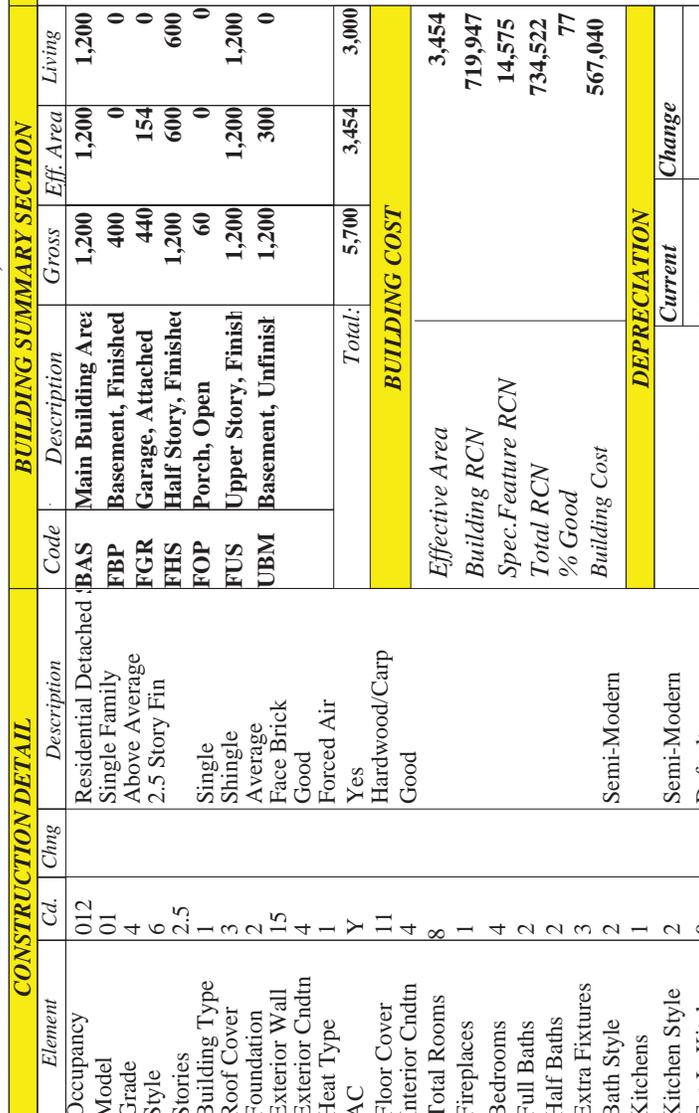
BUILDING COST		
Effective Area		3,454
Building RCN		719,947
Spec.Feature RCN		14,575
Total RCN		734,522
% Good		77
Building Cost		567,040

DEPRECIATION		
Current		10
Primary OCC		012
Structure Class		R
Actual Year Built		1937
Year Remodeled		2001
Effective Year Built		1950
CDU		AV
Status		E
% Complete		10

% GD Override (Cost)		
Type		
Reason		
Date		
ID		
Comment		

SPECIAL FEATURES/AMENITIES						
Code	Description	Units	UOM	Unit Price	Grade	RCN
SN	SAUNA	1	Count	13,250.00	4	14,575

DETACHED STRUCTURES									
Code	Description	Units	UOM	Unit Price	Grade	Cndtn	RCN	% Gd	Assessed Val



cost

OUTPUT FROM STORED PROCEDURE
REPORT GENERATED ON 06-FEB-2006 AT 01:23

*****Building #1 Calc Start*****
Cost Calculation for pid, bid = 182803, 173587
Account Number = 9999 9999
Use Code = 012
Cost Rate Group = R12
Model ID: R07

Section #
Base Rate: 149.27
Size Adjustment: .93906
Effective Area: 3454
Adjusted Base Rate = (149.27 + 11.1) * .93906
Adjusted Base Rate: 150.6
RCN = ((150.6 * 3454) + 63341) * 1.23381334499738
RCN: 719947

*****Base Rate Adjustments*****
AIR CONDITIONING Y (Yes) = 1.8 + BaseRate
EXTERIOR WALL 15 (Face Brick) = 3.95 + BaseRate
FLOOR COVER 11 (Hardwood/Carp) = 4.67 + BaseRate
ROOF COVER 3 (Shingle) = .68 + BaseRate

*****Flat Value Additions*****
FULL BATHS OVER 1 = 16000 + RCN
HALF BATHS = 21440 + RCN
FIREPLACES = 7100 + RCN
PARTITIONED FINISHED BASEMENT = 18000 + RCN
OPEN PORCH = 801 + RCN

*****Factor Adjustments*****
OVERALL CONDITION 4 (Good) = 1.048 x RCN
EXTERIOR CONDITION 4 (Good) = 1.048 x RCN
GRADE 4 (Above Average) = 1.1 x RCN
INTERIOR CONDITION 4 (Good) = 1.048 x RCN
REMODEL FACTOR 4 = 1.04 x RCN
SUB-NEIGHBORHOOD ADJ A = .937 x RCN

*****Effective Age Adjustments*****
BATH STYLE 2 (Semi-Modern) = .95 * Age
EFF AGE GRADE 4 (Above Average) = .95 * Age
KITCHEN STYLE 2 (Semi-Modern) = .9 * Age

Actual Year Built: 1937
Effective Age = 69 * .81225
Effective Age: 56
Percent Good = 87
RCNLD: 626350

Land

OUTPUT FROM STORED PROCEDURE

REPORT GENERATED ON 06-FEB-2006 AT 10:37

Account Number = 9999 9999

Use Code = 012

Recalc Land for PID 182803: Begin

Recalc Land for BldgNum #1 (BID = 173587) Land Line #1

Check for any special use value overrides

Land Use Code = 012

Special Use Value = 0

Special Use Percent = 80

Base District = 11

Find the region for a group and district

Land Group = R

Region = District, Region not defined

Base SubDist = A

ZContour = 0

District Standard Size = 5000

District BasePrice = 73.16

District Size Adjustment = LG1

Land Group based Value Source = C

SizeRatio = 6000 / 5000 * 10000

SizeRatio = 12000

Interpolate/Extrapolate from size adj curve table

SizeAdj = .863

District pricing based unit val = 63.14

Total Adj_a = 1 * 1 * 1 * 1

Total Adj_a = 1

Special Use adjustment #1

Adj Price1 = 63.14

Total Adj 1 = .8

Special Use adjustment #2

Adj Price1 = 78.14

Total Adj 1 = .8

LandVal = 62.51 * 6000

LandVal (Rounded) = 375060

2007 CAMA Residential Construction Valuation Guideline -- RPAD

USECODE

(Selects Base Rate)

No.	Description	Value
011	Row	\$126.65
012	Detached	\$149.27
013	Semi-Detached	\$124.27
015	Mixed Use	\$126.65
019	Miscellaneous	\$126.65
023	Small Apt. Bldg.	\$ 84.56
024	Conversion	\$127.45
097	Vacant & Aban.	\$126.65

CONSTRUCTION DETAIL

No.	Description	Value
Style	(Descriptive)	
1	1 Story	
2	1.5 Story Unfin	
3	1.5 Story Fin	
4	2 Story	
5	2.5 Story Unfin	
6	2.5 Story Fin	
7	3 Story	
8	3.5 Story Unfin	
9	3.5 Story Fin	
10	4 Story	
11	4.5 Story Unfin	
12	4.5 Story Fin	
13	Bi-Level	
14	Split Level	
15	Split Foyer	

Foundation (Descriptive)

0	No Data
4	Pier
5	Wood
6	Concrete

View (Descriptive)

0	Typical
1	Poor
2	Fair
3	Average
4	Good
5	Very Good
6	Excellent

Building Type (Descriptive)

0	Default	
1	Single	
2	Multi	
6	Row End	\$2.00
7	Row Inside	
8	Semi-Detached	

Roof (Add to Base Rate)

0	Typical	
1	Comp Shingle	
2	Built Up	
3	Shingle	\$0.68
4	Shake	\$0.79
5	Metal-Pre	\$0.50
6	Metal Sms	\$0.50
7	Metal-Cpr	\$0.50
8	Composition Roll	-\$0.43
9	Concrete Tile	\$1.88
10	Clay Tile	\$2.93
11	Slate	\$2.86

12	Concrete	\$1.88
13	Neoprene	\$0.00
15	Wood- FS	\$0.68

Exterior Finish (Add to Base Rate)

0	Default	
1	Plywood	
2	Hardboard Lap	
3	Metal Siding	
4	Vinyl Siding	
5	Stucco	
6	Wood Siding	
7	Shingle	
8	SPlaster	
9	Rustic Log	
10	Brick Veneer	\$3.95
11	Stone Veneer	\$9.38
12	Concrete Block	
13	Stucco Block	
14	Common Brick	\$3.95
15	Face Brick	\$3.95
16	Adobe	
17	Stone	\$9.38
18	Concrete	\$3.95
19	Aluminum	
20	Brick/Stone	\$6.67
21	Brick/Stucco	\$1.98
22	Brick/Siding	\$1.98
23	Stone/Stucco	\$4.69
24	Stone/Siding	\$4.69

Heat Type (Add to Base Rate)

0	No Data	
1	Forced Air	
2	Air-Oil	\$0.55
3	Wall Furnace	-\$1.27
4	Electric Rad	-\$0.29
5	Elec Base Brd	-\$0.20
6	Water Base Brd	\$1.42
7	Warm Cool	
8	Ht Pump	
9	Evp Cool	
10	Air Exchnng	
11	Gravity Furnace	
12	Ind Unit	
13	Hot Water Rad	

AC Type (Add to Base Rate)

0	Default	
N	No	
Y	Yes	\$1.80

Floor Covering (Add to Base Rate)

0	Default	\$2.50
1	Resilient	\$2.63
2	Carpet	\$2.17
3	Wood Floor	\$6.06
4	Ceramic Tile	\$8.53
5	Terrazzo	\$8.30
6	Hardwood	\$7.17
7	Parquet	\$8.15
8	Vinyl Comp	\$1.64
9	Vinyl Sheet	\$2.86
10	Lt Concrete	\$0.75
11	Hardwood/Carp	\$4.67

Per Unit Adjustment (Flat Rate Add)

Full Bath (over 1)	\$16,000
Half Bath	\$10,720

Fireplace	\$ 7,100
Kitchen	\$10,440
Finished Basement (Basic)	\$30.00/sf
Finished Basement (Partition)	\$45.00/sf
Basement Garage	\$30.00/sf
Carport	\$26.71/sf
Stoop	\$13.35/sf
Open Porch	\$13.35/sf
Covered Open Porch	\$28.93/sf
Screen Enclosed Porch	\$35.61/sf
Glass Enclosed Porch	\$40.06/sf
Fully Enclosed Porch	\$44.51/sf
Deck	\$17.80/sf
Patio	\$ 5.97/sf

Grade (Multiplies Base, Add & Flat)

0	Default	
1	Low Quality	0.50
2	Fair Quality	0.80
3	Average Quality	1.00
4	Above Average Quality	1.10
5	Good Quality	1.20
6	Very Good Quality	1.25
7	Excellent Quality	1.35
8	Superior Quality	1.48
9	Extraordinary – A	1.65
10	Extraordinary – B	2.00
11	Extraordinary – C	2.20
12	Extraordinary – D	2.50

Interior Condition (Multiplies Base, Add & Flat)

0	Typical	
1	Poor	.794
2	Fair	.909
3	Average	1.000
4	Good	1.048
5	Very Good	1.091
6	Excellent	1.105

Exterior Condition (Multiplies Base, Add & Flat)

0	Default	
1	Poor	.794
2	Fair	.909
3	Average	1.000
4	Good	1.048
5	Very Good	1.091
6	Excellent	1.105

Overall Condition (Multiplies Base, Add & Flat)

0	Default	
1	Poor	.794
2	Fair	.909
3	Average	1.000
4	Good	1.048
5	Very Good	1.091
6	Excellent	1.105

Remodel Type (Multiplies Base, Add & Flat)

0	Default	
1	Unknown	
2	Gut Rehab	1.20
3	Major Renov	1.11
4	Remodel	1.05
5	Addition	
6	Cosmetic	1.02

The effect of this multiplier diminishes at a rate of 5% per year based on the **Remodel Year**.

2007 CAMA Residential Construction Valuation Guideline -- RPAD

DEPRECIATION DETAIL

No.	Description	Value
Grade (Adjust EYB)		
0	Default	
1	Low Quality	20%
2	Fair Quality	10%
3	Average Quality	--
4	Above Average	-05%
5	Good Quality	-10%
6	Very Good Quality	-15%
7	Excellent Quality	-25%
8	Superior Quality	-35%
9	Extraordinary – A	-45%
10	Extraordinary – B	-50%
11	Extraordinary – C	-50%
12	Extraordinary – D	-50%
Bath Style (Adjust EYB)		
0	Default	
1	No Remodeling	
2	Semi-Modern	- 05%
3	Modern	- 10%
4	Luxury	- 20%
Kitchen Style (Adjust EYB)		
0	Default	
1	No Remodeling	
2	Semi-Modern	- 10%
3	Modern	- 20%
4	Luxury	- 40%

Building RCN = [(Base Rate + ∑ ABRV_n) * Effective Area * Size Adjustment + ∑ AFRV_n] * (MV₀ * MV₂ * ... * MV_n)

Where:
 RCN = Replacement Cost New
 Base Rate = \$ rate based on use and style
 ABRV = Additive Base Rate Variables
 Effective Area = Adjusted SF area of improvement
 Size Adjustment = Adjustment factor for deviation from base size
 AFRV = Additive Flat Rate Variables
 MV = Multiplicative Variables

Depreciation Table			
Base Year 2006			
<i>Effective Age of Building</i>	<i>% Depr.</i>	<i>% Good</i>	<i>Effective Year Built</i>
0	0	100	2006
1	1	99	2005
2	2	98	2004
3	2	98	2003
4	3	97	2002
5	3	97	2001
6	4	96	2000
7	4	96	1999
8	4	96	1998
9	4	96	1997
10	5	95	1996
11	5	95	1995
12	5	95	1994
13	5	95	1993
14	6	94	1992
15	6	94	1991
16	6	94	1990
17	6	94	1989
18	6	94	1988
19	7	93	1987
20	7	93	1986
21	7	93	1985
22	7	93	1984
23	7	93	1983
24	8	92	1982
25	8	92	1981
26	8	92	1980
27	8	92	1979
28	8	92	1978
29	9	91	1977
30	9	91	1976
31	9	91	1975
32	9	91	1974
33	9	91	1973
34	9	91	1972
35	10	90	1971
36	10	90	1970
37	10	90	1969
38	10	90	1968
39	10	90	1967
40	10	90	1966
41	11	89	1965
42	11	89	1964
43	11	89	1963

44	11	89	1962
45	11	89	1961
46	11	89	1960
47	11	89	1959
48	12	88	1958
49	12	88	1957
50	12	88	1956
51	12	88	1955
52	12	88	1954
53	12	88	1953
54	13	87	1952
55	13	87	1951
56	13	87	1950
57	13	87	1949
58	13	87	1948
59	13	87	1947
60	14	86	1946
61	14	86	1945
62	14	86	1944
63	14	86	1943
64	14	86	1942
65	14	86	1941
70	15	85	1936
75	16	84	1931

Vision Commercial CAMA Valuation Process

The market-derived cost approach to the valuation of real estate follows the generic formula of **Market Value = ((RCN LD) + land value)**, where **RCN** is Replacement Cost New of the improvements and **LD** means Less Depreciation. When properly developed and calibrated, this approach is a reliable indicator of market value especially suited to mass-appraisal CAMA systems.

The following exercise will attempt to illustrate how the Vision[®] CAMA system utilized by the District of Columbia, calculates values using the above model. The first portion will illustrate the development of the Replacement Cost New of a small commercial building, and the last portion will show the steps involved in determining the amount of depreciation that has accrued to the building. Land valuation is not discussed in this exercise.

Replacement Cost New

The Vision[®] CAMA system arrives at a RCN value for commercial properties based on a market-calibrated hybrid cost model. The hybrid nature of the model simply means that the model employs both additive and multiplicative variables in its design and specification. The nature of the model will become clearer as we proceed through this exercise. Please also be aware that a model is dynamic in both its specifications and calibration. The specifications, those cost elements that comprise the model, may change from time to time based upon research and market conditions. The calibration of the model is primarily derived from information provided by the Marshall and Swift Valuation Service, a company that provides building cost data necessary for real estate cost valuations and is widely considered the authority on the cost approach to valuation. *As you may discover, the dollar rates, or calibrations, contained here most likely are different from the current model in use.* The model used in this exercise is as follows:

$$\begin{aligned} \text{Building RCN} = & [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\ & (\text{MV}_1 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\ & (\text{MV}_1 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\sum \text{Special Building Features}] \end{aligned}$$

Where:

RCN = Replacement Cost New

Base Rate = \$ rate based on occupancy (use) code and construction class

Section_n = Each separate building or section of building

Effective Area = Adjusted SF area of improvement

Size Adjustment = Adjustment factor for deviation from base size

MV = Multiplicative Variables

Several items will be helpful while examining the features of the cost model and they are collected as Appendix “A” of this document. You will need to refer to them often during this exercise. They include the following:

- Sample building’s Property Record Card (PRC)
- Cost.dat printout of the sample building
- Depreciation Schedule
- 2007 CAMA Construction Valuation Guideline – Commercial

The commercial building designed for this exercise is typical of a small commercial property in the District. It consists of a one-story full service restaurant and an adjoining two-story building. The two-story section consists of a package goods store and a small apartment on the second floor. The building is of good quality and is constructed of brick veneer over concrete block. For this exercise, the building has been logically sectioned into two sections. Section 1 covers the restaurant and Section 2 covers the package goods/apartment portion.

Below shows the Construction Detail in the CAMA record of the building. The first illustration depicts Section 1 – the restaurant and the second represents Section 2 – the package goods store and apartment.

Construction Detail - Commercial

Value Source: **C** Living Area/GFA: **5,400** Regression: **0**
 Primary Occ: **045** Effective Area: **8,460** Income: **3,770,600**
 Structure Class: **C** Percent Good: **74** RCNLD: **835,630**

Model: **94 Commercial** Section #:
 Bldg Stories:

Section Detail

Occupancy: Store-Restaurant Group: RS1
 Stories: # Units: Base Rate: 109.26
 Structure Class: Brick/Concr Adj Base Rate: 107.98
 Exterior Finish: Brick Veneer Effective Area: 3,600
 Grade: Good RCN: 583,795

Section Area Summary			
Code	Description	Gross	GFA
▶ BAS	Main Building Ar	1800	1800
BM5	Basement, Full F	1800	0

1st Floor Occ: Store-Restaurant
 Wall Height:
 Shape/Peri: Rectangular

Illustration 1

Construction Detail - Commercial

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 3,770,600
 Structure Class: C Percent Good: 74 RCNLD: 835,630

Model: 94 Commercial Section #: Add Section
 Bldg Stories: 2 2 Remove Section

Section Detail

Occupancy: 049 Commer-Retail-Misc Group: RT1
 Stories: 2 # Units: 1 Base Rate: 75.62
 Structure Class: C Brick/Concr Adj Base Rate: 74.73
 Exterior Finish: BV Brick Veneer Effective Area: 4,860
 Grade: 40 Good RCN: 545,438

Section Area Summary			
Code	Description	Gross	GFA
BAS	Main Building An	1800	1800
BM4	Basement Semi-f	1800	0
FUS	Upper Story, Fini	1800	1800

1st Floor Occ: 047 Store-Super Market
 Wall Height: 14
 Shape/Peri: 2 Rectangular

Illustration 2

Illustration 3 shows the CAMA sketch of the sample building we'll be using throughout this exercise.

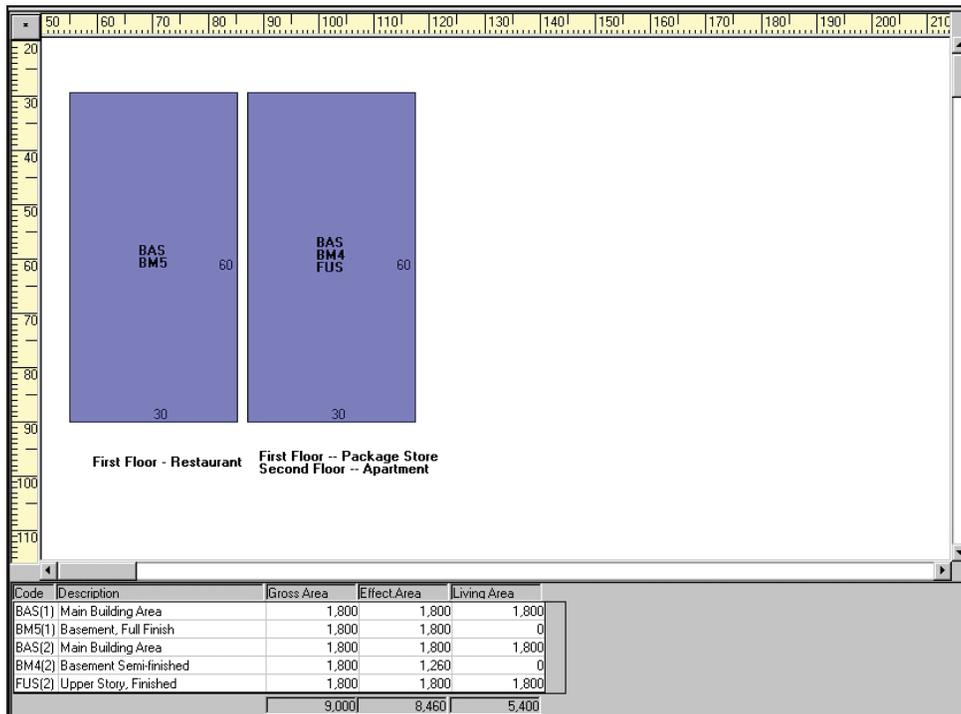


Illustration 3

The bottom of the sketch screen in CAMA provides the information about the sizes of the different areas that comprise the two sections of the building. Each section is denoted as (1) or (2) under the Code column.

Code	Description	Gross Area	Effect.Area	Living Area
BAS(1)	Main Building Area	1,800	1,800	1,800
BM5(1)	Basement, Full Finish	1,800	1,800	0
BAS(2)	Main Building Area	1,800	1,800	1,800
BM4(2)	Basement Semi-finished	1,800	1,260	0
FUS(2)	Upper Story, Finished	1,800	1,800	1,800
		9,000	8,460	5,400

Illustration 4

1. First, let's illustrate the calculation of the Effective Area of our sample building's first section, the restaurant.

$$\text{Building RCN} = [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + [\sum \text{Special Building Features}]$$

Code	Description	Gross Area	Effect.Area	Living Area
BAS(1)	Main Building Area	1,800	1,800	1,800
BM5(1)	Basement, Full Finish	1,800	1,800	0
BAS(2)	Main Building Area	1,800	1,800	1,800
BM4(2)	Basement Semi-finished	1,800	1,260	0
FUS(2)	Upper Story, Finished	1,800	1,800	1,800
		9,000	8,460	5,400

Illustration 5

The Effective Area is comprised of the totals of the Bas(1) Main Building Area @ 1,800 SF and the BM5(1) Basement, Full Finish @ 1,800 SF for a total of 3,600 SF.

The second section's Effective Area is calculated in the same manner.

Code	Description	Gross Area	Effect.Area	Living Area
BAS(1)	Main Building Area	1,800	1,800	1,800
BM5(1)	Basement, Full Finish	1,800	1,800	0
BAS(2)	Main Building Area	1,800	1,800	1,800
BM4(2)	Basement Semi-finished	1,800	1,260	0
FUS(2)	Upper Story, Finished	1,800	1,800	1,800
		9,000	8,460	5,400

Illustration 6

BAS(2) Main Building Area, BM4 (2)Basement Semi-finished, and FUS (2) Upper Story, Finished total 4,860 SF. The adjustment to the semi-finished basement takes into account this area is not as expensive as the finished main building area. For example, if the base rate for the finished main building area is \$100/SF, the rate for the semi-finished basement area may only be \$70/SF. The RCN value of the basement would be calculated as follows:

$$\text{RCN of Basement} = \$126,000 \text{ or } (1800 \text{ SF} * \$70)$$

Another way to state the same situation is to adjust the size of the basement to 70% of its measured size and then multiply the resulting, *or effective*, size by the base rate of \$100/SF:

$$\text{RCN of Basement} = \$126,000 \text{ or } [(1800 * .70) * \$100]$$

Both methods arrive at the same value for the basement. The first method is more intuitive and easier to explain to taxpayers as it adjusts for the differences in costs for the various areas. The second method again provides the same results but is much easier to model and calculate within a CAMA system, thus the effective area calculations shown here represent the methodology employed in the Vision[®] CAMA system.

The Gross Area shown in Illustration 2 is the total unadjusted size of all the areas that are a part of the building. The Living Area is more properly called “Gross Floor Area” and is the unadjusted size of the actual finished floor area above grade in the building.

With the inclusion of the Effective Area calculation, our cost model now looks like this:

$$\begin{aligned} \text{Building RCN} = & [\text{Section}_1 (\text{Base Rate} * \mathbf{3600} * \text{Size Adjustment}) * \\ & \text{Effective Area} \\ & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\text{Section}_n (\text{Base Rate} * \mathbf{4860} * \text{Size Adjustment}) * \\ & \text{Effective Area} \\ & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\sum \text{Special Building Features}] \end{aligned}$$

2. Next, let’s look at the selection of the Base Rate for the sample building. There will be two rates because there are two different sections. Each section’s RCN will be independently calculated.

$$\begin{aligned} \text{Building RCN} = & [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\ & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\ & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\ & [\sum \text{Special Building Features}] \end{aligned}$$

The Base Rate is the dollar rate per square foot used in the valuation model that is derived from tables within the CAMA system. It is selected based on the building’s Building Occupancy (Use) Code and Construction Class. Our sample’s first section is a “45-Store-Restaurant” constructed as a Class “C”, concrete block/brick building. Based on this information, the Base Rate of \$ 109.26 is automatically selected.

The second section, “49-Commercial Retail-Misc.”, also constructed as a Class “C”, concrete block/brick building, has a Base Rate of \$75.62.

With the inclusion of the selected Base Rates, our model now looks like this:

$$\begin{aligned}
 \text{Building RCN} = & [\text{Section}_1 (\text{\$109.26} * \text{3600} * \text{Size Adjustment}) * \\
 & \text{Base Rate Effective Area} \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\text{Section}_n (\text{\$75.62} * \text{4860} * \text{Size Adjustment}) * \\
 & \text{Base Rate Effective Area} \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\sum \text{Special Building Features}]
 \end{aligned}$$

3. Next, let us turn our attention to a modification to the Base Rate - the Size Adjustment.

$$\begin{aligned}
 \text{Building RCN} = & [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\sum \text{Special Building Features}]
 \end{aligned}$$

The Size Adjustment modifies the Base Rate to account for the size difference between the “standard size” for the “typical” building of a particular occupancy type and the actual size of the sample building. The comparison is based on the building’s “gross floor area.” The “standard” size of 5,000 square feet for the “typical” restaurant is used as the basis for establishing the initial Base Rates used in Section 1 of this appraisal. The “standard” size of 4,000 square feet for the “typical” retail-misc. is used as the basis for establishing the initial Base Rates used in Section 2.

The adjustment in the Base Rate allows the proper square foot rate to be applied to a building based on its size. It is reasonable to expect that as a building becomes larger than typical, the rate per square foot would decrease and conversely, if the building were smaller than typical, the rate would be higher. The Size Adjustment variable is the component in the model that adjusts for this situation. Our sample building’s size, the “gross floor area,” is the total area of both sections, 5,400 square feet. Our building is only slightly larger than the standard size of 5,000 square feet. The Size Adjustment is 0.98825. Now our Adjusted Base Rate is calculated to be \$107.98(109.26 * 0.98825) for Section 1 and \$ 74.73 (75.62 * 0.98825) for Section 2 of our example.

Because the adjustment is less than 1.00, it would be proper to conclude that our sample building is larger than the typical building of its type in the District of Columbia. Our sample building was compared to the larger of the two “standard” sizes, 5,000 square feet. Had the sample building been smaller than 5,000

square feet, the Size Adjustment would have been greater than 1.00. The use of size adjustments eliminates the need for the traditional cost tables based on size.

The cost model continues to grow, and now looks like this:

$$\begin{aligned}
 \text{Building RCN} = & [\text{Section}_1 (\text{\$109.26} * \text{3600} * \text{0.98825}) * \\
 & \text{Base Rate Effective Area Size Adjustment} \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\text{Section}_n (\text{\$75.62} * \text{4860} * \text{0.98825}) * \\
 & \text{Base Rate Effective Area Size Adjustment} \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\sum \text{Special Building Features}]
 \end{aligned}$$

- The next portion of the cost model used to calculate the RCN are the multiplicative variables (MV).

$$\begin{aligned}
 \text{Building RCN} = & [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * \\
 & (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + \\
 & [\sum \text{Special Building Features}]
 \end{aligned}$$

This portion of the formula can have the largest influence on the cost model. Each multiplicative variable modifies *all* of the cost data that has preceded it. These variables modify the Base Rate and Size Adjustment. This is where such important characteristics as the CDU (condition, desirability, utility), building grade, local cost multipliers, Neighborhood and Sub Neighborhood location factors have their impact.

The CDU, or Condition Desirability Utility, is the first of our multiplicative variables. This variable is used to account for a property's general overall physical condition and to a lesser extent the desirability and the utility of the property. Our sample building has been listed as "Good" and the appropriate multiplicative variable is 1.15. Stated a different way, the "Good" CDU will increase the RCN of our building by 15%. This one variable, CDU, can have a profound impact on the RCN of a building. The range can increase the RCN for an "Excellent" building by 35% all the way down to a 90% reduction in RNC for an "Unsound" building.

The sample building is graded "Good Quality - 4", and consequently has a 1.12 multiplicative variable. This one variable, grade, is going to increase the RCN value of the sample building by 12%. Another MV, "DC Local Multiplier C" modifies costs to account for the small additional costs incurred in construction of "C" class buildings in the in the DC area. The other multiplicative variable, "COMM NBHD 9", is the local neighborhood multiplier established for the particular neighborhood where the sample building is located. This variable is

going to increase the RCN value of the sample building by 10%. The “COMM NBHD” adjustment reflects the market-derived fact that location is a very significant factor in the value of real estate. Two otherwise identical buildings can have a substantial difference in value based on their locations.

These four variables are summarized in the Cost.dat file as follows:

```
*****Factor Adjustments*****
CONDITION DESIRABILITY UTILITY G = 1.15 X RCN
GRADE 40 (Good) = 1.12 x RCN
DC LOCAL MULTIPLIER C = 1.06 x RCN
COMM NBHD 9 = 1.1 x RCN
```

Each MV is multiplied together to determine the combined, or overall, MV. The sample building’s MV is 1.501808 (1.15 * 1.12 * 1.06 * 1.1).

5. Except for the Special Building Features, our RCN model is complete and contains the specific data for the sample building used in this demonstration. The RCN cost model for the sample building is as follow:

<p>Building RCN = [Section₁ (\$109.26 * 3600 * 0.98825) * Base Rate Effective Area Size Adjustment (1.501808)] + Multiplicative Variables [Section_n (\$75.62 * 4860 * 0.98825) * Base Rate Effective Area Size Adjustment (1.501808)] + Multiplicative Variables [∑ Special Building Features]</p>
--

The RCN for Section 1, the restaurant is \$ 583,795 (\$109.26 * 3600 * 0.98825 * 1.501808). The package goods store’s RCN is \$423,520 (\$75.62 * 4860 * 0.98825 * 1.501808).

The Cost.dat file shows a summary of the same information as follows:

```
Section #1
Base Rate: 109.265
Size Adjustment: .98825
Effective Area: 3600
Adjusted Base Rate = (109.26 + 0) * .98825
Adjusted Base Rate: 107.98
RCN = ((107.98 * 3600) + 0) * 1.501808
RCN: 583795
Section #2
Base Rate: 75.62
Size Adjustment: .98825
Effective Area: 4860
Adjusted Base Rate = (75.62 + 0) * .98825
Adjusted Base Rate: 74.73
RCN = ((74.73 * 4860) + 0) * 1.501808
RCN: 545438
```

So far, the RCN of the building is \$ 1,129,233 (583,795+545,438). We still have Special Features to add to complete the cost model.

6. The Special Features component is the last portion of the cost model. This is the place where such things as sprinklers and HVAC systems are accounted for and valued in the building.

$$\text{Building RCN} = [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_n)] + [\Sigma \text{Special Building Features}]$$

Take a look at illustration 7. Here we see that both sections are sprinklered and heated and cooled with a complete HVAC system. Both of these Special Building features are calculated based on the size, in square feet, of the area affected. Their value is determined by the size, dollar rate and quality grade for each feature. Finally, the Special Building Features are depreciated at the same rate as the main buildings.

Special Building Features											
Value Source: C		Living Area/GFA: 5,400		Regression: 0							
Primary Occ: 045		Effective Area: 8,460		Income: 3,770,600							
Structure Class: C		Percent Good: 74		RCNLD: 835,630							
S#	Code	Sub	Description		UOM	Units	Unit Price	Gr	RCN	RCNLD	
1	HVAC	617	(HVAC) Heating	Cmplt HVAC	SF	1800	5.4	4	12150	8990	
1	SPRK	683	Sprinklers	Wet	SF	1800	2.5	4	5625	4160	
2	HVAC	617	(HVAC) Heating	Cmplt HVAC	SF	3600	5.4	4	24300	17980	
2	SPRK	683	Sprinklers	Wet	SF	1800	2.5	4	5625	4160	

Illustration 7

Illustration 8 shows the data-entry screen, as it would look if we were to add an elevator to the building.

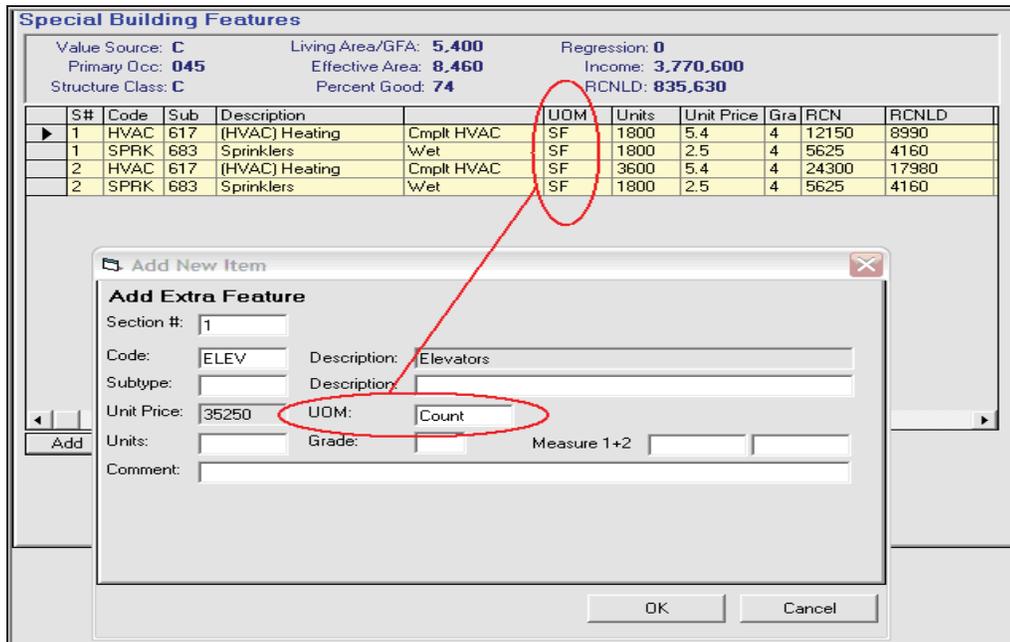


Illustration 8

Note that this extra feature's UOM (unit of measurement) is by count and not SF. For each count, the unit price is \$35,250. Be sure that the UOM is proper for the individual special feature included in the building.

The total RCN of the Special Feature in this sample is \$ 47,700 (Σ Special Building Features = 12,150 + 5,625 + 24,300 + 5,625).

We now know the total replacement cost new (RCN) of our sample building, including Special Features, is \$ 1,176,933 (\$1,129,233 + \$47,700).

$$\begin{aligned}
 \text{\$1,176,933} &= [\text{Section}_1 (\text{\$109.26} * \text{3600} * \text{0.98825}) * \\
 \text{Building RCN} &\quad \text{Base Rate} \quad \text{Effective Area} \quad \text{Size Adjustment} \\
 &\quad (\text{1.501808})] + \\
 &\quad \text{Multiplicative Variables} \\
 &[\text{Section}_n (\text{\$75.62} * \text{4860} * \text{0.98825}) * \\
 &\quad \text{Base Rate} \quad \text{Effective Area} \quad \text{Size Adjustment} \\
 &\quad (\text{1.501808})] + \\
 &\quad \text{Multiplicative Variables} \\
 &[\text{\$47,700}] \\
 &[\Sigma \text{ Special Building Features}]
 \end{aligned}$$

If the sample building were brand new, we'd be finished, but it was actually built in 1953.

Next, we need to address accrued depreciation . . .

Depreciation

Depreciation is defined as a loss in the upper limits of value from all sources. Typically, three types of depreciation can affect real estate - physical deterioration, functional obsolescence and economic obsolescence. This next portion of the demonstration will illustrate how Vision[®] calculates the amount of depreciation accrued to our sample building.

Several terms come into use when discussing depreciation in CAMA. They are defined as follows:

- Actual Age: The mathematical difference between the Base Year and the actual year the improvement was built to completion.
- Actual Year Built (AYB): The earliest time the main portion of the building was built. It is not affected by subsequent construction.
- Base Year: The year, usually the current year, that the depreciation table is calibrated, such that the age of a building built during the base year would be 0 years old.
- Depreciation Table: A market-driven table that lists the amount of depreciation corresponding to an Effective Year Built and the Base Year predicated upon a specific economic life.
- Economic Life: The useful life span for a structure based on its occupancy (use) code and its construction class.
- Effective Age: The mathematical difference, in years, between the Base Year and the Effective Year Built.
- Effective Year Built (EYB): The calculated or apparent year, that an improvement was built that is most often more recent than AYB. The EYB is determined by the condition and quality of the improvement. Subsequent renovation, additions, upgrades and the like, extend an improvements remaining economic life and therefore cause the EYB to be closer to the Base Year than the AYB.
- Percent Good: The mathematical difference between 100 percent and the percent of depreciation. $(100\% - \text{depreciation } \%) = \text{percent good}$

The RCN model used above indicated that our sample building has an RNC of \$1,176,933. As stated earlier, the building was built in 1953, so there should be some depreciation to deduct from the RCN. We'll use a seven-step process to depreciate the improvements:

1. Calculate the Actual Age of the improvement.
2. Determine the Effective Age of the improvement.
3. Determine the improvement's Effective Year Built.
4. Look-up Depreciation corresponding to EYB on depreciation table.
5. If required, modify the depreciation by the amount given for obsolescence.
6. Apply final depreciation to RCN to determine RCN-LD.

1. Our first step is to calculate the Actual Age of our sample building. As you are aware, a valuation is always qualified as of a specific date. For ad valorem purposes in the District of Columbia, the valuation date is January 1 immediately preceding the tax year. In our example, the tax year is 2007, therefore the valuation date is January 1, 2006. This date is also significant in terms of the depreciation accrued to improvements. In the past, the nature of triennial assessments required that base years within a Tri-Group remain unchanged for a period of three years. Now, however, with the return to annual assessments, the base year coincides with the valuation date. The base year is used to determine the Actual Age of the sample building. In this case, the Actual Age of the sample building is 53 years (2006-1953).

2. The next step is to determine the sample building's Effective Age. Effective Age may or may not represent actual or chronological age. The premise is simple but the application can be confusing. If a building is built and never maintained (painting, re-roof, etc.) or remodeled, the building would quickly depreciate from physical deterioration. The CAMA system would depreciate the building at the fastest rate possible based on the selected Depreciation Table. For example, our building has an economic life of sixty years. If the building were left to rot, the Effective Age would most likely be the same as the Actual Age.

Let's say the owners of our sample building have completely neglected their property from the time it was built in 1953 to the present. Their building would have an effective age of 53 years as indicated on the Depreciation Table below:

Base Year 2006		Economic Life Depreciation Tables					
Age of Building	Effective Year Built	70 Year Economic Life		60 Year Economic Life		50 Year Economic Life	
		Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good
0	2006	0	100	0	100	0	100
1	2005	0	100	0	100	0	100
2	2004	1	99	1	99	2	98
3	2003	1	99	1	99	2	98
48	1958	46	54	58	43	77	23
49	1957	47	53	59	41	78	22
50	1956	49	51	61	39	82	18
51	1955	51	49	64	36		
52	1954	52	48	66	34		
53	1953	54	46	68	33		
54	1952	55	45	69	31		
55	1951	57	43	71	29		
56	1950	58	42	73	28		
57	1949	60	40	75	25		
58	1948	61	39	76	24		
59	1947	63	37	79	21		
60	1946	64	36	80	20		
61	1945	65	35				
62	1944	67	33				
63	1943	68	32				
64	1942	70	30				
65	1941	71	29				
70	1940	76	24				
75	1932	80	20				

Illustration 9

The Actual Year Built (1953) and the Effective Year Built (1953) would be the same and consequently the Effective Age would be 53 years. Moving across the table, we see that a building with an EYB of 1953 has 68 percent depreciation and therefore is 32 Percent Good (100%-68%). If the RCN of our sample building is \$1,176,933, the depreciated value, RCN-LD, is only \$ 376,619 (1,176,933* 0.32).

The situation described above rarely, if ever, occurs in the market. People do maintain and renovate their buildings and in doing so, extend the building's useful or remaining economic life. As building owners repair roofs, paint siding, replace windows and furnaces, they *prolong* the life of the building and consequently *decrease* its Effective Age.

A recent building remodel, renovation or rehabilitation will go a long way to extend its useful life. As the useful life is extended, the Effective Age is reduced and therefore the Effective Year Built is more recent than the building's Actual Year Built.

Our sample building had a major renovation done in 1998. The portion of the CAMA record that captures this information is shown in Illustration 10 below.

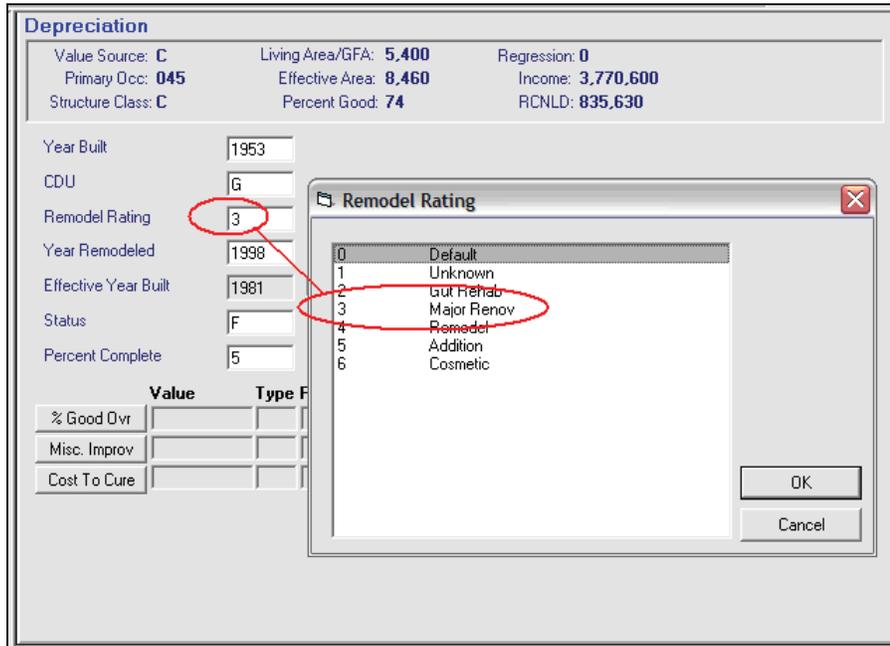


Illustration 10

Two factors come together to determine the impact a remodel has on the amount of depreciation calculated for the building – the Remodel Rating and the Year Remodeled. How extensive the remodel is and how recently it has occurred combines to determine its overall affect on its effective year built, and in turn, the building’s depreciation. A brand-new gut rehab would substantially decrease the effective age of a building much more so than an older remodel. Conversely, an older remodel may have little or no affect on the depreciation.

We’ll see the significance of that renovation in a moment, but first, back to our sample building’s Effective Age calculation.

The construction class of the building also affects the calculation of Effective Age. It is only natural that an “A” class structure would have a longer economic life than a “D” class building (recall the story of the three little pigs). The Structure Class Age Factor makes allowance for this situation by reducing the effective age of an “A” class building by more than, say, a “D” building. As an example, CAMA reduces the effective age by 20% for “A” buildings, 15% for “B” structures, 10% on “C” buildings, and no adjustment for the “D” class buildings.

The features or variables dealing with the effective age calculation are multiplicative variables. As such, they are multiplied one by the other and then the Actual Age is multiplied by the product of the MVs. Below is the portion of the Cost.dat file that summaries these MV for our sample building.

```
*****Effective Age Adjustments*****
REHAB FACTOR 3 = .45 * Age
STRUCTURE CLASS AGE FACTOR C = .9 * Age
REHAB YEAR = 1.15 * Age
```

The product of each of these MV adjustments is calculated to be 0.46575 ($0.45 * 0.90 * 1.15$). This product is then multiplied by the Actual Age to calculate the Effective Age. Recall our sample building's Actual Age is 53 years. The Effective Age is calculated to be 24 years ($53 * 0.42525$). Instead of CAMA using 53 chronological years to calculate depreciation, it will use 24 years, based on the building's quality and renovation. The portion of the Cost.dat file that illustrates this information is below:

```
*****  
Actual Year Built: 1953  
Effective Age = 53 * .46575  
Effective Age: 24  
Percent Good = 74  
RCNLD:835630
```

Back to our renovation, the 1998 major renovation done to the building reduced the effective age to 51.75% (Rehab Factor 3 = $.45 * Rehab Year = 1.15$) of the 53 years of actual age, resulting in an effective age of 27 years old. What impact on the effective age would there be if just a small remodel occurred in 1990? We would expect the effective age not to shorten, or decrease, as much. Let's see what happens.

As you know, CAMA has many calibrated variables associated with all of the calculations it makes to determine the RCN and calculate depreciation. Again, the two variables that come into play here are the Rehab Factor and the Rehab Year. We've just seen the values of those variables were with regard to the recent major renovation example. For the 1990 remodel the values are: Rehab Factor 4 = 0.55 and Rehab Year = 1.15. This combination will reduce the effective age to 63.25% ($0.55 * 1.15$) of the 53 years of actual age, as a result, making the effective age now 34 years old.

The difference between the two scenarios is seven years. Without doing all math, the difference in the appraised value as a result an effective age of 31 years versus 24 years is about \$100,000 on a building with a RCN of \$1,769,933. The proper documentation of remodel activity is significant when arriving at proper appraised values.

3. We're almost finished. Knowing the Effective Age makes the calculation of the Effective Year Built for our sample building very simple. The Effective Year Built is 1982 ($2006 - 24$).

4. Having established the Effective Year Built, we look up 1982 on the *60 Year Economic Life Depreciation Table* and find that the Depreciation is 20% for that year. See Illustration 11.

Economic Life Depreciation Tables							
Base Year 2006		70 Year Economic Life		60 Year Economic Life		50 Year Economic Life	
Age of Building	Effective Year Built	Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good
0	2006	0	100	0	100	0	100
1	2005	0	100	0	100	0	100
20	1986	13	87	16	84	22	78
21	1985	13	87	16	84	22	78
22	1984	14	86	18	83	23	77
23	1983	16	84	19	81	25	75
24	1982	16	84	20	80	27	73
25	1981	17	83	21	79	28	72
26	1980	18	82	23	78	30	70
27	1979	19	81	24	76	32	68
28	1978	20	80	25	75	33	67
29	1977	21	79	26	74	35	65
30	1976	22	78	28	73	37	63
31	1975	23	77	29	71	38	62

Illustration 11

You may notice that there is a conflict between the Cost.dat file and the depreciation table with regards to “Percent Good.” The Cost.dat file report that our building’s percent good is 74, whereas the depreciation table says it’s 80. The explanation is addressed in step 5, dealing with obsolescence and direct adjustments to depreciation, not effective year built calculations.

5. If the assessor notes any obsolescence, this is where it is addressed. Recall from the outset that we defined depreciation as a loss in value resulting from physical deterioration, functional and/or economic obsolescence. The demonstration up to this point has dealt only with depreciation attributed to the physical deterioration of the sample building. This, by far, is the most common type of depreciation that exists in commercial property. However, occasions may require additional depreciation because of excessive physical deterioration, functional and/or economic obsolescence. One must use caution when invoking these types of depreciation. The market must support any decision regarding the extent of these adjustments.

Our sample building is suffering from a small amount of functional obsolescence. The assessor has noted that the interior design of the building contains many support columns interrupting the efficient use of the floor space. As a result, the restaurant has a few less tables and the package goods store does not have a good aisle layout. Consequently, it is appropriate to allow for a small amount of functional obsolescence – five percent.

Illustration 12 shows the results of this additional allowance for functional obsolescence. Whereas the depreciation table in illustration 3 shows the percent good for 20 years at 80%, by subtracting the 5% attributed to functional obsolescence, we are left with 74% (rounding error) as the percent good for our building. This matches the figure shown in the Cost.dat file.

Depreciation

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 3,770,600
 Structure Class: C Percent Good: 74 RCNLD: 835,630

Year Built: 1953
 CDU: G
 Remodel Rating: 3
 Year Remodeled: 1998
 Effective Year Built: 1981
 Status: F
 Percent Complete: 5

Value Type R

% Good Ovr
 Misc. Improv
 Cost To Cure

Status

- 0 Default
- A Abandoned/Boarded
- B Burned Out
- C Commercial New Const
- E Economic Dep
- F Functional Dep
- G Gut Rehab
- H Data Change
- L Limited Equity
- M Demolition
- N N/A
- NO Normal
- OV Overall Depreciation
- P Physical Depr
- PA Partial Abandon
- R Renovation

OK
Cancel

Illustration 12

The actual mechanics of adjusting depreciation for functional or economic obsolescence within CAMA are briefly discussed below. If the situation occurs, seek guidance from your supervisor and/or CAMA manager.

The “Status” field’s pick-list is expanded in Illustration 13 to show only those types of items that have a direct affect on depreciation and the nature of the affect. Notice that only a limited number of Status Codes are functional within CAMA and their affect on depreciation is either to **replace** the existing amount in the “% Good” field or **decrease** the “% Good.” The corresponding numeric amount that will affect the “% Good” is entered in the field called “Percent Complete.” Please note that the field name “Percent Complete” is somewhat erroneous because the word “Complete” has no meaning in this context. This is the field that you will enter the amount to either decrease the existing “% Good” or replace the existing “% Good”, based on the Status Code selected.

Status

Status Codes

Code	Description	Affect on % Good
0	Default	NONE
A	Abandoned/Boarded	NONE
B	Burned Out	NONE
C	Commercial New Const	REPLACE
E	Economic Dep	DECREASE
F	Functional Dep	DECREASE
G	Gut Rehab	NONE
H	Data Change	NONE
L	Limited Equity	NONE
M	Demolition	NONE
N	N/A	NONE
NO	Normal	NONE
OV	Overall Depreciation	REPLACE
P	Physical Depr	DECREASE
PA	Partial Abandon	NONE
R	Renovation	NONE
T	Order of Taking	NONE
V	Vacant	NONE

Illustration 13

6. The last step in the process is to simply multiple the RCN by 0.74 and we have RCN LD of the building. Knowing the total RCN of our sample building is \$1,176,933, the RCN LD is \$870,920 (1,176,933 * 0.74). Below is a portion of the Property Record Card that illustrates this information.

ACCOUNT #: 9999 8888		Property Location: 9999 9TH ST NW									
Internal ID: 183145		WASHINGTON, DC 2001									
CONSTRUCTION DETAIL											
Sect	Code	Occupancy Description	Story Hgt	# of Units	Structure Class	Ext. Fin	Grade	First Floor Data		Eff. Area	Section RCN
1	045	Store-Restaurant	1	0	C	BV	40	045	12	1,800	583,795
2	049	Commer-Retail-Misc	2	1	C	BV	40	047	14	3,600	545,438
BUILDING SUMMARY						BUILDING COST SUMMARY					
Sect #	Code	Description	GBA	Eff. Area	SFLA	Effective Area		Building RCN		Spec. Feature RCN	
1	BAS	Main Building Area	1,800	1,800	1,800	8,460		1,129,233		47,700	
1	BMS	Basement, Full Finish	1,800	1,800	0						
2	BAS	Main Building Area	1,800	1,800	1,800						
2	BMS	Basement Semi-finished	1,800	1,260	0						
2	FUS	Upper Story, Finished	1,800	1,800	1,800						
Total:			9,000	8,460	5,400						
COST VALUE SUMMARY											
Land Value	300,000	Type									
Building Value	870,920	Reason									
Detached Structures	0	Data									
Misc. Improvements	0	Comment									
Cost to Cure (-)	0										
Final Cost Value	1,170,920										
BUILDING INFORMATION & DEPRECIATION											
Total Bldg Stories	2										
Primary Occ	045										
Structure Class	C										
Actual Year Built	1953										
Year Renovated	1998										
Renodel Rating	B										
Effective Year Built	1981										
CDU	C										
Status	F										
% Complete	F										
% Good Override											
Type											
Reason											
Comment											
BUILDING SPECIAL FEATURES/AMENITIES											
Sect #	Code	Description	Units	UOM	Unit Price	Grade	RCN				
1	HVAC 617	(HVAC) Heating Cmpit HVAC	1,800	SF	5.40	4	12,150				
1	SPRK 683	Sprinklers Wet	1,800	SF	2.50	4	5,625				
2	HVAC 617	(HVAC) Heating Cmpit HVAC	3,600	SF	5.40	4	24,300				
2	SPRK 683	Sprinklers Wet	1,900	SF	2.50	4	5,625				
DETACHED STRUCTURES											
Code	Description	Units	UOM	Unit Price	Grade	Cndtm	RCN	% Gd	Assessed Val		

Illustration 14

Conclusion

This exercise has been prepared to assist the commercial assessor understand some of the concepts, features and techniques employed by the Vision® CAMA system in arriving at a cost approach to valuation of commercial properties in the District of Columbia. It does not serve as an exhaustive training manual. Any specific questions regarding the features and operations of this CAMA should be directed to your supervisor or the CAMA manager.

Appendix “A”

1. Vision[®] Property Record Card, SSL 9999 8888.
2. “Cost.dat” printout of sample building.
3. Economic Life Depreciation Tables, Base Year 2006.
4. 2007 CAMA Commercial Construction Valuation Guideline.

CURRENT OWNER		ACCOUNT INFORMATION				CURRENT ASSESSMENT				DISTRICT OF COLUMBIA REAL PROPERTY ASSESSMENT DIVISION					
ACCOUNT #: 9999 8888 Internal ID: 183145 Property Location: 9999 9TH ST NW WASHINGTON, DC 2001 Bldg #: 1 of 1 Card 1 of 1 Batch #: / Print Date: 02/14/2006 07:53		Use Type	Use Code	Lot SF	Status Code	Description	Use	Assessed Value							
C		045	999,999	F	COMMERCL COMLAND	045 045	870,920 300,000	COMM							
VISIT/CHANGE HISTORY															
Date	ID	Type	Inf. Source	Code	Description	Value Source:	C	Total:	1,170,920						
DATA ENTRY															
Entry ID: / /															
OWNERSHIP HISTORY		INSTRUMENT #		SALE DATE		q/u		v/i		SALE PRICE A.C.					
MIXED USE		APPEALS													
Code	Description	%	Appeal #	Decision	Amount	Revised AV	Yr.	Use	Type	Val Source	Land Value	Building Value	Assessed Value		
	Res Land	%					2007	045	C	C	300,000	870,920	1,170,920		
	Res Building	%					2006	045	C	C	300,000	721,060	1,021,060		
	Cmrcd Land	%					2005	047	C	C	300,000	658,710	958,710		
	Cmrcd Building	%					2004	047	C	C	300,000	562,370	862,370		
TAX TYPE															
SUPPLEMENTAL DATA															
Year	Type	Description	Type	Neighborhood	Description										
				Part Part											
				Mixed Use											
				Vent Lnd Use											
				Model Type											
				Base Lot Val											
				Abbutt Lot											
				Sketch Flag											
PARCEL LOCATION SUMMARY															
SSL	NBHD	SUB NBHD	ZONING	WARD	GROUP	ARN									
		9	0			457									
BUILDING PERMIT INFORMATION															
Permit ID	Issue Date	Type	Amount	Description	Insp. Date										
LAND LINE VALUATION SECTION															
Pocket NBHD: 0															
B#	Occ	Description	Zone	Frontage	Depth	Units	S.I.	I. Factor	LT	Price	Size Adj	Site Rating	Adjustments/Special Use	Notes	Land Value
1	045	Store-Restaurant				10,000	0	1.00		30.00	0.00000				300,000
Total Land Units: 10,000 SF												Total Land Value: 300,000			

CONSTRUCTION DETAIL											
Sect	Occupancy		Story Ht	# of Units	Structure Class	Ext. Fin	Grade	First Floor Data		Section RCN	
	Code	Description						Occ	Wall HT		Eff. Area
1	045	Store-Restaurant	1	0	C	BV	40	045	12	1,800	583,795
2	049	Commer-Retail-Misc	2	1	C	BV	40	047	14	3,600	545,438
BUILDING SUMMARY											
Sect #	Code	Description	GBA	Eff. Area	SFLA	Effective Area					Section RCN
1	BAS	Main Building Area	1,800	1,800	1,800	1,800					8,460
1	BM5	Basement, Full Finish	1,800	1,800	0	0					1,129,233
2	BAS	Main Building Area	1,800	1,800	1,800	1,800					47,700
2	BM4	Basement Semi-finished	1,800	1,260	0	0					1,176,933
2	FUS	Upper Story, Finished	1,800	1,800	1,800	74					870,920
BUILDING INFORMATION & DEPRECIATION											
Total Bldg Stories											2
Primary Occ											045
Structure Class											C
Actual Year Built											1953
Year Renovated											1998
Remodel Rating											3
Effective Year Built											1981
CDU											G
Status											F
% Complete											5
% Good Override											
Type											
Reason											
Comment											
COST VALUE SUMMARY											
Total: 9,000 8,460 5,400											
BUILDING SPECIAL FEATURES/AMENITIES											
Sect #	Code	Description	Units	UOM	Unit Price	Grade					RCN
1	HVAC 617	(HVAC) Heating Cmplt HVAC	1,800	SF	5.40	4					12,150
1	SPRK 683	Sprinklers Wet	1,800	SF	2.50	4					5,625
2	HVAC 617	(HVAC) Heating Cmplt HVAC	3,600	SF	5.40	4					24,300
2	SPRK 683	Sprinklers Wet	1,800	SF	2.50	4					5,625
DETACHED STRUCTURES											
Code	Description	Units	UOM	Unit Price	Grade	Cndm	RCN	% Gd	Assessed Val		

CONSTRUCTION DETAIL											
Sect	Occupancy		Story Ht	# of Units	Structure Class	Ext. Fin	Grade	First Floor Data		Section RCN	
	Code	Description						Occ	Wall HT		Eff. Area
1	045	Store-Restaurant	1	0	C	BV	40	045	12	1,800	583,795
2	049	Commer-Retail-Misc	2	1	C	BV	40	047	14	3,600	545,438
BUILDING SUMMARY											
Sect #	Code	Description	GBA	Eff. Area	SFLA	Effective Area					Section RCN
1	BAS	Main Building Area	1,800	1,800	1,800	1,800					8,460
1	BM5	Basement, Full Finish	1,800	1,800	0	0					1,129,233
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Effective Year Built											1981
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Status											F
% Complete											5
% Good Override											
Type											
Reason											
Comment											
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Total: 9,000 8,460 5,400											
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BUILDING SUMMARY											
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Remodel Rating											3
Effective Year Built											1981
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Status											F
% Complete											5
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Type											
Reason											
Comment											
COST VALUE SUMMARY											
Total: 9,000 8,460 5,400											
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CDU											G
Status											F
% Complete											5
% Good Override											
Type											
Reason											
Comment											
COST VALUE SUMMARY											
Total: 9,000 8,460 5,400											
BUILDING SPECIAL FEATURES/AMENITIES											
Sect #	Code	Description	Units	UOM	Unit Price	Grade					RCN
1	HVAC 617	(HVAC) Heating Cmplt HVAC	1,800	SF							

INCOME APPROACH														
Bldg #	Style	Style Desc	FL	Tenants	# of Units	Use Adj	Loc Adj	Rent/Unit	Gross Income	Vac Adj	Vacancy %	Exp Adj	Expense %	NOI
1	3	Retail	GL	3	6,000	A	A	12.00	72,000	A	.15	A	0.08	56,304
1	1	1 BR	UL	1	10	A	A	18,000.00	180,000	A	.1	A	0.10	145,800
1	2	2 BR	UL	1	10	A	A	21,600.00	216,000	A	.1	A	0.10	174,960
INCOME NOTES														
INCOME SUMMARY														
Primary Occ														
Total Rentable Units														
Total Gross Income														
Vacancy \$														
Expense \$														
Total NOI														
Cap Code														
Cap Adj.														
Cap Rate														
Income Value														
Excess Land														
Total Income Value:														

cost

OUTPUT FROM STORED PROCEDURE
REPORT GENERATED ON 14-FEB-2006 AT 07:45

*****Building #1 Calc Start*****

Cost Calculation for pid, bid = 183145, 173784
Account Number = 9999 8888
Use Code = 045
Cost Rate Group = RS1
Occupancy Type = 045 (Store-Restaurant)
Model ID: DCC

Section #1

Base Rate: 109.26
Size Adjustment: .98825
Effective Area: 3600
Adjusted Base Rate = (109.26 + 0) * .98825
Adjusted Base Rate: 107.98
RCN = ((107.98 * 3600) + 0) * 1.501808
RCN: 583795

*****Factor Adjustments*****

CONDITION DESIRABILITY UTILITY G = 1.15 x RCN
GRADE 40 (Good) = 1.12 x RCN
DC LOCAL MULTIPLIER C = 1.06 x RCN
COMM NBHD 9 = 1.1 x RCN

Section #2

Base Rate: 75.62
Size Adjustment: .98825
Effective Area: 4860
Adjusted Base Rate = (75.62 + 0) * .98825
Adjusted Base Rate: 74.73
RCN = ((74.73 * 4860) + 0) * 1.501808
RCN: 545438

*****Factor Adjustments*****

CONDITION DESIRABILITY UTILITY G = 1.15 x RCN
GRADE 40 (Good) = 1.12 x RCN
DC LOCAL MULTIPLIER C = 1.06 x RCN
COMM NBHD 9 = 1.1 x RCN

*****Effective Age Adjustments*****

REHAB FACTOR 3 = .45 * Age
STRUCTURE CLASS AGE FACTOR C = .9 * Age
REHAB YEAR = 1.15 * Age

Actual Year Built: 1953
Effective Age = 53 * .46575
Effective Age: 24
Percent Good = 74
RCNLD: 835630

Economic Life Depreciation Tables

Base Year 2006	
Age of Building	Effective Year Built
0	2006
1	2005
2	2004
3	2003
4	2002
5	2001
6	2000
7	1999
8	1998
9	1997
10	1996
11	1995
12	1994
13	1993
14	1992
15	1991
16	1990
17	1989
18	1988
19	1987
20	1986
21	1985
22	1984
23	1983
24	1982
25	1981
26	1980
27	1979
28	1978
29	1977
30	1976
31	1975
32	1974
33	1973
34	1972
35	1971
36	1970
37	1969
38	1968
39	1967
40	1966
41	1965
42	1964
43	1963
44	1962
45	1961
46	1960
47	1959
48	1958
49	1957
50	1956
51	1955
52	1954
53	1953
54	1952
55	1951
56	1950
57	1949
58	1948
59	1947
60	1946
61	1945
62	1944
63	1943
64	1942
65	1941
70	1940
75	1932

70 Year Economic Life	
Percent of Depreciation	Percent Good
0	100
0	100
1	99
1	99
2	98
2	98
3	97
4	96
4	96
5	95
5	95
6	94
6	94
7	93
8	92
8	92
9	91
10	90
10	90
11	89
11	89
12	88
12	88
13	87
13	87
14	86
14	86
15	85
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16	84
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57	43
57	43
58	42
58	42
59	41
59	41
60	40
60	40
61	39
61	39
62	38
62	38
63	37
63	37
64	36
64	36
65	35
65	35
70	24
70	24
75	20
75	20

60 Year Economic Life	
Percent of Depreciation	Percent Good
0	100
0	100
1	99
1	99
2	98
2	98
3	97
3	97
4	96
4	96
5	95
5	95
6	94
6	94
7	93
7	93
8	92
8	92
9	91
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59	41
59	41
60	40
60	40
61	39
61	39
62	38
62	38
63	37
63	37
64	36
64	36
65	35
65	35
70	24
70	24
75	20
75	20

50 Year Economic Life	
Percent of Depreciation	Percent Good
0	100
0	100
1	98
1	98
2	97
2	97
3	96
3	96
4	95
4	95
5	94
5	94
6	93
6	93
7	92
7	92
8	91
8	91
9	90
9	90
10	89
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62	37
63	36
63	36
64	35
64	35
65	34
65	34
70	24
70	24
75	18
75	18

2007 CAMA Commercial Construction Valuation Guideline -- RPAD

CONSTRUCTION DETAIL

Section Detail

No. Description Value

Building Stories

As Indicated.

Occupancy

As Indicated.
Select from list.

Stories and #Units

As Indicated.

Structure Class

- 0 Default
- A Fireproof Steel
- B Reinforced Concrete
- C Con. Block/Solid Brick
- D Wood Frame
- P Wood Pole
- S Steel/Sheet Metal

Exterior Finish

- 0 Typical
- AS Asphalt Siding
- BR Brick (Solid)
- BV Brick Veneer
- C Concrete
- CB Concrete Block
- MS Metal Siding
- S Stone
- SU Stucco
- SV Stone Veneer
- WS Wood Siding

Grade (Multiplies Base, Features)

- 0 Default --
- 0 Poor Quality -30%
- 15 Poor+ Quality -20%
- 20 Fair Quality -10%
- 25 Fair+ Quality -05%
- 30 Average Quality --
- 35 Average+ Quality 06%
- 40 Good Quality 12%
- 45 Good+ Quality 21%
- 50 Very Good Quality 30%
- 55 Very Good + Quality 38%
- 60 Excellent 45%

Story Height (Multiplies Base)

Currently not in use

Wall Height (Adds to Base Rate)

Currently not in use

CDU Condition, Desirability, Utility (Multiplies Base, Features)

- EX Excellent 35%
- VG Very Good 30%
- G Good 15%
- AV Average --
- F Fair -25%
- P Poor -50%
- VP Very Poor -70%
- US Unsound -90%

DEPRECIATION DETAIL

No. Description Value

Structure Class (Adjust EYB)

- 0 Default 0
- A Fireproof Steel -20%
- B Reinforced Conc. -15%
- C Con. Block/Brick -10%
- D Wood Frame 0
- S Steel/Sheet Metal 0

Remodel Rating (Adjusts EYB)

- 0 Default --
- 1 Unknown -10%
- 2 Gut Rehab -70%
- 3 Major Renovation -55%
- 4 Remodel -45%
- 5 Addition -30%
- 6 Cosmetic -10%

Year Remodeled (Adjust EYB)

- 2002-2005 0%
- 2000-2001 5%
- 1995-1999 15%
- 1990-1994 25%
- Earlier -1990 50%

Extra Features (Flat and Sq Ft Add)

- BL Balcony Flat
- ELEV Elevators Flat
- HVAC Heat & Cool Sq. Ft.
- MZ Mezzanines Sq. Ft.
- SPRK Sprinklers Sq. Ft.

Building RCN = [Section₁ (Base Rate * Effective Area * Size Adjustment) * (MV₀ * MV₂ * ... * MV_N)] + [Section_n (Base Rate * Effective Area * Size Adjustment) * (MV₀ * MV₂ * ... * MV_N)] + [Σ Special Building Features]

Where:

- RCN** = Replacement Cost New
- Base Rate** = \$ rate based on occupancy (use) code and construction class
- Section_n** = Each separate building or section of building
- Effective Area** = Adjusted SF area of improvement
- Size Adjustment** = Adjustment factor for deviation from base size
- MV** = Multiplicative Variables

Construction Detail - Commercial

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 0
 Structure Class: C Percent Good: 79 RCNLD: 524,690

Model: 94 Commercial Section #: 1

Bldg Stories: 2

Occupancy: 045 Store-Restaurant # Units: 0
 Stories: 1 Structure Class: C Brick/Concr Effective Area: 3,600
 Exterior Finish: BV Brick Veneer RCN: 343,337
 Grade: 40 Good Section Area Sur
 1st Floor Occ: 045 Store-Restaurant Code Description Group
 Wall Height: 10 Basement, Full F 180
 Shape/Peri: 2 Rectangular BM5

Depreciation

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 0
 Structure Class: C Percent Good: 79 RCNLD: 524,690

Year Built: 1953 Type Rsn Date ID Comment

CDU: G 3

Remodel Rating: 1998

Year Remodeled: 1982 Override EYB

Effective Year Built: F

Status: 5

Percent Complete

Value

% Good Dvr

Misc Improv

Cost To Cure

Vision® CAMA Income Approach Valuation Process

The income approach to the valuation of real property follows the generic formula of **Market Value = NOI/Capitalization Rate**, where **NOI** is the net operating income of the property and the **Capitalization Rate** is a market-derived overall direct capitalization rate. When properly developed and calibrated, this approach is a reliable indicator of market value of income producing properties within a mass-appraisal CAMA system.

The following exercise will illustrate how the Vision® CAMA system utilized by the District of Columbia calculates values using the above model. The first section will illustrate the traditional development of a market value estimate for a typical apartment building. This example will serve to provide a practical foundation for understanding the concepts of the income approach to valuation as well as an understanding of the major components of the Vision® CAMA methodology. The second section will illustrate the actual CAMA valuation of the apartment building described in the first section.

Income Approach to Value

An understanding of the income capitalization approach to value is essential in order to utilize the Vision® CAMA system's income model. Of the three traditional approaches to value (cost, market, income), the income approach is most often the appropriate approach when appraising property owned for its ability to produce income to the owner. An owner anticipates future income production and the income approach quantifies the present value of the income derived from the ownership of the property. There are several varieties or forms of the income approach used to quantify or convert income into an estimate of value. The most widely used approach is direct capitalization. Direct capitalization involves converting one year's stabilized net operating income into an estimate of value in one direct step using an appropriate rate. The direct capitalization method is rooted in the market. The rate used to convert income into value represents the relationship between value and income through the following formula:

X
Where: I = Income
R = Rate
V = Value

Formula 1

To determine an estimate of value, divide the income by the rate. The income is the net operating income (NOI) and the rate is the direct capitalization rate. For example, if a property generates an NOI of \$500,000 per year and the market-derived capitalization rate is 5 percent, the indicated value would be \$10,000,000 ($\$500,000/.05$).

Where do these two numbers come from? The first number, NOI, is determined by a combination of things. First, the income and expenses of the particular property are analyzed and “re-constructed” to produce the NOI. Re-constructing simply means that we analyze the income and more particularly the expenses to ensure that we have a true understanding and estimate of the amount of net operating income annually produced by the property. Oftentimes an income report will detail some expenses not directly associated with the property. For example, the debt service of a loan on the property may be subtracted from the gross income. This is not a proper expense as it is a function of the owner’s financing and not an operating expense of the property. Another example may be a large “expense” taken against gross income that should be more properly spread over several years, or capitalized. Expense ratios are calculated for the various categories of expenses.

Another source for determining the NOI of a property is the analysis of many other similar properties for their income levels and expense levels or ratios. If the subject property’s income and expenses are typical for similar properties, the actual NOI of the property becomes the amount to be capitalized by the rate. If, on the other hand, the property exhibits unusual income or expenses based on comparison of the ratios, some actual amounts of income or expenses may be substituted with the amounts represented by more typical ratios. The goal is to establish the typical level of NOI that a prudent investor would anticipate deriving from the property each year.

Where does the rate come from? The rate is the overall direct capitalization rate. This is the rate for the overall property used to convert a single year’s income into an indication of value of the overall property using the IRV formula shown above. The rate is derived through sales analysis. Ideally, where arms-length sales of similar properties occur and the income and expense data are well known, a direct capitalization rate can be derived using the IRV formula. For example, suppose the subject property is an office building and a similar office building recently sold for \$750,000. The reconstructed income and expense analysis indicated that at the time of sale the property was producing an annual net operating income of \$60,000. Using the IRV formula, the capitalization rate of the property was 8 percent ($\$60,000/\$750,000$). Reliable capitalization rates are the result of the analysis of many sales of income producing properties.

The following illustration is an example of an income and expense statement for our sample property. The property, Breakaway Northwest, is a high-rise apartment complex consisting of a one eight story concrete block building. The building has 164 rental units, a management office, laundry facility and on-site

surface parking. It is located close to the Convention Center in NW Washington, DC. We'll use this property both here and in the example within Vision[®] CAMA in the second part of this tutorial.

Breakaway Northwest Apartments	
- December 31, 2010-	
Potential Gross Income	\$3,820,680
Vacancy & Collection Loss (7%)	-267,448
Miscellaneous Income (laundry) (2%)	<u>+ 62,600</u>
Effective Gross Income	\$3,615,832
Expenses	
Operating:	
Management (9%)	\$321,200
R.E. Taxes (7%)	262,000
Insurance (7%)	245,800
Utilities (7%)	238,700
Salaries (6%)	220,250
Marketing (4%)	130,400
Yard and Snow (2%)	<u>89,500</u>
Sub-total (42%)	\$1,507,850
Reserves for Replacements:	
Roof (4%)	\$150,400
Parking (3%)	121,000
Redecorating (3%)	115,948
Appliances (3%)	<u>102,400</u>
Sub-total (13%)	\$489,748
Total Expenses (55%)	\$1,997,598
Net Operating Income (45%)	<u>\$1,618,234</u>
Capitalization Rate	5.25%
Indicated Market Value	<u>\$30,823,500</u>

Illustration 1

As you examine the statement, you'll notice a few terms we have not discussed. The **potential gross income** is defined as the maximum amount of income the property can produce if fully rented at market rent before any expenses are

deducted. There will always be some amount to deduct from the potential gross income in the form of **vacancy** and **collection loss**. Even if the property is fully leased, the appraiser must take some vacancy allowance to acknowledge tenant turn-over and inevitable vacancies. It is unrealistic not to allow for some vacancy. Collection loss is that amount deducted from the potential gross income for nonpayment of rent.

In addition to rent, a property may have other sources of income. This **miscellaneous income** can come from such sources as an on-site laundry facility, furniture rental, community room rentals, vending machines, and the like.

When an amount for vacancy and collection loss is subtracted, and an amount for miscellaneous income is added to the gross potential income, the result is the **effective gross income** of the property. Expenses are subtracted from, and expense ratios are calculated based upon, the effective gross income.

Expenses usually fall into two categories: **operating expenses** and **reserves for replacements**. Sometimes operating expenses may be further divided between variable and fixed expenses. Operating expenses are those legitimate expenses necessary to support the property's ability to produce income. The sample shows some of the more typical expenses incurred by an apartment building. Notice the calculation of the expense ratios mentioned earlier. As an example, the expense ratio for management is nine percent of the effective gross income ($\$321,200/\$3,615,832$). These actual ratios are compared to typical ratios to see if any expenses are out of the ordinary. If they are out-of-line and no adequate explanation can be identified, it is appropriate to substitute that category of expense with an amount that would be more normal as indicated by market research. This is an aspect of "re-constructing" the income/expense statement to more properly reflect a stable, normalized net operating income.

Reserves for replacements are a category of expenses that are designed to set aside funds for long lived items that periodically need to be replaced. The amount of the expense is based on the item's economic life and the estimated cost to replace it in the future. Let's say that appliances must be replaced every five years at an estimated cost of \$3,122 per unit. With 164 units, we need to accumulate \$ 512,000 over a five year period. Charging \$102,400 per year to the reserves for replacements expense allows us to set aside enough money to replace the appliances according to the five year schedule. It is always appropriate to set aside reserves for replacements, even though in practice a property may not have done so. This is another aspect to "re-constructing" the traditional income/expense statement.

Subtracting the total expenses from the effective gross income leaves us with the net operating income of the property. The NOI of the property is the "I" in the IRV formula that will be converted to an indication of value using a capitalization rate.

As mentioned earlier, we employ the direct capitalization of income to produce an estimate of value. The capitalization rates are determined by the analysis of

sales of similar properties where the NOI is known. Capitalization rates vary between and within different categories of income-producing properties. Analysis of the market is necessary to determine the proper rate to apply to the different properties. For example, a capitalization rate for a high quality office building in a prime location will be lower than a capitalization rate for a lower quality office in a less desirable location. With all other things remaining equal and no unusual externalities, capitalization rates for offices are generally less than rates for motels or shopping centers. It all harkens back to the level of return the buyers expect to receive on their investment in commercial real estate. One of their considerations is that the more risk involved with the property, the more return they require thereby raising the capitalization rate resulting in a lower valuation.

In our example, a market-derived capitalization rate for apartments of similar size and location indicate a direct capitalization rate of 5.25 percent. We now know the NOI and the cap rate and by following the IRV formula, we derive the value of Breakaway Northwest to be \$30,823,500 ($\$1,618,234/0.0525$).

The above discussion accurately represents the typical application of the income approach to valuation. However, determining valuations for ad-valorem purposes requires one significant modification to the process. Whereas in the above example we considered real estate taxes a legitimate expense, they are not expensed in ad-valorem appraisals. They are removed in our approach to account for the fact that the tax expense is directly determined by the very value we are trying to obtain. To avoid this circular situation whereby taxes affect value (lower NOI, if expensed) and value affects taxes, we remove the item from the NOI. Our tax-adjusted NOI will now be \$1,880,232 ($\$1,618,234 + \$262,000$). This is another aspect to reconstructing the income/expense statement illustrated earlier.

As a consequence of removing real estate taxes from the expenses and thereby increasing the NOI by a corresponding amount, we compensate by modifying the capitalization rate. The modification to the market cap rate allows us to remove real estate taxes from the net operating expenses and replace the loss by increasing the cap rate by the effective tax rate.

The cap rate we utilize for ad-valorem appraisals is a 'loaded' cap rate, meaning that it is comprised of both the market cap rate and the District's effective tax rate for apartments. Apartments are taxed at the residential tax rate. For this exercise the tax rate is \$0.85 per \$100 of assessed value, therefore the effective tax rate is 0.0085 ($0.85/100$). If the market cap rate is 5.25 percent and the effective tax rate is 0.85 percent, then our 'loaded' cap rate is 6.10 percent ($0.0525+0.0085$).

Based on the information we now have, we can estimate the market value of the subject apartment to be \$30,823,500 ($\$1,880,232/0.061$), the same as determined just a moment ago.

The above discussion has been presented as a review of the income approach to valuation, more specifically the direct capitalization technique. Included was an

example of the valuation of an apartment building. In the next section, we'll again value the same apartment building but conduct the valuation from within the District's CAMA system. Although the work flow may appear different, the underlying IRV formula should generate the same results.

Vision's® CAMA Income Approach to Value

In addition to the market-calibrated cost approach utilized by CAMA to value the residential property in the District, CAMA also has the capability to value commercial property using the more appropriate approach – the income capitalization approach. The discussion in this section will serve to illustrate the manner in which a commercial property, an apartment building, is valued based on the income approach.

To effectively value property, complete and accurate property characteristics must be known. Although the physical characteristics such as wall type, roof type, building style and the like are important, the most important information regarding commercial property subject to the income approach are characteristics of the property dealing with its ability to produce income. In an office building, for example, the gross building area or net leaseable area are important. In hotels and motels the significant measure is the number of rooms available. And in apartment buildings it would be the number and style of the units for rent.

We'll begin our appraisal of Breakaway Northwest by identifying the "mix" of units in the building. The table below represents this information.

The mix of units is as follows:

No. of Bedrooms	1 Bed	2 Bed	3 Bed
No. of Bathrooms	1 Bath	1 Bath	2 Bath
No. of Units	62	76	26

Table 1

From our previous discussion of the income approach, we know that there are four "key" areas having to do with the income approach to value:

- Gross Income (Rent)
- Vacancy & Expenses
- Net Operating Income
- Capitalization Rate

The illustration below highlights the location of these key areas on the data entry screen within CAMA.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 Residential
 Occupancy: 22
 Year Built: 1980
 Cost Value: 28,725,090
 Value / Bldg SF: 175152.99

Assng NBHD: 40
 Rent Curve: 009
 Cap Code: HR2 HIGH RISE 2
 Cap Adj.: 3 AVERAGE
 Cap Rate: .061
 Override

Gross 3,883,280
 Vac. 267,448
 Exp. 1,735,600
 Net 1,880,232

Leasable Area/Units
 Ground Level:
 Upper Level:
 Lower Level:
 Total Area/Units: 164

Notes
 Breakaway Northwest, elevator apartment, 8 story building, NW corner of 6th and M St., NW. Recently remodeled. Close to Mt. Vernon Sq. Metro.

Inc. Value: 30,823,500
 Exc Land: 0
 Total Value: 30,823,500
 Per SF/Unit 187,948.17

Key Areas on Income Screen

Gross Rent | Vacancy & Expenses

#	B #	S #	Style	Description	# Tenants	SF/Unit	Base Rate	FL	Use	Loc	\$/Unit	DV?	Gross Rent	Adj Table
1	1	1	1101	1BR, 1BA	0	62	17280		3	3	17280	No	1071360	1
2	1	1	2101	2BR, 1BA	0	76	25440		3	3	25440	No	1933440	1
3	1	1	3201	3BR, 2BA	0	26	31380		3	3	31380	No	815880	1
4	1	1	5000	APT MISC INCOME	0	0			3	3	0	Yes	62600	6

Add Denotes that field has a pick key Denotes that the field is locked

Illustration 2

Gross Rent

Recall we will be appraising the same apartment property from the example in the first section. Let's first turn our attention to the Gross Rent tab on the data entry screen. We'll be entering information about the complex in the Gross Rent table, using one line for each style of apartments. By style, we mean the unit of comparison designated for apartment buildings – 1 bed-1 bath, 2 bed w/den-1 bath, 3 bed-2 bath, and the like.

Let's look at the first line of the table:

Gross Rent | Vacancy & Expenses

#	B #	S #	Style	Description	# Tenants	SF/Unit	Base Rate	FL	Use	Loc	\$/Unit	DV?	Gross Rent	Adj Table
1	1	1	1101	1BR, 1BA	0	62	17280		3	3	17280	No	1071360	1
2	1	1	2101	2BR, 1BA	0	76	25440		3	3	25440	No	1933440	1
3	1	1	3201	3BR, 2BA	0	26	31380		3	3	31380	No	815880	1
4	1	1	5000	APT MISC INCOME	0	0			3	3	0	Yes	62600	6

Illustration3

Our first line will account for the 1 bedroom-1 bath units in the complex. The style code "1101" is selected from a pick-list that describes the different styles available for apartments. Please refer to the illustration below for a partial list of Income Style for apartments.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep. Year: 2012

Land Use: 21 **Residential**

Occupancy: 22

Year Built: 1980

Cost Value: 28,725,090

Value / Bldg SF: 175152.99

Leasable Area/Units Not Bred build remc

Ground Level: _____

Upper Level: _____

Lower Level: _____

Total Area/Units: 164

Income Style

0000 JR. EFFICIENCY
 0101 EFFICIENCY
 0102 EFFICIENCY, SM
 0103 EFFICIENCY, LG
 1101 1BR, 1BA
 1102 1BR, 1BA, SM
 1103 1BR, 1BA, LG
 1111 1BR+DEN, 1BA
 1113 1BR+DEN 1BA, LG
 2101 2BR, 1BA
 2102 2BR, 1BA, SM
 2103 2BR, 1BA, LG
 2111 2BR+DEN, 1BA
 2113 2BR+DEN 1BA, LG
 2201 2BR, 2BA
 2202 2BR, 2BA, SM

OK
Cancel

Gross Rent Vacancy & Expenses

#	B #	S #	Style	Description	# Tenants	SF/Unit	Base Rate	FL	Use	Loc	\$/Unit	OV?	Gross Rent	Adj Table
1	1	1	1101	1BR, 1BA	0	62	17280		3	3	17280	No	1071360	1
2	1	1	2101	2BR, 1BA	0	76	25440		3	3	25440	No	1933440	1
3	1	1	3201	3BR, 2BA	0	26	31380		3	3	31380	No	815880	1
4	1	1	5000	APT MISC INCOME	0	0			3	3	0	Yes	62600	6

Add Denotes that field has a pick key Denotes that the field is locked

Illustration 4

There are sixty-two 1BR, 1BA units and that number is recorded in the “SF/Unit” column of the table. In addition to recording the style and number of units, the appraiser may choose to modify the Gross Rent by taking into consideration both the tenant desirability and the location of the apartment. The two columns labeled “Use” and “Loc” account for these adjustments, respectively. The adjustments are percentage increases or decreases to the Gross Income from the default value of “average.” Both the “Use” and “Loc” allow for the same percent adjustment each, as shown in the illustration below.

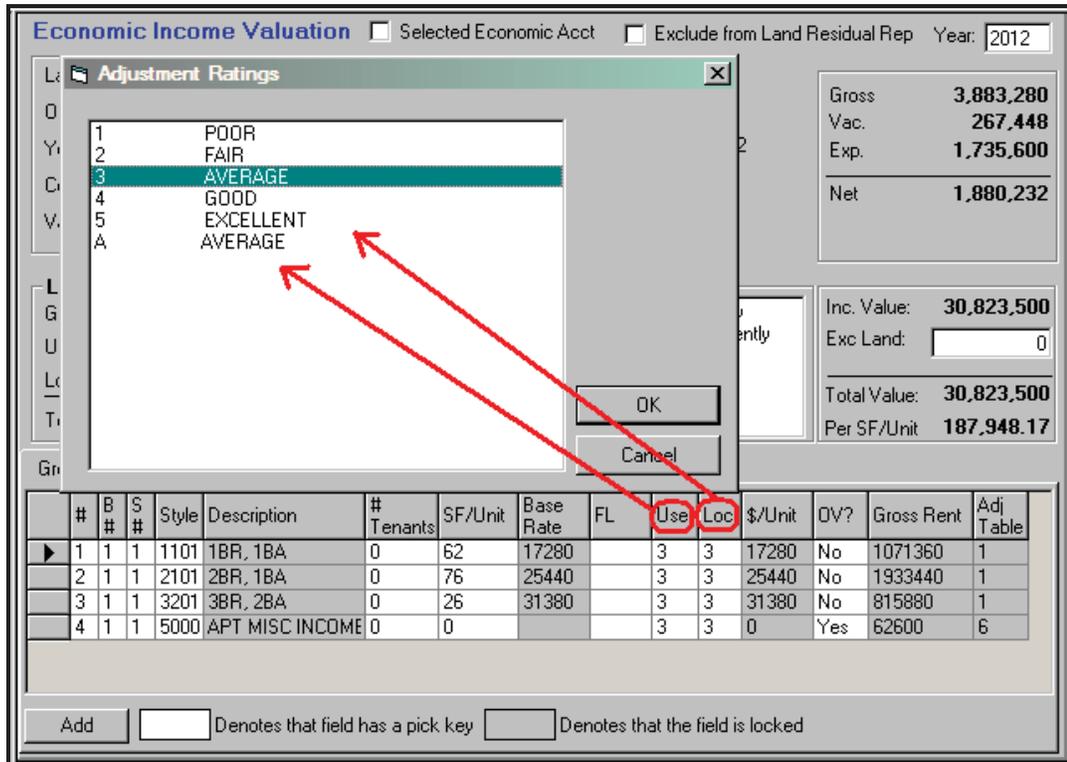


Illustration 5

The amount of adjustment is based on the table below:

Rating	Description	Location	Use
1	POOR	0.8	0.8
2	FAIR	0.9	0.9
3	AVERAGE	1	1
4	GOOD	1.1	1.1
5	EXCELLENT	1.25	1.25
A	AVERAGE	1	1

Table 2

In our example, we chose not to make any adjustments for location or desirability to any of the apartment units in this property.

The Base Rate shows the annual rent for each unit of the particular style “1101” – 1BR, 1BA. In this example the rent is \$1,440 per month or \$17,280 on an annual basis as shown in the base rate column. This value has been selected from a table in CAMA. The table has been calibrated based upon market analysis of current rents segmented by location and style, throughout the District. Below is an excerpt of a table that illustrates the rents for our particular property.

		OLD CITY #2
Code	Description	Monthly Rent
0000	JR. EFFICIENCY	1120
0101	EFFICIENCY	1185
0102	EFFICIENCY, SM	1120
0103	EFFICIENCY, LG	1305
1101	1BR, 1BA	1440
1102	1BR, 1BA, SM	1315
1103	1BR, 1BA, LG	1605
1111	1BR+DEN, 1BA	1680
1113	1BR+DEN 1BA, LG	1850
2101	2BR, 1BA	2120
2102	2BR, 1BA, SM	1910
2103	2BR, 1BA, LG	2325
3103	3BR, 1BA, LG	2495
3111	3BR+DEN, 1BA	2615
3113	3R+DEN 1BA, LG	2865
3201	3BR, 2BA	2615
3202	3BR, 2BA, SM	2350

Table 3

Notice that our subject property is located in the Old City #2 market. The District of Columbia is divided into nine separate markets for income modeling purposes. The market influences within Old City #2 are, for example, different from the influences within Southwest or Georgetown markets. Separate rent rate and vacancy and expense ratio schedules exist for each separate market.

As we continue with our example, we account for the other two styles of units in a similar manner. At this point, the gross rent has been calculated to be \$3,820,680. But, if you recall from the income and expense statement, the property generated an additional \$62,600 in non-rental income. We need to include this amount to determine to total gross income.

To account for the miscellaneous income, select “5000 APT MISC INCOME” as the style and enter the actual amount directly into the Gross Rent column. We want to be sure to set the “OV?”(override), column to “Yes.” By doing so, we ensure that the amount does not get adjusted for vacancy and collection loss discussed in the next section. Typically, only rental income is subjected to vacancy and collection loss. See the illustration below:

Gross Rent		Vacancy & Expenses												
#	B #	S #	Style	Description	# Tenants	SF/Unit	Base Rate	FL	Use	Loc	\$/Unit	OV?	Gross Rent	Adj Table
1	1	1	1101	1BR, 1BA	0	62	17280		3	3	17280	No	1071360	1
2	1	1	2101	2BR, 1BA	0	76	25440		3	3	25440	No	1933440	1
3	1	1	3201	3BR, 2BA	0	26	31380		3	3	31380	No	815880	1
4	1	1	5000	APT MISC INCOME	0	0			3	3	0	Yes	62600	6

Add Denotes that field has a pick key Denotes that the field is locked

Illustration 6

This concludes our discussion of the Gross Rent tab in the CAMA system. We have accounted for all of the rent attributable to the property and concluded that

the Gross Rent is the sum of \$ 3,883,280, the same amount as shown on the income and expense sheet from section one. Next, we'll turn to the Vacancy & Expenses portion of the record.

Vacancy and Expenses

Our work in the Vacancy and Expenses tab will be similar to what we did in the Gross Income tab. However, in this table we'll account for four items:

- Vacancy amount
- EGI (Effective Gross Income) calculation
- Expense amount
- NOI (Net Operating Income) calculation

The value of the NOI calculated here will be the basis for the final valuation using the IRV formula, after selecting a rate. See below:

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

<p>Land Use: 21 Residential</p> <p>Occupancy: 22</p> <p>Year Built: 1980</p> <p>Cost Value: 28,725,090</p> <p>Value / Bldg SF: 175152.99</p>	<p>Assng NBHD: 40</p> <p>Rent Curve: 009</p> <p>Cap Code: HR2 HIGH RISE 2</p> <p>Cap Adj.: 3 AVERAGE</p> <p>Cap Rate: .061</p> <p>Override <input type="checkbox"/></p>	<p>Gross 3,883,280</p> <p>Vac. 267,448</p> <p>Exp. 1,735,600</p> <p>Net 1,880,232</p>
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<p>Leasable Area/Units</p> <p>Ground Level:</p> <p>Upper Level:</p> <p>Lower Level:</p> <p>Total Area/Units: 164</p>	<p>Notes</p> <p>Breakaway Northwest, elevator apartment, 8 story building. NW corner of 6th and M St., NW. Recently remodeled. Close to Mt. Vernon Sq. Metro.</p>	<p>Inc. Value: 30,823,500</p> <p>Exc Land: <input type="text" value="0"/></p> <p>Total Value: 30,823,500</p> <p>Per SF/Unit 187,948.17</p>
--	--	---

Gross Rent	Vacancy & Expenses
------------	--------------------

#	Style	Vac	Vac %	DV?	Vac Amount	EGI	Exp Adj	Exp %	DV?	Exp Amount?	NOI	Adj Table
▶ 1	1101 3	.07	No	74995	996365	3	.48	No	478255	518110	1	
2	2101 3	.07	No	135341	1798099	3	.48	No	863088	935011	1	
3	3201 3	.07	No	57112	758768	3	.48	No	364209	394559	1	
4	500C 3	0	Yes	0	62600	3	.48	No	30048	32552	6	

Denotes that field has a pick key
 Denotes that the field is locked

Illustration 7

A Vacancy and Expenses line is automatically created for each style shown on the Gross Rent tab. The values are based on the market area of the property and are derived from market analysis. Recall that our apartments are located in the Old City #2 market. CAMA populates the Vac% column and the Exp% column with the market rates appropriate for Old City #2; in this case it would be based on this table:

	GEORGETOWN	NORTHEAST	OLD CITY #2	SOUTHEAST
Vacancy Ratio	4%	7%	7%	8%
Expense Ratio	42%	60%	48%	60%

Table 4

We have inspected the property and concur that the vacancy rate should be seven percent, to coincide with typical vacancies for properties in Old City #2.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 Residential
Occupancy: 22
Year Built: 1980
Cost Value: 28,725,090
Value / Bldg SF: 175152.99

Leasable Area/Units
Ground Level:
Upper Level:
Lower Level:
Total Area/Units: 164

Adjustment Ratings
1 POOR
2 FAIR
3 AVERAGE
4 GOOD
5 EXCELLENT
A AVERAGE

Gross Rent Vacancy & Expenses

#	Style	Vac	Vac %	DV?	Vac Amount	EGI	Exp Adj	Exp %	DV?	Exp Amount?	NOI	Adj Table
1	110	3	.07	No	74995	996365	3	.48	No	478255	518110	1
2	210	3	.07	No	135341	1798099	3	.48	No	863088	935011	1
3	320	3	.07	No	57112	758768	3	.48	No	364209	394559	1
4	500C	A	0	No	0	62600	A	.48	No	30048	32552	6

Denotes that field has a pick key Denotes that the field is locked

Illustration 8

If, however, we found the property to have less than typical vacancy we could have selected “4 Good.” Whereas the typical vacancy for the Old City #2 market area is 7 percent, had we selected “Good”, the vacancy rate would have been modified by appropriate multiplier in the adjustment table. The adjusted amount would have been 3.5 percent (0.07 * 0.50). The amount of adjustment for both vacancy and expense are shown in the table below.

Rating	Description	Vacancy	Expense
1	POOR	2	1.25
2	FAIR	1.5	1.1
3	AVERAGE	1	1
4	GOOD	0.5	0.9
5	EXCELLENT	0.25	0.75
A	AVERAGE	1	1

Table 5

The Expense % may be adjusted in a similar manner, but we'll leave it set to the typical percent associated with the Old City #2 market of forty-eight percent. By subtracting the Exp. Amount from the EGI, we get the NOI of the property. CAMA has calculated the NOI to be \$1,880,232, identical to our earlier income and expense report modified for real estate taxes discussed earlier.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 **Residential** Assng NBHD: 40
 Occupancy: 22 Rent Curve: 009
 Year Built: 1980 Cap Code: HR2 HIGH RISE 2
 Cost Value: 28,725,090 Cap Adj.: 3 AVERAGE
 Value / Bldg SF: 175152.99 Cap Rate: .061
 Override

Gross: 3,883,280
 Vac: 267,448
 Exp: 1,735,600
 Net: 1,880,232

Leasable Area/Units
 Ground Level:
 Upper Level:
 Lower Level:
 Total Area/Units: 164

Notes
 Breakaway Northwest, elevator apartment, 8 story building, NW corner of 6th and M St, NW. Recently remodeled. Close to Mt. Vernon Sq. Metro.

Inc. Value: 30,823,500
 Exc Land: 0
 Total Value: 30,823,500
 Per SF/Unit: 187,948.17

Gross Rent | Vacancy & Expenses

#	Style	Vac	Vac %	OV?	Vac Amount	EGI	Exp Adj	Exp %	OV?	Exp Amount?	NOI	Adj Table
1	1101	3	.07	No	74995	996365	3	.48	No	478255	518110	1
2	2101	3	.07	No	135341	1798099	3	.48	No	863088	935011	1
3	3201	3	.07	No	57112	758768	3	.48	No	364209	394559	1
4	500C	3	0	Yes	0	62600	3	.48	No	30048	32552	6

Denotes that field has a pick key Denotes that the field is locked

Illustration 9

We're almost finished. The last piece of the valuation process is the capitalization rate.

Capitalization Rate

Capitalization rates will vary across the District based on the class of property (office, retail, apartments, etc.) and its location (market area). Capitalization rates are assigned to apartments based on their market location and type of apartment complex. The District is divided into three submarkets. Each of these submarkets provides a separate cap rate for high-rise and low-rise apartments. Neighborhood 40/E, Old City II, is located in the Northwest market area and our subject is a high-rise type complex.

The assigned capitalization rate for high-rise apartments in the Northwest market area is 0.061 or 6.1 percent. Remember, this is the ‘loaded’ cap rate. See the illustration below.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 **Residential** Assng NBHD: 40
 Occupancy: 22 Rent Curve: 009
 Year Built: 1980 Cap Code: HR2 HIGH RISE 2
 Cost Value: 28,725,090 Cap Adj.: 3 AVERAGE
 Value / Bldg SF: 175152.99 Cap Rate: .061
 Override

Gross 3,883,280
 Vac. 267,448
 Exp. 1,735,600
 Net 1,880,232

Leasable Area/Units **Notes**
 Ground Level: Breakaway Northwest, elevator apartment, 8 story
 Upper Level: building, NW corner of 6th and M St., NW. Recently
 Lower Level: remodeled. Close to Mt. Vernon Sq. Metro.
 Total Area/Units: 164

Inc. Value: 30,823,500
 Exc Land: 0
 Total Value: 30,823,500
 Per SF/Unit 187,948.17

Gross Rent Vacancy & Expenses

#	Style	Vac	Vac %	OV?	Vac Amount	EGI	Exp Adj	Exp %	OV?	Exp Amount?	NOI	Adj Table
1	1101	3	.07	No	74995	996365	3	.48	No	478255	518110	1
2	2101	3	.07	No	135341	1798099	3	.48	No	863088	935011	1
3	3201	3	.07	No	57112	758768	3	.48	No	364209	394559	1
4	5000	3	0	Yes	0	62600	3	.48	No	30048	32552	6

Denotes that field has a pick key Denotes that the field is locked

Illustration 10

Upon analysis of the property and its income and expenses, an adjustment to the cap rate is not warranted and therefore the cap rate adjustment is set to “Average”. Had the property been located closer to the Mt. Vernon Metro station, there may have been a reason to adjust the cap rate down to reflect the property’s good performance based on its proximity to the station. In that situation, instead of ‘average’, we would want to adjust the rate to “Good” thereby lowering the rate. This adjustment is accomplished by the Cap Adjustment dialog box. See below.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 Residential Assng NBHD: 40
 Occupancy: 22 Rent Curve: 009
 Year Built: 1980 Cap Code: HR2 HIGH RISE 2

Gross: 3,883,280
 Vac: 267,448
 Exp: 1,735,600
 Net: 1,880,232

Inc. Value: 30,823,500
 Exc Land: 0
 Total Value: 30,823,500
 Per SF/Unit: 187,948.17

Cap Adjustment

0	VERY POOR
1	POOR
2	FAIR
3	AVERAGE
4	GOOD
5	EXCELLENT
A	AVERAGE

OK Cancel

Loc	\$/Unit	DV?	Gross Rent	Adj Table
B	17280	No	1071360	1
B	25440	No	1933440	1
B	31380	No	815880	1
3	0	Yes	62600	6

Add Denotes that field has a pick key Denotes that the field is locked

Illustration 11

Had we agreed that the performance was “Good”, our original cap rate of 6.1 percent would have been modified to 5.5 percent ($0.061 * 0.90$). Remember IRV tells us that, all other things being equal, the lower the cap rate the higher the property value and vice versa.

Cap Rating	Description	Adjustment
0	VERY POOR	1.30
1	POOR	1.20
2	FAIR	1.10
3	AVERAGE	1.00
4	GOOD	0.90
5	EXCELLENT	0.80
A	AVERAGE	1.00

Table 6

Valuation

We have almost come to the end of our example and exercise. One simple division remains. Knowing that the NOI is \$1,880,232 and that the overall direct capitalization rate is 0.061, we can calculate the estimated value of Breakaway Northwest to be \$30,823,500 ($\$1,880,232/0.061$). Again, this is identical to the

amount estimated in the first section of the exercise. The final results are highlighted below.

Economic Income Valuation Selected Economic Acct Exclude from Land Residual Rep Year: 2012

Land Use: 21 **Residential** Assng NBHD: 40
 Occupancy: 22 Rent Curve: 009 **Income**
 Year Built: 1980 Cap Code: HR2 HIGH RISE 2
 Cost Value: 28,725,090 **Rate** Cap Adj.: 3 AVERAGE
 Value / Bldg SF: 175152.99 Cap Rate: .061 **Value**

Gross 3,883,280
 Vac. 267,448
 Exp. 1,735,600
 Net 1,880,232

Leasable Area/Units
 Ground Level:
 Upper Level:
 Lower Level:
 Total Area/Units: 164

Notes
 Breakaway Northwest, elevator apartment, 8 story building. NW corner of 6th and M St., NW. Recently remodeled. Close to Mt. Vernon Sq. Metro.

Inc. Value: 30,823,500
 Exc Land: 0
 Total Value: 30,823,500
 Per SF/Unit 187,948.17

Gross Rent | Vacancy & Expenses

#	B #	S #	Style	Description	# Tenants	SF/Unit	Base Rate	FL	Use	Loc	\$/Unit	DV?	Gross Rent	Adj Table
1	1	1	1101	1BR, 1BA	0	62	17280		3	3	17280	No	1071360	1
2	1	1	2101	2BR, 1BA	0	76	25440		3	3	25440	No	1933440	1
3	1	1	3201	3BR, 2BA	0	26	31380		3	3	31380	No	815880	1
4	1	1	5000	APT MISC INCOME	0	0			3	3	0	Yes	62600	6

Add Denotes that field has a pick key Denotes that the field is locked

Illustration 12

Some Final Thoughts

We have introduced you to some of the most elementary aspects of property valuation using the District's Vision[®] CAMA system. We have developed the estimated market value of a fictitious apartment complex, utilizing the direct capitalization income approach to value. This guideline is merely a small window, a first step, in the complex field of mass appraisal. A CAMA system robust enough to appraise almost 200,000 different properties will necessarily be comprehensive and complex. Additionally, an initial valuation generated by CAMA is always subject to the review and approval of a qualified, professional appraiser before it becomes a final value. As you explore and utilize the program make certain that you fully understand the ramifications and results of your actions. Your supervisor and/or CAMA manager will always be available to assist you.

APPENDIX:

Sample PRC

2015 CAMA Residential Construction Valuation Guideline -- RPAD

USECODE

(Selects Base Rate)

No.	Description	Value
011	Row	\$119.53
012	Detached	\$139.22
013	Semi-Detached	\$122.96
015	Mixed Use	\$119.53
019	Miscellaneous	\$119.53
023	Small Apt. Bldg.	\$ 98.04
024	Conversion	\$118.99

CONSTRUCTION DETAIL

No.	Description	Value
-----	-------------	-------

Style (Descriptive)

1	1 Story
2	1.5 Story Unfin
3	1.5 Story Fin
4	2 Story
5	2.5 Story Unfin
6	2.5 Story Fin
7	3 Story
8	3.5 Story Unfin
9	3.5 Story Fin
10	4 Story
11	4.5 Story Unfin
12	4.5 Story Fin
13	Bi-Level
14	Split Level
15	Split Foyer

Foundation (Descriptive)

0	No Data
4	Pier
5	Wood
6	Concrete

View (Descriptive)

0	Typical
1	Poor
2	Fair
3	Average
4	Good
5	Very Good
6	Excellent

Building Type (Descriptive)

0	Default
1	Single
2	Multi
6	Row End \$2.00
7	Row Inside
8	Semi-Detached

Roof (Add to Base Rate)

0	Typical
1	Comp Shingle
2	Built Up
3	Shingle \$0.68
4	Shake \$0.79
5	Metal-Pre \$0.50
6	Metal Sms \$0.50
7	Metal-Cpr \$0.50
8	Composition Roll -\$0.43
9	Concrete Tile \$1.88
10	Clay Tile \$2.93
11	Slate \$2.86
12	Concrete \$1.88
13	Neoprene \$0.00
15	Wood- FS \$0.68

Exterior Finish (Add to Base Rate)

0	Default
1	Plywood
2	Hardboard Lap
3	Metal Siding
4	Vinyl Siding
5	Stucco
6	Wood Siding
7	Shingle
8	SPlaster
9	Rustic Log
10	Brick Veneer \$3.95
11	Stone Veneer \$9.38
12	Concrete Block
13	Stucco Block
14	Common Brick \$3.95
15	Face Brick \$3.95
16	Adobe
17	Stone \$9.38
18	Concrete \$3.95
19	Aluminum
20	Brick/Stone \$6.67
21	Brick/Stucco \$1.98
22	Brick/Siding \$1.98
23	Stone/Stucco \$4.69
24	Stone/Siding \$4.69

Heat Type (Add to Base Rate)

0	No Data
1	Forced Air
2	Air-Oil \$0.55
3	Wall Furnace -\$1.27
4	Electric Rad -\$0.29
5	Elec Base Brd -\$0.20
6	Water Base Brd \$1.42
7	Warm Cool
8	Ht Pump
9	Evp Cool
10	Air Exchng
11	Gravity Furnace
12	Ind Unit
13	Hot Water Rad

AC Type (Add to Base Rate)

0	Default
N	No
Y	Yes \$1.80

Floor Covering (Add to Base Rate)

0	Default \$2.50
1	Resilient \$2.63
2	Carpet \$2.17
3	Wood Floor \$6.06
4	Ceramic Tile \$8.53
5	Terrazzo \$8.30
6	Hardwood \$7.17
7	Parquet \$8.15
8	Vinyl Comp \$1.64
9	Vinyl Sheet \$2.86
10	Lt Concrete \$0.75
11	Hardwood/Carp \$4.67

Per Unit Adjustment (Flat Rate Add)

Full Bath (over 1)	\$12,500
Half Bath	\$ 8,125
Fireplace	\$ 9,000
Kitchen	\$11,500
Finished Basement (Basic)	\$20.00/sf
Finished Basement (Partition)	\$50.00/sf
Basement Garage	\$40.00/sf
Carport	\$33.00/sf
Stoop	\$22.00/sf
Open Porch	\$22.00/sf
Covered Open Porch	\$38.50/sf

Screen Enclosed Porch	\$41.25/sf
Glass Enclosed Porch	\$46.75/sf
Fully Enclosed Porch	\$55.00/sf
Deck	\$27.50/sf
Patio	\$ 8.25/sf

Grade (Multiplies Base, Add & Flat)

0	Default
1	Low Quality 0.50
2	Fair Quality 0.80
3	Average Quality 1.00
4	Above Average Quality 1.11
5	Good Quality 1.21
6	Very Good Quality 1.31
7	Excellent Quality 1.50
8	Superior Quality 1.75
9	Extraordinary – A 2.00
10	Extraordinary – B 2.25
11	Extraordinary – C 2.50
12	Extraordinary – D 2.90

Interior Condition (Multiplies Base, Add & Flat)

0	Typical
1	Poor .766
2	Fair .819
3	Average 1.000
4	Good 1.105
5	Very Good 1.182
6	Excellent 1.239

Exterior Condition (Multiplies Base, Add & Flat)

0	Default
1	Poor .766
2	Fair .819
3	Average 1.000
4	Good 1.105
5	Very Good 1.182
6	Excellent 1.239

Overall Condition (Multiplies Base, Add & Flat)

0	Default
1	Poor .766
2	Fair .819
3	Average 1.000
4	Good 1.105
5	Very Good 1.182
6	Excellent 1.239

Remodel Type (Multiplies Base, Add & Flat)

0	Default
1	Unknown
2	Gut Rehab 1.40
3	Major Renov 1.24
4	Remodel 1.08
5	Addition
6	Cosmetic 1.02

The effect of this multiplier diminishes at a rate of 5% per year based on the **Remodel Year**.

2015 CAMA Residential Construction Valuation Guideline -- RPAD

DEPRECIATION DETAIL

No.	Description	Value
Grade (Adjust EYB)		
0	Default	
1	Low Quality	20%
2	Fair Quality	10%
3	Average Quality	--
4	Above Average	-05%
5	Good Quality	-10%
6	Very Good Quality	-15%
7	Excellent Quality	-25%
8	Superior Quality	-35%
9	Extraordinary – A	-45%
10	Extraordinary – B	-50%
11	Extraordinary – C	-50%
12	Extraordinary – D	-50%

Bath Style (Adjust EYB)		
0	Default	
1	No Remodeling	
2	Semi-Modern	- 05%
3	Modern	- 10%
4	Luxury	- 20%

Kitchen Style (Adjust EYB)		
0	Default	
1	No Remodeling	
2	Semi-Modern	- 10%
3	Modern	- 20%
4	Luxury	- 40%

$$\text{Building RCN} = [(\text{Base Rate} + \sum \text{ABRV}_n) * \text{Effective Area} * \text{Size Adjustment} + \sum \text{AFRV}_n] * (\text{MV}_0 * \text{MV}_2 * \dots * \text{MV}_N)$$

Where:
 RCN = Replacement Cost New
 Base Rate = \$ rate based on use and style
 ABRV = Additive Base Rate Variables
 Effective Area = Adjusted SF area of improvement
 Size Adjustment = Adjustment factor for deviation from base size
 AFRV = Additive Flat Rate Variables
 MV = Multiplicative Variables

Depreciation Table			
Base Year 2014			
<i>Effective Age of Building</i>	<i>% Depr.</i>	<i>% Good</i>	<i>Effective Year Built</i>
0	0	100	2014
1	1	99	2013
2	2	98	2012
3	2	98	2011
4	3	97	2010
5	3	97	2009
6	4	96	2008
7	4	96	2007
8	4	96	2006
9	4	96	2005
10	5	95	2004
11	5	95	2003
12	5	95	2002
13	5	95	2001
14	6	94	2000
15	6	94	1999
16	6	94	1998
17	6	94	1997
18	6	94	1996
19	7	93	1995
20	7	93	1994
21	7	93	1993
22	7	93	1992
23	7	93	1991
24	8	92	1990
25	8	92	1989
26	8	92	1988
27	8	92	1987
28	8	92	1986
29	9	91	1985
30	9	91	1984
31	9	91	1983
32	9	91	1982
33	9	91	1981
34	9	91	1980
35	10	90	1979
36	10	90	1978
37	10	90	1977
38	10	90	1976
39	10	90	1975
40	10	90	1974
41	11	89	1973
42	11	89	1972
43	11	89	1971
44	11	89	1970
45	11	89	1969

46	11	89	1968
47	12	88	1967
48	12	88	1966
49	12	88	1965
50	12	88	1964
51	12	88	1963
52	12	88	1962
53	12	88	1961
54	13	87	1960
55	13	87	1959
56	13	87	1958
57	13	87	1957
58	13	87	1956
59	13	87	1955
60	14	86	1954
61	14	86	1953
62	14	86	1952
63	14	86	1951
64	14	86	1950
65	14	86	1949
70	15	85	1944
75	16	84	1939

2015 CAMA Commercial Construction Valuation Guideline -- RPAD

CONSTRUCTION DETAIL

Section Detail

No. Description Value

Building Stories

As Indicated.

Occupancy

As Indicated.
Select from list.

Stories and #Units

As Indicated.

Structure Class

- 0 Default
- A Fireproof Steel
- B Reinforced Concrete
- C Con. Block/Solid Brick
- D Wood Frame
- P Wood Pole
- S Steel/Sheet Metal

Exterior Finish

- 0 Typical
- AS Asphalt Siding
- BR Brick (Solid)
- BV Brick Veneer
- C Concrete
- CB Concrete Block
- MS Metal Siding
- S Stone
- SU Stucco
- SV Stone Veneer
- WS Wood Siding

Grade (Multiplies Base, Features)

- 0 Default --
- 0 Poor Quality -30%
- 15 Poor+ Quality -20%
- 20 Fair Quality -10%
- 25 Fair+ Quality -05%
- 30 Average Quality --
- 35 Average+ Quality 06%
- 40 Good Quality 12%
- 45 Good+ Quality 21%
- 50 Very Good Quality 30%
- 55 Very Good + Quality 38%
- 60 Excellent 45%

Story Height (Multiplies Base)

Currently not in use

Wall Height (Adds to Base Rate)

Currently not in use

CDU Condition, Desirability, Utility (Multiplies Base, Features)

- EX Excellent 35%
- VG Very Good 30%
- G Good 15%
- AV Average --
- F Fair -25%
- P Poor -50%
- VP Very Poor -70%
- US Unsound -90%

DEPRECIATION DETAIL

No. Description Value

Structure Class (Adjust EYB)

- 0 Default 0
- A Fireproof Steel -20%
- B Reinforced Conc. -15%
- C Con. Block/Brick -10%
- D Wood Frame 0
- S Steel/Sheet Metal 0

Remodel Rating (Adjusts EYB)

- 0 Default --
- 1 Unknown -10%
- 2 Gut Rehab -70%
- 3 Major Renovation -55%
- 4 Remodel -45%
- 5 Addition -30%
- 6 Cosmetic -10%

Year Remodeled (Adjust EYB)

- 2009-2013 0%
- 2007-2008 5%
- 2002-2006 15%
- 1997-2001 25%
- Earlier-1996 50%

Extra Features (Flat and Sq Ft Add)

- BL Balcony Flat
- ELEV Elevators Flat
- HVAC Heat & Cool Sq. Ft.
- MZ Mezzanines Sq. Ft.
- SPRK Sprinklers Sq. Ft.

$$\text{Building RCN} = [\text{Section}_1 (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (MV_0 * MV_2 * \dots * MV_N)] + [\text{Section}_n (\text{Base Rate} * \text{Effective Area} * \text{Size Adjustment}) * (MV_0 * MV_2 * \dots * MV_N)] + [\text{Special Building Features}]$$

Where:

- RCN = Replacement Cost New
- Base Rate = \$ rate based on occupancy (use) code and construction class
- Section_n = Each separate building or section of building
- Effective Area = Adjusted SF area of improvement
- Size Adjustment = Adjustment factor for deviation from base size
- MV = Multiplicative Variables

Construction Detail - Commercial

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 0
 Structure Class: C Percent Good: 79 RCNLD: 524,690

Model: 94 Commercial Section #: 1

Bldg Stories: 2

Occupancy: 045 Stone-Restaurant
 Stories: 1 # Units: 0
 Structure Class: C Brick/Concr
 Exterior Finish: BV Brick Veneer
 Grade: 40 Good
 1st Floor Occ: 045 Stone-Restaurant
 Wall Height: 10
 Shape/Peri: 2 Rectangular

Group: RS1
 Base Rate: 73.90
 Adj Base Rate: 73.03
 Effective Area: 3,600
 RCN: 343,337

Section Area Sur
 Code Description
 BAS Main Building Area 180
 BM5 Basement, Full F 180

Depreciation

Value Source: C Living Area/GFA: 5,400 Regression: 0
 Primary Occ: 045 Effective Area: 8,460 Income: 0
 Structure Class: C Percent Good: 79 RCNLD: 524,690

Year Built	Year Remodeled	Effective Year Built	Status	Percent Complete	Value	Type	Rsn	Date	ID	Comment
1953						G				
	1998					3				
		1982	F							
				5						

Override EYB
 % Good Dvr
 Misc Improv
 Cost To Cure

Outbuildings/Extra Features 2015 Commercial

OBXF

Code	Description	Sub	Sub Description	2015 Rate
HVAC	(HVAC)Heating	601	Electric	\$4.46
HVAC	(HVAC)Heating	603	Forced Air	\$4.76
HVAC	(HVAC)Heating	604	Hot Water	\$8.50
HVAC	(HVAC)Heating	605	Hw Radiant	\$8.50
HVAC	(HVAC)Heating	606	Space Heater	\$2.05
HVAC	(HVAC)Heating	607	Steam	\$7.29
HVAC	(HVAC)Heating	610	Wall Furn	\$2.23
HVAC	(HVAC)Heating	611	Pckg Unit	\$8.92
HVAC	(HVAC)Heating	612	W/C Air	\$12.17
HVAC	(HVAC)Heating	613	H/C Water	\$19.76
HVAC	(HVAC)Heating	614	Heat Pump	\$9.94
HVAC	(HVAC)Heating	615	Floor Furn	\$2.23
HVAC	(HVAC)Heating	616	Ind Thru-Wall Ht Pmp	\$4.70
HVAC	(HVAC)Heating	617	Cmplt HVAC	\$8.92
HVAC	(HVAC)Heating	618	Evap Cooling	\$19.76
HVAC	(HVAC)Heating	619	Refridg Cool	\$8.56
HVAC	(HVAC)Heating	621	Rad Space Ht	\$2.05
HVAC	(HVAC)Heating	626	Cntrl Atmosphere	\$8.74
HVAC	(HVAC)Heating	649	No HVAC	\$0.00
SPRK	Sprinklers	652	Sprinklers	\$4.76
SPRK	Sprinklers	681	Sprinklers	\$4.76
SPRK	Sprinklers	682	Dry	\$6.09
SPRK	Sprinklers	683	Wet	\$4.76
ELEV	Elevators	650	Elevators	\$66,883.05
ELEV	Elevators	651	Passenger	\$66,883.05
ELEV	Elevators	652	Power Freight	\$65,075.40
ELEV	Elevators	653	Freight Mnl	\$65,075.40
BL	Balcony	751	Commercial	\$39.77
MZ	Mezzanines	759	Mezzanines	\$50.73
MZ	Mezzanines	760	Display	\$50.73
MZ	Mezzanines	761	Office	\$89.48
MZ	Mezzanines	762	Open	\$50.73
MZ	Mezzanines	763	Storage	\$24.38

2015 Cost Occupancy / Use Codes

Occ. Code	Land Class	Description	Bldg. Model	Bldg. Occ.	Cost Group	Cost Adjustment	Size Adj. Table	Standard Size	Standard Wall Height	Wall Height Adjustment	Run Cost?
001	C	Non-conform residential-single	94	001	RH1	1	S90	2000	8	0.015	-1
002	R	Non-conform residential-multi-	03	002	AP1	1	S90	1500	8	0.02	-1
003	R	Residential Transient	05	003	RH1	1	S90	8000	10	0.015	-1
004	C	Commercial-Retail (NC)	94	004	RT1	1	S90	5000	12	0.01	-1
005	C	Commercial-Office (NC)	94	005	OF1	1	S90	6000	10	0.015	-1
006	C	Commercial-Spec Purpose (NC)	94	006	GS1	1	S90	6000	8	0.015	-1
007	C	Industrial (NC)	96	007	MN2	1	S90	20000	8	0.015	-1
008	C	Special Purpose (NC)	94	008	GS1	1	S90	8000	8	0.015	-1
011	R	Residential Row Single Family	01	011	R11	1	SG3	1800	8	0.015	-1
012	R	Residential Detached Single Fa	01	012	R12	1	SG3	1800	8	0.015	-1
013	R	Residential-Semi-Detached Sing	01	013	R13	1	SG3	1800	8	0.015	-1
014	R	Residential Garage	00	014		1	S90	10000	0	0.015	-1
015	R	Residential-Mixed Use	01	015	R15	1	SG3	1800	8	0.02	-1
016	R	Residential-Condo-Horizontal	05	016	CND	1	S90	1000	8	0.015	-1
017	R	Residential-Condo-Vertical	05	017	CON	1	CDU	800	8	0.015	-1
018	R	Residential-Condo-Parking	00	018		1	S90	10000	8	0.015	-1
019	R	Residential-Single Family-Misc	01	019	R19	1	SG3	1800	8	0.015	-1
021	C	Residential Apartment-Walk-Up	94	021	AP1	1	S90	10000	8	0.02	-1
022	C	Residential-Apartment-Elevator	94	022	AP2	1	S90	50000	8	0.015	-1
023	R	Res Flats-Less than 5 Units	03	023	R23	1	SG4	3000	8	0.015	-1
024	R	Res-Coverions less than 5 Uni	02	024	R24	1	SG3	1800	8	0.015	-1
025	C	Res-Coverions 5 Units	94	025	MRC	1	S90	10000	8	0.02	-1
026	C	Res-Cooperative-Horizo	94	026	AP2	1	S90	10000	8	0.015	-1
027	C	Res-Cooperative-Verical	94	027	AP2	1	S90	50000	8	0.015	-1
028	C	Res-Conversions-mr than 5	94	028	MRC	1	S90	20000	8	0.015	-1
029	C	Res-Multi-family Misc	94	029	AP2	1	S90	50000	8	0.015	-1
031	C	Hotel-Small	94	031	HT1	1	S90	20000	9	0.01	-1
032	C	Hotel-Large	94	032	HT2	1	S90	135000	9	0.01	-1
033	C	Motel	94	033	HT1	0.8	S90	20000	9	0.01	-1
034	C	Private Club	94	034	GS1	1	S90	4000	14	0.015	-1
035	C	Tourist Homes	94	035	RH1	1	S90	8000	10	0.015	-1
036	C	Dormitory	94	036	RH2	1	S90	8000	8	0.015	-1
037	C	Inn	94	037	MRC	0.8	S90	12000	10	0.01	-1
038	C	Fraternity/Sorority House	94	038	RH2	1	S90	8000	10	0.015	-1
039	C	Res-Transient Misc	94	039	RH1	1	S90	5000	8	0.015	-1
041	C	Store-Small 1 Story	94	041	RT1	1	S90	10000	14	0.01	-1
042	C	Store-Misc	94	042	RT1	1	S90	4000	14	0.01	-1
043	C	Store-Department	94	043	RT3	1	S90	40000	14	0.01	-1
044	C	Store-Shopping Center/Mall	94	044	RT2	1	S90	60000	18	0.01	-1
045	C	Store-Restaurant	94	045	RS1	1	S90	5000	12	0.01	-1
046	C	Store-Barber/Beauty Shop	94	046	RT4	1	S90	4000	14	0.01	-1
047	C	Store-Super Market	94	047	RT2	0.88	S90	22000	14	0.01	-1
048	C	Commer-Retail-Condo	94	048	RT1	1	S90	3000	14	0.01	-1
049	C	Commer-Retail-Misc	94	049	RT1	1	S90	4000	14	0.01	-1
051	C	Commercial-Office-Small	94	051	OF1	1	S90	6000	10	0.015	-1
052	C	Commercial-Office-Large	94	052	OF3	1	S90	60000	10	0.015	-1
053	C	Commercial-Planned-Development	94	053	OF3	1	S90	300000	10	0.015	-1
056	C	Office-Condo-Horizontal	94	056	OF1	1	S90	3000	10	0.015	-1
057	C	Office-Condo-Vertical	94	057	OF1	1	S90	3000	10	0.015	-1
058	C	Commercial-Office-Condo	94	058	OF3	1	S90	6000	10	0.015	-1
059	C	Commercial-Office-Misc	94	059	OF2	1	S90	6000	10	0.015	-1
061	C	Commercial-Banks_ Financial Svc	94	061	BN1	1	S90	3000	14	0.015	-1
062	C	Commercial-Garage_ Vehicle Sal	94	062	PK1	1	S90	5000	8	0.015	-1
063	C	Commercial-Parking Garage	94	063	PK2	1	S90	55000	8	0.015	-1
064	C	Parking Lot Special Purpose	00	064		1	S90	25000	0	0	-1
065	C	Vehicle Svc Station_ Vintage	94	065	SV1	1	S90	5000	12	0.01	-1
066	C	Theaters_ Entertainment	94	066	GS2	1	S90	20000	22	0.01	-1
067	C	Commercial-Restaurant	94	067	RS1	1	S90	5000	12	0.01	-1
068	C	Commercial-Restaurant-Fast Foo	94	068	RS2	1.1	S90	3000	12	0.01	-1
069	C	Commercial-Specific Purpose	94	069	RT1	1	S90	10000	14	0.01	-1
071	C	Industrial-Raw Material	94	071	MN1	1	S90	15000	14	0.015	-1

2015 Cost Occupancy / Use Codes

Occ. Code	Land Class	Description	Bldg. Model	Bldg. Occ.	Cost Group	Cost Adjustment	Size Adj. Table	Standard Size	Standard Wall Height	Wall Height Adjustment	Run Cost?
072	C	Industrial-Heavy Manufacturing	94	072	MN2	1	S90	30000	12	0.015	-1
073	C	Industrial-Light	94	073	MN1	1	S90	22000	12	0.015	-1
074	C	Industrial-Warehouse-1-story	94	074	WH2	1	S90	25000	16	0.01	-1
075	C	Industrial-Warehouse-Multistor	94	075	WH1	1	S90	20000	16	0.01	-1
076	C	Industrial-Truck Terminal	94	076	WH3	1	S90	20000	16	0.01	-1
078	C	Warehouse-Condo	94	078	WH2	1	S90	5000	16	0.01	-1
079	C	Industrial -Misc	94	079	MN1	1	S90	22000	12	0.015	-1
081	C	Religious	94	081	PS1	1	S90	15000	24	0.01	-1
082	C	Medical	94	082	MC1	1	S90	15000	10	0.01	-1
083	C	Educational	94	083	ED1	1	S90	80000	12	0.01	-1
084	C	Public Service	94	084	PS1	1	S90	12000	12	0.01	-1
085	C	Embassy_ Chancery	94	085	PS2	1	S90	12000	12	0.01	-1
086	C	Museum_ Library_ Gallery	94	086	GS3	1	S90	14000	14	0.01	-1
087	C	Recreational	94	087	RB1	1	S90	20000	24	0.01	-1
088	C	Healthcare Facility	94	088	MC2	1	S90	8000	12	0.01	-1
089	C	Special Purpose	94	089	GS2	1	S90	2000	8	0.01	-1
091	R	Vacant	00	091		1	S90		0	0.015	-1
092	R	Vacant-with permit	00	092		1	S90		0		-1
093	R	Vacant-zoning limits	00	093		1			0		-1
094	R	Vacant-false abutting	00	094		1			0		-1
095	R	Vacant-Commercial Use	00	095		1			0		-1
096	R	Vacant-Unimproved Parking	00	096		1			0		-1
116	R	Condo-Horizontal Combined	05	116	CND	1	S90	3000	8	0.015	-1
117	R	Condo-Vertical Combined	05	117	CND	1	S90	2000	8	0.015	-1
126	C	Coop-Horizontal-Mixed Use	94	126	AP2	1	S90	10000	8	0.015	-1
127	C	Coop-Vertical-Mixed Use	94	127	AP2	1	S90	10000	8	0.015	-1
165	C	Vehicle Svc Station_ Kiosk	94	165	SS1	1	S90	5000	14	0.01	-1
189	C	Special Purpose-Memorial	00	189		1	S90	10000	0	0.01	-1
191	C	Vacant	00	191		1					-1
192	C	Vacant-with permit	00	192		1					-1
193	C	Vacant-zoning limits	00	193		1					-1
194	C	Vacant-false abutting	00	194		1					-1
195	C	Vacant-Commercial Use	00	195		1					-1
196	C	Vacant-Unimproved Parking	00	196		1					-1
214	C	Garage-Multi-family	00	214		1	S90	10000	0	0.015	-1
216	C	Condo-Investment-Horizontal	94	216	CND	1	S90	10000	8	0.015	-1
217	C	Condo-Investment-Vertical	94	217	CND	1	S90	50000	8	0.015	-1
265	C	Vehicle Svc Station_ Kiosk	94	265	SS1	1	S90	5000	12	0.01	-1
316	R	Condo-Duplex	05	316	CND	1	S90	5000	8	0.015	-1
365	C	Vehicle Svc Station_ Market	94	365	SS2	1	S90	5000	12	0.01	-1
417	R	Condo-Vertical-Parking-Unid	00	417		1		2000	0		-1
465	C	Vehicle Svc Station_ Market	94	465	SS2	1	S90	5000	14	0.01	-1
516	R	Condo-Detached	01	516	SIN	1	S90	2000	8	0.015	-1



Use Codes

Code Description

Long Description

001 Residential-Single Family (NC)	(CLASS 1): Single-family residential property which normally would receive a use code, 11-19, 23-24 but has non-conforming use. (Assigned to Commercial)
002 Residential-Multi-Family (NC)	(CLASS 1): Multi-family residential property which normally would receive a use code, 21-22 or 25-29, but has a non-conforming use. (Assigned to Residential)
003 Residential-Transient (NC)	(CLASS 1): Transient residential property which normally would receive a use code, 31-39, but has a non-conforming use. (Assigned to Residential)
004 Commercial-Retail (NC)	(CLASS 2): Retail commercial property which normally would receive a use code, 41-49, but has non-conforming use. (Assigned to Residential)
005 Commercial-Office (NC)	(CLASS 2): Commercial office property which normally would receive a use code, 51-53,57-59, but has non-conforming use. (Assigned to Residential)
006 Commercial-Specific Purpose (NC)	(CLASS 2): Commercial property which normally would receive a specific purpose use code, 61-69, but has non-conforming use. (Assigned to Residential)
007 Industrial (NC)	(CLASS 2): Industrial property which normally would receive a use code, 71-79, but has non-conforming use. (Assigned to Residential)
008 Special Purpose (NC)	(CLASS 2): Special purpose property which normally would receive a use code, 81-89, but has non-conforming use. (Assigned to Residential)
011 Residential-Row-Single-Family	(CLASS 1): Single-family dwelling with 2 walls built as common walls with another structure, 2 exposed walls; primarily used as place of abode.
012 Residential-Detached-Single-Fa	(CLASS 1): Free-standing dwelling with open space around it and in all exterior walls; primarily used as abode.
013 Residential-Semi-Detached-Sing	(CLASS 1): Structure used primarily as accessory to single-family residence; no living quarters; on an individual lot. Garages, pools, tennis courts, pads, etc.
014 Residential-Garage	(CLASS 1 or 2): Single-family property with commercial (usually office) space in part of house. If use is mostly single-family, lot may be eligible for a Homestead Deduction. Mixed-use eligible.
015 Residential-Mixed Use	(CLASS 1): Enclosed space of 1 or more rooms, occupying all or part of 1 or more floors; entrance no higher than 3 floors; single-family use; may/may not have parking, laundry, patio, etc.
016 Residential-Condo-Horizontal	(CLASS 1): Enclosed space of 1 or more rooms, occupying all/part of 1 or more floors; in structure with elevator; more than 3 floors. Original primary use single-family. May have parking, laundry, patio, etc.
017 Residential-Condo-Vertical	(CLASS 1): Specific space, enclosed or not, for vehicle parking or storage; use is accessory to single-family residential; no living quarters; individually located to be freely exchanged independently of another unit.
018 Residential-Condo-Garage	(CLASS 1): All other residential-single family uses not otherwise coded.
019 Residential-Single-Family-Misc	(CLASS 1): Structure of 6 or more units; 1 owner; owner's motivation is to earn net investment income; no units higher than 3rd floor; no elevator; may have accessory uses.
021 Residential-Apartment-Walk-Up	(CLASS 1): Structure with 12 or more units; 1 owner; elevator, more than 3 floors; may have accessory uses (parking, laundry, etc.). Owner's motivation is investment income.
022 Residential-Apartment-Elevator	(CLASS 1): Structure with more than 1 single family unit, less than 5; usually self-contained, under 1 roof; few accessory uses; in some cases, owner occupies 1 unit; built for this use.
023 Residential Flats-Less than 5	(CLASS 1): Structure with more than 1 single-family unit, but less than 5; usually self-contained, under 1 roof; few accessory uses; 1 unit may be owner-occupied; original primary use not multi-family.
024 Residential-Conversions-Less t	(CLASS 1): Structure with 5 units, usually not self-contained but under 1 roof; with few accessory uses; 1 unit may be owner-occupied; original primary use not multi-family.
025 Residential-Conversion-5 Units	(Class 1): Structure with more than 1 unit, of 1 or more rooms; 1 corporate ownership accounts for benefit of all tenant-shareholders, or lease from shareholders; entrance no higher than 3 floors; may have accessory uses.
026 Residential-Cooperative-Horizontal	(Class 1): Structure with more than 1 unit, each with 1 or more rooms; 1 corporate ownership accounts for benefit of all tenant-shareholders; lease from shareholders; elevator; more than 3 floors; may have accessory uses.
027 Residential-Cooperative-Vertical	(CLASS 1 or 2): All other residential multi-family uses not otherwise noted. Mixed-use eligible.
029 Residential-Multifamily, Misc	(CLASS 2): Structure providing a temporary or semi-permanent residence; sleep accommodations, personal services, usually eating/drinking facilities; may include entertainment; 150 rooms or less.
031 Hotel-Small	

Use Codes

Code Description	Long Description
032 Hotel-Large	(CLASS 2): Structure providing temporary or semi-permanent residences; full personal services; eating/drinking facilities, entertainment, retail, banquet /conference capabilities; more than 150 rooms.
033 Motel	(CLASS 2): Structure used primarily as temporary residence; may include personal services, restaurant facilities, adequate parking; sleep accommodations may be open to building's exterior.
034 Club-Private	(CLASS 2): Structure used primarily as meeting place for members of an association organized for promotion of a common social/other objective; limited to members/guests. May include meals, residential suites. Mixed-use eligible.
035 Tourist Homes	(CLASS 2): Structure or part-structure used primarily for temporary sleep accommodations; no other services; may provide limited parking.
036 Dormitory	(CLASS 2): Structure or part-structure used as resident hall with sleep accommodations; may provide other services, such as food/beverage facilities.
037 Inn	(CLASS 2): Structure used primarily as a temporary residence. Rooms/suites may include kitchens; no guest central dining other than continental breakfast. No commercial adjuncts, function rooms.
038 Fraternity/Sorority House	(CLASS 1): Resident hall with sleep accommodations; may provide other services, such as food/beverage facilities. Mixed-use eligible.
039 Residential-Transient, Misc	(CLASS 2): All other residential transient not otherwise coded.
041 Store-Small 1-Story	(CLASS 2): Structure used primarily for retail sales; row, attached, or detached; with/without accessory uses; with/without living quarters.
042 Store-Misc	(CLASS 2): Structure used primarily for ground-level retail sales; row, attached, or detached; with/without other uses; with/without living quarters. Mixed-use eligible.
043 Store-Department	(CLASS 2): Structure used primarily for sales of combination of retail products; no living quarters; except custodial staff. Mixed-use eligible.
044 Store-Shopping Center/Mall	(CLASS 2): Structure/combination of structures, enclosed/not; with combination of retail businesses located to present a unified cluster of similar uses with common elements: parking, entrances, pedestrian areas.
045 Store-Restaurant	(CLASS 2): Structure used primarily for retail sales of food/drink prepared for carry-out or on-site consumption; in row; with/without other uses. Mixed-use eligible.
046 Store-Barber/Beauty Shop	(CLASS 2): Structure used primarily for retail sales/individual grooming services; on ground level; row, attached, or detached; other uses may occupy parts. Mixed-use eligible.
047 Store-Super Market	(CLASS 2): Structure used primarily for retail grocery sales; ground level; row, attached, or detached; with/without accessory uses. Mixed-use eligible.
048 Commercial-Retail-Condo	(CLASS 2): Unit in a predominately residential condo complex used for retail sales/service business.
049 Commercial-Retail-Misc	(CLASS 2): All other retail commercial land uses not otherwise coded. Mixed-use eligible.
051 Commercial-Office-Small	(CLASS 2): Structure without elevators used primarily for offices; secondary use may be retail sales, services, parking.
052 Commercial-Office-Large	(CLASS 2): Structure with elevator; used predominantly for offices, secondarily for retail sales, services, parking.
053 Commercial-Planned Development	(CLASS 2): Structure/combination of structures designed to incorporate several coordinated commercial endeavors into 1 closely-grouped unit; may include mail, offices, theaters, hotels, etc. Mixed-use eligible.
056 Office-Condo-Horizontal	(CLASS 2): Structure with more than 1 unit; entrance no higher than 3 floors above ground level; designed primarily for office use; may have accessory uses such as parking, etc.
057 Office-Condo-Vertical	(CLASS 2): Structure with more than 1 unit, elevator, and more than 3 floors; designed primarily for office use; accessory uses such as parking, etc.
058 Commercial-Office-Condo	(CLASS 2): Unit in a predominantly residential condo complex used as a commercial office. Mixed-use eligible.
059 Commercial-Office-Misc.	(CLASS 2): All other commercial office uses which have not been otherwise coded. Mixed-use eligible.
061 Commercial-Banks, Financial	(CLASS 2): Structure with service facility devoted to transactions dealing with money as a commodity.
062 Commercial-Garage, Vehicle Sale	(CLASS 2): Structure with facility for motor vehicle repairs; devoted to retail/ wholesale motor vehicle sales.
063 Commercial-Parking Garage	(CLASS 2): Structure used primarily for public storage of motor vehicles; repair, greasing, washing, or similar services incidental uses.
064 Parking Lot-Special Purpose	(CLASS 2): Lot used primarily for public storage of motor vehicles; any repair is incidental use; may have attendance booth, storage lifts, residential parking space if on separate lot/paved.

Use Codes

Code Description	Long Description
065 Vehicle Service Station-Vintage	(CLASS 2): Structure used for retail sale of motor fuel, lubricants. Incidental services such as lubrication, hand-car washing; sale, installation, minor repair of tires, batteries, other auto accessories.
066 Theaters, Entertainment	(CLASS 2): Structure with primary use for live, on-screen, or audience-participation entertainment.
067 Commercial-Restaurant	(CLASS 2): Structure used primarily as public eating place for retail sale of food/drink prepared/consumed on-site; secondary accessory uses.
068 Commercial-Restaurant-Fast Food	(CLASS 2): Structure used for retail sale of food/drink (non-alcoholic), cooked/heated in-structure for carry-out or on-site, usually specializing in a particular food.
069 Commercial-Specific Purpose, Misc	(CLASS 2): All other specific purpose commercial uses not otherwise coded. Mixed-use eligible.
071 Industrial-Raw Material Handling	(CLASS 2) : Property used primarily to receive, store, handle, ship industrial bulk raw material, normally processed/used at another location.
072 Industrial-Heavy Manufacturing	(CLASS 2): Structure containing processing/manufacturing equipment which handles raw material; may change the material into a finished product for public use or for assembly operation; use limited to structure.
073 Industrial-Light	(CLASS 2): Structure used to process, assemble, or manufacture raw, semi-finished, or finished materials, and/or completed components; use not limited to structure.
074 Industrial-Warehouse-1-Story	(CLASS 2): Structure used primarily to store materials/finished products; unlimited story height; accessory uses: office and/or retail-wholesale display area, parking.
075 Industrial-Warehouse-Multi-Story	(CLASS 2): Structure used primarily to store materials/finished products; 2 or more floors devoted to structure's primary use; accessory office and retail-wholesale display area.
076 Industrial-Truck Terminal	(CLASS 2): Structure used primarily to store (short-term) and transfer (turn-around) materials/finished products shipped by truck; raised truck level bays for receiving/shipping; accessory office.
078 Warehouse-Condo	(CLASS 2): Structure used primarily to store materials/finished products; unlimited story height, 2 or more floors; accessory office and/or retail/wholesale display area.
079 Industrial-Misc	(CLASS 2): All other industrial uses not otherwise coded. Mixed-use eligible.
081 Religious	(CLASS 2): Structure devoted to public worship; housing for and/or education of clergy/officials connected to religious activity; religious communities.
082 Medical	(CLASS 2): Structure devoted to public/private medical or surgical care to the sick or injured; outpatient diagnosis/treatment; education of medical personnel/officials.
083 Educational	(CLASS 2): Structure devoted to any level of public/private instruction. May include administrative, accessory functions; parking, retail sales, secondary use.
084 Public Service	(CLASS 2): Structure used primarily to serve public to protect people or property; utility service; other public service. Accessory uses are secondary.
085 Embassy, Chancery, etc.	(CLASS 2): Structure used primarily as official residence and/or offices of an ambassador or foreign government. Accessory uses secondary.
086 Museum, Library, Gallery	(CLASS 2): Structure for exhibition, display, storage of art works, other displayable chattels; usually open for public enjoyment; accessory uses (parking, retail sales).
087 Recreational	(CLASS 2): Facility primarily used for public viewing of sporting events, training/participation in recreational activities, or any other special sporting or leisure activity.
088 Health Care Facility	(CLASS 2): Structure devoted to public/private medical care/treatment of the sick or injured; may include other medically connected activities, other uses (retail sales, parking).
089 Special Purpose-Misc	(CLASS 2): All other special purpose uses not otherwise coded. Mixed-use eligible.
091 Vacant-True	(Class 1): Lot not improved with a structure and Residential vacant land (formerly Class 3).
092 Vacant-with Permit	(CLASS 1): Lot for which an unexpired building permit has been issued.
093 Vacant-Zoning Limits	(CLASS 1): Lot on which DC Zoning regulations prohibit an owner to build as a matter of right or lot with deed or covenant restrictions precluding buildings.
094 Vacant-False-Abutting	(CLASS 1): Lot assigned no real estate improvement value, but having part of a structure whose value is assigned to another lot. Mixed-use eligible.
095 Vacant-Residential Use	(CLASS 1): Lot with relatively permanent structures (storage tanks, railroad tracks), but not buildings, used for residential purposes, making the lot unbuildable.

Use Codes

Code Description	Long Description
096 Vacant-Unimproved Parking	(CLASS 1): Unimproved, graveled parking lot with approved parking permit.
097 Vacant-Improved and Abandoned	(CLASS 3): Residential and commercial improved vacant and abandoned properties (formerly Class 3). No longer in use.
116 Condo-Horizontal-Combined-	(CLASS 1): Unit in a structure with entrance no higher than 3 floors; designed primarily for single family residential use; accessory uses. Abuts primary unit; owner entitled to lower (Class 1) tax rate, but not Homestead Deduction.
117 Condo-Vertical-Combined	(CLASS 1): Unit in structure with entrance no higher than 3 floors, designed primarily for single family residential use; accessory uses. Abuts primary unit; owner entitled to lower (Class 1) tax rate, but not Homestead Deduction.
126 Coop-Horizontal-Mixed Use	(Class 1 or 2): Structure with more than 1 unit, an elevator, more than 3 floors; under 1 corporate ownership which acts to benefit all shareholders-tenants. Additional uses: retail sales, restaurants, offices. Mixed-use eligible.
127 Coop-Vertical-Mixed Use	(Class 1 or 2): Structure with more than 1 unit, elevator, more than 3 floors; under 1 corporate ownership which acts to benefit all shareholders-tenants. Additional uses: retail sales, restaurants, offices. Mixed-use eligible.
165 Vehicle Service Station-Kiosk	(CLASS 2): Small cashier booth used for to sell motor oil, lubricants, small miscellaneous items (candy, gum, cigarettes).
189 Special Purpose-Memorial	(CLASS 2): Permanent structure other than a building devoted to or available for public use: statues, fountains, pools, etc.
191 Vacant-True	(CLASS 2): Lot not improved with a structure and commercial vacant land (formerly Class 3).
192 Vacant-With Permit	(CLASS 2): Lot for which an unexpired building permit has been issued.
193 Vacant-Zoning limits	(CLASS 2): Lot on which DC Zoning regulations prohibit an owner to build as a matter of right or lot with deed or covenant restrictions precluding buildings.
194 Vacant-False-Abutting	(CLASS 2): Lot assigned no real estate improvement value, but having part of a structure whose value is assigned to another lot. Mixed-use eligible.
195 Vacant-Commercial Use	(CLASS 2): Lot with relatively permanent structures (storage tanks, railroad tracks), but not buildings, used for commercial purpose, making the lot unbuildable.
196 Vacant-Unimproved Parking	(CLASS 2): Unimproved, graveled parking lot with approved parking permit.
197 Vacant-Improved and Abandoned	(CLASS 3): Residential and commercial improved vacant and abandoned properties (formerly Class 3). No longer in use.
214 Garage-Multi-Family	(CLASS 1): Structure used primarily as accessory to multi-family residence; no living quarters; on individual lot.
216 Condo-Investment-Horizontal	(CLASS 1): Unit with entrance no higher than 3 floors above ground level, designed for single- family primary use; accessory uses. Fee owner's presumptive motivation is net investment income.
217 Condo-Investment-Vertical	(CLASS 1): Unit with entrance no higher than 3 floors above ground level; designed for single- family primary use; accessory uses. Fee owner's presumptive motivation is net investment income.
265 Vehicle Service Station-Kiosk	(CLASS 2): Small cashier booth used for retail of motor oil, small miscellaneous items (candy, gum); and provides non-incident services like car washing.
316 Condo-Duplex	(CLASS 1): Enclosed space with 2 piggy-backed units; designed primarily for single-family use; accessory uses: parking, laundry, storage, balcony, etc.
365 Vehicle Service Station-Market	(CLASS 2): Structure used for retail of motor oil, lubricants, incidental items (edibles, household products).
416 Condo-Horizontal-Parking-Unit	(CLASS 1): Condo in regime where ownership of an associated parking space, following condo's sale, is unclear. (Assessor must determine space's status.)
417 Condo-Vertical-Parking-Unit	(CLASS 1): Condo in regime where ownership of an associated parking space, following condo's sale, is unclear. (Assessor must determine space's status.)
465 Vehicle Service Station-Market	(CLASS 2): Structure used to sell motor oil, lubricants, incidental items (edibles, household products); and to provide non-incident services such as car washing.
516 Condo-Detached	(CLASS 1): Enclosed space of one unit of 1 or more rooms in a structure designed primarily for single- family residential use; accessory uses (parking, laundry, storage space, balcony, etc.)
995 Condo Main (class 1):	

2015 Base Cost Rates

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
AP1	0	\$111.23	5	60	80	99
AP1	A	\$113.31	5	70	80	99
AP1	B	\$116.48	5	70	80	99
AP1	C	\$111.23	5	60	80	99
AP1	D	\$109.53	5	50	80	99
AP1	S	\$103.70	5	50	80	99
AP2	0	\$132.29	5	60	80	99
AP2	A	\$178.07	5	70	80	99
AP2	B	\$171.44	5	70	80	99
AP2	C	\$132.29	5	60	80	99
AP2	D	\$126.70	5	50	80	99
BN1	0	\$268.26	5	60	80	99
BN1	A	\$322.59	5	70	80	99
BN1	B	\$310.86	5	70	80	99
BN1	C	\$268.26	5	60	80	99
BN1	D	\$251.67	5	50	80	99
BN1	S	\$228.04	5	50	80	99
BS1	0	\$197.31	5	60	80	99
BS1	A	\$257.22	5	70	80	99
BS1	B	\$229.03	5	70	80	99
BS1	C	\$197.31	5	60	80	99
BS1	D	\$179.70	5	50	80	99
BS1	S	\$70.47	5	50	80	99
CD	R	\$132.13	5	99	80	99
CND	0	\$294.88	5	50	80	99
CND	A	\$294.88	5	50	80	99
CND	B	\$294.88	5	50	80	99
CND	C	\$294.88	5	50	80	99
CND	D	\$294.88	5	50	80	99
CND	R	\$294.88	5	50	80	99
CND	S	\$294.88	5	50	80	99
CW1	0	\$162.08	5	60	80	99
CW1	A	\$192.04	5	70	80	99
CW1	B	\$183.22	5	70	80	99
CW1	C	\$162.08	5	60	80	99
CW1	D	\$144.47	5	50	80	99
CW1	S	\$144.47	5	50	80	99
ED1	0	\$176.96	5	60	80	99
ED1	A	\$242.28	5	70	80	99
ED1	B	\$234.48	5	70	80	99
ED1	C	\$176.96	5	60	80	99
ED1	D	\$168.60	5	50	80	99
ED1	S	\$169.32	5	50	80	99
GEN	0	\$169.13	5	60	80	99
GEN	A	\$234.47	5	70	80	99
GEN	B	\$215.25	5	70	80	99
GEN	C	\$169.13	5	60	80	99
GEN	D	\$144.14	5	50	80	99
GEN	S	\$144.14	5	50	80	99
GS1	0	\$177.11	5	60	80	99
GS1	A	\$180.42	5	70	80	99
GS1	B	\$183.73	5	70	80	99
GS1	C	\$177.11	5	60	80	99
GS1	D	\$167.78	5	50	80	99
GS1	S	\$118.54	5	50	80	99
GS2	0	\$160.33	5	60	80	99

2015 Base Cost Rates

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
GS2	A	\$251.31	5	70	80	99
GS2	B	\$239.33	5	70	80	99
GS2	C	\$160.33	5	60	80	99
GS2	D	\$150.83	5	50	80	99
GS2	S	\$146.68	5	50	80	99
GS3	0	\$215.55	5	60	80	99
GS3	A	\$305.56	5	70	80	99
GS3	B	\$296.04	5	70	80	99
GS3	C	\$215.55	5	60	80	99
GS3	D	\$204.86	5	50	80	99
GS3	S	\$190.97	5	50	80	99
HT1	0	\$137.02	5	60	80	99
HT1	A	\$163.23	5	70	80	99
HT1	B	\$159.54	5	70	80	99
HT1	C	\$137.02	5	60	80	99
HT1	D	\$128.38	5	50	80	99
HT1	S	\$101.98	5	50	80	99
HT2	0	\$217.73	5	60	80	99
HT2	A	\$222.32	5	70	80	99
HT2	B	\$217.73	5	70	80	99
HT2	C	\$171.08	5	60	80	99
HT2	D	\$159.68	5	50	80	99
HT2	S	\$211.89	5	50	80	99
MC1	0	\$331.34	5	60	80	99
MC1	A	\$434.92	5	70	80	99
MC1	B	\$426.39	5	70	80	99
MC1	C	\$331.34	5	60	80	99
MC1	D	\$312.03	5	50	80	99
MC1	S	\$170.53	5	50	80	99
MC2	0	\$214.76	5	60	80	99
MC2	A	\$272.94	5	70	80	99
MC2	B	\$264.82	5	70	80	99
MC2	C	\$214.76	5	60	80	99
MC2	D	\$203.39	5	50	80	99
MC2	S	\$214.76	5	50	80	99
MLT	R	\$96.34	5	70	80	70
MN1	0	\$76.43	5	60	80	99
MN1	A	\$87.68	5	70	80	99
MN1	B	\$84.59	5	70	80	99
MN1	C	\$76.43	5	60	80	99
MN1	D	\$69.08	5	50	80	99
MN1	S	\$69.38	5	50	80	99
MN2	0	\$168.04	5	60	80	99
MN2	A	\$217.55	5	70	80	99
MN2	B	\$214.51	5	70	80	99
MN2	C	\$168.04	5	60	80	99
MN2	D	\$108.02	5	50	80	99
MN2	S	\$155.87	5	50	80	99
MN4	0	\$186.75	5	60	80	99
MN4	A	\$237.84	5	70	80	99
MN4	B	\$204.36	5	70	80	99
MN4	C	\$186.75	5	60	80	99
MN4	D	\$172.65	5	50	80	99
MN4	S	\$172.65	5	50	80	99
MRC	0	\$135.78	5	75	40	75
MRC	A	\$135.78	5	75	40	75

2015 Base Cost Rates

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
MRC	B	\$135.78	5	75	40	75
MRC	C	\$135.78	5	75	40	75
MRC	D	\$135.78	5	75	40	75
MRC	S	\$135.78	5	75	40	75
OF1	0	\$177.17	5	60	80	99
OF1	A	\$248.74	5	70	80	99
OF1	B	\$247.52	5	70	80	99
OF1	C	\$182.18	5	60	80	99
OF1	D	\$171.46	5	50	80	99
OF1	S	\$160.88	5	50	80	99
OF2	0	\$182.18	5	60	80	99
OF2	A	\$248.74	5	70	80	99
OF2	B	\$240.71	5	70	80	99
OF2	C	\$182.18	5	60	80	99
OF2	D	\$171.46	5	50	80	99
OF2	S	\$160.88	5	50	80	99
OF3	0	\$240.71	5	60	80	99
OF3	A	\$248.74	5	70	80	99
OF3	B	\$240.71	5	70	80	99
OF3	C	\$182.18	5	60	80	99
OF3	D	\$171.46	5	50	80	99
OF3	S	\$160.88	5	50	80	99
OFF	0	\$128.93	5	60	80	99
OFF	A	\$169.46	5	70	80	99
OFF	B	\$158.39	5	70	80	99
OFF	C	\$128.93	5	60	80	99
OFF	D	\$117.88	5	50	80	99
OFF	S	\$117.88	5	50	80	99
PK1	0	\$99.84	5	60	80	99
PK1	A	\$101.71	5	70	80	99
PK1	B	\$102.60	5	70	80	99
PK1	C	\$99.84	5	60	80	99
PK1	D	\$91.21	5	50	80	99
PK1	S	\$72.62	5	50	80	99
PK2	0	\$76.21	5	60	80	99
PK2	A	\$78.53	5	70	80	99
PK2	B	\$76.21	5	70	80	99
PK2	C	\$74.17	5	60	80	99
PK2	D	\$68.62	5	50	80	99
PK2	S	\$41.61	5	50	80	90
PS1	0	\$204.94	5	60	80	99
PS1	A	\$282.48	5	70	80	99
PS1	B	\$270.58	5	70	80	99
PS1	C	\$204.94	5	60	80	99
PS1	D	\$194.20	5	50	80	99
PS1	S	\$177.40	5	50	80	99
PS2	0	\$224.60	5	60	80	99
PS2	A	\$292.88	5	70	80	99
PS2	B	\$283.35	5	70	80	99
PS2	C	\$224.60	5	60	80	99
PS2	D	\$214.37	5	50	80	99
PS2	S	\$146.16	5	50	80	99
R11	R	\$119.53	6	75	80	75
R12	R	\$139.22	6	75	80	75
R13	R	\$122.96	6	75	80	75
R15	R	\$119.53	6	75	80	75

2015 Base Cost Rates

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
R19	R	\$119.53	6	75	80	75
R23	R	\$98.04	6	75	80	75
R24	R	\$118.99	6	75	80	75
RB1	O	\$183.10	5	60	80	99
RB1	A	\$238.96	5	70	80	99
RB1	B	\$238.69	5	70	80	99
RB1	C	\$183.10	5	60	80	99
RB1	D	\$174.96	5	50	80	99
RB1	S	\$169.83	5	50	80	99
RES	R	\$96.10	5	70	80	70
RH1	O	\$131.99	5	70	80	99
RH1	A	\$131.99	5	70	80	99
RH1	B	\$131.99	5	70	80	99
RH1	C	\$131.99	5	70	80	99
RH1	D	\$131.99	5	70	80	99
RH1	S	\$131.99	5	70	80	99
RH2	O	\$161.49	5	60	80	99
RH2	A	\$208.73	5	70	80	99
RH2	B	\$203.89	5	70	80	99
RH2	C	\$161.49	5	60	80	99
RH2	D	\$148.31	5	50	80	99
RH2	S	\$111.36	5	50	80	99
RS1	O	\$174.52	5	60	80	99
RS1	A	\$229.51	5	70	80	99
RS1	B	\$231.51	5	70	80	99
RS1	C	\$174.52	5	60	80	99
RS1	D	\$161.76	5	50	80	99
RS1	S	\$163.01	5	50	80	99
RS2	O	\$188.23	5	60	80	99
RS2	A	\$253.29	5	70	80	99
RS2	B	\$255.50	5	70	80	99
RS2	C	\$188.23	5	60	80	99
RS2	D	\$174.20	5	50	80	99
RS2	S	\$176.51	5	50	80	99
RT1	O	\$117.43	5	60	80	99
RT1	A	\$148.51	5	70	80	99
RT1	B	\$143.64	5	70	80	99
RT1	C	\$117.43	5	60	80	99
RT1	D	\$109.69	5	50	80	99
RT1	S	\$110.23	5	50	80	99
RT2	O	\$113.53	5	60	80	99
RT2	A	\$131.50	5	70	80	99
RT2	B	\$132.65	5	70	80	99
RT2	C	\$113.53	5	60	80	99
RT2	D	\$105.05	5	50	80	99
RT2	S	\$105.36	5	50	80	99
RT3	O	\$180.31	5	60	80	99
RT3	A	\$186.07	5	70	80	99
RT3	B	\$180.31	5	70	80	99
RT3	C	\$147.26	5	60	80	99
RT3	D	\$176.32	5	50	80	99
RT3	S	\$174.76	5	50	80	99
RT4	O	\$112.14	5	60	80	99
RT4	A	\$111.24	5	70	80	99
RT4	B	\$112.22	5	70	80	99
RT4	C	\$112.14	5	60	80	99

2015 Base Cost Rates

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
RT4	D	\$103.03	5	50	80	99
RT4	S	\$102.02	5	50	80	99
SIN	R	\$154.17	5	70	80	70
SS1	0	\$234.92	5	70	80	99
SS1	A	\$239.31	5	70	80	99
SS1	B	\$241.40	5	70	80	99
SS1	C	\$234.92	5	70	80	99
SS1	D	\$232.62	5	70	80	99
SS1	S	\$234.92	5	70	80	99
SS2	0	\$186.20	5	60	80	99
SS2	A	\$189.68	5	70	80	99
SS2	B	\$191.33	5	70	80	99
SS2	C	\$186.20	5	60	80	99
SS2	D	\$176.58	5	50	80	99
SS2	S	\$185.27	5	50	80	99
SV1	0	\$83.65	5	60	80	99
SV1	A	\$90.25	5	70	80	99
SV1	B	\$93.67	5	70	80	99
SV1	C	\$83.65	5	60	80	99
SV1	D	\$72.04	5	50	80	99
SV1	S	\$70.28	5	50	80	99
TM1	0	\$91.61	5	60	80	99
TM1	A	\$112.75	5	70	80	99
TM1	B	\$102.18	5	70	80	99
TM1	C	\$91.61	5	60	80	99
TM1	D	\$84.57	5	50	80	99
TM1	S	\$84.57	5	50	80	99
UT1	0	\$160.32	5	60	80	99
UT1	A	\$181.47	5	70	80	99
UT1	B	\$169.13	5	70	80	99
UT1	C	\$160.32	5	60	80	99
UT1	D	\$137.42	5	50	80	99
UT1	S	\$137.42	5	50	80	99
WH1	0	\$78.55	5	60	80	99
WH1	A	\$115.96	5	70	80	99
WH1	B	\$113.08	5	70	80	99
WH1	C	\$78.55	5	60	80	99
WH1	D	\$69.29	5	50	80	99
WH1	S	\$70.15	5	50	80	99
WH2	0	\$66.13	5	60	80	99
WH2	A	\$98.86	5	70	80	99
WH2	B	\$95.56	5	70	80	99
WH2	C	\$66.13	5	60	80	99
WH2	D	\$58.50	5	50	80	99
WH2	S	\$59.26	5	50	80	99
WH3	0	\$94.71	5	60	80	99
WH3	A	\$92.91	5	70	80	99
WH3	B	\$96.42	5	70	80	99
WH3	C	\$103.69	5	60	80	99
WH3	D	\$64.04	5	50	80	99
WH3	S	\$92.08	5	50	80	99

Real Property Assessment Division
2015 Base Change
ALL PROPERTIES

Neighborhood	Name	Total Base			
		2014	2015	Difference	% Change
001	American University Park	\$3,019,402,730	\$3,258,596,630	\$239,193,900	7.92%
002	Anacostia	\$632,662,673	\$682,636,940	\$49,974,267	7.90%
003	Barry Farms	\$385,877,146	\$388,695,856	\$2,818,710	0.73%
004	Berkley	\$1,455,762,365	\$1,462,505,370	\$6,743,005	0.46%
005	Brentwood	\$1,078,421,576	\$1,112,619,250	\$34,197,674	3.17%
006	Brightwood	\$1,968,757,676	\$2,178,850,910	\$210,093,234	10.67%
007	Brookland	\$5,308,000,022	\$5,785,539,032	\$477,539,010	9.00%
008	Burleith	\$846,220,470	\$861,220,450	\$14,999,980	1.77%
009	Capitol Hill	\$3,665,071,283	\$3,935,977,869	\$270,906,586	7.39%
010	Central	\$54,353,485,742	\$61,377,995,254	\$7,024,509,512	12.92%
011	Chevy Chase	\$5,760,254,360	\$5,998,456,360	\$238,202,000	4.14%
012	Chillum	\$453,044,630	\$502,326,740	\$49,282,110	10.88%
013	Cleveland Park	\$2,998,493,586	\$3,187,278,103	\$188,784,517	6.30%
014	Colonial Village	\$531,683,530	\$584,821,200	\$53,137,670	9.99%
015	Columbia Heights	\$6,417,187,940	\$7,191,271,510	\$774,083,570	12.06%
016	Congress Heights	\$1,682,800,129	\$1,730,145,207	\$47,345,078	2.81%
017	Crestwood	\$688,840,990	\$733,142,950	\$44,301,960	6.43%
018	Deanwood	\$1,636,126,350	\$1,710,407,450	\$74,281,100	4.54%
019	Eckington	\$1,491,063,100	\$1,685,736,850	\$194,673,750	13.06%
020	Foggy Bottom	\$8,187,632,160	\$9,194,203,980	\$1,006,571,820	12.29%
021	Forest Hills	\$3,538,686,142	\$3,947,800,040	\$409,113,898	11.56%
022	Fort Dupont Park	\$878,961,160	\$924,858,520	\$45,897,360	5.22%
023	Foxhall	\$284,094,190	\$292,508,210	\$8,414,020	2.96%
024	Garfield	\$1,778,971,080	\$1,971,330,360	\$192,359,280	10.81%
025	Georgetown	\$8,075,319,435	\$8,676,224,851	\$600,905,416	7.44%
026	Glover Park	\$1,341,996,740	\$1,417,246,080	\$75,249,340	5.61%
027	Hawthorne	\$257,615,510	\$260,932,220	\$3,316,710	1.29%
028	Hillcrest	\$1,085,285,217	\$1,133,986,260	\$48,701,043	4.49%
029	Kalorama	\$4,897,723,090	\$5,225,419,000	\$327,695,910	6.69%
030	Kent	\$1,354,687,780	\$1,399,145,960	\$44,458,180	3.28%
031	LeDroit Park	\$1,218,798,600	\$1,344,312,760	\$125,514,160	10.30%
032	Lily Ponds	\$508,556,985	\$533,618,725	\$25,061,740	4.93%
033	Marshall Heights	\$428,799,230	\$443,696,490	\$14,897,260	3.47%
034	Massachusetts Av Heights	\$1,369,060,970	\$1,532,774,830	\$163,713,860	11.96%
035	Michigan Park	\$366,266,300	\$390,271,830	\$24,005,530	6.55%
036	Mount Pleasant	\$3,413,192,172	\$3,768,179,570	\$354,987,398	10.40%
037	North Cleveland Park	\$1,262,979,840	\$1,322,540,620	\$59,560,780	4.72%
038	Observatory Circle	\$2,247,210,850	\$2,409,471,650	\$162,260,800	7.22%
039	Old City I	\$12,554,500,997	\$14,029,867,075	\$1,475,366,078	11.75%
040	Old City II	\$17,252,987,524	\$18,845,544,180	\$1,592,556,656	9.23%
041	Palisades	\$1,103,958,780	\$1,153,906,280	\$49,947,500	4.52%
042	Petworth	\$2,289,622,080	\$2,672,508,370	\$382,886,290	16.72%
043	Randle Heights	\$1,202,929,700	\$1,238,970,510	\$36,040,810	3.00%
044	NoMa	\$4,300,352,070	\$4,656,873,719	\$356,521,649	8.29%
046	SW Waterfront	\$7,248,071,882	\$7,977,264,804	\$729,192,922	10.06%
047	Riggs Park	\$801,652,240	\$862,950,880	\$61,298,640	7.65%
048	Shepherd Park	\$631,173,636	\$703,710,930	\$72,537,294	11.49%
049	Sixteenth Street Heights	\$1,290,556,430	\$1,396,396,600	\$105,840,170	8.20%
050	Spring Valley	\$1,975,702,126	\$1,972,024,100	-\$3,678,026	-0.19%
051	Takoma	\$460,535,000	\$515,194,000	\$54,659,000	11.87%
052	Trinidad	\$921,574,250	\$1,110,754,340	\$189,180,090	20.53%
053	Wakefield	\$699,088,500	\$737,453,600	\$38,365,100	5.49%
054	Wesley Heights	\$1,691,043,667	\$1,778,791,950	\$87,748,283	5.19%
055	Woodley	\$366,641,880	\$388,591,160	\$21,949,280	5.99%
056	Woodridge	\$1,472,094,685	\$1,594,170,690	\$122,076,005	8.29%
059	Rail Road Tracks	\$2,527,390	\$2,527,390	\$0	0.00%
063	North Anacostia Park	\$3,357,450	\$3,362,570	\$5,120	0.15%
064	Anacostia Park	\$219,000	\$219,000	\$0	0.00%
066	Fort Lincoln	\$374,145,690	\$426,395,230	\$52,249,540	13.97%
068	Bolling AFB & Naval Research	\$40,089,460	\$40,308,110	\$218,650	0.55%
069	D.C. Village	\$5,775,200	\$5,769,580	-\$5,620	-0.10%
073	Washington Navy Yard	\$812,375,940	\$839,701,040	\$27,325,100	3.36%
	Totals:	\$194,369,969,326	\$213,510,001,995	\$19,140,032,669	9.85%

Real Property Assessment Division
2015 Base Change
RESIDENTIAL (Class 1)

Neighborhood	Name	Total Base			
		2014	2015	Difference	% Change
001	American University Park	\$2,088,081,500	\$2,173,622,120	\$85,540,620	4.10%
002	Anacostia	\$400,997,303	\$439,830,600	\$38,833,297	9.68%
003	Barry Farms	\$232,955,250	\$232,537,980	-\$417,270	-0.18%
004	Berkley	\$1,157,043,720	\$1,161,836,160	\$4,792,440	0.41%
005	Brentwood	\$292,082,880	\$307,770,490	\$15,687,610	5.37%
006	Brightwood	\$1,703,031,816	\$1,906,759,430	\$203,727,614	11.96%
007	Brookland	\$2,317,071,974	\$2,703,846,764	\$386,774,790	16.69%
008	Burleith	\$761,136,480	\$771,504,930	\$10,368,450	1.36%
009	Capitol Hill	\$2,884,975,899	\$3,114,596,929	\$229,621,030	7.96%
010	Central	\$4,843,252,710	\$5,244,910,290	\$401,657,580	8.29%
011	Chevy Chase	\$4,635,690,640	\$4,799,724,650	\$164,034,010	3.54%
012	Chillum	\$305,735,830	\$352,468,420	\$46,732,590	15.29%
013	Cleveland Park	\$2,331,102,733	\$2,430,157,580	\$99,054,847	4.25%
014	Colonial Village	\$481,117,690	\$526,596,630	\$45,478,940	9.45%
015	Columbia Heights	\$4,397,282,980	\$5,085,168,220	\$687,885,240	15.64%
016	Congress Heights	\$1,086,092,282	\$1,114,024,600	\$27,932,318	2.57%
017	Crestwood	\$634,163,360	\$677,312,610	\$43,149,250	6.80%
018	Deanwood	\$1,140,918,420	\$1,192,338,690	\$51,420,270	4.51%
019	Eckington	\$971,932,160	\$1,113,080,680	\$141,148,520	14.52%
020	Foggy Bottom	\$1,247,732,110	\$1,323,001,670	\$75,269,560	6.03%
021	Forest Hills	\$2,619,840,132	\$2,831,359,900	\$211,519,768	8.07%
022	Fort Dupont Park	\$707,412,280	\$749,716,850	\$42,304,570	5.98%
023	Foxhall	\$280,832,300	\$289,086,740	\$8,254,440	2.94%
024	Garfield	\$1,323,709,680	\$1,431,637,690	\$107,928,010	8.15%
025	Georgetown	\$4,668,635,798	\$4,925,007,080	\$256,371,282	5.49%
026	Glover Park	\$1,241,596,270	\$1,314,917,760	\$73,321,490	5.91%
027	Hawthorne	\$256,867,070	\$260,173,900	\$3,306,830	1.29%
028	Hillcrest	\$937,823,030	\$982,564,760	\$44,741,730	4.77%
029	Kalorama	\$2,883,189,340	\$3,113,288,930	\$230,099,590	7.98%
030	Kent	\$1,176,813,640	\$1,209,511,770	\$32,698,130	2.78%
031	LeDroit Park	\$785,885,440	\$907,043,570	\$121,158,130	15.42%
032	Lily Ponds	\$255,822,600	\$276,622,120	\$20,799,520	8.13%
033	Marshall Heights	\$313,590,220	\$326,483,150	\$12,892,930	4.11%
034	Massachusetts Av Heights	\$626,885,990	\$629,195,150	\$2,309,160	0.37%
035	Michigan Park	\$318,761,810	\$342,259,510	\$23,497,700	7.37%
036	Mount Pleasant	\$2,740,629,292	\$3,064,065,400	\$323,436,108	11.80%
037	North Cleveland Park	\$827,782,230	\$857,253,460	\$29,471,230	3.56%
038	Observatory Circle	\$1,306,348,900	\$1,386,792,670	\$80,443,770	6.16%
039	Old City I	\$8,058,599,156	\$8,886,498,480	\$827,899,324	10.27%
040	Old City II	\$10,655,599,930	\$11,668,809,430	\$1,013,209,500	9.51%
041	Palisades	\$1,033,757,780	\$1,076,179,110	\$42,421,330	4.10%
042	Petworth	\$2,058,817,130	\$2,434,943,120	\$376,125,990	18.27%
043	Randle Heights	\$923,624,620	\$958,899,540	\$35,274,920	3.82%
044	NoMa	\$365,496,279	\$365,831,019	\$334,740	0.09%
046	SW Waterfront	\$1,418,848,300	\$1,553,056,640	\$134,208,340	9.46%
047	Riggs Park	\$681,030,840	\$729,509,430	\$48,478,590	7.12%
048	Shepherd Park	\$557,230,620	\$626,001,920	\$68,771,300	12.34%
049	Sixteenth Street Heights	\$1,067,561,560	\$1,167,690,680	\$100,129,120	9.38%
050	Spring Valley	\$1,463,516,036	\$1,476,772,740	\$13,256,704	0.91%
051	Takoma	\$302,899,750	\$331,104,110	\$28,204,360	9.31%
052	Trinidad	\$752,184,370	\$933,320,800	\$181,136,430	24.08%
053	Wakefield	\$679,776,110	\$717,786,080	\$38,009,970	5.59%
054	Wesley Heights	\$1,537,140,050	\$1,600,564,910	\$63,424,860	4.13%
055	Woodley	\$261,178,120	\$282,374,480	\$21,196,360	8.12%
056	Woodridge	\$816,896,565	\$925,949,080	\$109,052,515	13.35%
059	Rail Road Tracks	\$0	\$0	\$0	0.00%
063	North Anacostia Park	\$0	\$0	\$0	0.00%
064	Anacostia Park	\$0	\$0	\$0	0.00%
066	Fort Lincoln	\$312,039,970	\$349,592,630	\$37,552,660	12.03%
068	Bolling AFB & Naval Research	\$10,683,430	\$10,902,080	\$218,650	2.05%
069	D.C. Village	\$0	\$0	\$0	0.00%
073	Washington Navy Yard	\$83,411,880	\$73,116,300	-\$10,295,580	-12.34%
	Totals:	\$90,225,116,255	\$97,736,972,432	\$7,511,856,177	8.33%

Real Property Assessment Division
2015 Base Change
COMMERCIAL (Class 2)

Neighborhood	Name	Total Base			
		2014	2015	Difference	% Change
001	American University Park	\$528,899,220	\$634,161,650	\$105,262,430	19.90%
002	Anacostia	\$160,663,040	\$170,312,440	\$9,649,400	6.01%
003	Barry Farms	\$27,368,976	\$29,956,306	\$2,587,330	9.45%
004	Berkley	\$14,788,295	\$16,357,870	\$1,569,575	10.61%
005	Brentwood	\$541,105,896	\$558,106,800	\$17,000,904	3.14%
006	Brightwood	\$157,782,320	\$161,019,820	\$3,237,500	2.05%
007	Brookland	\$561,534,746	\$590,944,336	\$29,409,590	5.24%
008	Burleith	\$0	\$0	\$0	0.00%
009	Capitol Hill	\$581,078,654	\$619,067,310	\$37,988,656	6.54%
010	Central	\$45,758,968,590	\$52,146,742,714	\$6,387,774,124	13.96%
011	Chevy Chase	\$673,572,650	\$740,251,400	\$66,678,750	9.90%
012	Chillum	\$89,223,720	\$89,646,730	\$423,010	0.47%
013	Cleveland Park	\$475,957,383	\$559,328,093	\$83,370,710	17.52%
014	Colonial Village	\$0	\$0	\$0	0.00%
015	Columbia Heights	\$796,430,510	\$836,020,090	\$39,589,580	4.97%
016	Congress Heights	\$87,166,587	\$92,323,947	\$5,157,360	5.92%
017	Crestwood	\$704,760	\$756,850	\$52,090	7.39%
018	Deanwood	\$178,333,810	\$179,870,090	\$1,536,280	0.86%
019	Eckington	\$423,221,940	\$475,793,160	\$52,571,220	12.42%
020	Foggy Bottom	\$3,133,063,660	\$3,464,265,600	\$331,201,940	10.57%
021	Forest Hills	\$420,848,200	\$514,881,280	\$94,033,080	22.34%
022	Fort Dupont Park	\$55,271,380	\$55,562,470	\$291,090	0.53%
023	Foxhall	\$2,921,720	\$3,009,370	\$87,650	3.00%
024	Garfield	\$288,917,260	\$349,777,080	\$60,859,820	21.06%
025	Georgetown	\$2,674,118,394	\$3,007,846,881	\$333,728,487	12.48%
026	Glover Park	\$69,740,100	\$71,226,020	\$1,485,920	2.13%
027	Hawthorne	\$0	\$0	\$0	0.00%
028	Hillcrest	\$81,534,467	\$84,262,780	\$2,728,313	3.35%
029	Kalorama	\$922,673,600	\$985,455,060	\$62,781,460	6.80%
030	Kent	\$90,118,010	\$101,233,210	\$11,115,200	12.33%
031	LeDroit Park	\$22,216,240	\$22,578,180	\$361,940	1.63%
032	Lily Ponds	\$117,306,145	\$118,137,405	\$831,260	0.71%
033	Marshall Heights	\$13,968,610	\$14,174,700	\$206,090	1.48%
034	Massachusetts Av Heights	\$131,133,990	\$138,032,150	\$6,898,160	5.26%
035	Michigan Park	\$6,537,740	\$6,726,150	\$188,410	2.88%
036	Mount Pleasant	\$478,186,420	\$504,368,840	\$26,182,420	5.48%
037	North Cleveland Park	\$263,212,790	\$292,446,850	\$29,234,060	11.11%
038	Observatory Circle	\$420,646,260	\$495,392,010	\$74,745,750	17.77%
039	Old City I	\$3,946,166,596	\$4,573,367,000	\$627,200,404	15.89%
040	Old City II	\$4,775,519,129	\$5,270,216,913	\$494,697,784	10.36%
041	Palisades	\$38,743,270	\$41,074,600	\$2,331,330	6.02%
042	Petworth	\$119,693,270	\$121,869,980	\$2,176,710	1.82%
043	Randle Heights	\$88,917,610	\$91,156,820	\$2,239,210	2.52%
044	NoMa	\$3,774,439,321	\$4,130,585,680	\$356,146,359	9.44%
046	SW Waterfront	\$5,593,245,102	\$6,184,646,344	\$591,401,242	10.57%
047	Riggs Park	\$35,064,980	\$46,855,030	\$11,790,050	33.62%
048	Shepherd Park	\$30,695,026	\$33,383,850	\$2,688,824	8.76%
049	Sixteenth Street Heights	\$78,498,580	\$80,146,940	\$1,648,360	2.10%
050	Spring Valley	\$62,118,070	\$92,300,490	\$30,182,420	48.59%
051	Takoma	\$122,002,470	\$147,899,930	\$25,897,460	21.23%
052	Trinidad	\$112,728,450	\$114,824,200	\$2,095,750	1.86%
053	Wakefield	\$10,981,330	\$11,184,240	\$202,910	1.85%
054	Wesley Heights	\$76,075,347	\$97,977,730	\$21,902,383	28.79%
055	Woodley	\$11,250	\$11,250	\$0	0.00%
056	Woodridge	\$434,475,110	\$444,907,120	\$10,432,010	2.40%
059	Rail Road Tracks	\$1,585,680	\$1,585,680	\$0	0.00%
063	North Anacostia Park	\$1,763,290	\$1,768,410	\$5,120	0.29%
064	Anacostia Park	\$219,000	\$219,000	\$0	0.00%
066	Fort Lincoln	\$60,544,930	\$75,094,090	\$14,549,160	24.03%
068	Bolling AFB & Naval Research	\$29,406,030	\$29,406,030	\$0	0.00%
069	D.C. Village	\$463,990	\$458,370	-\$5,620	-1.21%
073	Washington Navy Yard	\$728,964,060	\$766,584,740	\$37,620,680	5.16%
	Totals:	\$80,371,537,974	\$90,487,560,079	\$10,116,022,105	12.59%

Real Property Assessment Division
2015 Base Change
RESIDENTIAL/COMMERCIAL (Classes 1 and 2)

Neighborhood	Name	Total Base			
		2014	2015	Difference	% Change
001	American University Park	\$2,616,980,720	\$2,807,783,770	\$190,803,050	7.29%
002	Anacostia	\$561,660,343	\$610,143,040	\$48,482,697	8.63%
003	Barry Farms	\$260,324,226	\$262,494,286	\$2,170,060	0.83%
004	Berkley	\$1,171,832,015	\$1,178,194,030	\$6,362,015	0.54%
005	Brentwood	\$833,188,776	\$865,877,290	\$32,688,514	3.92%
006	Brightwood	\$1,860,814,136	\$2,067,779,250	\$206,965,114	11.12%
007	Brookland	\$2,878,606,720	\$3,294,791,100	\$416,184,380	14.46%
008	Burleith	\$761,136,480	\$771,504,930	\$10,368,450	1.36%
009	Capitol Hill	\$3,466,054,553	\$3,733,664,239	\$267,609,686	7.72%
010	Central	\$50,602,221,300	\$57,391,653,004	\$6,789,431,704	13.42%
011	Chevy Chase	\$5,309,263,290	\$5,539,976,050	\$230,712,760	4.35%
012	Chillum	\$394,959,550	\$442,115,150	\$47,155,600	11.94%
013	Cleveland Park	\$2,807,060,116	\$2,989,485,673	\$182,425,557	6.50%
014	Colonial Village	\$481,117,690	\$526,596,630	\$45,478,940	9.45%
015	Columbia Heights	\$5,193,713,490	\$5,921,188,310	\$727,474,820	14.01%
016	Congress Heights	\$1,173,258,869	\$1,206,348,547	\$33,089,678	2.82%
017	Crestwood	\$634,868,120	\$678,069,460	\$43,201,340	6.80%
018	Deanwood	\$1,319,252,230	\$1,372,208,780	\$52,956,550	4.01%
019	Eckington	\$1,395,154,100	\$1,588,873,840	\$193,719,740	13.89%
020	Foggy Bottom	\$4,380,795,770	\$4,787,267,270	\$406,471,500	9.28%
021	Forest Hills	\$3,040,688,332	\$3,346,241,180	\$305,552,848	10.05%
022	Fort Dupont Park	\$762,683,660	\$805,279,320	\$42,595,660	5.58%
023	Foxhall	\$283,754,020	\$292,096,110	\$8,342,090	2.94%
024	Garfield	\$1,612,626,940	\$1,781,414,770	\$168,787,830	10.47%
025	Georgetown	\$7,342,754,192	\$7,932,853,961	\$590,099,769	8.04%
026	Glover Park	\$1,311,336,370	\$1,386,143,780	\$74,807,410	5.70%
027	Hawthorne	\$256,867,070	\$260,173,900	\$3,306,830	1.29%
028	Hillcrest	\$1,019,357,497	\$1,066,827,540	\$47,470,043	4.66%
029	Kalorama	\$3,805,862,940	\$4,098,743,990	\$292,881,050	7.70%
030	Kent	\$1,266,931,650	\$1,310,744,980	\$43,813,330	3.46%
031	LeDroit Park	\$808,101,680	\$929,621,750	\$121,520,070	15.04%
032	Lily Ponds	\$373,128,745	\$394,759,525	\$21,630,780	5.80%
033	Marshall Heights	\$327,558,830	\$340,657,850	\$13,099,020	4.00%
034	Massachusetts Av Heights	\$758,019,980	\$767,227,300	\$9,207,320	1.21%
035	Michigan Park	\$325,299,550	\$348,985,660	\$23,686,110	7.28%
036	Mount Pleasant	\$3,218,815,712	\$3,568,434,240	\$349,618,528	10.86%
037	North Cleveland Park	\$1,090,995,020	\$1,149,700,310	\$58,705,290	5.38%
038	Observatory Circle	\$1,726,995,160	\$1,882,184,680	\$155,189,520	8.99%
039	Old City I	\$12,004,765,752	\$13,459,865,480	\$1,455,099,728	12.12%
040	Old City II	\$15,431,119,059	\$16,939,026,343	\$1,507,907,284	9.77%
041	Palisades	\$1,072,501,050	\$1,117,253,710	\$44,752,660	4.17%
042	Petworth	\$2,178,510,400	\$2,556,813,100	\$378,302,700	17.37%
043	Randle Heights	\$1,012,542,230	\$1,050,056,360	\$37,514,130	3.70%
044	NoMa	\$4,139,935,600	\$4,496,416,699	\$356,481,099	8.61%
046	SW Waterfront	\$7,012,093,402	\$7,737,702,984	\$725,609,582	10.35%
047	Riggs Park	\$716,095,820	\$776,364,460	\$60,268,640	8.42%
048	Shepherd Park	\$587,925,646	\$659,385,770	\$71,460,124	12.15%
049	Sixteenth Street Heights	\$1,146,060,140	\$1,247,837,620	\$101,777,480	8.88%
050	Spring Valley	\$1,525,634,106	\$1,569,073,230	\$43,439,124	2.85%
051	Takoma	\$424,902,220	\$479,004,040	\$54,101,820	12.73%
052	Trinidad	\$864,912,820	\$1,048,145,000	\$183,232,180	21.19%
053	Wakefield	\$690,757,440	\$728,970,320	\$38,212,880	5.53%
054	Wesley Heights	\$1,613,215,397	\$1,698,542,640	\$85,327,243	5.29%
055	Woodley	\$261,189,370	\$282,385,730	\$21,196,360	8.12%
056	Woodridge	\$1,251,371,675	\$1,370,856,200	\$119,484,525	9.55%
059	Rail Road Tracks	\$1,585,680	\$1,585,680	\$0	0.00%
063	North Anacostia Park	\$1,763,290	\$1,768,410	\$5,120	0.29%
064	Anacostia Park	\$219,000	\$219,000	\$0	0.00%
066	Fort Lincoln	\$372,584,900	\$424,686,720	\$52,101,820	13.98%
068	Bolling AFB & Naval Research	\$40,089,460	\$40,308,110	\$218,650	0.55%
069	D.C. Village	\$463,990	\$458,370	-\$5,620	-1.21%
073	Washington Navy Yard	\$812,375,940	\$839,701,040	\$27,325,100	3.36%
	Totals:	\$170,596,654,229	\$188,224,532,511	\$17,627,878,282	10.33%

Real Property Assessment Division
2015 Base Change
EXEMPT

Neighborhood	Name	Total Base			
		2014	2015	Difference	% Change
001	American University Park	\$402,422,010	\$450,812,860	\$48,390,850	12.02%
002	Anacostia	\$71,002,330	\$72,493,900	\$1,491,570	2.10%
003	Barry Farms	\$125,552,920	\$126,201,570	\$648,650	0.52%
004	Berkley	\$283,930,350	\$284,311,340	\$380,990	0.13%
005	Brentwood	\$245,232,800	\$246,741,960	\$1,509,160	0.62%
006	Brightwood	\$107,943,540	\$111,071,660	\$3,128,120	2.90%
007	Brookland	\$2,429,393,302	\$2,490,747,932	\$61,354,630	2.53%
008	Burleith	\$85,083,990	\$89,715,520	\$4,631,530	5.44%
009	Capitol Hill	\$199,016,730	\$202,313,630	\$3,296,900	1.66%
010	Central	\$3,751,264,442	\$3,986,342,250	\$235,077,808	6.27%
011	Chevy Chase	\$450,991,070	\$458,480,310	\$7,489,240	1.66%
012	Chillum	\$58,085,080	\$60,211,590	\$2,126,510	3.66%
013	Cleveland Park	\$191,433,470	\$197,792,430	\$6,358,960	3.32%
014	Colonial Village	\$50,565,840	\$58,224,570	\$7,658,730	15.15%
015	Columbia Heights	\$1,223,474,450	\$1,270,083,200	\$46,608,750	3.81%
016	Congress Heights	\$509,541,260	\$523,796,660	\$14,255,400	2.80%
017	Crestwood	\$53,972,870	\$55,073,490	\$1,100,620	2.04%
018	Deanwood	\$316,874,120	\$338,198,670	\$21,324,550	6.73%
019	Eckington	\$95,909,000	\$96,863,010	\$954,010	0.99%
020	Foggy Bottom	\$3,806,836,390	\$4,406,936,710	\$600,100,320	15.76%
021	Forest Hills	\$497,997,810	\$601,558,860	\$103,561,050	20.80%
022	Fort Dupont Park	\$116,277,500	\$119,579,200	\$3,301,700	2.84%
023	Foxhall	\$340,170	\$412,100	\$71,930	21.15%
024	Garfield	\$166,344,140	\$189,915,590	\$23,571,450	14.17%
025	Georgetown	\$732,565,243	\$743,370,890	\$10,805,647	1.48%
026	Glover Park	\$30,660,370	\$31,102,300	\$441,930	1.44%
027	Hawthorne	\$748,440	\$758,320	\$9,880	1.32%
028	Hillcrest	\$65,927,720	\$67,158,720	\$1,231,000	1.87%
029	Kalorama	\$1,091,860,150	\$1,126,675,010	\$34,814,860	3.19%
030	Kent	\$87,756,130	\$88,400,980	\$644,850	0.73%
031	LeDroit Park	\$410,696,920	\$414,691,010	\$3,994,090	0.97%
032	Lily Ponds	\$135,428,240	\$138,859,200	\$3,430,960	2.53%
033	Marshall Heights	\$101,240,400	\$103,038,640	\$1,798,240	1.78%
034	Massachusetts Av Heights	\$611,040,990	\$765,547,530	\$154,506,540	25.29%
035	Michigan Park	\$40,966,750	\$41,286,170	\$319,420	0.78%
036	Mount Pleasant	\$194,376,460	\$199,745,330	\$5,368,870	2.76%
037	North Cleveland Park	\$171,984,820	\$172,840,310	\$855,490	0.50%
038	Observatory Circle	\$520,215,690	\$527,286,970	\$7,071,280	1.36%
039	Old City I	\$549,735,245	\$570,001,595	\$20,266,350	3.69%
040	Old City II	\$1,821,868,465	\$1,906,517,837	\$84,649,372	4.65%
041	Palisades	\$31,457,730	\$36,652,570	\$5,194,840	16.51%
042	Petworth	\$111,111,680	\$115,695,270	\$4,583,590	4.13%
043	Randle Heights	\$190,387,470	\$188,914,150	-\$1,473,320	-0.77%
044	NoMa	\$160,416,470	\$160,457,020	\$40,550	0.03%
046	SW Waterfront	\$235,978,480	\$239,561,820	\$3,583,340	1.52%
047	Riggs Park	\$85,556,420	\$86,586,420	\$1,030,000	1.20%
048	Shepherd Park	\$43,247,990	\$44,325,160	\$1,077,170	2.49%
049	Sixteenth Street Heights	\$144,496,290	\$148,558,980	\$4,062,690	2.81%
050	Spring Valley	\$450,068,020	\$402,950,870	-\$47,117,150	-10.47%
051	Takoma	\$35,632,780	\$36,189,960	\$557,180	1.56%
052	Trinidad	\$56,661,430	\$62,609,340	\$5,947,910	10.50%
053	Wakefield	\$8,331,060	\$8,483,280	\$152,220	1.83%
054	Wesley Heights	\$77,828,270	\$80,249,310	\$2,421,040	3.11%
055	Woodley	\$105,452,510	\$106,205,430	\$752,920	0.71%
056	Woodridge	\$220,723,010	\$223,314,490	\$2,591,480	1.17%
059	Rail Road Tracks	\$941,710	\$941,710	\$0	0.00%
063	North Anacostia Park	\$1,594,160	\$1,594,160	\$0	0.00%
064	Anacostia Park	\$0	\$0	\$0	0.00%
066	Fort Lincoln	\$1,560,790	\$1,708,510	\$147,720	9.46%
068	Bolling AFB & Naval Research	\$0	\$0	\$0	0.00%
069	D.C. Village	\$5,311,210	\$5,311,210	\$0	0.00%
073	Washington Navy Yard	\$0	\$0	\$0	0.00%
	Totals:	\$23,773,315,097	\$25,285,469,484	\$1,512,154,387	6.36%

Parcel Count per Neighborhood - 2015

NBHD	NAME	Residential	Commercial	Exempt	Total
001	AMERICAN UNIV. PARK	2,691	95	36	2,822
002	ANACOSTIA	2,047	180	90	2,317
003	BARRY FARMS	832	52	103	987
004	BERKLEY	818	7	44	869
005	BRENTWOOD	905	338	155	1,398
006	BRIGHTWOOD	4,322	141	127	4,590
007	BROOKLAND	6,934	324	409	7,667
008	BURLEITH	855		5	860
009	CAPITOL HILL	4,101	334	68	4,503
010	CENTRAL	6,897	1,281	192	8,370
011	CHEVY CHASE	5,770	146	65	5,981
012	CHILLUM	1,030	63	71	1,164
013	CLEVELAND PARK	3,203	52	43	3,298
014	COLONIAL VILLAGE	643		20	663
015	COLUMBIA HEIGHTS	10,056	551	374	10,981
016	CONGRESS HEIGHTS	5,295	169	298	5,762
017	CRESTWOOD	820	1	26	847
018	DEANWOOD	6,840	297	596	7,733
019	ECKINGTON	2,281	145	49	2,475
020	FOGGY BOTTOM	2,173	145	129	2,447
021	FOREST HILLS	3,324	55	64	3,443
022	FORT DUPONT PARK	3,543	53	183	3,779
023	FOXHALL	370	1	1	372
024	GARFIELD	1,372	55	226	1,653
025	GEORGETOWN	4,616	621	164	5,401
026	GLOVER PARK	2,563	59	40	2,662
027	HAWTHORNE	313		1	314
028	HILLCREST	4,447	101	102	4,650
029	KALORAMA	3,661	134	226	4,021
030	KENT	898	31	21	950
031	LEDROIT PARK	1,842	34	37	1,913
032	LILY PONDS	1,495	54	61	1,610
033	MARSHALL HEIGHTS	1,807	24	252	2,083
034	MASS. AVE. HEIGHTS	192	2	54	248
035	MICHIGAN PARK	935	11	15	961
036	MOUNT PLEASANT	4,454	232	79	4,765
037	N. CLEVELAND PARK	878	42	9	929
038	OBSERVATORY CIRCLE	1,740	37	82	1,859
039	OLD CITY I	15,727	1,006	247	16,980
040	OLD CITY II	19,659	1,275	452	21,386
041	PALISADES	1,416	54	25	1,495
042	PETWORTH	6,408	265	134	6,807
043	RANDLE HEIGHTS	3,863	75	278	4,216
044	NOMA	495	175	21	691
046	SW WATERFRONT	3,092	113	112	3,317
047	RIGGS PARK	2,793	24	59	2,876
048	SHEPHERD PARK	1,000	34	15	1,049
049	16TH ST. HEIGHTS	2,271	121	97	2,489
050	SPRING VALLEY	937	10	38	985
051	TAKOMA	907	58	89	1,054
052	TRINIDAD	3,059	124	91	3,274
053	WAKEFIELD	970	15	5	990
054	WESLEY HEIGHTS	3,030	4	23	3,057
055	WOODLEY	209	1	3	213
056	WOODRIDGE	3,043	398	93	3,534
059	RAIL ROAD TRACKS		3	4	7
060	N. ROCK CREEK PARK				
061	NATL. ZOO				
062	S. ROCK CREEK PARK				
063	N. ANACOSTIA PARK		4	10	14
064	S. ANACOSTIA PARK		1		1
065	NATIONAL ARBORETUM				
066	FORT LINCOLN	1,080	5	8	1,093
067	ST. ELIZABETHS HOSPITAL				
068	BOLLING AFB & NAVAL RES	9	20		29
069	D.C. VILLAGE		1	1	2
070	FORT DRIVE				
071	GLOVER-ARCHBOLD PWY				
072	MALL				
073	WASHINGTON NAVY YARD	4	24		28
	TOTALS:	176,935	9,677	6,322	192,934

*DC and US (5,716) not included in Base Report Statistics

**PI accounts (265) not included in Base Report Statistics

Preliminary 2015 Performance Report

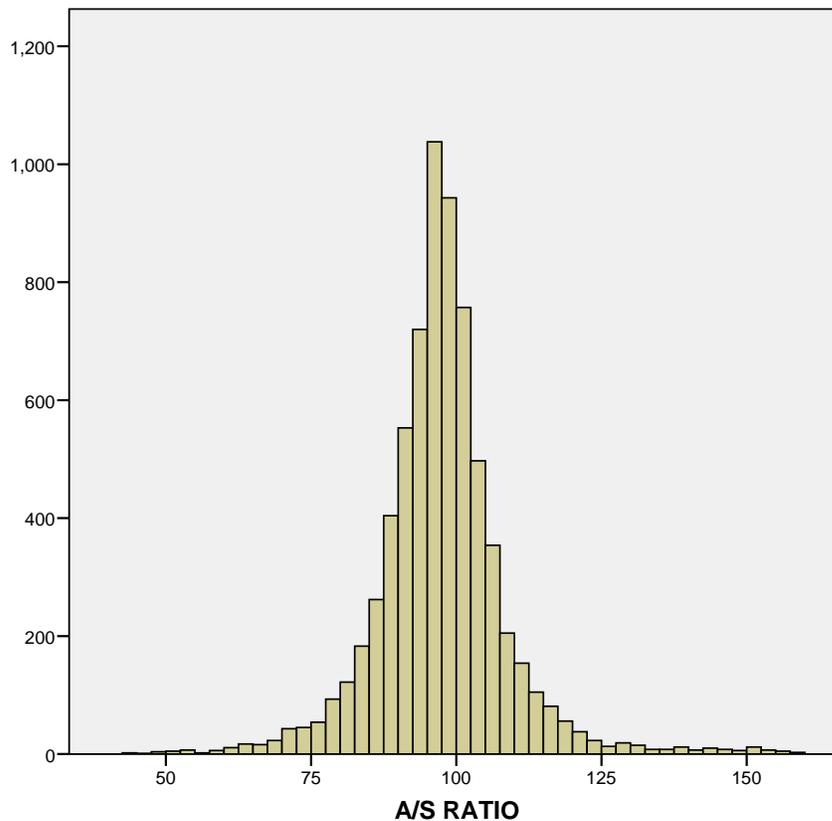
2013 SALES RATIOS CITY-WIDE

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
All	7,247	888,868	510,000	97.1	97.2	94.6	8.1	6,045	1,202	1.03

2013 SALES RATIOS BY PROPERTY TYPE: CITY-WIDE

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Residential	6,957	616,834	500,000	97.1	97.4	96.8	7.8	5,813	1,144	1.01
Commercial	290	7,414,888	1,000,000	92.4	92.7	90.2	16.2	232	58	1.03

CITY-WIDE RESIDENTIAL SALES RATIOS



Sales Ratio Report Using Current 2014 Values

2013 SALES RATIOS BY NEIGHBORHOOD: SINGLE-FAMILY

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
1 AMERICAN UNIVERSITY	79	927,361	890,000	88.6	87.8	87.1	11.0	73	6	1.01
2 ANACOSTIA	38	263,897	280,000	72.2	75.8	71.1	24.5	36	2	1.07
3 BARRY FARMS	12	231,725	219,750	88.3	77.4	73.4	19.5	12	0	1.05
4 BERKELEY	35	1,770,843	1,680,000	99.7	99.8	99.6	12.1	25	10	1.00
5 BRENTWOOD	22	283,418	276,500	82.8	86.0	84.2	13.8	21	1	1.02
6 BRIGHTWOOD	121	467,728	454,000	82.2	81.7	80.7	12.6	117	4	1.01
7 BROOKLAND	253	516,684	471,500	83.0	82.9	83.0	12.9	239	14	1.00
8 BURLEITH	32	1,147,259	1,237,500	97.4	93.7	93.6	9.6	27	5	1.00
9 CAPITOL HILL	129	954,002	874,500	85.4	85.6	84.6	11.2	122	7	1.01
10 CENTRAL	9	1,493,000	1,475,000	91.9	85.6	80.6	16.3	8	1	1.06
11 CHEVY CHASE	176	972,043	885,000	90.3	91.3	91.3	10.1	156	20	1.00
12 CHILLUM	22	417,927	401,000	76.2	80.6	77.4	18.9	20	2	1.04
13 CLEVELAND PARK	32	1,476,388	1,356,000	91.0	88.1	86.4	12.9	30	2	1.02
14 COLONIAL VILLAGE	16	1,020,175	864,000	86.0	87.2	86.0	9.5	14	2	1.01
15 COLUMBIA HEIGHTS	198	604,813	580,500	77.4	76.9	76.2	14.7	197	1	1.01
16 CONGRESS HEIGHTS	56	207,725	200,000	83.9	87.3	84.0	18.8	46	10	1.04
17 CRESTWOOD	29	945,307	896,000	91.2	91.5	91.7	9.1	27	2	1.00
18 DEANWOOD	133	215,690	217,000	87.5	86.8	84.9	17.2	116	17	1.02
19 ECKINGTON	78	550,457	560,000	81.1	79.2	77.1	17.0	73	5	1.03
20 FOGGY BOTTOM	9	853,556	775,000	86.8	86.3	85.5	9.7	9	0	1.01
21 FOREST HILLS	32	1,468,336	1,284,500	91.3	92.2	90.6	10.7	25	7	1.02
22 FORT DUPONT PARK	68	229,810	226,500	84.9	84.7	83.5	14.2	63	5	1.01
23 FOXHALL	14	875,714	846,250	86.8	87.1	86.6	8.5	14	0	1.01
24 GARFIELD	18	1,319,408	1,279,750	83.1	82.4	82.9	9.3	18	0	.99
25 GEORGETOWN	138	1,794,610	1,402,501	88.0	89.6	87.5	12.7	120	18	1.02
26 GLOVER PARK	53	868,408	840,000	86.1	88.2	87.7	8.1	52	1	1.01
27 HAWTHORNE	10	1,008,300	870,000	93.8	93.7	95.7	10.0	9	1	.98
28 HILLCREST	53	329,197	325,500	84.6	84.2	83.8	15.4	47	6	1.01
29 KALORAMA	40	2,115,451	1,897,500	88.4	87.6	88.1	11.5	36	4	.99
30 KENT	39	1,351,577	1,115,000	96.0	95.6	93.7	11.4	29	10	1.02
31 LEDROIT PARK	71	691,873	700,000	82.1	78.8	78.9	13.3	71	0	1.00
32 LILY PONDS	40	230,349	241,500	85.7	85.9	84.3	13.0	36	4	1.02
33 MARSHALL HEIGHTS	63	250,815	285,000	94.7	90.7	91.0	11.7	61	2	1.00
34 MASS. AVE. HEIGHTS	9	4,389,828	4,700,000	93.0	93.6	92.9	14.1	7	2	1.01
35 MICHIGAN PARK	31	458,585	454,000	90.4	89.5	88.4	13.4	27	4	1.01
36 MOUNT PLEASANT	67	894,176	910,000	77.0	78.3	77.9	13.5	64	3	1.01
37 N. CLEVELAND PARK	38	961,798	917,500	86.9	88.1	87.9	8.6	35	3	1.00
38 OBSERVATORY CIRCLE	20	1,784,208	1,300,000	84.2	86.3	83.6	13.9	17	3	1.03
39 OLD CITY #1	642	649,817	637,250	83.0	82.8	82.4	12.8	626	16	1.00
40 OLD CITY #2	197	942,796	845,000	83.1	81.7	81.1	12.5	195	2	1.01
41 PALISADES	48	1,236,669	1,012,518	91.5	93.8	94.5	8.0	43	5	.99
42 PETWORTH	237	528,559	530,000	79.3	79.3	78.9	12.7	234	3	1.00
43 RANDLE HEIGHTS	58	254,026	258,000	92.1	90.8	89.1	12.5	48	10	1.02
46 SW WATERFRONT	10	736,790	733,450	88.2	87.9	87.9	7.5	10	0	1.00
47 RIGGS PARK	58	329,077	303,000	85.2	84.6	83.8	14.5	52	6	1.01
48 SHEPHERD PARK	32	717,728	727,000	81.5	79.8	79.3	12.2	32	0	1.01
49 16TH STREET HEIGHTS	74	631,898	635,000	90.1	88.3	87.5	12.3	68	6	1.01
50 SPRING VALLEY	33	1,482,621	1,400,000	97.0	96.4	96.4	11.0	27	6	1.00
51 TAKOMA PARK	60	527,524	549,625	86.6	85.6	85.9	14.9	54	6	1.00
52 TRINIDAD	114	381,968	378,600	73.2	75.5	73.6	15.5	107	7	1.03
53 WAKEFIELD	8	1,102,125	1,044,000	94.6	93.3	93.3	6.7	8	0	1.00
54 WESLEY HEIGHTS	33	1,253,157	1,019,990	88.4	90.5	90.3	8.3	31	2	1.00
55 WOODLEY	8	1,410,250	1,378,500	83.7	79.4	77.2	13.5	8	0	1.03
56 WOODRIDGE	78	422,859	422,000	82.7	85.2	83.8	15.0	71	7	1.02
66 FORT LINCOLN	50	442,953	446,980	92.9	93.4	93.0	3.8	49	1	1.00

TOTALS:

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Single-Family	4,023	734,053	630,000	84.9	84.6	85.2	13.7	3,762	261	.99

Sales Ratio Report Using Current 2014 Values

2013 SALES RATIOS BY NEIGHBORHOOD: CONDOMINIUMS

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
1 AMERICAN UNIVERSITY	16	463,338	444,950	92.3	92.6	92.3	3.8	16	0	1.00
2 ANACOSTIA	4	142,875	162,500	96.4	98.9	99.1	7.1	3	1	1.00
3 BARRY FARMS	2	184,950	184,950	92.3	92.3	98.6	19.2	1	1	.94
4 BERKELEY	2	595,000	595,000	87.1	87.1	87.2	1.9	2	0	1.00
5 BRENTWOOD	24	172,363	170,000	100.0	97.2	96.0	8.4	19	5	1.01
6 BRIGHTWOOD	22	312,923	302,000	90.0	92.0	88.9	13.6	18	4	1.04
7 BROOKLAND	25	207,428	191,378	81.6	82.0	80.9	12.8	24	1	1.01
9 CAPITOL HILL	47	379,805	305,000	90.7	92.2	92.9	9.3	40	7	.99
10 CENTRAL	328	607,553	495,000	89.8	90.2	89.5	7.1	315	13	1.01
11 CHEVY CHASE	16	642,912	427,100	96.2	95.1	89.7	5.7	15	1	1.06
12 CHILLUM	7	258,929	265,000	89.4	87.1	86.3	5.9	7	0	1.01
13 CLEVELAND PARK	84	375,568	359,858	95.3	94.3	94.1	6.9	77	7	1.00
15 COLUMBIA HEIGHTS	299	410,508	390,000	92.0	90.0	90.3	9.7	286	13	1.00
16 CONGRESS HEIGHTS	7	56,271	62,000	130.8	131	134.7	8.3	1	6	.97
18 DEANWOOD	5	78,200	68,000	133.9	131	120.8	20.6	2	3	1.09
19 ECKINGTON	45	429,899	448,947	81.8	81.9	83.5	13.9	45	0	.98
20 FOGGY BOTTOM	48	353,213	265,000	90.3	89.3	88.5	8.1	47	1	1.01
21 FOREST HILLS	37	312,105	312,000	90.7	90.0	89.8	7.4	36	1	1.00
22 FORT DUPONT PARK	1	142,600	142,600	81.6	81.6	81.6	.0	1	0	1.00
24 GARFIELD	38	409,499	395,500	91.3	91.4	90.0	8.9	34	4	1.02
25 GEORGETOWN	75	922,259	575,000	91.4	92.4	92.2	8.6	68	7	1.00
26 GLOVER PARK	49	388,949	366,000	94.0	94.0	94.1	7.6	44	5	1.00
28 HILLCREST	14	101,376	82,539	102.4	111	101.8	21.7	8	6	1.09
29 KALORAMA	178	505,755	417,000	91.1	90.9	89.5	10.1	163	15	1.01
31 LEDROIT PARK	51	404,253	350,000	90.0	89.6	88.9	9.4	46	5	1.01
33 MARSHALL HEIGHTS	26	127,794	105,850	102.3	122	113.3	31.1	15	11	1.08
36 MOUNT PLEASANT	150	478,926	450,000	92.9	92.0	91.1	8.5	141	9	1.01
37 N. CLEVELAND PARK	2	429,500	429,500	86.5	86.5	86.5	2.3	2	0	1.00
38 OBSERVATORY CIRCLE	51	510,386	515,000	94.4	93.4	91.3	8.8	44	7	1.02
39 OLD CITY #1	255	417,542	399,000	90.7	90.3	90.4	8.2	244	11	1.00
40 OLD CITY #2	757	487,638	449,023	90.6	90.2	89.6	7.8	722	35	1.01
41 PALISADES	13	246,192	244,900	100.9	97.3	96.4	11.4	9	4	1.01
42 PETWORTH	22	280,538	236,000	86.2	86.8	86.6	5.1	22	0	1.00
43 RANDLE HEIGHTS	3	86,057	76,170	104.9	119	116.3	21.2	2	1	1.02
46 SW WATERFRONT	113	325,834	301,000	84.2	85.0	85.0	9.3	110	3	1.00
49 16TH STREET HEIGHTS	7	156,000	159,000	67.4	75.7	76.0	16.1	7	0	1.00
50 SPRING VALLEY	1	300,000	300,000	78.6	78.6	78.6	.0	1	0	1.00
52 TRINIDAD	2	286,816	286,816	98.4	98.4	92.7	16.4	1	1	1.06
53 WAKEFIELD	24	319,913	295,000	90.7	90.0	90.8	7.4	24	0	.99
54 WESLEY HEIGHTS	57	403,680	410,000	88.6	88.4	89.7	10.2	54	3	.99
56 WOODRIDGE	3	200,000	239,000	100.3	99.7	97.5	7.4	2	1	1.02
66 FORT LINCOLN	24	289,764	306,040	96.4	92.6	93.1	4.6	24	0	.99
TOTALS:										
PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Condominium	2,934	456,106	407,750	90.9	90.9	90.1	9.2	2,742	192	1.01

Sales Ratio Report Using Current 2014 Values

2013 SALES RATIOS BY NEIGHBORHOOD: MULTI-FAMILY

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
2 ANACOSTIA	3	548,333	550,000	96.6	101	99.0	5.5	2	1	1.02
6 BRIGHTWOOD	4	1,838,696	1,875,000	79.9	75.6	73.8	20.2	4	0	1.03
7 BROOKLAND	2	453,334	453,334	103.3	103	101.7	5.7	1	1	1.02
9 CAPITOL HILL	1	1,750,000	1,750,000	83.2	83.2	83.2	.0	1	0	1.00
12 CHILLUM	2	922,200	922,200	90.3	90.3	87.8	14.6	2	0	1.03
15 COLUMBIA HEIGHTS	4	4,827,500	2,925,000	69.4	75.4	60.9	27.5	3	1	1.24
16 CONGRESS HEIGHTS	6	889,167	805,000	116.2	117	115.5	14.6	2	4	1.01
18 DEANWOOD	5	677,200	450,000	97.2	103	97.6	20.4	4	1	1.06
19 ECKINGTON	1	1,560,000	1,560,000	55.8	55.8	55.8	.0	1	0	1.00
22 FORT DUPONT PARK	1	235,000	235,000	109.6	110	109.6	.0	0	1	1.00
26 GLOVER PARK	1	40,293,809	40,293,809	55.3	55.3	55.3	.0	1	0	1.00
28 HILLCREST	5	1,307,633	1,612,500	75.5	81.2	78.8	7.5	5	0	1.03
33 MARSHALL HEIGHTS	3	975,000	440,000	106.3	99.2	78.2	16.9	1	2	1.27
36 MOUNT PLEASANT	3	13,175,952	16,455,000	68.9	77.6	72.3	13.2	3	0	1.07
39 OLD CITY #1	8	11,262,500	812,500	100.2	101	84.6	16.3	5	3	1.19
40 OLD CITY #2	8	9,582,695	4,826,750	70.2	70.1	72.5	24.9	8	0	.97
42 PETWORTH	1	1,475,000	1,475,000	108.8	109	108.8	.0	0	1	1.00
43 RANDLE HEIGHTS	6	6,878,156	582,500	102.3	109	102.1	12.2	4	2	1.06
46 SW WATERFRONT	2	34,600,000	34,600,000	69.1	69.1	69.0	6.3	2	0	1.00
48 SHEPHERD PARK	1	1,068,750	1,068,750	94.5	94.5	94.5	.0	1	0	1.00
49 16TH STREET HEIGHTS	3	1,626,667	1,800,000	97.2	92.7	91.9	6.2	3	0	1.01
51 TAKOMA PARK	1	826,348	826,348	133.0	133	133.0	.0	0	1	1.00
52 TRINIDAD	1	560,000	560,000	69.1	69.1	69.1	.0	1	0	1.00

TOTALS:

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Multi-Family	72	5,814,615	1,307,500	94.9	91.6	76.9	20.2	54	18	1.19

Sales Ratio Report Using Current 2014 Values

2013 SALES RATIOS BY NEIGHBORHOOD: COMMERCIAL

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
2 ANACOSTIA	3	421,667	410,000	68.1	77.4	76.5	23.6	2	1	1.01
3 BARRY FARMS	3	504,896	479,026	84.8	89.3	87.1	7.4	3	0	1.03
4 BERKELEY	1	3,950,000	3,950,000	66.3	66.3	66.3	.0	1	0	1.00
5 BRENTWOOD	4	4,720,969	1,816,938	80.9	75.8	76.8	14.1	4	0	.99
6 BRIGHTWOOD	3	483,027	495,000	92.2	87.8	89.7	5.8	3	0	.98
7 BROOKLAND	10	388,000	456,250	72.6	77.9	77.9	23.6	9	1	1.00
9 CAPITOL HILL	6	2,063,092	1,904,275	78.8	78.8	77.1	14.6	6	0	1.02
10 CENTRAL	23	48,876,500	9,500,000	75.1	77.6	69.4	23.8	22	1	1.12
11 CHEVY CHASE	1	3,285,000	3,285,000	71.7	71.7	71.7	.0	1	0	1.00
12 CHILLUM	5	663,000	250,000	105.6	108	97.0	13.1	2	3	1.11
15 COLUMBIA HEIGHTS	19	1,040,621	585,000	71.7	77.6	69.4	25.9	16	3	1.12
16 CONGRESS HEIGHTS	3	951,667	750,000	76.7	78.8	87.7	21.6	3	0	.90
18 DEANWOOD	2	1,219,320	1,219,320	126.5	126	137.3	11.1	0	2	.92
19 ECKINGTON	7	540,622	425,000	81.3	88.9	84.8	34.0	5	2	1.05
20 FOGGY BOTTOM	1	325,000	325,000	120.4	120	120.4	.0	0	1	1.00
25 GEORGETOWN	12	6,465,943	1,994,159	68.1	67.2	42.6	22.4	11	1	1.58
28 HILLCREST	1	810,000	810,000	90.4	90.4	90.4	.0	1	0	1.00
29 KALORAMA	4	15,613,869	9,222,302	56.1	67.5	55.4	23.6	4	0	1.22
30 KENT	1	1,200,000	1,200,000	90.0	90.0	90.0	.0	1	0	1.00
31 LEDROIT PARK	2	610,000	610,000	83.4	83.4	81.4	17.7	2	0	1.03
35 MICHIGAN PARK	1	125,000	125,000	40.7	40.7	40.7	.0	1	0	1.00
36 MOUNT PLEASANT	4	2,722,500	1,535,000	84.4	84.7	77.6	7.5	4	0	1.09
37 N. CLEVELAND PARK	1	1,300,000	1,300,000	65.6	65.6	65.6	.0	1	0	1.00
38 OBSERVATORY CIRCLE	2	10,650,000	10650000	50.1	50.1	49.3	1.7	2	0	1.02
39 OLD CITY #1	36	1,482,346	765,000	68.0	76.5	72.9	29.6	31	5	1.05
40 OLD CITY #2	36	5,551,861	1,925,000	73.0	76.4	68.8	26.3	32	4	1.11
42 PETWORTH	6	433,127	440,000	99.5	99.6	98.7	12.8	3	3	1.01
44 NOMA	3	18,125,000	500,000	60.8	69.2	54.9	20.6	3	0	1.26
47 RIGGS PARK	1	800,000	800,000	91.7	91.7	91.7	.0	1	0	1.00
48 SHEPHERD PARK	2	489,750	489,750	118.7	119	118.8	1.5	0	2	1.00
49 16TH STREET HEIGHTS	3	841,667	1,000,000	85.6	84.6	83.5	5.0	3	0	1.01
51 TAKOMA PARK	2	13,150,000	13150000	108.1	108	105.4	7.5	1	1	1.03
52 TRINIDAD	2	255,000	255,000	90.6	90.6	91.6	10.4	2	0	.99
56 WOODRIDGE	8	1,274,768	1,000,000	94.3	91.9	95.1	22.9	5	3	.97
TOTALS:										
PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Commercial	218	7,943,418	901,500	79.5	80.2	68.3	25.0	185	33	1.17

Sales Ratio Report Using Proposed 2015 Values

2013 SALES RATIOS BY NEIGHBORHOOD: SINGLE-FAMILY

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
1 AMERICAN UNIVERSITY	79	927,361	890,000	98.0	96.9	96.6	6.6	72	7	1.00
2 ANACOSTIA	38	263,897	280,000	93.7	98.5	94.3	14.5	29	9	1.05
3 BARRY FARMS	12	231,725	219,750	93.4	87.8	84.2	13.9	11	1	1.04
4 BERKELEY	35	1,770,843	1,680,000	97.7	101	100.9	9.3	26	9	1.00
5 BRENTWOOD	22	283,418	276,500	99.0	97.8	96.5	5.1	20	2	1.01
6 BRIGHTWOOD	121	467,728	454,000	97.0	96.8	95.4	10.1	95	26	1.02
7 BROOKLAND	253	516,684	471,500	96.9	98.7	97.3	8.7	207	46	1.01
8 BURLEITH	32	1,147,259	1,237,500	98.4	98.7	98.3	7.9	25	7	1.00
9 CAPITOL HILL	129	954,002	874,500	97.4	97.1	96.0	7.7	107	22	1.01
10 CENTRAL	9	1,493,000	1,475,000	99.8	96.6	96.0	4.6	9	0	1.01
11 CHEVY CHASE	176	972,043	885,000	97.7	97.7	97.3	6.3	155	21	1.00
12 CHILLUM	22	417,927	401,000	97.3	102	98.9	13.9	15	7	1.03
13 CLEVELAND PARK	32	1,476,388	1,356,000	98.4	95.1	95.3	8.8	27	5	1.00
14 COLONIAL VILLAGE	16	1,020,175	864,000	97.8	97.8	96.8	7.8	12	4	1.01
15 COLUMBIA HEIGHTS	198	604,813	580,500	96.2	95.2	94.3	11.5	151	47	1.01
16 CONGRESS HEIGHTS	56	207,725	200,000	96.7	96.3	93.4	14.1	42	14	1.03
17 CRESTWOOD	29	945,307	896,000	98.9	100	100.2	7.1	23	6	1.00
18 DEANWOOD	133	215,690	217,000	98.5	98.6	96.9	10.5	107	26	1.02
19 ECKINGTON	78	550,457	560,000	95.7	96.0	94.2	8.6	70	8	1.02
20 FOGGY BOTTOM	9	853,556	775,000	99.5	99.1	99.2	2.7	8	1	1.00
21 FOREST HILLS	32	1,468,336	1,284,500	98.1	99.4	98.8	6.0	26	6	1.01
22 FORT DUPONT PARK	68	229,810	226,500	97.5	98.0	97.3	9.2	50	18	1.01
23 FOXHALL	14	875,714	846,250	98.7	96.9	96.9	5.3	12	2	1.00
24 GARFIELD	18	1,319,408	1,279,750	97.3	94.8	95.5	7.0	16	2	.99
25 GEORGETOWN	138	1,794,610	1,402,501	98.7	98.1	97.5	4.9	120	18	1.01
26 GLOVER PARK	53	868,408	840,000	97.0	96.7	96.5	5.4	48	5	1.00
27 HAWTHORNE	10	1,008,300	870,000	98.7	97.2	97.7	3.6	10	0	.99
28 HILLCREST	53	329,197	325,500	95.7	96.5	95.7	11.1	40	13	1.01
29 KALORAMA	40	2,115,451	1,897,500	98.8	98.0	97.1	5.7	36	4	1.01
30 KENT	39	1,351,577	1,115,000	98.8	101	99.5	7.3	26	13	1.01
31 LEDROIT PARK	71	691,873	700,000	94.8	93.9	93.4	6.1	67	4	1.01
32 LILY PONDS	40	230,349	241,500	97.1	100	98.7	7.2	31	9	1.02
33 MARSHALL HEIGHTS	63	250,815	285,000	99.2	98.8	98.1	6.9	54	9	1.01
34 MASS. AVE. HEIGHTS	9	4,389,828	4,700,000	99.5	98.8	98.9	1.3	9	0	1.00
35 MICHIGAN PARK	31	458,585	454,000	96.7	97.6	96.4	9.6	24	7	1.01
36 MOUNT PLEASANT	67	894,176	910,000	95.1	94.7	93.9	12.3	52	15	1.01
37 N. CLEVELAND PARK	38	961,798	917,500	98.3	97.7	97.7	3.6	37	1	1.00
38 OBSERVATORY CIRCLE	20	1,784,208	1,300,000	98.9	96.0	94.1	6.0	19	1	1.02
39 OLD CITY #1	642	649,817	637,250	97.1	97.3	96.4	7.5	532	110	1.01
40 OLD CITY #2	197	942,796	845,000	98.1	95.0	95.0	8.0	172	25	1.00
41 PALISADES	48	1,236,669	1,012,518	98.0	97.6	97.6	5.5	44	4	1.00
42 PETWORTH	237	528,559	530,000	95.4	96.0	95.1	9.8	189	48	1.01
43 RANDLE HEIGHTS	58	254,026	258,000	96.9	100	97.9	9.4	42	16	1.02
46 SW WATERFRONT	10	736,790	733,450	96.9	96.9	96.7	7.1	8	2	1.00
47 RIGGS PARK	58	329,077	303,000	95.3	94.2	93.0	10.4	49	9	1.01
48 SHEPHERD PARK	32	717,728	727,000	97.8	98.6	98.1	6.3	25	7	1.01
49 16TH STREET HEIGHTS	74	631,898	635,000	99.6	99.5	98.1	9.8	55	19	1.01
50 SPRING VALLEY	33	1,482,621	1,400,000	98.2	100	100.6	8.7	25	8	1.00
51 TAKOMA PARK	60	527,524	549,625	98.5	97.5	96.4	8.4	47	13	1.01
52 TRINIDAD	114	381,968	378,600	96.9	98.7	96.6	11.0	87	27	1.02
53 WAKEFIELD	8	1,102,125	1,044,000	97.6	97.0	97.0	5.0	7	1	1.00
54 WESLEY HEIGHTS	33	1,253,157	1,019,990	98.6	97.3	96.9	5.5	29	4	1.00
55 WOODLEY	8	1,410,250	1,378,500	95.7	94.0	94.0	7.9	8	0	1.00
56 WOODRIDGE	78	422,859	422,000	96.5	97.5	96.0	7.4	69	9	1.02
66 FORT LINCOLN	50	442,953	446,980	97.6	98.3	97.9	3.1	49	1	1.00

TOTALS:

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Single-Family	4,023	734,053	630,000	97.4	97.3	96.6	8.4	3,325	698	1.01

Sales Ratio Report Using Proposed 2015 Values

2013 SALES RATIOS BY NEIGHBORHOOD: CONDOMINIUMS

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
1 AMERICAN UNIVERSITY	16	463,338	444,950	97.9	97.9	97.5	3.8	16	0	1.00
2 ANACOSTIA	4	142,875	162,500	97.4	96.5	98.0	4.3	4	0	.98
3 BARRY FARMS	2	184,950	184,950	88.3	88.3	95.9	24.6	1	1	.92
4 BERKELEY	2	595,000	595,000	92.2	92.2	92.2	2.4	2	0	1.00
5 BRENTWOOD	24	172,363	170,000	99.3	96.9	95.8	5.6	21	3	1.01
6 BRIGHTWOOD	22	312,923	302,000	95.4	97.4	94.8	10.9	18	4	1.03
7 BROOKLAND	25	207,428	191,378	96.7	96.2	95.5	9.2	21	4	1.01
9 CAPITOL HILL	47	379,805	305,000	99.1	100	101.0	6.2	35	12	.99
10 CENTRAL	328	607,553	495,000	97.0	97.8	96.8	6.4	275	53	1.01
11 CHEVY CHASE	16	642,912	427,100	97.2	99.8	98.0	4.3	12	4	1.02
12 CHILLUM	7	258,929	265,000	97.8	95.6	94.6	6.2	7	0	1.01
13 CLEVELAND PARK	84	375,568	359,858	99.5	99.0	98.7	5.0	69	15	1.00
15 COLUMBIA HEIGHTS	299	410,508	390,000	97.0	97.0	97.8	6.6	261	38	.99
16 CONGRESS HEIGHTS	7	56,271	62,000	117.7	118	120.4	6.9	1	6	.98
18 DEANWOOD	5	78,200	68,000	117.3	120	114.4	17.4	1	4	1.05
19 ECKINGTON	45	429,899	448,947	97.0	97.4	97.7	5.2	42	3	1.00
20 FOGGY BOTTOM	48	353,213	265,000	99.0	99.3	98.4	5.6	38	10	1.01
21 FOREST HILLS	37	312,105	312,000	96.5	95.9	96.0	6.4	33	4	1.00
22 FORT DUPONT PARK	1	142,600	142,600	88.3	88.3	88.3	.0	1	0	1.00
24 GARFIELD	38	409,499	395,500	98.0	96.5	95.3	7.1	34	4	1.01
25 GEORGETOWN	75	922,259	575,000	97.0	98.2	100.2	7.1	61	14	.98
26 GLOVER PARK	49	388,949	366,000	97.0	98.4	98.2	6.6	37	12	1.00
28 HILLCREST	14	101,376	82,539	100.1	107	101.1	15.4	10	4	1.06
29 KALORAMA	178	505,755	417,000	96.6	97.7	97.0	6.1	150	28	1.01
31 LEDROIT PARK	51	404,253	350,000	96.4	98.0	97.7	6.9	42	9	1.00
33 MARSHALL HEIGHTS	26	127,794	105,850	102.7	115	109.5	24.3	15	11	1.05
36 MOUNT PLEASANT	150	478,926	450,000	97.1	97.8	97.3	6.0	136	14	1.00
37 N. CLEVELAND PARK	2	429,500	429,500	97.4	97.4	97.4	6.2	2	0	1.00
38 OBSERVATORY CIRCLE	51	510,386	515,000	100.1	99.6	97.6	8.7	37	14	1.02
39 OLD CITY #1	255	417,542	399,000	96.0	96.5	96.4	6.2	225	30	1.00
40 OLD CITY #2	757	487,638	449,023	96.7	97.1	96.6	6.5	642	115	1.01
41 PALISADES	13	246,192	244,900	95.2	97.3	97.0	6.8	12	1	1.00
42 PETWORTH	22	280,538	236,000	96.4	96.7	96.7	5.3	19	3	1.00
43 RANDLE HEIGHTS	3	86,057	76,170	93.2	106	103.3	22.3	2	1	1.02
46 SW WATERFRONT	113	325,834	301,000	93.0	94.1	94.7	8.2	102	11	.99
49 16TH STREET HEIGHTS	7	156,000	159,000	96.5	95.2	95.2	3.5	7	0	1.00
50 SPRING VALLEY	1	300,000	300,000	88.7	88.7	88.7	.0	1	0	1.00
52 TRINIDAD	2	286,816	286,816	105.6	106	101.0	12.3	1	1	1.05
53 WAKEFIELD	24	319,913	295,000	97.8	95.9	96.9	7.2	20	4	.99
54 WESLEY HEIGHTS	57	403,680	410,000	94.1	93.7	95.7	9.7	50	7	.98
56 WOODRIDGE	3	200,000	239,000	102.0	104	101.6	6.4	2	1	1.02
66 FORT LINCOLN	24	289,764	306,040	97.5	96.6	96.8	6.1	23	1	1.00
TOTALS:										
PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Condominium	2,934	456,106	407,750	97.0	97.5	97.1	6.9	2,488	446	1.00

Sales Ratio Report Using Proposed 2015 Values

2013 SALES RATIOS BY NEIGHBORHOOD: MULTI-FAMILY

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
2 ANACOSTIA	3	548,333	550,000	100.6	104	102.1	4.9	2	1	1.02
6 BRIGHTWOOD	4	1,838,696	1,875,000	88.4	89.9	88.7	10.3	4	0	1.01
7 BROOKLAND	2	453,334	453,334	111.5	111	109.8	5.7	0	2	1.02
9 CAPITOL HILL	1	1,750,000	1,750,000	89.8	89.8	89.8	.0	1	0	1.00
12 CHILLUM	2	922,200	922,200	101.5	101	99.5	10.0	1	1	1.02
15 COLUMBIA HEIGHTS	4	4,827,500	2,925,000	94.2	98.0	95.1	12.8	3	1	1.03
16 CONGRESS HEIGHTS	6	889,167	805,000	102.0	104	106.0	9.9	4	2	.98
18 DEANWOOD	5	677,200	450,000	99.2	105	99.6	20.4	3	2	1.06
19 ECKINGTON	1	1,560,000	1,560,000	56.5	56.5	56.5	.0	1	0	1.00
22 FORT DUPONT PARK	1	235,000	235,000	111.7	112	111.7	.0	0	1	1.00
26 GLOVER PARK	1	40,293,809	40293809	88.9	88.9	88.9	.0	1	0	1.00
28 HILLCREST	5	1,307,633	1,612,500	83.7	85.9	84.2	8.9	5	0	1.02
33 MARSHALL HEIGHTS	3	975,000	440,000	108.5	109	97.8	9.8	1	2	1.11
36 MOUNT PLEASANT	3	13,175,952	16455000	97.6	99.4	96.9	5.5	2	1	1.03
39 OLD CITY #1	8	11,262,500	812,500	97.6	99.5	95.0	6.4	6	2	1.05
40 OLD CITY #2	8	9,582,695	4,826,750	87.6	91.5	91.5	10.3	7	1	1.00
42 PETWORTH	1	1,475,000	1,475,000	117.4	117	117.4	.0	0	1	1.00
43 RANDLE HEIGHTS	6	6,878,156	582,500	103.7	111	103.2	12.9	4	2	1.08
46 SW WATERFRONT	2	34,600,000	34600000	107.5	108	107.4	4.8	1	1	1.00
48 SHEPHERD PARK	1	1,068,750	1,068,750	102.0	102	102.0	.0	1	0	1.00
49 16TH STREET HEIGHTS	3	1,626,667	1,800,000	104.9	97.9	96.8	8.2	2	1	1.01
51 TAKOMA PARK	1	826,348	826,348	143.5	143	143.5	.0	0	1	1.00
52 TRINIDAD	1	560,000	560,000	89.0	89.0	89.0	.0	1	0	1.00

TOTALS:

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Multi-Family	72	5,814,615	1,307,500	98.9	99.9	96.9	12.4	50	22	1.03

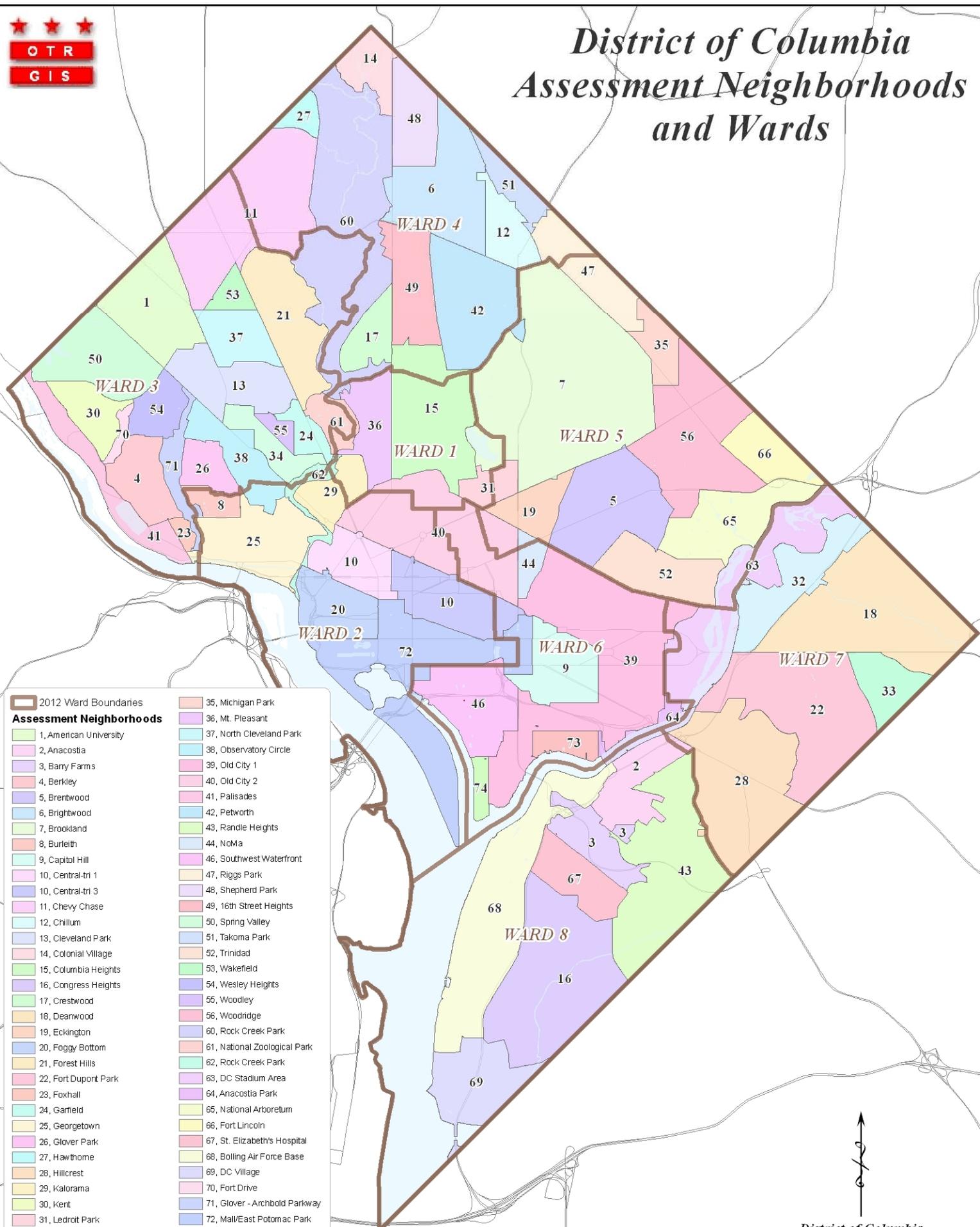
Sales Ratio Report Using Proposed 2015 Values

2013 SALES RATIOS BY NEIGHBORHOOD: COMMERCIAL

NB NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
2 ANACOSTIA	3	421,667	410,000	84.9	90.8	90.4	10.0	2	1	1.00
3 BARRY FARMS	3	504,896	479,026	101.3	100	102.9	11.2	2	1	.97
4 BERKELEY	1	3,950,000	3,950,000	100.2	100	100.2	.0	1	0	1.00
5 BRENTWOOD	4	4,720,969	1,816,938	80.8	76.2	77.0	14.3	4	0	.99
6 BRIGHTWOOD	3	483,027	495,000	95.4	90.5	92.7	6.9	3	0	.98
7 BROOKLAND	10	388,000	456,250	91.4	84.2	85.2	16.9	10	0	.99
9 CAPITOL HILL	6	2,063,092	1,904,275	80.4	84.4	83.0	20.0	5	1	1.02
10 CENTRAL	23	48,876,500	9,500,000	95.2	96.7	91.2	10.6	20	3	1.06
11 CHEVY CHASE	1	3,285,000	3,285,000	73.5	73.5	73.5	.0	1	0	1.00
12 CHILLUM	5	663,000	250,000	105.4	108	97.6	12.8	2	3	1.10
15 COLUMBIA HEIGHTS	19	1,040,621	585,000	82.8	83.8	83.4	18.0	17	2	1.01
16 CONGRESS HEIGHTS	3	951,667	750,000	77.2	80.8	89.2	19.1	3	0	.91
18 DEANWOOD	2	1,219,320	1,219,320	106.1	106	101.3	5.9	1	1	1.05
19 ECKINGTON	7	540,622	425,000	97.7	100	94.5	21.3	5	2	1.06
20 FOGGY BOTTOM	1	325,000	325,000	103.7	104	103.7	.0	1	0	1.00
25 GEORGETOWN	12	6,465,943	1,994,159	84.7	85.0	75.7	13.8	10	2	1.12
28 HILLCREST	1	810,000	810,000	90.4	90.4	90.4	.0	1	0	1.00
29 KALORAMA	4	15,613,869	9,222,302	89.1	96.8	70.5	34.8	2	2	1.37
30 KENT	1	1,200,000	1,200,000	91.0	91.0	91.0	.0	1	0	1.00
31 LEDROIT PARK	2	610,000	610,000	88.2	88.2	86.8	11.4	2	0	1.02
35 MICHIGAN PARK	1	125,000	125,000	80.2	80.2	80.2	.0	1	0	1.00
36 MOUNT PLEASANT	4	2,722,500	1,535,000	87.9	87.3	81.0	7.1	4	0	1.08
37 N. CLEVELAND PARK	1	1,300,000	1,300,000	67.6	67.6	67.6	.0	1	0	1.00
38 OBSERVATORY CIRCLE	2	10,650,000	10,650,000	95.0	95.0	99.0	4.7	2	0	.96
39 OLD CITY #1	36	1,482,346	765,000	91.3	90.3	86.3	16.0	30	6	1.05
40 OLD CITY #2	36	5,551,861	1,925,000	80.0	83.6	78.6	22.6	33	3	1.06
42 PETWORTH	6	433,127	440,000	100.5	103	101.5	11.3	3	3	1.01
44 NOMA	3	18,125,000	500,000	97.7	96.6	97.7	2.6	3	0	.99
47 RIGGS PARK	1	800,000	800,000	92.1	92.1	92.1	.0	1	0	1.00
48 SHEPHERD PARK	2	489,750	489,750	112.1	112	112.6	9.0	1	1	1.00
49 16TH STREET HEIGHTS	3	841,667	1,000,000	85.4	86.2	85.5	6.3	3	0	1.01
51 TAKOMA PARK	2	13,150,000	13,150,000	132.2	132	123.3	20.3	0	2	1.07
52 TRINIDAD	2	255,000	255,000	90.1	90.1	91.0	10.4	2	0	.99
56 WOODRIDGE	8	1,274,768	1,000,000	94.4	94.9	93.6	16.6	5	3	1.01
TOTALS:										
PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Commercial	218	7,943,418	901,500	91.0	90.3	88.6	16.9	182	36	1.02



District of Columbia Assessment Neighborhoods and Wards



- | | |
|----------------------------------|-------------------------------|
| 2012 Ward Boundaries | 35, Michigan Park |
| Assessment Neighborhoods | 36, Mt. Pleasant |
| 1, American University | 37, North Cleveland Park |
| 2, Anacostia | 38, Observatory Circle |
| 3, Barry Farms | 39, Old City 1 |
| 4, Berkley | 40, Old City 2 |
| 5, Brentwood | 41, Palisades |
| 6, Brightwood | 42, Petworth |
| 7, Brookland | 43, Randle Heights |
| 8, Burleith | 44, NoMa |
| 9, Capitol Hill | 46, Southwest Waterfront |
| 10, Central-tri 1 | 47, Riggs Park |
| 10, Central-tri 3 | 48, Shepherd Park |
| 11, Chevy Chase | 49, 16th Street Heights |
| 12, Chillum | 50, Spring Valley |
| 13, Cleveland Park | 51, Takoma Park |
| 14, Colonial Village | 52, Trinidad |
| 15, Columbia Heights | 53, Wakefield |
| 16, Congress Heights | 54, Wesley Heights |
| 17, Crestwood | 55, Woodley |
| 18, Deanwood | 56, Woodridge |
| 19, Eckington | 60, Rock Creek Park |
| 20, Foggy Bottom | 61, National Zoological Park |
| 21, Forest Hills | 62, Rock Creek Park |
| 22, Fort Dupont Park | 63, DC Stadium Area |
| 23, Foxhall | 64, Anacostia Park |
| 24, Garfield | 65, National Arboretum |
| 25, Georgetown | 67, St. Elizabeth's Hospital |
| 26, Glover Park | 68, Bolling Air Force Base |
| 27, Hawthome | 69, DC Village |
| 28, Hillcrest | 70, Fort Drive |
| 29, Kalorama | 71, Glover - Archbold Parkway |
| 30, Kent | 72, Mall/East Potomac Park |
| 31, Ledroit Park | 73, Washington Navy Yard |
| 32, Lily Ponds | 74, Ft. McNair |
| 33, Marshall Heights | |
| 34, Massachusetts Avenue Heights | |



