Review of Income-Producing Property Assessments and Sales in Montgomery County

November 20, 2013

CountyStat

CountyStat Principles

- **Require Data-Driven Performance**
- **Promote Strategic Governance**
- **Increase Government Transparency**
- **Foster a Culture of Accountability**

Agenda

- **Welcome and Introductions**
- **State and County Roles in Property Assessments**
- **Assessment Process for Income-Producing Properties**
- **Glossary of Terms and Assessing Effective Performance**
- **Previous County Research**
    - CountyStat Study of Residential Property in 2011
    - Inspector General Report on Commercial Property in January 2013
- **Trends for Income-Producing Property in the County**
- **Study Limitations**
- **SDAT Ratio Studies**
- **CountyStat Methodology**
- **Results for Groups 1, 2, and 3**
- **New TAS Database**
- **Wrap-up and Follow-up Items**

Meeting Goal

- **Investigate the quality of income-producing property assessments by comparing sales price to assessed full cash value**

- **Identify whether or not assessments in the County show regressive, progressive, or neutral taxation**

Desired Outcomes

- **Identify trends in the assessment data to aid the Department of Finance in utilizing its limited resources when appealing SDAT assessments**

Overview of Roles in Property Assessment

- **Maryland is unique in having property assessments performed as a state function**
  - The State Department of Assessments and Taxation (SDAT) is responsible for all assessments in the state. Each county plus Baltimore City has a local assessment office.
  - Article 15 of the Maryland Declaration of Rights states that:
    - Assessments must be based on the *fair market value* of the property, and
    - Assessments must be "*uniform* within each class or sub-class of land, improvements on land and personal property…"

- **Each county in MD has the right to appeal state assessments**
  - Montgomery County Code §20-41A directs the Department of Finance to appeal any assessments deemed inaccurate to protect the public interest*

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Real Property Assessment Process

- **Real Property in Maryland is assessed in three year cycles**
- **Maryland assesses property based on three methods**
  - Sales Approach
  - Cost Approach
  - Income Approach
- **The income approach is used for income-producing properties**

$$Assessed\ Value = \frac{(Income\ - Expenses)}{Capitalization\ Rate}$$

$$Income = Potential\ Rent\ - Vacancy$$
$$Potential\ Rent = (Rent\ per\ sq.ft.)\ x\ (Square\ Footage\ Rented)$$

CountyStat did not evaluate the methodology for assessing real property. CountyStat examined the relationship between assessed values and sales prices.

Income-Producing Property Tax Assessments

11/20/2013

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Glossary of Terms - Property

- **Improved Property –** Property is not vacant (it has a building on it).

- **Arm's-Length Transaction –** The buyer and seller of the property have no prior relationship and are acting in their own self-interest. It is a sign that the transaction occurred in an open market.

- **Assessment Value –** For this study, the assessment value is the full cash value of land + improvements (if any).

- **Neutral Taxation of Property –** Low and high-end properties are equally assessed as compared to their sales prices.

- **Regressive Taxation of Property –** Lower-end properties are assessed at a higher ratio of the sales price as compared to higher-end properties.

- **Progressive Taxation of Property –** Higher-end properties are assessed at a higher ratio of the sales price as compared to lower-end properties.

Glossary of Terms – Statistics (1/2)

- **Median –** A measure of central tendency showing the middle value of a set of data ranked from low to high. This measure of central tendency is not skewed by a nonparametric sample.

- **Nonparametric Statistics –** Statistical methods used that do not assume the sample is normally distributed. In the case of income or property values, the values are positively skewed.

- **Assessment/Sales Ratio –** To determine the gap between the sales price and SDAT's assessment, the assessed value is divided by the sales price to determine the ratio. When the assessment and sales values are equal, the ratio equals 1.

- **Average Deviation –** A measure to determine on average how far the sales and assessment values differ from each other. It is calculated by taking the sum of the absolute deviation from the sample median for each sale divided by the total number of sales.

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Glossary of Terms – Statistics (2/2)

- **Average (Mean) Ratio –** The sum of all assessment/sales ratios in the sample divided by the total number of sales in the sample.

- **Weighted Ratio –** The sum of the assessment value divided by the sum of the sales values.

- **Coefficient of Dispersion (COD) –** "The average percentage of deviation from the median ratio." This value measures horizontal equity in assessment values as compared to sales prices. If all sales perfectly matched their assessed value, the COD would be zero.

- **Price Related Differential (PRD) –** "The mean divided by the weighted mean." This measure helps to determine if there is vertical equity between low and high value properties. Perfect equity would be 1.0. PRDs above 1.03 indicate regressive assessments while values below 0.98 indicate progressive assessments.

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Determining Acceptable Performance

- **The International Association of Assessing Officers (IAAO) advises that COD and PRD values should fall within a specified range for the assessments to be considered acceptable**

Type of Property – General	Type of Property – Specific	COD Range
Single-Family Residential (including residential condominiums)	Newer or more homogenous areas	5.0 to 10.0
Single-Family Residential	Older or more heterogeneous areas	5.0 to 15.0
Other Residential	Rural, seasonal, recreational, manufactured housing, 2-4 unit family housing	5.0 to 20.0
Income-Producing Properties	**Larger areas represented by large samples**	**5.0 to 15.0**
Income-Producing Properties	**Smaller areas represented by smaller samples**	**5.0 to 20.0**
Vacant Land		**5.0 to 25.0**
Other real and personal property		Varies

- **Assessment/Sale Ratio for each property should be between 0.90 - 1.10**
- **PRDs for all property types should be between 0.98 - 1.03**

Previous CountyStat Study - Residential Property Review

- **In 2011, CountyStat examined residential properties sold between 1/1/2010 and 12/31/2010 and compared the sales value to the assessed value of the property**

- **Major Findings:**
  - Properties in the County were under assessed compared to actual 2010 sales values
  - For residential properties in groups 1 and 3, the most undervalued properties when comparing assessment versus sales value were high sales value properties (see chart)

Sales of Residential Property in Group 1 (assessed and sold in 2010)		
Percentile Rank	**Median % Difference**	**Median Sale Price**
0-10	-35%	$ 640,000
11-20	-22%	$ 565,500
21-30	-16%	$ 555,000
31-40	-13%	$ 485,000
41-50	-9%	$ 480,000
51-60	-6%	$ 439,000
61-70	-3%	$ 386,750
71-80	2%	$ 350,000
81-90	8%	$ 300,000
91-100	21%	$ 231,000

The full 2011 CountyStat report can be found here

Inspector General Report on Commercial Properties

- **In January 2013, Montgomery County's Office of the Inspector General released a report examining commercial property assessments against sales**

  – The study was largely focused on one property, but examined a sample of 10 high-valued and 10 low-valued properties against their sales price. The properties were sold between 8/2011-9/2012.

- **Major Findings:**

  – Assessed value for the 20 properties examined "was not a good indicator of market value, especially for high value properties" (p.13)

  – For sales prices >$10M, properties were assessed at 68% of sales price (p.13) and none of the high end sales were over assessed (p. 15)

  – For sales prices <$700K, properties were assessed at 90% of sales price (p.13) and half of the lower end sales were over assessed (p. 15)

The Inspector General recommended that CountyStat perform a thorough review of commercial property tax assessments similar to the 2011 residential study. This CountyStat session fulfills the recommendation.

The full IG report can be found here

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- **SDAT Ratio Studies**
- **CountyStat Methodology**
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5 Year Trend in Assessed Value for Income-Producing Properties in Montgomery County
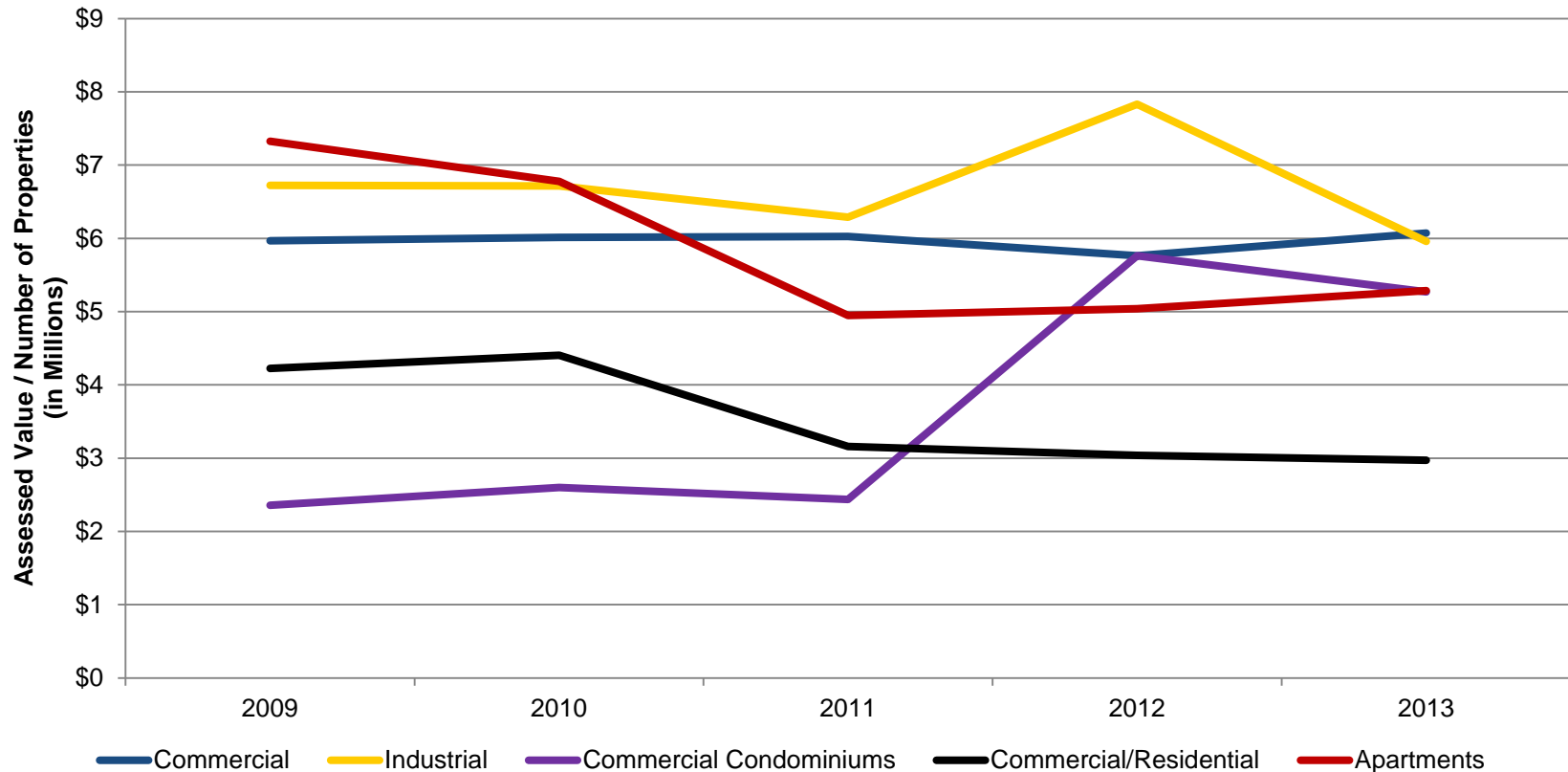
From 2009 to 2013, Commercial values increased 2%, Apartments dropped 28%, Industrial slipped 11%, and Commercial/Residential dropped 30%. Commercial Condominiums have jumped 123% in assessed value during the same timeframe.

Income-Producing Property Tax Assessments

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Study Limitations

- **The results of this study only hold true for the properties within the sample**
  - However, if mass appraisals are indeed uniform in nature, then the results could be used to assess the overall quality of SDAT's work

- **Variation between assessment value and sales price is not always an indication of poor assessment quality**
  - Market imperfections, such as the recent national residential property bubble, create situations where the sales price does not represent the true market value of the property
  - Properties on the market for an extended period of time may not sell at its true market value
  - Parties involved in the sale may not be fully aware of the market value of the property

- **Commercial properties function differently than residential properties***
  - Commercial property uses are "cyclical in nature"
  - Cyclical nature and varying uses of commercial property will cause measures of central tendency, like COD, to vary more than residential property

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SDAT Ratio Studies

- **Each year, SDAT releases an "Assessment Ratio Survey" to examine assessed values versus sales prices statewide**
    - The latest release is the <u>2012</u> ratio study
    - The study compared unadjusted sales prices from July 1st through June 30th for properties with an assessment date of finality of January 1st in that same year (for 2012, it was Group 3 properties)
    - The study was designed based on standards set by the International Association of Assessing Officers (IAAO)

CountyStat mirrored, though did not completely replicate, SDAT's methodology in order to provide relevant comparisons

All public SDAT reports can be found <u>here</u>

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SDAT Ratio Studies 2010-2012 – Commercial Properties

Year	Number of Sales	Total Assessed Values	Total Sales Prices	Weighted Ratio	Average Ratio	Median Ratio
2010	16	$75,785,900	$97,310,919	0.78	0.77	0.79
2011	21	$176,356,000	$177,740,768	0.99	0.98	1.00
2012	63	$269,354,600	$325,259,067	0.83	0.90	0.90

▪ **SDAT does not publish the coefficient of dispersion or price related differentials for commercial property assessments**

- For _residential_ properties in Montgomery County, the COD and PRD for the past three years were, respectively:
  - 2010: **7.85, 1.01**
  - 2011: **8.95, 1.03**
  - 2012: **9.40, 1.02**

Overall, SDAT rated its performance as "good and conforms to the IAAO Standard" (2012 report, p. 4)

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CountyStat Methodology (1/2)

- **CountyStat received data on all commercial, commercial condominium, commercial/residential, industrial, and apartment properties (income-producing properties) sold between July 1, 2010 - June 30, 2013**
  - The data were pulled from the County's TAS mainframe. The data in TAS was based on data provided by the State of Maryland Department of Assessments and Taxation (SDAT)
  - Additional information was added, such as previous owner and prior assessment value, by accessing publicly available records via <u>SDAT's website</u>
  - Data were verified by checking properties against the SDAT database and examining deeds

- **Sold properties were sorted based on their assessment groups**
  - Group 1 assessed in 2013
  - Group 2 assessed in 2011
  - Group 3 assessed in 2012

- **Sales within six months on either side of the January 1st date of finality were included in the sample**
  - Because of the narrower time window selected, sales prices were not adjusted for time
 - All dollar amounts shown are nominal

CountyStat Methodology (2/2)

- **After the sample was compiled, data were filtered to ensure only properties meeting certain criteria were included**
  - Parcels that were sold as one unit were combined
  - Properties that were exempt from sales tax, non arm's-length sales, and sales by government entities were excluded
  - A test for outliers was performed (see Appendix for methodology details) and the identified extreme outliers were removed from the sample

- **After further validation of data in the final sample, statistical measures were employed to examine the quality of assessment values against sales prices**
  - The 95% confidence interval for median values was calculated using the Wilcoxon signed rank test

Sales Sample for All Groups
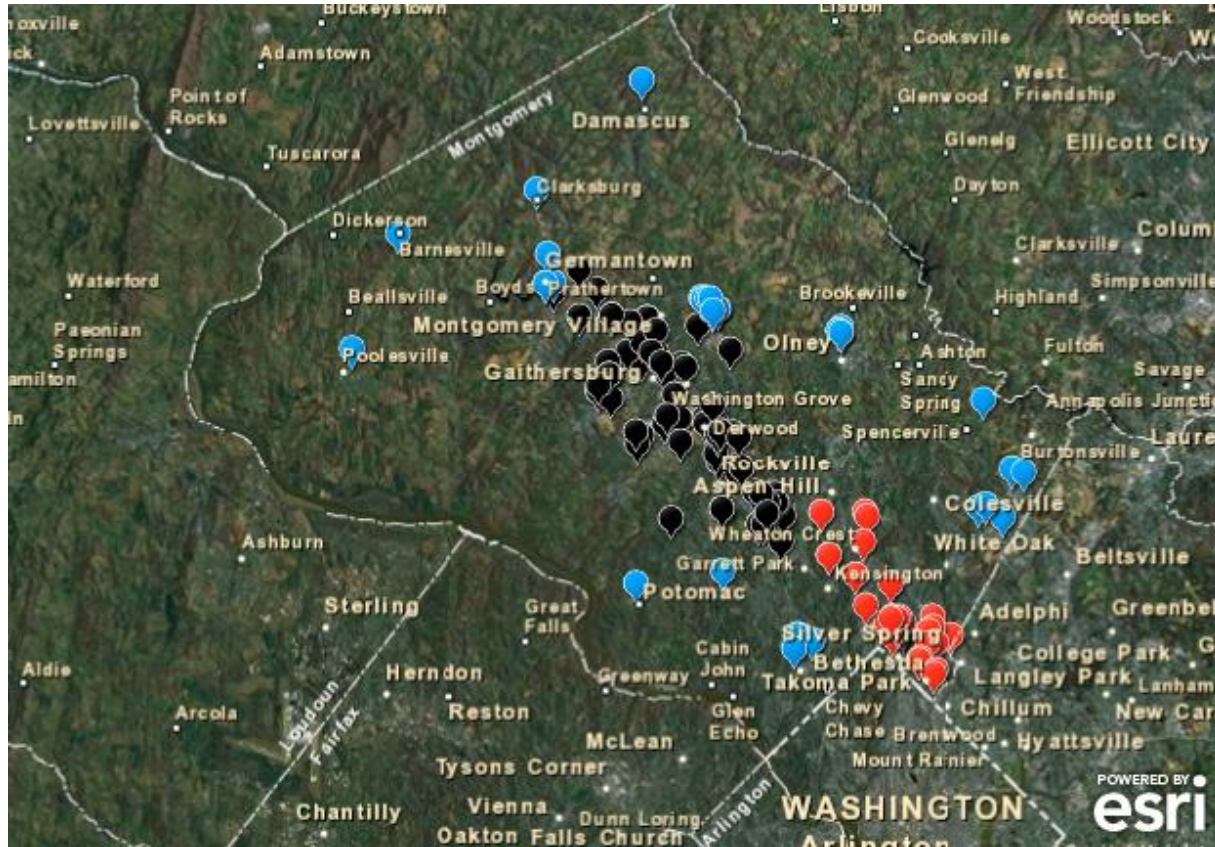
LEGEND:

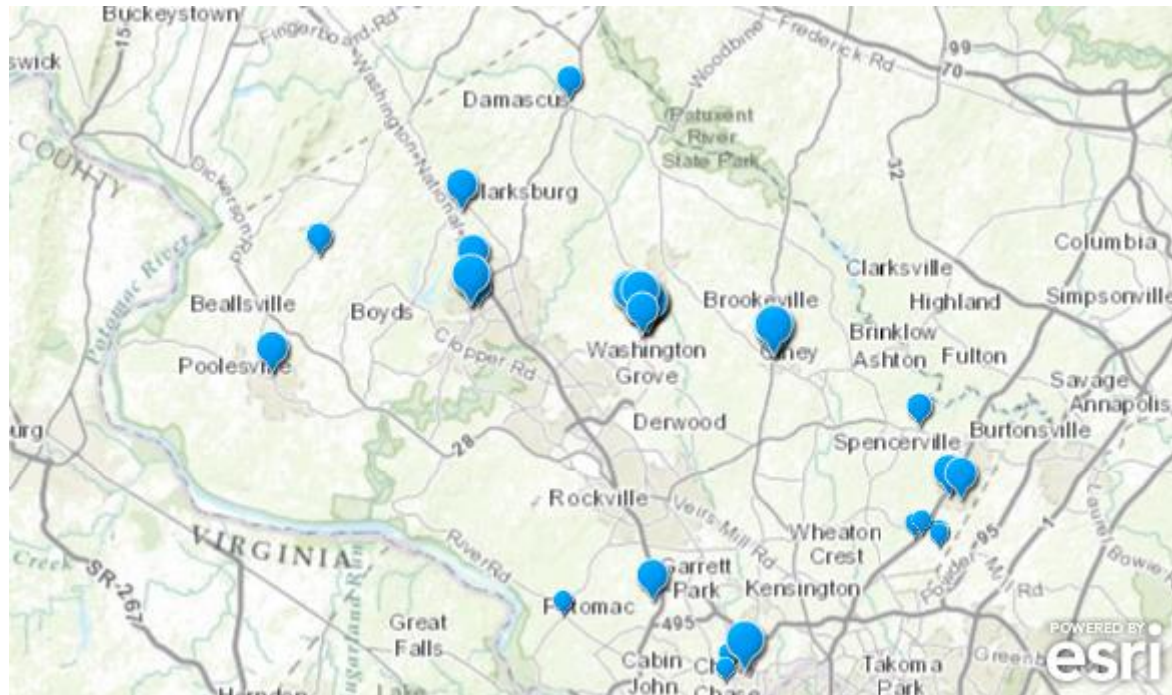Red = Group 1
Blue = Group 2
Black = Group 3

Group 2 (2011) – Sales Sample Details

- **56: Sales falling between July 1st 2010 - June 30th 2011**
    - (-) 14: Sales that are non arm's-length
    - (-) 1: Sale involving the Federal Government
    - (-) 1: Sale is exempt from taxation
    - (-) 3: Sales identified as outliers
- **37: Number of sales in final sample**

Group 2 (2011) – Sales Map

Group 2 (2011) - Statistics

Group 2 - 2011	Results
Total Sales (n)	37
Total Assessed Value	$216,236,300
Total Sale Price	$289,761,308
Avg Assessment Value	$5,844,224
Avg Sale Price	$7,831,387
Mean Ratio	0.93
Median Ratio	0.96
95% Conf. Int. Median	0.83-1.00
Weighted Mean Ratio	0.75
Coefficient of Dispersion	19%
Price-Related Differential	1.25

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.62	$7,325,000
21-40	0.82	$1,542,128
41-60	0.98	$990,000
61-80	1.01	$3,314,086
81-100	1.26	$325,000

Group 2 Sales show marginal horizontal equity but have regressive vertical inequity

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
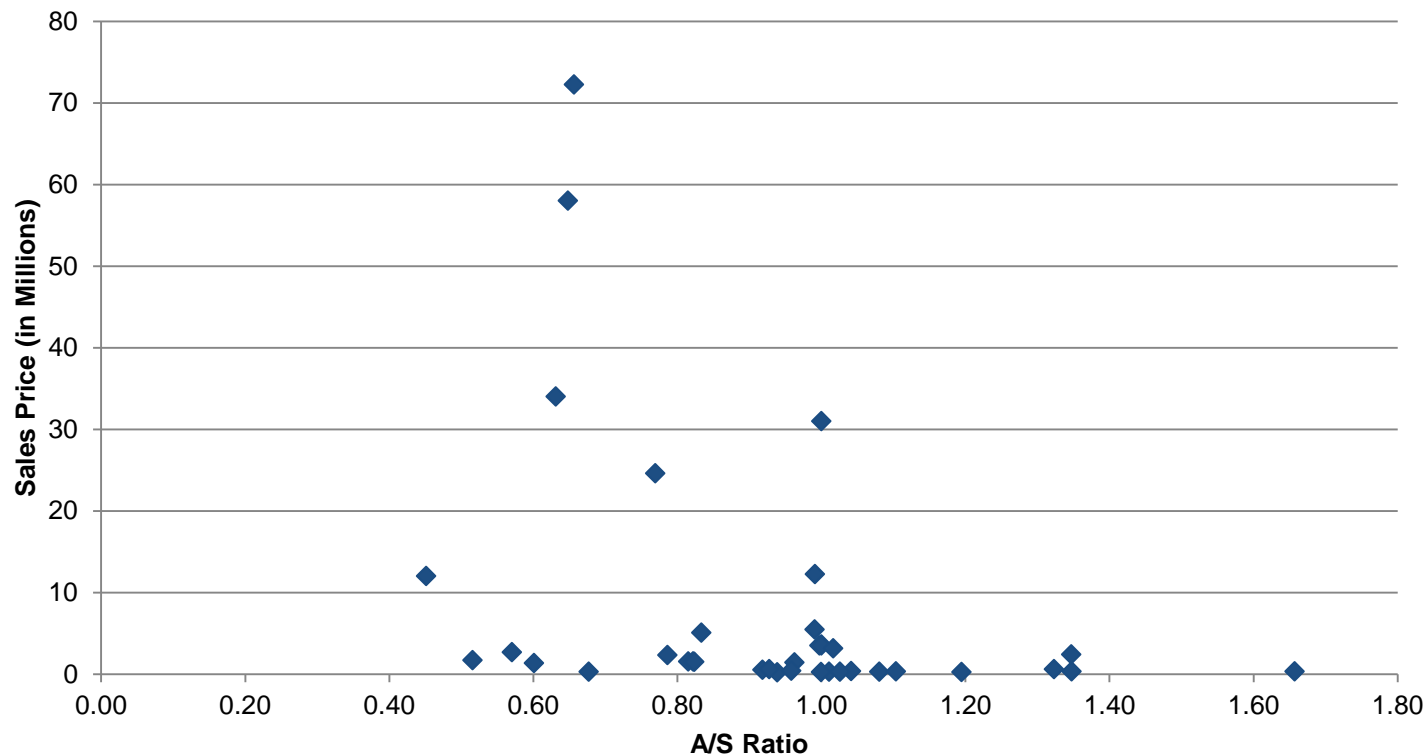*Yellow* – near the acceptable range
Red - out of acceptable range

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Group 2 (2011) – Scatterplot of Group 2 Sales

**Group 2 Sales show marginal horizontal equity
but have regressive vertical inequity**

Group 2 (2011) – Statistics for Commercial Only*

Group 2 - 2011	Results
Total Sales (n)	26
Total Assessed Value	$81,606,200
Total Sale Price	$116,500,299
Avg Assessment Value	$3,138,700
Avg Sale Price	$4,480,781
Mean Ratio	0.94
Median Ratio	0.98
95% Conf. Int. Median	0.82-1.03
Weighted Mean Ratio	0.70
Coefficient of Dispersion	20%
Price-Related Differential	1.35

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.59	$2,175,000
21-40	0.83	$1,500,000
41-60	0.99	$1,400,000
61-80	1.03	$285,000
81-100	1.32	$315,000

Commercial properties include: commercial, commercial condominium, and commercial/residential.

Commercial properties in Group 2 show the same horizontal and vertical inequities as all income-producing properties in the Group

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
Yellow – near the acceptable range
Red - out of acceptable range

Group 3 (2012) – Sales Sample Details

- **96: Sales falling between July 1st 2011 - June 30th 2012**
    - (-) 5: Sales that are non arm's-length
    - (-) 1: Sale involving the MD State Highway Administration
    - (-) 2: Sales involving Montgomery County
    - (-) 1: Sale involving WMATA
    - (-) 2: Sales are exempt from taxation
    - (-) 4: Sales identified as outliers
- **81: Number of sales in final sample**

Group 3 (2012) – Sales Map
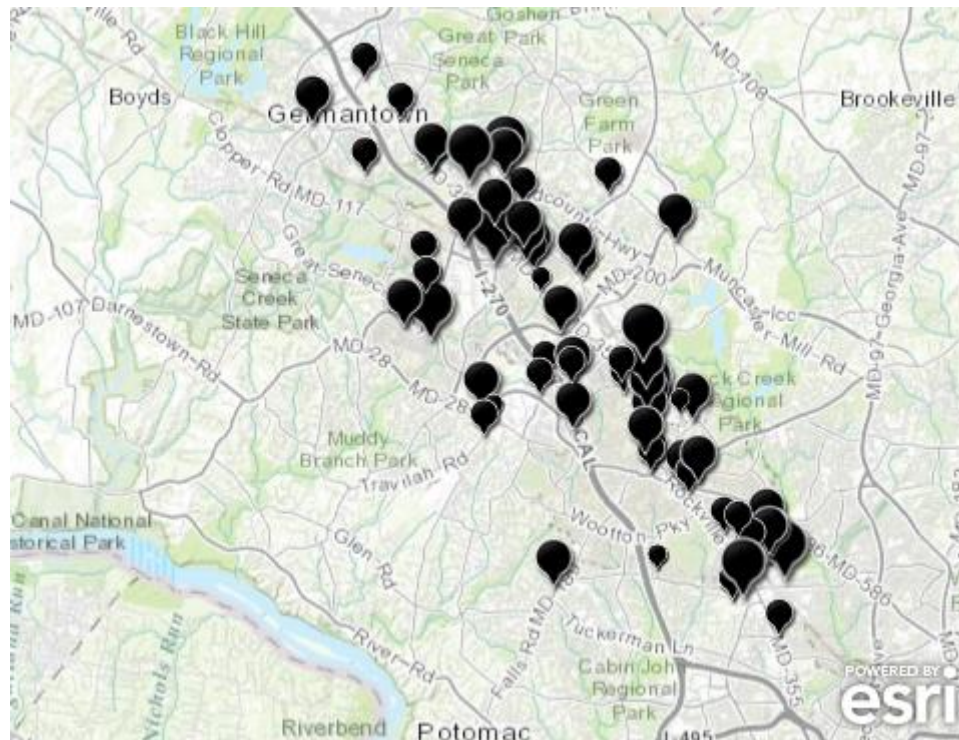
Group 3 (2012) - Statistics

Group 3 - 2012	Results
Total Sales (n)	81
Total Assessed Value	$474,145,700
Total Sale Price	$641,921,497
Avg Assessment Value	$7,924,957
Avg Sale Price	$5,853,651
Mean Ratio	0.91
Median Ratio	0.93
95% Conf. Int. Median	0.85-0.96
Weighted Mean Ratio	0.74
Coefficient of Dispersion	22%
Price-Related Differential	1.23

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.62	$1,547,975
21-40	0.80	$2,943,745
41-60	0.93	$590,000
61-80	1.00	$1,078,433
81-100	1.28	$650,000

Group 3 Sales show horizontal and vertical inequity

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
*Yellow* – near the acceptable range
Red - out of acceptable range

Group 3 (2012) - Scatterplots of Group 3 Sales

All Sales

Sales Below $60M
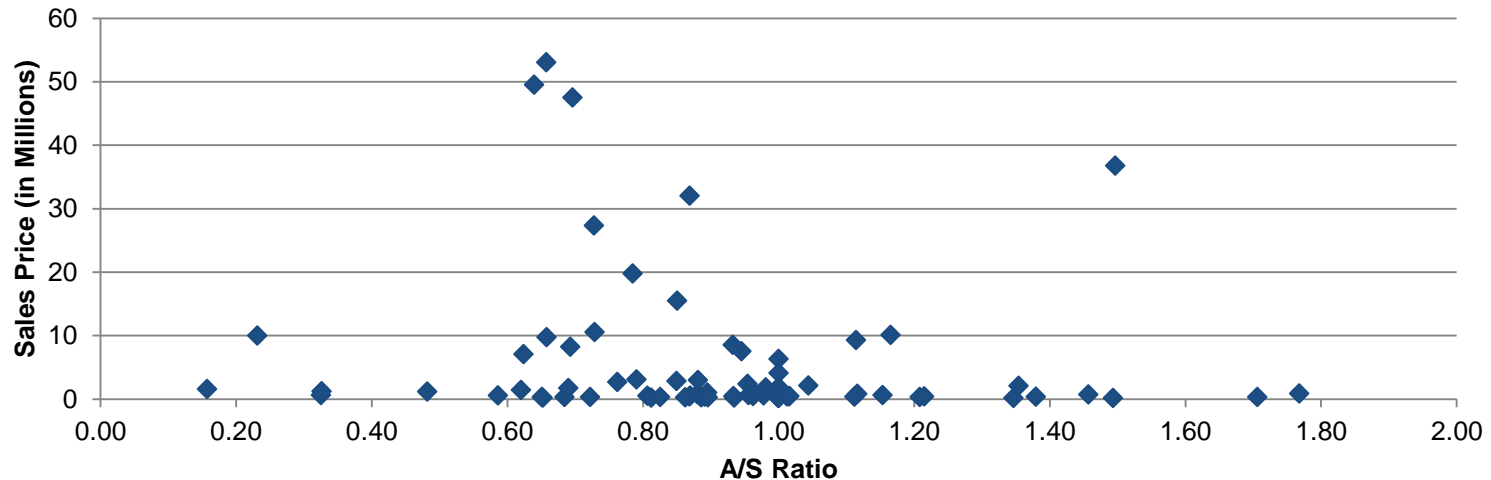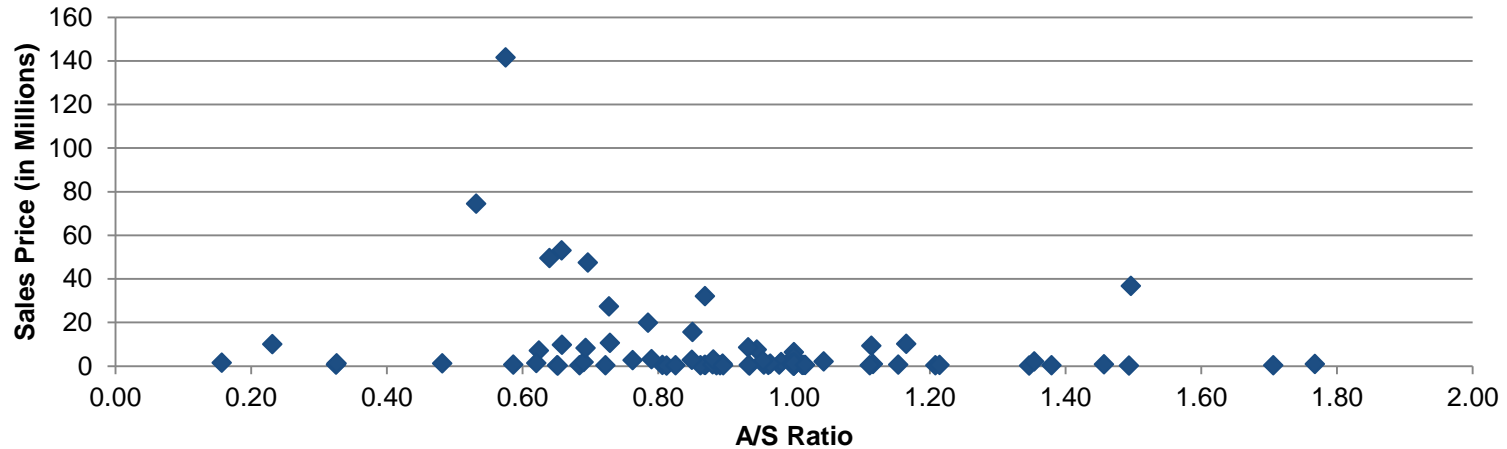
Group 3 Sales show horizontal and vertical inequity

Group 3 (2012) – Statistics for Commercial Only*

Group 3 - 2012	Results
Total Sales (n)	59
Total Assessed Value	$226,405,800
Total Sale Price	$350,686,910
Avg Assessment Value	$3,837,386
Avg Sale Price	$5,943,846
Mean Ratio	0.91
Median Ratio	0.93
95% Conf. Int. Median	0.85-0.97
Weighted Mean Ratio	0.65
Coefficient of Dispersion	22%
Price-Related Differential	1.41

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.58	$1,473,988
21-40	0.82	$500,000
41-60	0.93	$600,000
61-80	1.00	$527,500
81-100	1.36	$357,500

Commercial properties include: commercial, commercial condominium, and commercial/residential.

Commercial properties in Group 3 show the same horizontal and vertical equities as all income-producing properties in the Group

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
Yellow – near the acceptable range
Red - out of acceptable range
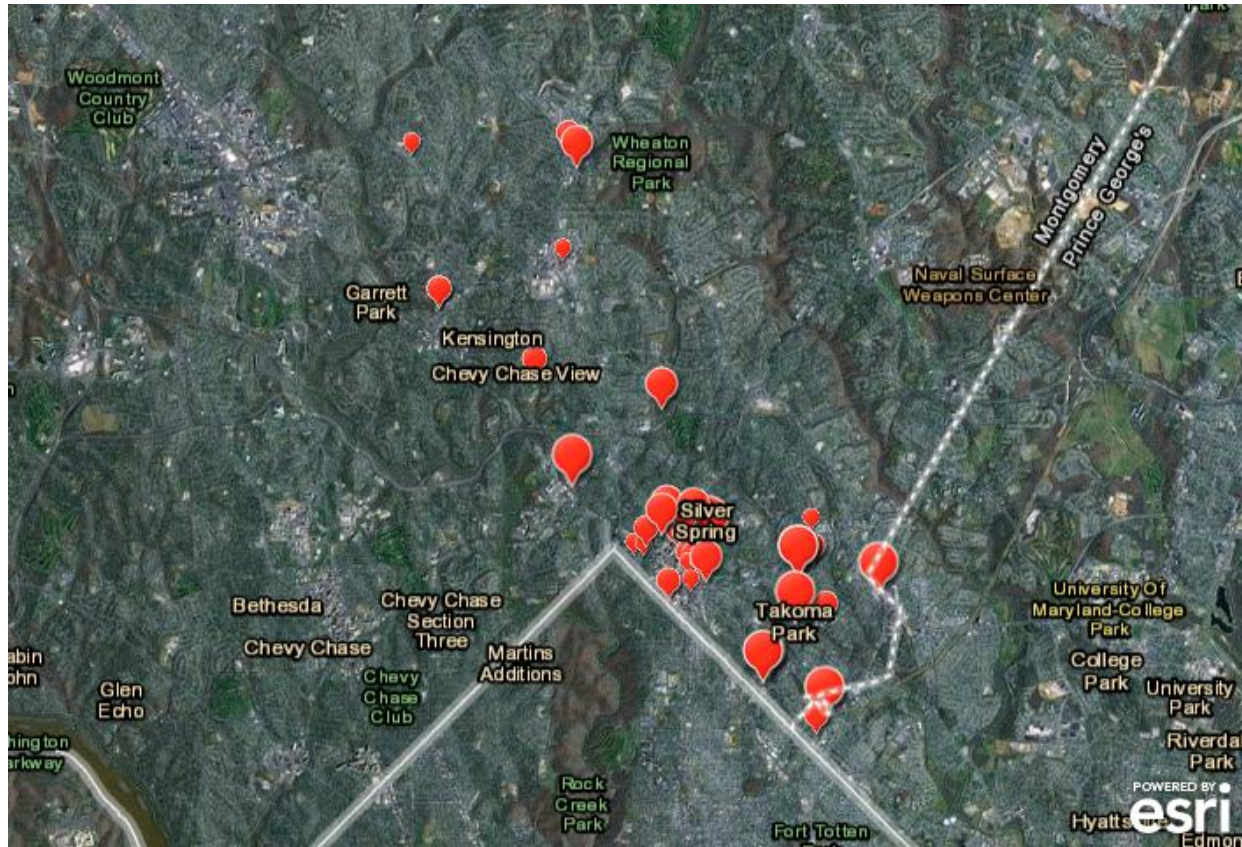
Group 1 (2013) – Sales Sample Details

- **50: Sales falling between July 1st 2012 - June 30th 2013**
  - (-) 4: Sales that are non arm's-length
  - (-) 1: Sale involving Montgomery County Housing Opportunities Comm.
  - (-) 4: Sales are exempt from taxation
  - (-) 2: Sales identified as outliers
- **39: Number of sales in final sample**

Group 1 (2013) – Sales Map

Group 1 (2013) - Statistics

Group 1 - 2013	Results
Total Sales (n)	39
Total Assessed Value	$460,260,800
Total Sale Price	$517,108,183
Avg Assessment Value	$11,801,559
Avg Sale Price	$13,259,184
Mean Ratio	0.86
Median Ratio	0.95
95% Conf. Int. Median	0.75-0.97
Weighted Mean Ratio	0.89
Coefficient of Dispersion	25%
Price-Related Differential	0.96

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.46	$2,050,000
21-40	0.65	$6,512,500
41-60	0.95	$1,900,000
61-80	1.00	$25,915,069
81-100	1.13	$667,500

Group 1 Sales show horizontal inequity and progressive vertical inequity

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
Yellow – near the acceptable range
Red - out of acceptable range

Group 1 (2013) - Scatterplots of Group 1 Sales
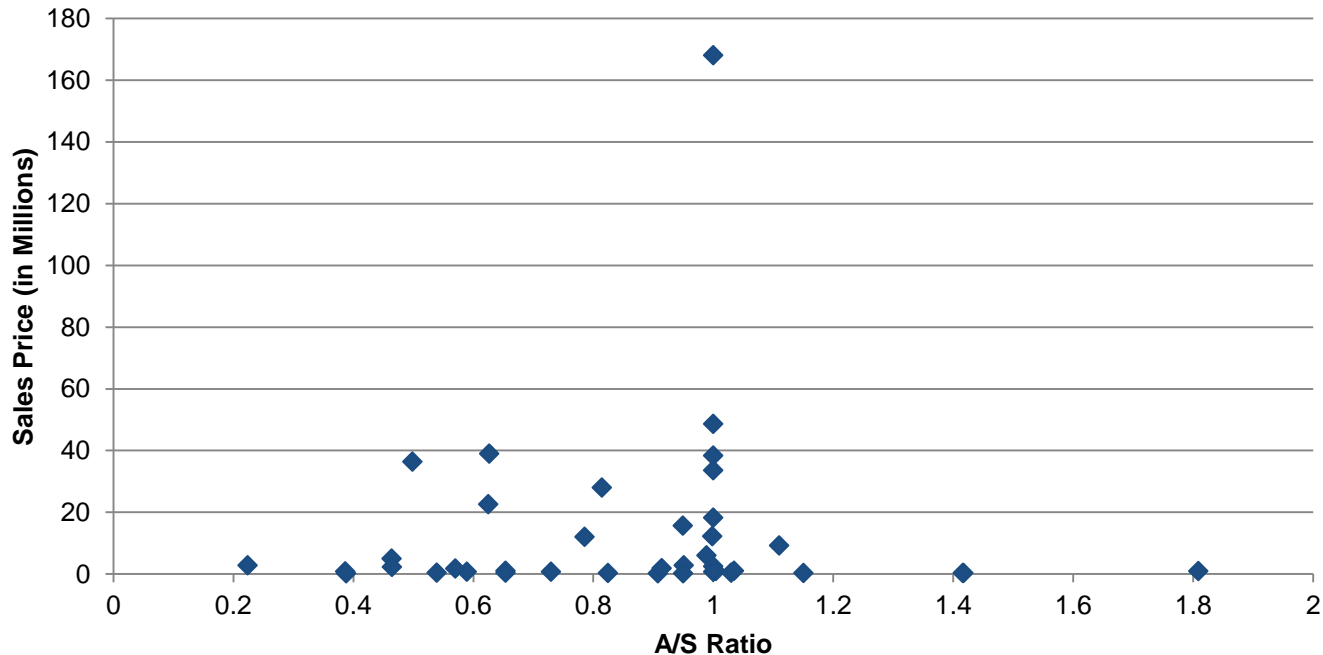
Group 1 has a high amount of properties with an Assessment/Sales Ratio near one. This result is largely due to sales occurring in July and August 2012 with near perfect matches to the January 1, 2013 assessment value.

Group 1 (2013) – Statistics for Commercial Only*

Group 1 - 2013	Results
Total Sales (n)	25
Total Assessed Value	$192,762,200
Total Sale Price	$208,501,500
Avg Assessment Value	$7,710,488
Avg Sale Price	$8,340,060
Mean Ratio	0.80
Median Ratio	0.82
95% Conf. Int. Median	0.68-0.95
Weighted Mean Ratio	0.92
Coefficient of Dispersion	31%
Price-Related Differential	0.87

Percentile Rank	Median A/S Ratio	Median Sale Price
0-20	0.39	$2,325,000
21-40	0.59	$700,000
41-60	0.82	$321,500
61-80	1.00	$18,250,000
81-100	1.00	$900,000

Commercial properties include: commercial, commercial condominium, and commercial/residential.

Commercial properties in Group 1 show the same horizontal and vertical equities as all income-producing properties in the Group

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
Yellow – near the acceptable range
Red - out of acceptable range

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Sale Date vs. Assessment Ratio

- **The sale date and assessment/sale ratio were examined for correlation to test for any date bias in the sample**
  - In theory, there should not be a correlation between these two variables as properly assessed properties should have ratios between 0.90-1.10 regardless of being sold six months before or after the date of finality
- **Groups 2 and 3 showed no correlation between sale date and assessment/sale ratio, but Group 1 showed a moderate correlation:**

	Group 2	Group 3	Group 1
Correlation Coefficient	-0.070	0.056	-0.448

Group 1's moderate correlation between the sale date and assessment/sale ratio may undermine the validity of the results for this group. With one exception, sales between 7/1/12 – 8/31/12 had an A/S ratio of 1 (indicating a perfect match between sale price and assessment value). 3/1/13- 6/30/13 sales had a median A/S ratio of 0.63 (far below the low A/S ratio boundary of 0.90).

Summary

Year / Group	Number of Sales	Total Assessed Values	Total Sales Prices	Weighted Ratio	Average Ratio	Median Ratio	COD	PRD
2011 Group 2	37	$216,236,300	$289,761,308	0.75	0.93	0.96	19%	1.25
2012 Group 3	81	$474,145,700	$641,921,497	0.74	0.91	0.93	22%	1.23
2013 Group 1	39	$460,260,800	$517,108,183	0.89	0.86	0.95	25%	0.96

Overall, each sample group was at or near the acceptable range of values, except for comparisons between high-end and low-end properties. Groups 2 and 3 showed regressive inequity while Group 1 showed marginal progressive inequity.

Green – within range (0.90-1.10 for ratio, 5.0-20.0 for COD, 0.98-1.03 for PRD)
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- **The International Association of Assessing Officers (IAAO) advises that COD and PRD values should fall within a specific range for the assessments to be considered acceptable**

Type of Property – General	Type of Property – Specific	COD Range
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Single-Family Residential	Older or more heterogeneous areas	5.0 to 15.0
Other Residential	Rural, seasonal, recreational, manufactured housing, 2-4 unit family housing	5.0 to 20.0
Income-Producing Properties	**Larger areas represented by large samples**	**5.0 to 15.0**
Income-Producing Properties	**Smaller areas represented by smaller samples**	**5.0 to 20.0**
Vacant Land		**5.0 to 25.0**
Other real and personal property		Varies

- **Assessment/Sale Ratio for each property should be between 0.90 - 1.10**
- **PRDs for all property types should be between 0.98 - 1.03**

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New TAS Database

- **DTS is in the process of retiring the current TAS database**
    - TAS does not allow for easy analysis of sales data as the data can not be exported in a machine readable format (such as .csv, .txt, or .xls)
    - Data cannot be filtered based on specified criteria

- **The new TAS will format data to be machine readable and easily sorted**
    - Goal: testing on new database in January 2014

CountyStat can work with DTS and FIN to create the necessary criteria for searching for potential properties that warrant an appeal

CountyStat Recommendations

- **FIN should appeal not only properties deemed under-assessed, but also properties that may be overvalued**
  - Ensuring properties are assessed at a fair market value is required by the Maryland Constitution and provides fairness to all property owners

- **Examine ways to empower residents to use data for appeals**
  - Publish sales vs. assessment data for the County on DataMontgomery
  - Join more appeals from residents by applying our data to the case

- **CountyStat can work with DTS and FIN to create the necessary criteria for searching for potential properties that warrant an appeal**

Wrap-Up

Appendix A: Identifying Outliers

- **To find outlier values, CountyStat utilized the methodology outlined in IAAO's 2013 Standard on Ratio Studies Appendix B (pp. 53-54)**

- **IAAO highlights two levels of outliers**
  - Ratios that fall outside 1.5x the interquartile range (IQR)
    - 50% of all the samples, by definition, fall within this interquartile range
  - Ratios that fall outside 3.0x the interquartile range

- **CountyStat chose the 3.0x IQR in order to only identify and trim from the sample extreme outliers**

Appendix: Identifying Outliers

- ■ **Group 2 (2011) Outliers:**

DIST	ACCT#	USE	COUNTY USE	TRANSFER TYPE	CITY	ZIP CODE	DATE OF SALE	SALE PRICE	FCV TOTAL	A/S RATIO
8	3680527	COMMERCIAL/ RESIDENTIAL	126	ARMS LENGTH IMPROVED	OLNEY	20832	6/16/2011	$3,172,000	$11,370,400	3.58
7	437214	COMMERCIAL	600	ARMS LENGTH IMPROVED	BETHESDA	20814	9/24/2010	$12,500,000	$28,036,200	2.24
7	3247236	COMMERCIAL	461	ARMS LENGTH IMPROVED	BETHESDA	20814	12/27/2010	$9,394,100	$21,067,600	2.24

Group 2 – 2011 w/ Outliers	Results
Total Sales (n)	40
Total Assessed Value	$276,710,500
Total Sale Price	$314,827,408
Avg Assessment Value	$6,917,763
Avg Sale Price	$7,870,685
Mean Ratio	1.06
Median Ratio	0.99
Weighted Mean Ratio	0.88
Coefficient of Dispersion	30%
Price-Related Differential	1.21

Group 2 – 2011 w/o Outliers	Results
Total Sales (n)	37
Total Assessed Value	$216,236,300
Total Sale Price	$289,761,308
Avg Assessment Value	$5,844,224
Avg Sale Price	$7,831,387
Mean Ratio	0.93
Median Ratio	0.96
Weighted Mean Ratio	0.75
Coefficient of Dispersion	19%
Price-Related Differential	1.25

Appendix: Identifying Outliers

- ## Group 3 (2012) Outliers:

DIST	ACCT#	USE	COUNTY USE	TRANSFER TYPE	CITY	ZIP CODE	DATE OF SALE	SALE PRICE	FCV TOTAL	A/S RATIO
4	3688408	COMMERCIAL	126	ARMS LENGTH IMPROVED	ROCKVILLE	20850	8/22/2011	$3,300,000	$18,460,400	5.59
4	3697117	INDUSTRIAL	910	ARMS LENGTH VACANT	ROCKVILLE	20850	5/10/2012	$550,000	$2,464,800	4.48
4	3697128	INDUSTRIAL	910	ARMS LENGTH VACANT	ROCKVILLE	20850	5/10/2012	$550,000	$4,385,100	7.97
9	3619888, 3619890, 3636303	COMMERCIAL CONDOMINIUM	601	N/A	GAITHERSBURG	20877	5/23/2012	$1,111,825	$7,418,200	6.67

Group 3 – 2012 w/ Outliers	Results
Total Sales (n)	85
Total Assessed Value	$506,874,200
Total Sale Price	$647,433,322
Avg Assessment Value	$5,963,226
Avg Sale Price	$7,616,863
Mean Ratio	1.16
Median Ratio	0.93
Weighted Mean Ratio	0.78
Coefficient of Dispersion	48%
Price-Related Differential	1.48

Group 3 – 2012 w/o Outliers	Results
Total Sales (n)	81
Total Assessed Value	$474,145,700
Total Sale Price	$641,921,497
Avg Assessment Value	$7,924,957
Avg Sale Price	$5,853,651
Mean Ratio	0.91
Median Ratio	0.93
Weighted Mean Ratio	0.74
Coefficient of Dispersion	22%
Price-Related Differential	1.23

Appendix: Identifying Outliers

- **Group 1 (2013) Outliers:**

DIST	ACCT#	USE	COUNTY USE	TRANSFER TYPE	CITY	ZIP CODE	DATE OF SALE	SALE PRICE	FCV TOTAL	A/S RATIO
13	1076618	APARTMENTS	113	ARMS LENGTH IMPROVED	TAKOMA PARK	20912	4/15/2013	$210,000	$448,000	2.13
13	991870	APARTMENTS	113	ARMS LENGTH IMPROVED	SILVER SPRING	20910	2/20/2013	$160,000	$399,800	2.50

Group 1 – 2013 w/ Outliers	Results
Total Sales (n)	41
Total Assessed Value	$461,108,600
Total Sale Price	$517,478,183
Avg Assessment Value	$11,246,551
Avg Sale Price	$12,621,419
Mean Ratio	0.93
Median Ratio	0.95
Weighted Mean Ratio	0.89
Coefficient of Dispersion	31%
Price-Related Differential	1.04

Group 1 – 2013 w/o Outliers	Results
Total Sales (n)	39
Total Assessed Value	$460,260,800
Total Sale Price	$517,108,183
Avg Assessment Value	$11,801,559
Avg Sale Price	$13,259,184
Mean Ratio	0.86
Median Ratio	0.95
Weighted Mean Ratio	0.89
Coefficient of Dispersion	25%
Price-Related Differential	0.96

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