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***Econometric Solutions for Real Estate Valuation  
Automated Valuation Models – Friend or Foe?***

**By**  
**Eugene Pasymowski, MAI,**  
**RealStat®, Inc. (USA)**

**502 Fairmont Drive**  
**Chester Springs, Pennsylvania 19425 USA**  
**Tel: 610.458.0400**  
**www.realstat.com    pasym@realstat.com**

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Pan Pacific Congress Abstract Eugene Pasymowski MAI  
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## **Econometric Solutions for Real Estate Valuation** *Automated Valuation Models – Friend or Foe?*

**Eugene Pasymowski, MAI, RealStat<sup>®</sup>, Inc. (USA)**

If fee appraisers use AVM technology, it can be their friend. If they ignore AVM technology, their appraisal services will become obsolete.

The appraisal profession needs to understand that our competition is not just other appraisers but investment analysts with MBA's from Harvard University, Stanford University, University of Pennsylvania (Wharton), Massachusetts Institute of Technology (Sloan), Northwestern University (Kellogg), University of Chicago, etc. These MBA's know and understand statistical modeling (regression analysis) and can do the number crunching. If appraisers competently utilize AVM's they can be competitive and produce a superior estimate of value since appraisers understand the unique nature of real estate v. other investment alternatives.

Typically appraisers make subjective, anecdotal, arbitrary, and unscientific "adjustments" to market data without objective market-based support for their valuation process that relies on comparable building sales (Sales Comparison Approach), rental rates (Income Capitalization Approach) and land sales (Cost Approach) arriving at guesstimates of value. Guesswork is no longer an acceptable methodology in our advanced technological world.

Fee appraisers must understand and competently use AVM technology as much as they rely on personal computers to perform discounted cash flow analysis and complex building cost calculation.

The *Uniform Standards of Professional Appraisal Practice* (USPAP) set forth the requirements for appraisers as follows:

***USPAP 2006 Standards Rule 1-1***

"In developing a real property appraisal, an appraiser must:  
be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal;"

“Comment: This Standards Rule recognizes that the principle of change continues to affect the manner in which appraisers perform appraisal services. ...To keep abreast of these changes and developments, the appraisal profession is constantly reviewing and revising appraisal methods and techniques and devising new methods and techniques to meet new circumstances. For this reason, it is not sufficient for appraisers to simply maintain the skills and the knowledge they possess when they become appraisers. Each appraiser must continuously improve his or her skills to remain proficient in real property appraisal.”

*USPAP 2006* Advisory Opinion 18 (AO-18) “Use of an Automated Valuation Model (AVM)” provides the appraiser with detailed advice as to the proper use of AVM’s. Appraisers must read Advisory Opinion 18 in order to comply with *USPAP 2006 Standards Rule 1-1* that requires an appraiser to “be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal.”

Automated Valuation Models (AVM) utilizing econometric multiple regression analysis have been a basic tool for mass appraisal tax assessment. They required large mainframe computers to handle the enormous database required for mass appraisals.

The capacity of desktop personal computers has grown exponentially during the past decade. Ten years ago, a multiple regression calculation using a personal computer and Microsoft *Excel* required 30 minutes of computing time. Current state-of-the-art personal computers and Microsoft *Excel 2003* can perform the same calculation in two seconds! Personal computer hardware and software now have the capacity and speed necessary for fee appraisers to perform high quality data intense analysis in their normal day-to-day appraisal assignments.

Market data availability has been resolved with the Internet. Access to data ranging from local, regional, national and global sources is widely available and can be downloaded instantly.

## ***ECONOMETRICS & REGRESSION ANALYSIS***

The term econometrics literally means economic measurement. It is the application of statistical analytical mathematical tools, mainly regression analysis, to the real world of economics. Its purpose is to:

1. Describe economic reality (via regression charts),
2. Test hypotheses about economic theory and significance of factors,
3. Predict economic activity (estimate value of real estate)

Regression analysis is defined as:

“A method that examines the relationship between one or more independent variables and a single dependent variable by plotting points on a graph; used to identify and weight analytical factors and to make forecasts.”

Appraisal Institute. The Dictionary of Real Estate Appraisal, 3<sup>rd</sup> Edition  
Appraisal Institute, 1993, Page 299.

Econometrics empowers real estate appraisers to describe accurately the relationship between sale price and the various factors that contribute to the value of real estate, test the significance of these factors and apply the resultant econometric indicators to a credible estimate of value for a particular property. A scientific approach, it can be replicated by review appraisers who can verify the appropriateness of the method used and confirm the credibility of the estimated value.

The use of econometrics and regression analysis is a superior tool compared to so-called “traditional” appraisal techniques as summarized here:

<b>Methods:</b>	<b>Traditional</b>	<b>Regression</b>
Nature of Analysis	Subjective	Objective
Quantification of Factors	No	Yes
Market Supported Adjustments	No	Yes
Hypothesis Testing	No	Yes
Charts With Trend Lines	No	Yes
Replication / Scientific Testing	No	Yes
Variance Calculation	No	Yes
“Paired Sales” Analysis	False Assumption: Perfect Market	NA

Regression analysis is superior with regard to comparable sales data selection. The “traditional” methods contain a high potential for data bias, because the appraiser engages in “data mining” by pre-selecting comparable sales that are too similar to the subject property. Regression relies on an unbiased random selection of comparable sales.

<b>Comparable Data Selection Criteria</b>		
	<b>Traditional</b>	<b>Regression</b>
<b>Types of Use</b> (Residential, Commercial, Industrial, etc.)	Similar	Similar
<b>Property Features</b> (Bedrooms, Bathrooms, Building Size, Ceiling Height, etc.)	Similar	Dissimilar
<b>Data Diversity</b>	Narrow	Wide
<b>Data Bias Potential</b>	High	Low

<b>Method DATA</b>	<b>Traditional Analysis BIASED</b>	<b>Regression Analysis UNBIASED</b>
<b>Selection</b>	"Data Mining": Comparable sales selected to closely "match" the subject property	Random sample of sales from market transactions.
<b>Analysis</b>	Often a self fulfilling prophecy.	Regression analysis is independent of the subject property.
<b>Adjustments</b>	Guesswork to support a value.	Derived from market transactions and then applied to subject property.
<b>USPAP Ethics Provision</b>	Possibly Misleading Report	Meaningful Report

### **CASE STUDY - NEIGHBORHOOD RETAIL STRIP SHOPPING CENTER**

The following case study is based on actual market data for retail strip shopping centers in Suburban Philadelphia. The subject is the fictitious "Penntown Shopping Center" that has the following features:

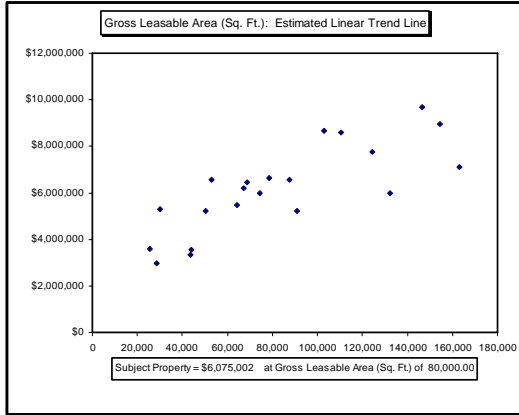
Gross Leasable Area (Sq. Ft.)	80,000
Traffic Count Peak Time (# Vehicles)	15,000
Street Frontage - Primary (Linear Feet)	600
Street Frontage - Secondary (Linear Feet)	250
Age (Years)	20
Market Conditions – Time Adjustment	As of December 31, 2001

The regression analysis is based on a random sample of 21 sales of suburban strip shopping centers with the following data range:

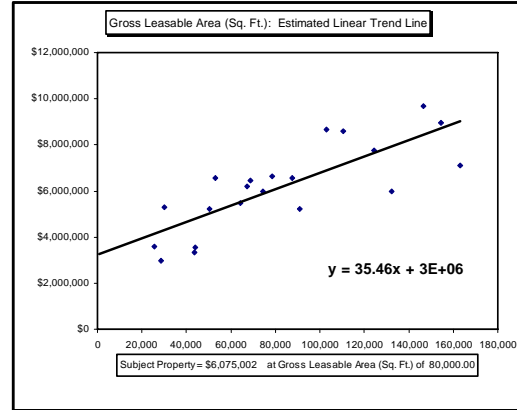
<b>Sample Size = 21</b>	<b>Low</b>	<b>High</b>	<b>Average</b>	<b>Median</b>
Date	Dec-93	Oct-01	Oct-98	Sep-98
Price	\$1,500,000	\$10,800,000	\$5,326,471	\$4,700,000
<b>Independent Factors / Variables</b>				
Gross Leasable Area (Sq. Ft.)	25,697	163,187	82,940	74,270
Traffic Count Peak Time (# Vehicles)	3,082	37,273	14,668	14,149
Street Frontage - Primary (Feet)	229	1,136	609	520
Market Conditions / Time	0	2,841	1,753	1,730
Street Frontage - Secondary (Feet)	0.00	1,694.62	356.65	237.37
Age (Years)	7.8	39.5	22.1	19.6

The regression analysis results in the following chart for 80,000 SF of Gross Leasable Area indicating a value of \$6,075,000 rounded to \$6,080,000.

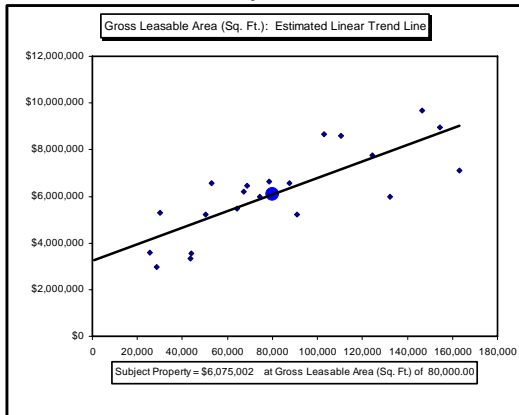
Regression Chart Step No. 1:  
Plot the Sales Data Points



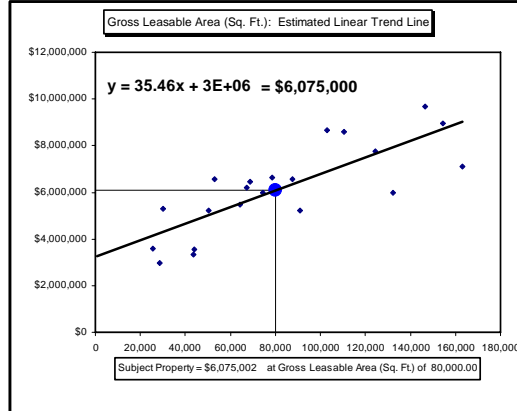
Regression Chart Step No. 2:  
Draw the Regression Line



Regression Chart Step No. 3:  
Plot the Subject Data Point



Regression Chart Step No. 4:  
Plot Value of the Subject Property



Among the 21 sales, I identified the six (6) independent variables in the valuation of the subject property. The regression hypothesis testing ruled out the 250 feet of “Secondary Street Frontage” since it had a low confidence level of 75% and had minimal impact on the overall value of the subject property. The regression was then re-run for the remaining five variables that were demonstrated to have statistical significance.

<b>Statistical Indicators</b>	
Correlation "R"	91.2%
Coefficient of Determination "R Squared"	83.2%
Standard Error	\$1,309,662
F Statistic of 14.84 = Confidence Level	100.0%
Durbin-Watson Statistic	1.99
Observations (n)	21

The sample has an correlation of 91.2%. The "F" statistic of 14.84 has a confidence level of 100%, indicating that all five variables are statistically significant.

The Durbin Watson "D" Statistic is the measure of undesirable autocorrelation in time series residuals. The "D" Statistic ranges from 0.00 to 4.00. A Durbin Watson "D" Statistic with mid-point a 2.00± value indicates no autocorrelation. Negative autocorrelation gradually increases from 2.00 to 4.00 while positive autocorrelation gradually increases from 2.00 to 0.00. The sample of 21 sales and 5 variables has a Durbin Watson "D" Statistic of 1.99 indicates the absence of undesirable autocorrelation.

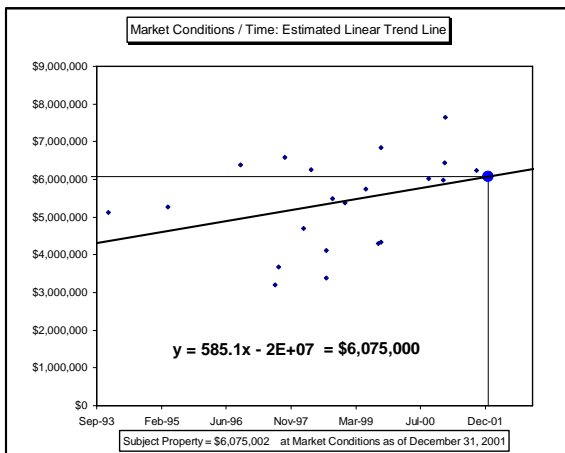
The "T" statistic is the measure of statistical significance of an individual variable. The following table displays the confidence level range of 90.2% to 99.9% indicating that the selected five factors are statistically significant and can be relied upon to estimate the value of the subject property.

Sample Data Coefficient T-Distribution Confidence & Significance Levels					
One Sided		Two Sided		T-Distribution Statistic	
Confidence	Significance	Confidence	Significance		
Market Conditions / Time	90.2%	9.8%	80.4%	19.6%	1.353174
Gross Leasable Area (Sq. Ft.)	99.9%	0.1%	99.9%	0.1%	3.991203
Traffic Count Peak Time (# Vehicles)	95.2%	4.8%	90.5%	9.5%	1.781194
Street Frontage - Primary (Feet)	99.5%	0.5%	99.0%	1.0%	2.9717741
Age (Years)	99.2%	0.8%	98.4%	1.6%	-2.717489

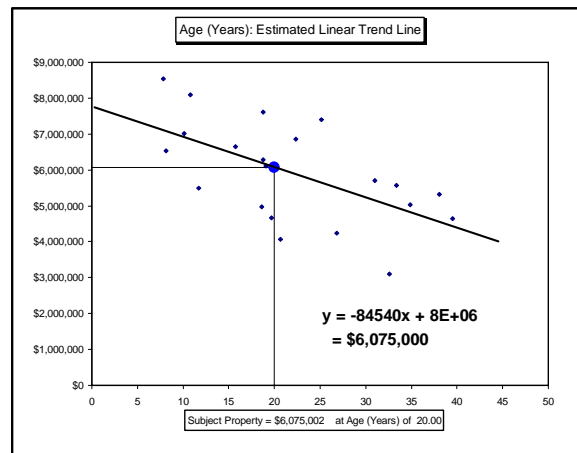
The regression analysis calculated the contributory values (Slope Coefficients) of each of the variables. The following calculations result in a value estimate that is illustrated in the subsequent five regression charts.

Estimated Value: 100 Penntown Avenue, Penntown, PA				
FACTORS	SUBJECT	X	SLOPE COEFFICIENTS	= VALUE
Intercept	1.00	x	(\$93,760.54)	= \$ (93,761)
Market Conditions / Time	2,930	x	\$585.10	= \$ 1,714,353
Gross Leasable Area (Sq. Ft.)	80,000	x	\$35.46	= \$ 2,836,775
Traffic Count Peak Time (# Vehicles)	15,000	x	\$71.46	= \$ 1,071,855
Street Frontage - Primary (Feet)	600	x	\$3,727.64	= \$ 2,236,585
Age (Years)	20	x	(\$84,540.27)	= \$ (1,690,805)
Price				= \$ 6,075,002
Unit of Value			x	1
Estimated Value			\$76.00 per Sq. Ft. GLA	= \$ 6,075,002
Estimated Value (Rounded):			December 31, 2001	\$ 6,080,000

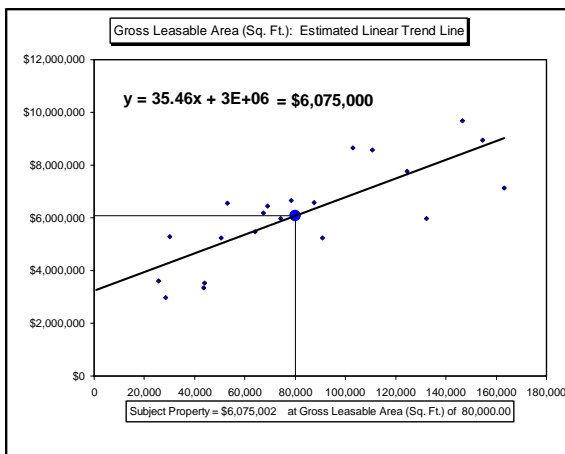
Note: An increase in value attributable to Market Conditions is offset by the Age of the building.



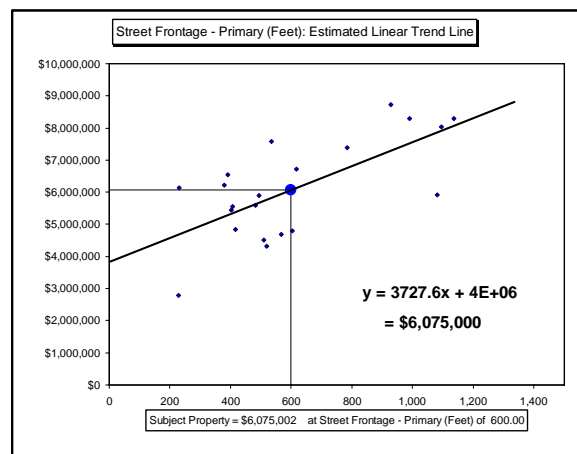
Value Increases  
@ \$585 per Day



Value Decreases by Age (years)  
@ \$84,540 per year

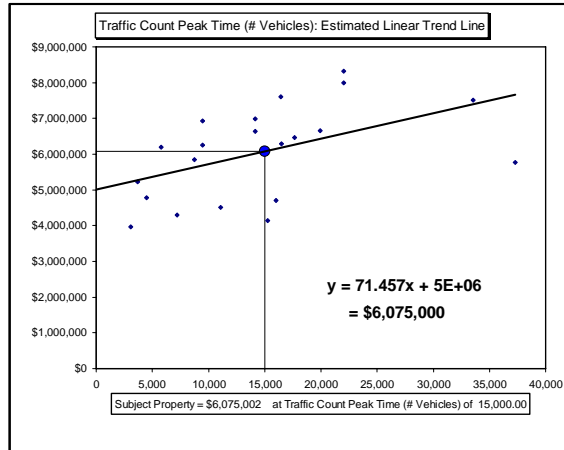


Value Increases  
@ \$35.46 per SF of Gross Leasable Area



Value Increases  
@ \$3,728 per Linear Feet of Primary Street Frontage





Value Increases  
@ \$71.46 per vehicle at Peak Time

The process of adjustments of comparable sales to the subject property is illustrated in the following table. The sale price of \$5,975,000 is adjusted by the net differences of each of the factors. For example, the subject Gross Leasable Area of 80,000 SF is larger than the 74,270 SF Sale No 1 by 5,730 SF which is then multiplied by the slope coefficient of \$35.46 per square, foot resulting in an upward adjustment of \$203,184. This is process is applied to the other factors resulting in a value estimate of \$6,183,005 which in turn is adjusted by the statistical variance of a minus \$108,003 resulting an estimate of value of \$6,075,000 that is rounded to \$6,080,000.

Comparable No. 1 2928 Street Road Bensalem, Bucks County, PA						
<b>Price</b>	\$ 5,975,000					
<b>Adjustments to Subject Property</b>	<i>Subject</i>	<i>- Sale</i>	<i>=</i>	<i>Net Dif.</i>	<i>x Slope</i>	<i>= \$ Adj. % Adj.</i>
Market Conditions / Time	31-Dec-2001	18-Sep-1998		1,200.00	\$ 585.1035	\$ 702,124 11.8%
Gross Leasable Area (Sq. Ft.)	80,000.00	74,270.00		5,730.00	\$ 35.4597	\$ 203,184 3.4%
Age (Years)	20.00	18.78		1.22	\$ (84,540.2702)	\$ (103,353) -1.7%
Traffic Count Peak Time (# Vehicles)	15,000.00	33,559.00		-18,559.00	\$ 71.4570	\$ (1,326,171) -22.2%
Street Frontage - Primary (Feet)	600.00	403.57		196.43	\$ 3,727.6412	\$ 732,221 12.3%
-						
Gross Adjustments						\$ 3,067,052 51.3%
Net Adjustments						\$ 208,005 3.5%
Adjusted Sale Price per Unit of Value						\$ 6,183,005
Reconciliation (Statistical Residual)						\$ (108,003)
Price						\$ 6,075,002
<b>Indicated Value of Subject Property</b>						
As of	31-Dec-2001					
Price	\$ 6,075,002					
Unit of Value	1					
Subject Value Estimate =	\$6,075,002					
(Rounded)	\$6,080,000					

The following grids adjust all 21 sales to exactly the same value estimate because the variance (statistical residual) inherent in an imperfect real estate market is applied as a bottom line adjustment. It is an econometric regression analysis mathematical rule that the sum of the variances measured by the vertical ± price distance between the data points and the regression line must always equal zero. See the “Verification of Adjustment Calculations” proof.





**ADJUSTMENT GRID**  
**100 Penntown Avenue, Penntown, Montgomery County, PA**

Address City County State Date Price Price Grantor Grantee Book & Page Parcel No. Gross Leasable Area (SF) \$/SF GLA Market Conditions / Time Gross Leasable Area (Sq. Ft.) Age (Years) Traffic Count Peak Time (# Vehicles) Street Frontage - Primary (Feet)	Subject Property 100 Penntown Avenue Penntown Montgomery PA 31-Dec-01	Comparable No. 11 1502 West Chester Pike Westtown Twp. Chester PA 17-Sep-1997 \$9,500,000 \$9,500,000 CIDAC		Comparable No. 12 2603 New Rodgers Rd. Bristol PA 30-Sep-1989 \$8,800,000 \$8,800,000 Manufacturers Life Insurance Co.		Comparable No. 13 223 W. Butler Ave. New Britain Twp. Bucks PA 27-Sep-1989 \$1,500,000 \$1,500,000 N/A		Comparable No. 14 1034 N. 2nd Street Pike Northampton Bucks PA 7-Apr-1988 \$3,400,000 \$3,400,000 N/A		Comparable No. 15 106 Lincoln Hwy Falls PA 8-Oct-1986 \$5,200,000 \$5,200,000 Confederation Life Ins. Co.		
		\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	
Elements of Comparison		\$9,500,000	0.0%	\$8,800,000	0.0%	\$1,500,000	0.0%	\$3,400,000	0.0%	\$5,200,000	0.0%	
Property Rights (leased fee / fee simple)		\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	
Financing (Cash equivalency)		\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	
Conditions of Sale		\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	
Transaction Adjusted Price		\$9,500,000	0.0%	\$8,800,000	0.0%	\$1,500,000	0.0%	\$3,400,000	0.0%	\$5,200,000	0.0%	
Unit of Value		1		1		1		1		1		
Price		\$9,500,000		\$8,800,000		\$1,500,000		\$3,400,000		\$5,200,000		
Adjustments to Subject Property	Estimated Slope Coefficients	Net Dif.	% Adj.	Net Dif.	% Adj.	Net Dif.	% Adj.	Net Dif.	% Adj.	Net Dif.	% Adj.	
Market Conditions / Time	\$585,10345911	1,566.00	9.6%	\$481,540	5.5%	826.00	32.2%	1,364.00	23.5%	1,910.00	21.5%	
Gross Leasable Area (Sq. Ft.)	\$35,45968595	(\$1,086,556)	-11.4%	(\$2,360,055)	-26.8%	36,000.00	85.1%	49,950.00	52.1%	26,947.00	18.4%	
Age (Years)	1.23	(\$103,585)	-1.1%	(\$779,443)	-8.9%	-6.83	-38.5%	\$577,150	5.8%	12.21	-19.8%	
Traffic Count Peak Time (# Vehicles)	\$71,45701908	(\$500,199)	-5.3%	\$392,942	4.5%	11,918.00	56.8%	\$851,000	1.8%	(\$102,541)	-2.0%	
Street Frontage - Primary (Feet)	\$3,727,64124905	(\$1,226,394)	-12.9%	\$782,805	8.9%	33.11	123.422	221.04	823,958	368.07	\$1,372,033	26.4%
Gross Adjustments		\$3,833,006	40.3%	\$4,796,785	54.5%	\$3,312,041	220.8%	\$3,651,940	107.4%	\$4,579,556	88.1%	
Adjusted Sale Price per Unit of Value		(\$2,000,462)	-21.1%	(\$1,482,211)	-16.8%	\$3,312,041	220.8%	\$3,651,940	107.4%	\$2,310,670	44.4%	
Reconciliation (Statistical Residual)		\$7,499,538		\$7,317,769		\$4,812,041		\$7,051,940		\$7,510,670		
Price		(\$1,242,536)		\$1,262,961		\$6,075,002		\$6,075,002		(\$1,435,667)		
Unit of Value		1		1		1		1		1		
Subject Value Estimate =		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		

**ADJUSTMENT GRID**  
**100 Penttown Avenue, Penttown, Montgomery County, PA**

Address	Subject Property	Comparable No. 16		Comparable No. 17		Comparable No. 18		Comparable No. 19		Comparable No. 20		Comparable No. 21	
		100 Penttown Avenue	W. Shishiro Rd	142 E. Butler Ave	222 E. Main St & Route 29	10 Ridge Ave	Slate St & Route 100	709 Route 113 & County Line Rd.	Penntown	Whitemarsh Township	Penntown Boro	Hilltown	709 Route 113 & County Line Rd.
City	Montgomery	East Bradford	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough	Chalfont Borough
State	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA	PA
Date	31-Dec-01	22-Jan-2001	9-Feb-1998	31-Jul-1998	23-Dec-1993	31-Jul-1998	23-Dec-1993	23-Dec-1993	3-Oct-2001	3-Oct-2001	30-Jun-1997	30-Jun-1997	30-Jun-1997
Price	\$10,350,000	\$10,350,000	\$2,335,000	\$7,000,000	\$7,000,000	\$7,000,000	\$4,000,000	\$4,000,000	\$10,800,000	\$10,800,000	\$5,300,000	\$5,300,000	\$5,300,000
Price	\$10,350,000	\$10,350,000	\$2,335,000	\$7,000,000	\$7,000,000	\$7,000,000	\$4,000,000	\$4,000,000	\$10,800,000	\$10,800,000	\$5,300,000	\$5,300,000	\$5,300,000
Grantor	-	Wellsford Capital Properties, LLC	Challont Square Realty, LLC	Challont Square Realty, LLC	Challont Square Realty, LLC	Challont Square Realty, LLC	Challont Square Realty, LLC	Challont Square Realty, LLC	Ahoid Real Estate Co.	Ahoid Real Estate Co.	-	-	-
Grantor	-	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Bradford Plaza Inv. Group	Penntown Plaza LLC	Penntown Plaza LLC	-	-	-
Book & Page	-	4883762	0700897	15301989	523811440	40001192001	65008997009	65008997009	53821205	53821205	-	-	-
Parcel No.	16004468009	5105 0036-001	0700897	40001192001	65008997009	65008997009	65008997009	65008997009	16002680009	16002680009	-	-	-
Gross Leasable Area (SF)	80000	124381	23087	132224	132224	132224	68933	68933	154627	154627	-	-	-
\$/SF GLA	-	\$63.21	\$90.87	\$52.94	\$52.94	\$52.94	\$58.03	\$58.03	\$69.85	\$69.85	-	-	-
Market Conditions / Time	December 31, 2001	January 22, 2001	February 9, 1998	July 31, 1998	July 31, 1998	July 31, 1998	December 23, 1993	December 23, 1993	October 3, 2001	October 3, 2001	June 30, 1997	June 30, 1997	June 30, 1997
Gross Leasable Area (Sq. Ft.)	80,000	124,381	25,697	132,224	132,224	132,224	68,933	68,933	154,627	154,627	163,187	163,187	163,187
Age (Years)	20.00	10.09	8.13	20.65	20.65	20.65	38.11	38.11	15.75	15.75	32.60	32.60	32.60
Traffic Count Peak Time (# Vehicles)	15,000	16,511	4,500	15,256	15,256	15,256	5,797	5,797	8,750	8,750	37,273	37,273	37,273
Street Frontage - Primary (Feet)	600	1,085	416	1,082	1,082	1,082	990	990	1,136	1,136	229	229	229
<b>Elements of Comparison</b>													
Property Rights (leased fee / fee simple)		\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.	\$ Adj.	% Adj.
Financing Cash (equivalency)		\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%
Conditions of Sale		\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$0	0.0%
Transaction Adjusted Price		\$10,350,000	0.0%	\$2,335,000	0.0%	\$7,000,000	0.0%	\$4,000,000	0.0%	\$10,800,000	0.0%	\$5,300,000	0.0%
Unit of Value		\$10,350,000	1	\$2,335,000	1	\$7,000,000	1	\$4,000,000	1	\$10,800,000	1	\$5,300,000	1
<b>Price</b>													
Net D/E		\$10,350,000		\$2,335,000		\$7,000,000		\$4,000,000		\$10,800,000		\$5,300,000	
Market Conditions / Time		343.00	1.0%	1,421.00	35.6%	1,248.00	10.4%	2,930.00	42.9%	89.00	0.5%	1,645.00	12.2%
Gross Leasable Area (Sq. Ft.)		\$36,456,653	-15.2%	\$4,303,000	82.5%	(\$2,224,000)	-26.5%	\$1,087,000	9.8%	(\$2,646,250)	-24.5%	\$82,485	1.6%
Age (Years)		\$84,540,270	-8.1%	\$11,887,000	43.0%	(\$54,812)	-0.6%	\$1,530,783	38.3%	4.25	0.0%	(\$2,949,785)	-55.7%
Traffic Count Peak Time (# Vehicles)		\$71,457,019	-1.0%	\$10,500,000	32.1%	(\$256,000)	-0.3%	\$657,619	16.4%	6,250,000	4.1%	\$1,065,579	20.1%
Street Frontage - Primary (Feet)		\$3,727,641	-17.8%	183.85	29.4%	(\$481,668)	-25.7%	(\$389,751)	-36.3%	(\$1,988,016)	-18.5%	\$1,384,222	26.1%
<b>Gross Adjustments</b>													
Net Adjustments		\$4,565,981	44.1%	\$5,196,728	222.5%	\$4,451,276	63.6%	\$5,748,035	143.7%	\$5,502,242	50.9%	\$7,953,644	150.1%
Adjusted Sale Price per Unit of Value		\$4,164,601	-40.2%	\$5,624,522	136.6%	\$4,119,536	41.1%	\$2,842,339	71.1%	\$4,504,881	41.7%	\$1,129,051	-21.3%
Reconciliation (Statistical Residual)		\$6,185,399		\$550,480		\$1,955,066		\$6,842,339		\$6,295,119		\$4,170,949	
Price		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002	
Unit of Value		1		1		1		1		1		1	
Subject Value Estimate =		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002		\$6,075,002	
As of 31-Dec-2001													
\$ 6,080,000 (Rounded)													

The accuracy of the adjustments can be verified utilizing this mathematical proof.

1. Sample size must be large enough: 21 sales minus 1 = 20 minus 5 variables = 15 residual degrees of freedom.
2. The variance (statistical residual) sum of the differences must always equal zero.

<b>VERIFICATION OF ADJUSTMENT CALCULATIONS</b>				
Price	Net Adj. To Subject Property	Adjusted Price	Indicated Value of Subject Property	Statistical Residual
\$ 5,975,000	\$ 208,005	\$ 6,183,005	\$ 6,075,002	\$ 108,003
\$ 8,275,000	\$ (443,847)	\$ 7,831,153	\$ 6,075,002	\$ 1,756,151
\$ 3,725,000	\$ 1,128,304	\$ 4,853,304	\$ 6,075,002	\$ (1,221,698)
\$ 4,744,900	\$ 1,894,449	\$ 6,639,349	\$ 6,075,002	\$ 564,346
\$ 3,650,000	\$ 2,378,610	\$ 6,028,610	\$ 6,075,002	\$ (46,392)
\$ 4,325,000	\$ 1,977,658	\$ 6,302,658	\$ 6,075,002	\$ 227,656
\$ 4,700,000	\$ 2,008,011	\$ 6,708,011	\$ 6,075,002	\$ 633,009
\$ 2,900,000	\$ 1,893,884	\$ 4,793,884	\$ 6,075,002	\$ (1,281,118)
\$ 2,200,000	\$ 2,426,083	\$ 4,626,083	\$ 6,075,002	\$ (1,448,919)
\$ 3,176,000	\$ 3,102,744	\$ 6,278,744	\$ 6,075,002	\$ 203,742
\$ 9,500,000	\$ (2,000,462)	\$ 7,499,538	\$ 6,075,002	\$ 1,424,536
\$ 8,800,000	\$ (1,482,211)	\$ 7,317,789	\$ 6,075,002	\$ 1,242,787
\$ 1,500,000	\$ 3,312,041	\$ 4,812,041	\$ 6,075,002	\$ (1,262,961)
\$ 3,400,000	\$ 3,651,940	\$ 7,051,940	\$ 6,075,002	\$ 976,938
\$ 5,200,000	\$ 2,310,670	\$ 7,510,670	\$ 6,075,002	\$ 1,435,667
\$ 10,350,000	\$ (4,164,601)	\$ 6,185,399	\$ 6,075,002	\$ 110,397
\$ 2,335,000	\$ 3,189,522	\$ 5,524,522	\$ 6,075,002	\$ (550,480)
\$ 7,000,000	\$ (2,880,064)	\$ 4,119,936	\$ 6,075,002	\$ (1,955,066)
\$ 4,000,000	\$ 2,842,339	\$ 6,842,339	\$ 6,075,002	\$ 767,337
\$ 10,800,000	\$ (4,504,881)	\$ 6,295,119	\$ 6,075,002	\$ 220,117
\$ 5,300,000	\$ (1,129,051)	\$ 4,170,949	\$ 6,075,002	\$ (1,904,053)
Total of Residuals				\$0
Average of Residuals				\$0
RESULT: The Average & the Total of the Residuals DO EQUAL ZERO, hence, the adjustments made by the appraiser are CORRECT.				
1		Number of Sales		21
2	-	Constant a/k/a Intercept		1
3	=	Number of Sales Minus 1		20
4	-	Number of Independent Variables Adjustment Factors		5
5	=	Residual Degrees of Freedom (must be equal to or greater than 1)		15
RESULT: The sample size is higher than the number of independent variable adjustment factors. Hence, the appraisal adjustments and the Critical T & F statistics can be calculated. The appraiser's adjustments are mathematically possible.				

## SUMMARY

This paper illustrates the accuracy of the econometric modeling compared to “traditional” unscientific anecdotal methods used by a vast majority of real estate appraisers.

Fortune 500 companies are well staffed with MBA’s from the top graduate business schools such as Harvard University, Stanford University, University of Pennsylvania (Wharton), Massachusetts Institute of Technology (Sloan), Northwestern University (Kellogg), University of Chicago, etc. Hence, our clients will be far more demanding and will require that the appraisal profession be proficient in the use of automated valuation models and econometric analysis.

The regression analysis in this paper utilized RealStat<sup>®</sup> Econometric Software, a product developed and marketed by RealStat<sup>®</sup>, Inc.

Please visit my website [www.realstat.com](http://www.realstat.com). It contains information regarding econometrics and you can download the freeware “Verify Adjustments Tool” featured in this paper.

-30-

***Eugene Pasymowski, MAI***

**RealStat<sup>®</sup> Inc.**

**502 Fairmont Drive  
Chester Springs, Pennsylvania 19425  
USA**

**[www.realstat.com](http://www.realstat.com)**

**Telephone: 610.458.0400  
Fax: 610.458.0451  
E-mail: [pasym@realstat.com](mailto:pasym@realstat.com)**

Eugene Pasymowski MAI is the president of RealStat<sup>®</sup> Valuation located in Chester Springs, Pennsylvania. He is an MAI designated member of the Appraisal Institute who specializes in the application of econometrics to the valuation of real estate. Mr. Pasymowski serves as an expert witness in state and federal court involving complex litigation concerning commercial and industrial real estate. He conducts continuing education seminars on econometrics for the Appraisal Institute, Assessors Association of Pennsylvania, Greater Philadelphia Board of Realtors and other professional groups. He is the author of RealStat<sup>®</sup> a Microsoft<sup>®</sup> Excel<sup>®</sup> based econometric software program that is specifically designed for the valuation of all types of real estate. The RealStat<sup>®</sup> website is [www.realstat.com](http://www.realstat.com).

We at RealStat<sup>®</sup>, Inc. welcome your comments and suggestions and are glad to answer any questions you may have. Please contact:

Eugene Pasymowski, MAI  
President  
RealStat<sup>®</sup>, Inc.  
502 Fairmont Drive  
Chester Springs, Pennsylvania 19425  
United States of America

Phone: 610.458.0400  
Fax: 610.458.0451  
e-mail: pasym@realstat.com  
Internet: www.realstat.com

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**SUMMARY STATISTICS AND ESTIMATED VALUE**  
**Subject Property Name: Penntown Shopping Center**  
**Address: 100 Penntown Avenue**  
**Penntown, Montgomery County, PA**

<b>Multiple R</b>	
Multiple R	91.2%
R Square	83.2%
Adjusted R Square	77.6%
Standard Error	\$1,309,661.56
F Statistic Confidence Level	100.0%
Durbin-Watson Statistic	1.9879
Observations (n)	21

Critical T-Distribution Statistic at 15 Degrees of Freedom		
Significance Level	One Sided T	Two Sided T
5.0%	1.7531	2.1314
10.0%	1.3406	1.7531
Critical F-Statistic	Significance Level	Critical F
Numerator = K	1.0%	4.5556
5	2.5%	3.5764
Denominator = (n-1)-K	5.0%	2.9013
15	10.0%	2.2730

<b>ANALYSIS OF VARIANCE (ANOVA)</b>					
	Degrees of Freedom		Sum of Squares	Mean SS	F
Regression (k)	5	83.2%	127340320537893	25468064107579	14.8483
Residual (n-1)-k	15	16.8%	25728201004965	1715213400331	100.00%
Total (n-1)	20	100.0%	153068521542857	Significance F	2.376E-05

Factors	Slope Coefficients	Standard Error	t Stat	P-value
Intercept	-93,760.540033	1,380,480.4719686800	-0.0679187732	0.94674738
Market Conditions / Time	585.103459	432.3932836149	1.3531742543	0.19604327
Gross Leasable Area (Sq. Ft.)	35.459686	8.8844615099	3.9912026084	0.00118025
Age (Years)	-84,540.270186	31,109.6953782747	-2.7174894887	0.01589126
Traffic Count Peak Time (# Vehicles)	71.457019	40.1174837885	1.7811939418	0.09513530
Street Frontage - Primary (Feet)	3,727.641249	1,254.3487966105	2.9717740864	0.00950326

Note: The above statistics were generated using Excel®, a spreadsheet software product of Microsoft® Corporation

The subject property value estimate is the summation of multiplying the subject factors by their respective coefficients = Price

<b>Estimated Value: 100 Penntown Avenue, Penntown, PA</b>					
FACTORS	SUBJECT	X	EST. SLOPE COEFFICIENTS	=	VALUE
Intercept	1.00	x	(\$93,760.540033)	= \$	(93,761)
Market Conditions / Time	2,930.00	x	\$585.103459	= \$	1,714,353
Gross Leasable Area (Sq. Ft.)	80,000.00	x	\$35.459686	= \$	2,836,775
Age (Years)	20.00	x	(\$84,540.270186)	= \$	(1,690,805)
Traffic Count Peak Time (# Vehicles)	15,000.00	x	\$71.457019	= \$	1,071,855
Street Frontage - Primary (Feet)	600.00	x	\$3,727.641249	= \$	2,236,585
Price				= \$	6,075,002
Unit of Value				x	1
Estimated Value				= \$	6,075,002
Estimated Value (Rounded):			December 31, 2001	\$	6,080,000

**T-Distribution & F-Statistic Critical Value Tables and Confidence/Significance Levels of Sample Data**  
**Subject Property Name: Penntown Shopping Center**  
**Address: 100 Penntown Avenue**  
**Penntown, Montgomery County, PA**

Critical Value of T-Distribution Table				
(n - 1) - k = 15 Degrees of Freedom				
One Sided		Two Sided		Critical "T" Distribution Value
Level of Confidence	Level of Significance	Level of Confidence	Level of Significance	
99.9%	0.1%	99.8%	0.2%	3.7328
99.5%	0.5%	99.0%	1.0%	2.9467
99.0%	1.0%	98.0%	2.0%	2.6025
98.0%	2.0%	96.0%	4.0%	2.2485
97.5%	2.5%	95.0%	5.0%	2.1314
95.0%	5.0%	90.0%	10.0%	1.7531
92.5%	7.5%	85.0%	15.0%	1.5172
90.0%	10.0%	80.0%	20.0%	1.3406
85.0%	15.0%	70.0%	30.0%	1.0735
80.0%	20.0%	60.0%	40.0%	0.8662
75.0%	25.0%	50.0%	50.0%	0.6912
70.0%	30.0%	40.0%	60.0%	0.5357
65.0%	35.0%	30.0%	70.0%	0.3928
60.0%	40.0%	20.0%	80.0%	0.2579
55.0%	45.0%	10.0%	90.0%	0.1278
50.0%	50.0%	0.0%	100.0%	0.0000

Critical Value of F-Statistic Table			
Numerator Degrees of Freedom:		5	
Denominator Degrees of Freedom:		15	
Level of Confidence	Level of Significance	Critical "F" Statistic	
99.9%	0.1%	7.5674	
99.5%	0.5%	5.3721	
99.0%	1.0%	4.5556	
98.0%	2.0%	3.8052	
97.5%	2.5%	3.5764	
95.0%	5.0%	2.9013	
92.5%	7.5%	2.5287	
90.0%	10.0%	2.2730	
85.0%	15.0%	1.9228	
80.0%	20.0%	1.6801	
75.0%	25.0%	1.4938	
70.0%	30.0%	1.3422	
50.0%	50.0%	0.9107	
40.0%	60.0%	0.7481	
30.0%	70.0%	0.6012	
20.0%	80.0%	0.4598	
10.0%	90.0%	0.3088	
0.0%	100.0%	0.0000	
Observations = N		21	
Numerator = K		5	
Denominator = N - K - 1		15	

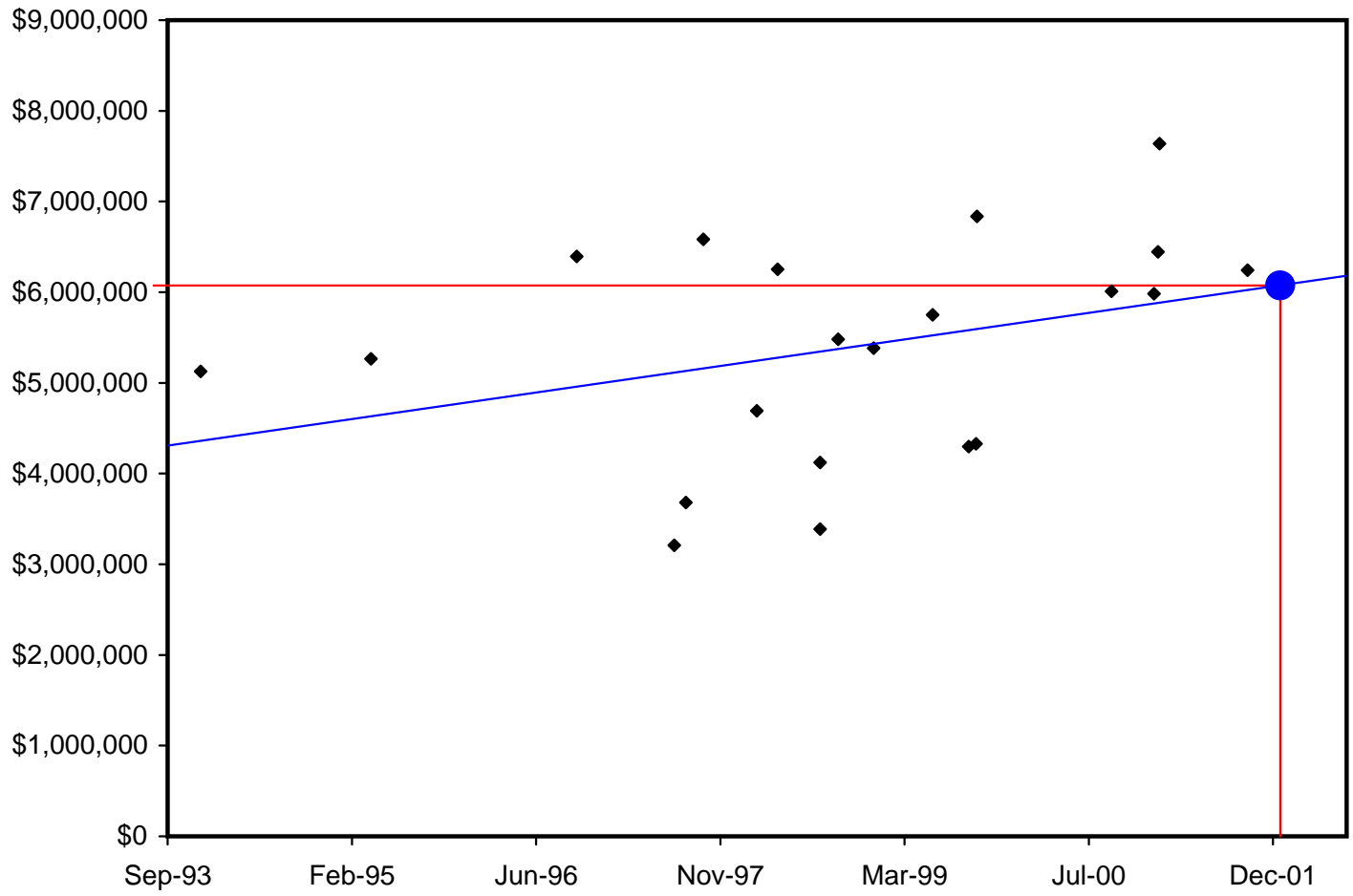
Sample Data Coefficient T-Distribution Confidence & Significance Levels					
	One Sided		Two Sided		T-Distribution Statistic
	Confidence	Significance	Confidence	Significance	
Intercept	52.7%	47.3%	5.3%	94.7%	-0.067919
Market Conditions / Time	90.2%	9.8%	80.4%	19.6%	1.353174
Gross Leasable Area (Sq. Ft.)	99.9%	0.1%	99.9%	0.1%	3.991203
Age (Years)	99.2%	0.8%	98.4%	1.6%	-2.717489
Traffic Count Peak Time (# Vehicles)	95.2%	4.8%	90.5%	9.5%	1.7811939
Street Frontage - Primary (Feet)	99.5%	0.5%	99.0%	1.0%	2.971774

Sample Data F-Statistic Confidence and Significance Levels "Goodness of Fit" of Entire Model	
F-Distribution	14.8483
Confidence	99.9976239709402%
Significance	0.002376029059800%

High confidence and low significance levels are indications of good sample data.

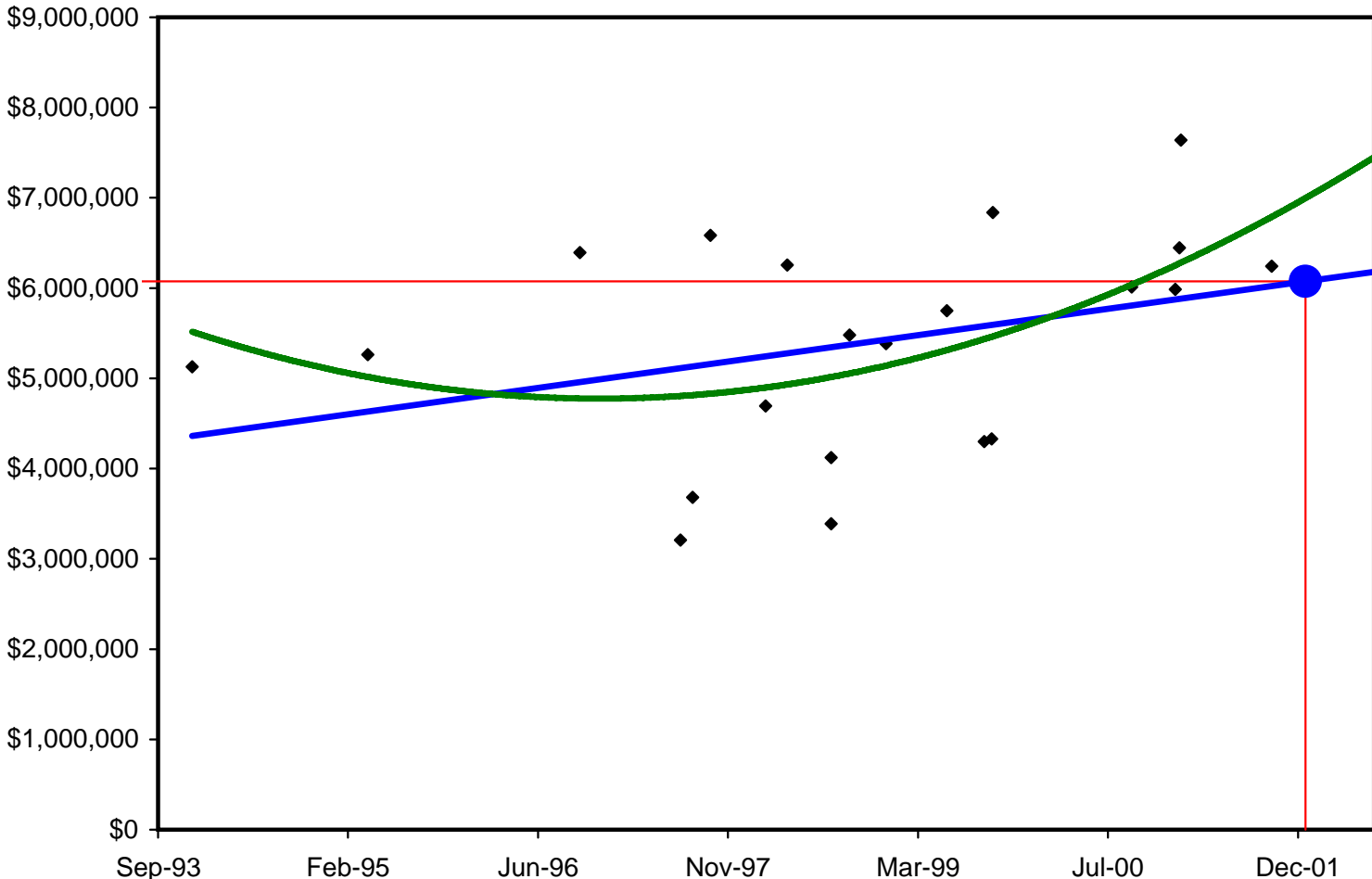
<b>Current Sample Size = 21</b>		<b>VERIFICATION OF ADJUSTMENT CALCULATIONS</b>				
		Column 1	+ Column 2	= Column 3	- Column 4	= Column 5
Line No.	Comparable No. (Rank Order)	Price	Net Adj. To Subject Property	Adjusted Price	Indicated Value of Subject Property	Statistical Residual
1	1	\$ 5,975,000.00	\$ 208,005.10	\$ 6,183,005.10	\$ 6,075,002.10	\$108,002.9987
2	2	\$ 8,275,000.00	\$ (443,846.82)	\$ 7,831,153.18	\$ 6,075,002.10	\$1,756,151.0771
3	3	\$ 3,725,000.00	\$ 1,128,304.06	\$ 4,853,304.06	\$ 6,075,002.10	-\$1,221,698.0462
4	4	\$ 4,744,900.00	\$ 1,894,448.54	\$ 6,639,348.54	\$ 6,075,002.10	\$564,346.4387
5	5	\$ 3,650,000.00	\$ 2,378,610.06	\$ 6,028,610.06	\$ 6,075,002.10	-\$46,392.0471
6	6	\$ 4,325,000.00	\$ 1,977,658.28	\$ 6,302,658.28	\$ 6,075,002.10	\$227,656.1786
7	7	\$ 4,700,000.00	\$ 2,008,011.18	\$ 6,708,011.18	\$ 6,075,002.10	\$633,009.0788
8	8	\$ 2,900,000.00	\$ 1,893,883.69	\$ 4,793,883.69	\$ 6,075,002.10	-\$1,281,118.4094
9	9	\$ 2,200,000.00	\$ 2,426,083.15	\$ 4,626,083.15	\$ 6,075,002.10	-\$1,448,918.9536
10	10	\$ 3,176,000.00	\$ 3,102,743.73	\$ 6,278,743.73	\$ 6,075,002.10	\$203,741.6304
11	11	\$ 9,500,000.00	\$ (2,000,461.84)	\$ 7,499,538.16	\$ 6,075,002.10	\$1,424,536.0558
12	12	\$ 8,800,000.00	\$ (1,482,210.61)	\$ 7,317,789.39	\$ 6,075,002.10	\$1,242,787.2847
13	13	\$ 1,500,000.00	\$ 3,312,041.03	\$ 4,812,041.03	\$ 6,075,002.10	-\$1,262,961.0752
14	14	\$ 3,400,000.00	\$ 3,651,940.15	\$ 7,051,940.15	\$ 6,075,002.10	\$976,938.0462
15	15	\$ 5,200,000.00	\$ 2,310,669.60	\$ 7,510,669.60	\$ 6,075,002.10	\$1,435,667.4991
16	16	\$ 10,350,000.00	\$ (4,164,600.53)	\$ 6,185,399.47	\$ 6,075,002.10	\$110,397.3696
17	17	\$ 2,335,000.00	\$ 3,189,522.06	\$ 5,524,522.06	\$ 6,075,002.10	-\$550,480.0389
18	18	\$ 7,000,000.00	\$ (2,880,063.83)	\$ 4,119,936.17	\$ 6,075,002.10	-\$1,955,065.9323
19	19	\$ 4,000,000.00	\$ 2,842,339.00	\$ 6,842,339.00	\$ 6,075,002.10	\$767,336.8956
20	20	\$ 10,800,000.00	\$ (4,504,881.26)	\$ 6,295,118.74	\$ 6,075,002.10	\$220,116.6324
21	21	\$ 5,300,000.00	\$ (1,129,050.58)	\$ 4,170,949.42	\$ 6,075,002.10	-\$1,904,052.6831
Total of Residuals						\$0.0000
Sample Size:						\$0.0000
21						Average of Residuals
21						RESULT: The Average & the Total of the Residuals DO EQUAL ZERO, hence, the adjustments made by the appraiser are CORRECT.
		1	Number of Sales		21	
		2	Constant a/k/a Intercept		1	
Data Range	8	3	= Number of Sales Minus 1		20	
	9	4	= Number of Independent Variables Adjustment		5	
	29	5	= Residual Degrees of Freedom (must be equal to n - k - 1)		15	
RESULT: The sample size is higher than the number of independent variable adjustment factors. Hence, the appraisal adjustments and the Critical T & F statistics can be calculated. The appraiser's adjustments are mathematically possible.						

Market Conditions / Time: Estimated Linear Trend Line



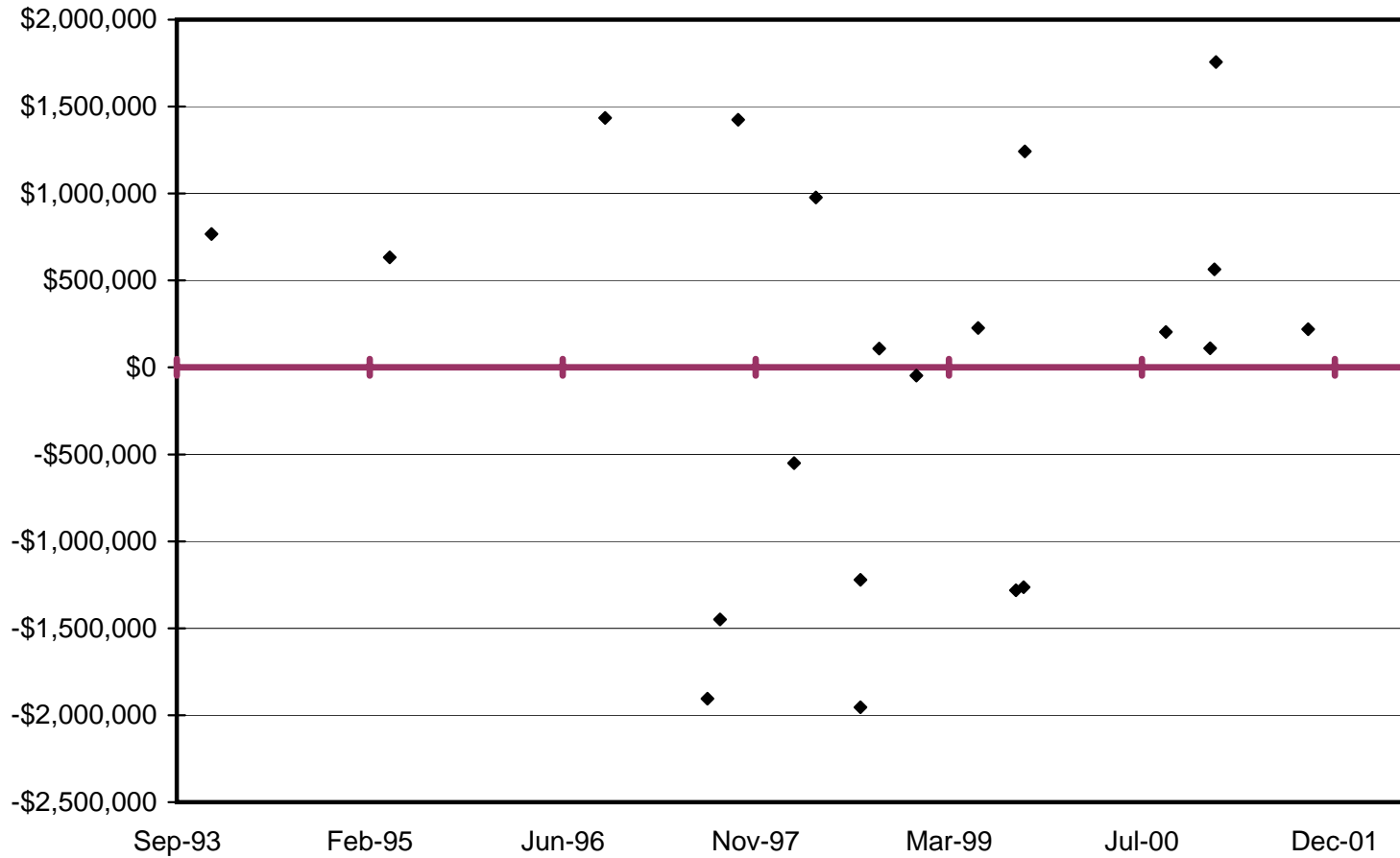
Subject Property = \$6,075,002 at Market Conditions as of December 31, 2001

Market Conditions / Time: Estimated Linear & Polynomial Trend Lines

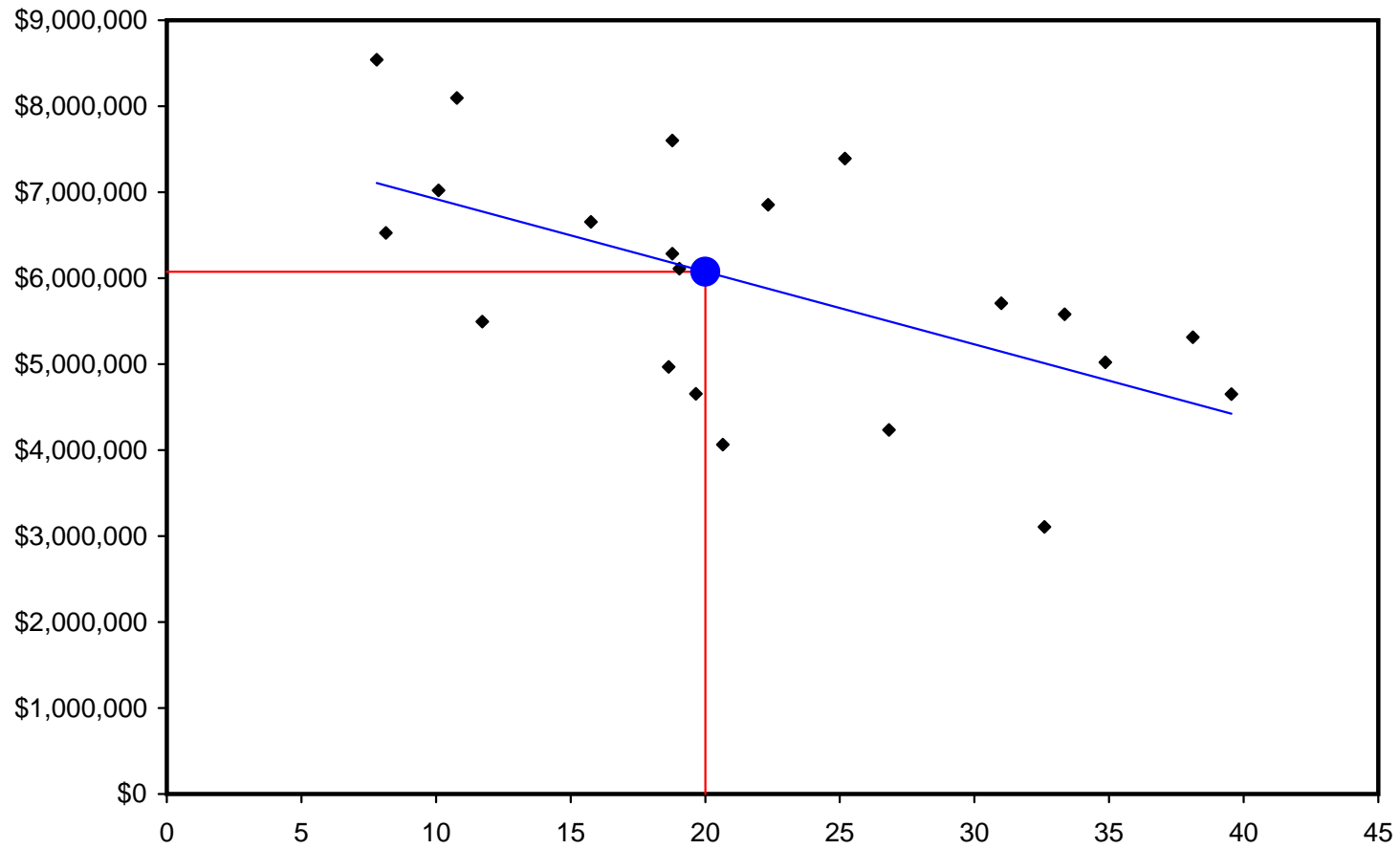


Subject Property = \$6,075,002 at Market Conditions as of December 31, 2001

Market Conditions / Time: Residuals



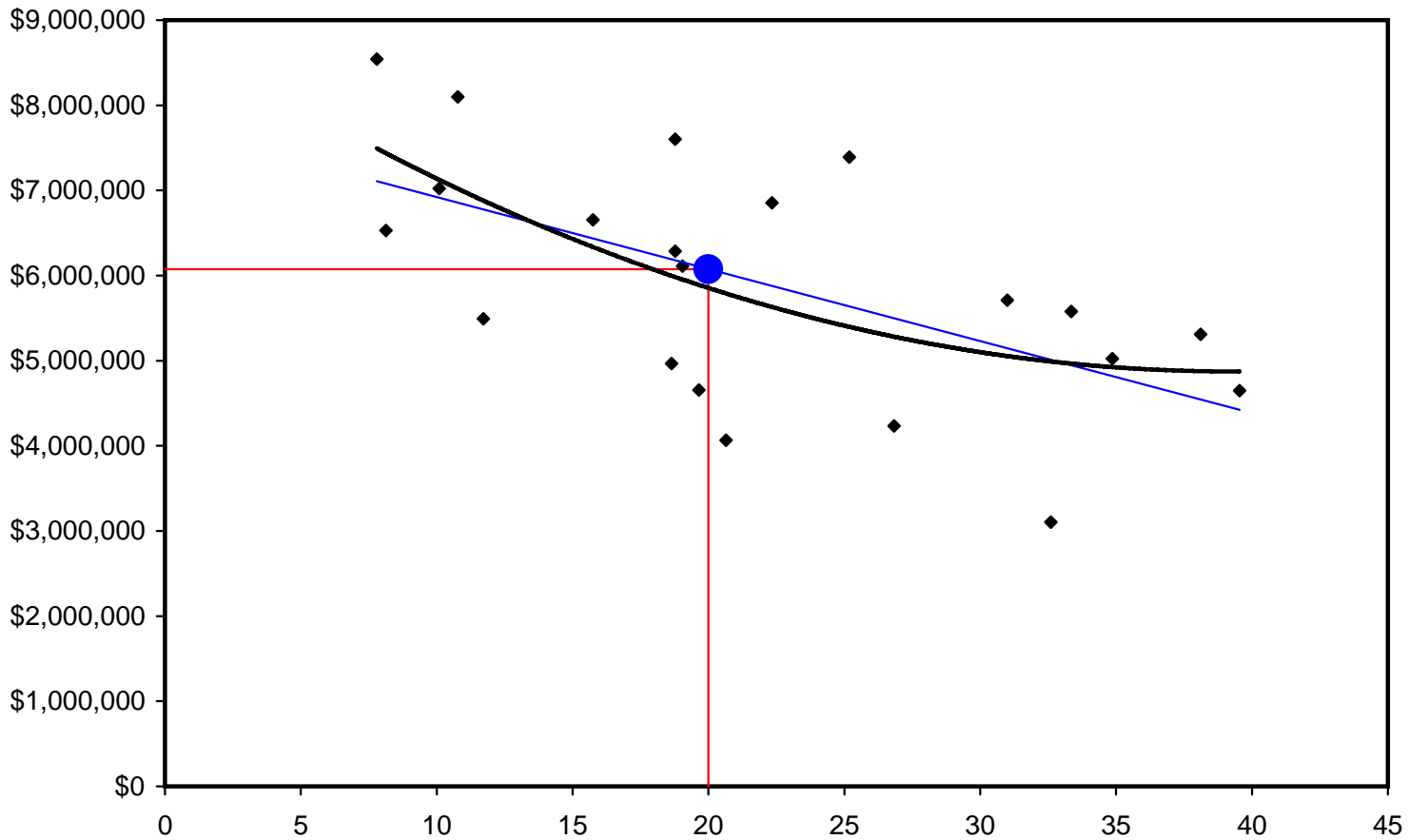
Age (Years): Estimated Linear Trend Line



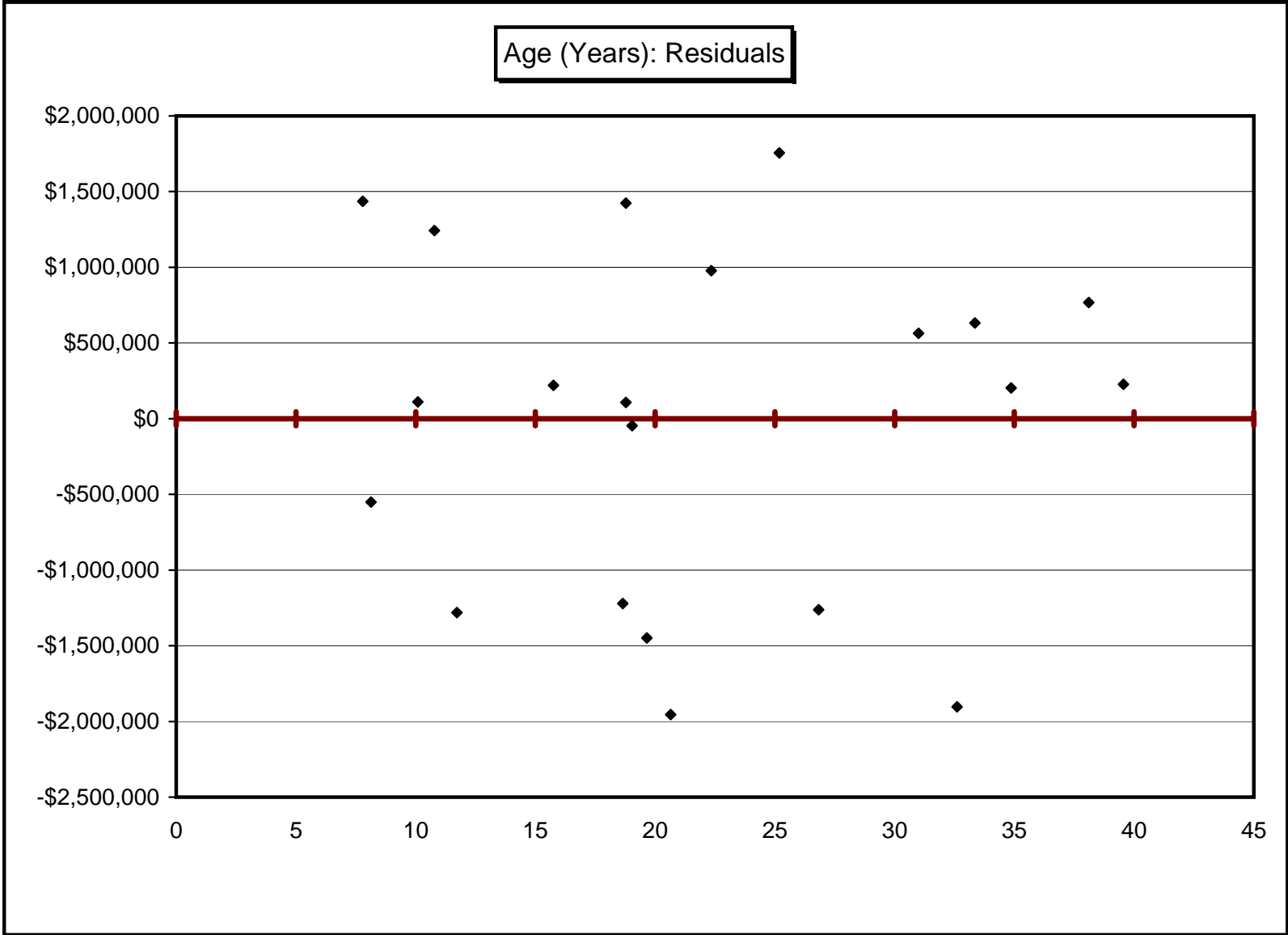
Subject Property = \$6,075,002 at Age (Years) of 20.00



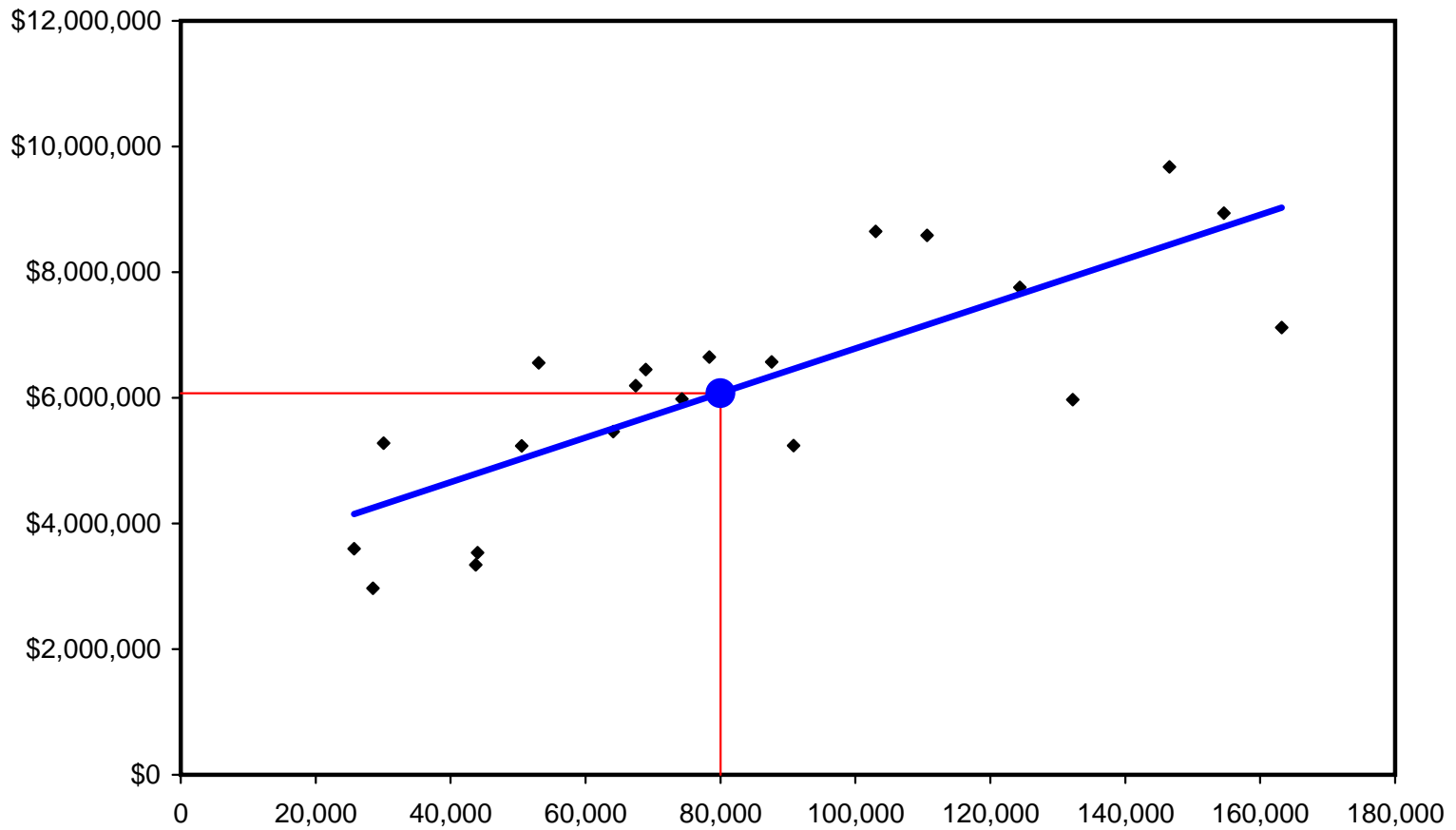
Age (Years): Estimated Linear & Polynomial Trend Lines



Subject Property = \$6,075,002 at Age (Years) of 20.00

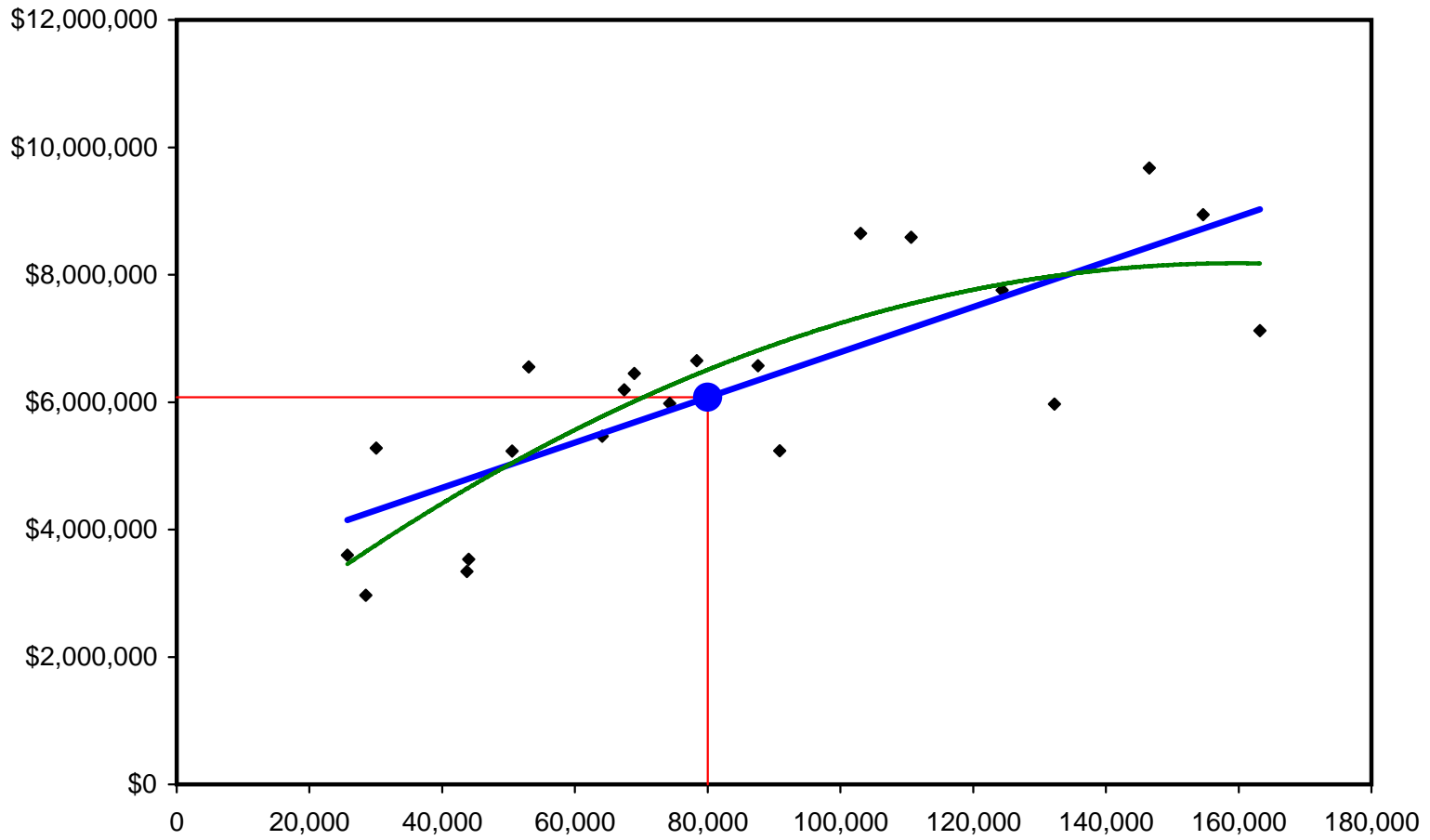


Gross Leasable Area (Sq. Ft.): Estimated Linear Trend Line



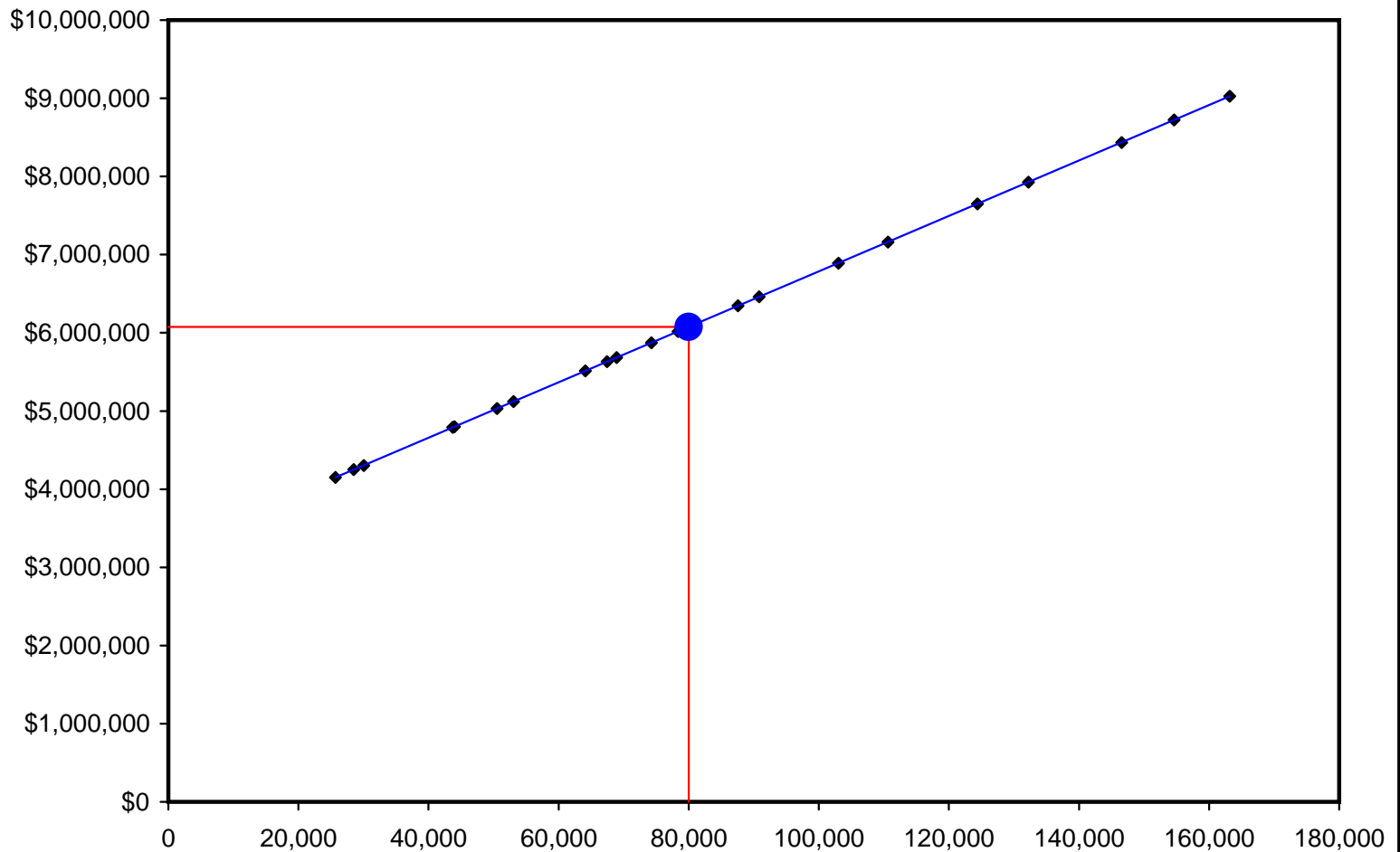
Subject Property = \$6,075,002 at Gross Leasable Area (Sq. Ft.) of 80,000.00

Gross Leasable Area (Sq. Ft.): Estimated Linear & Polynomial Trend Lines

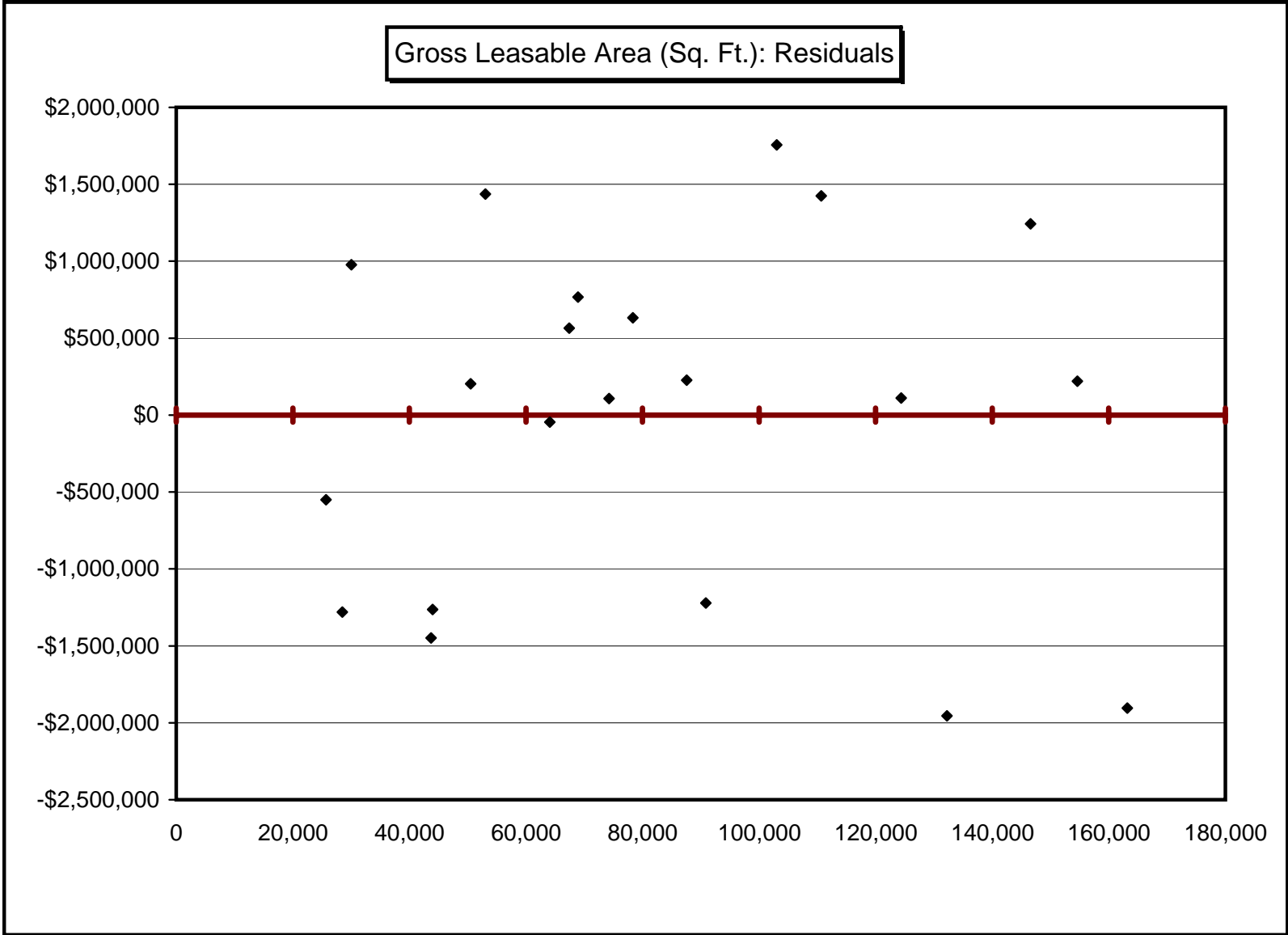


Subject Property = \$6,075,002 at Gross Leasable Area (Sq. Ft.) of 80,000.00

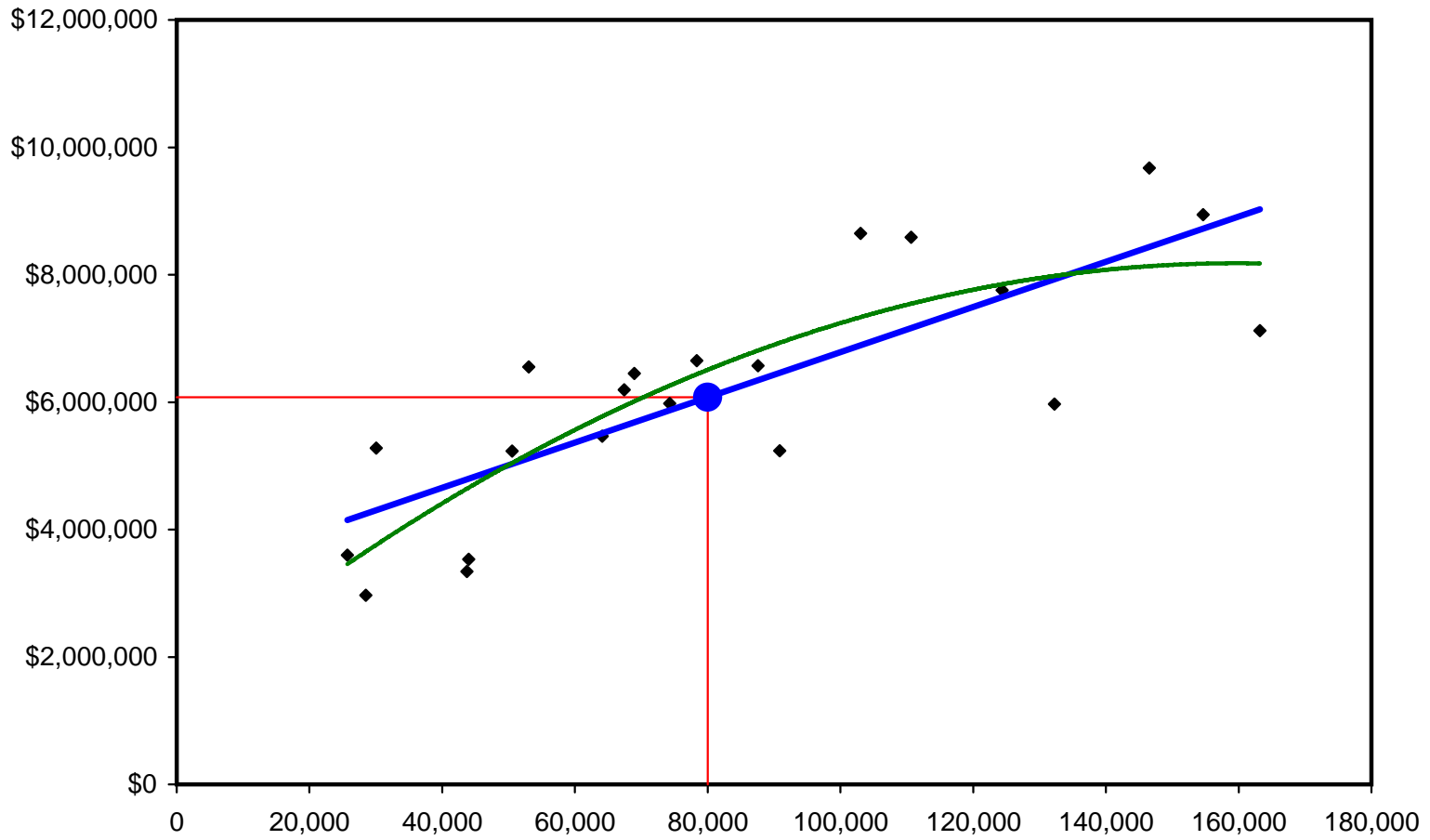
Gross Leasable Area (Sq. Ft.): Residual Adjusted Linear Trend Line



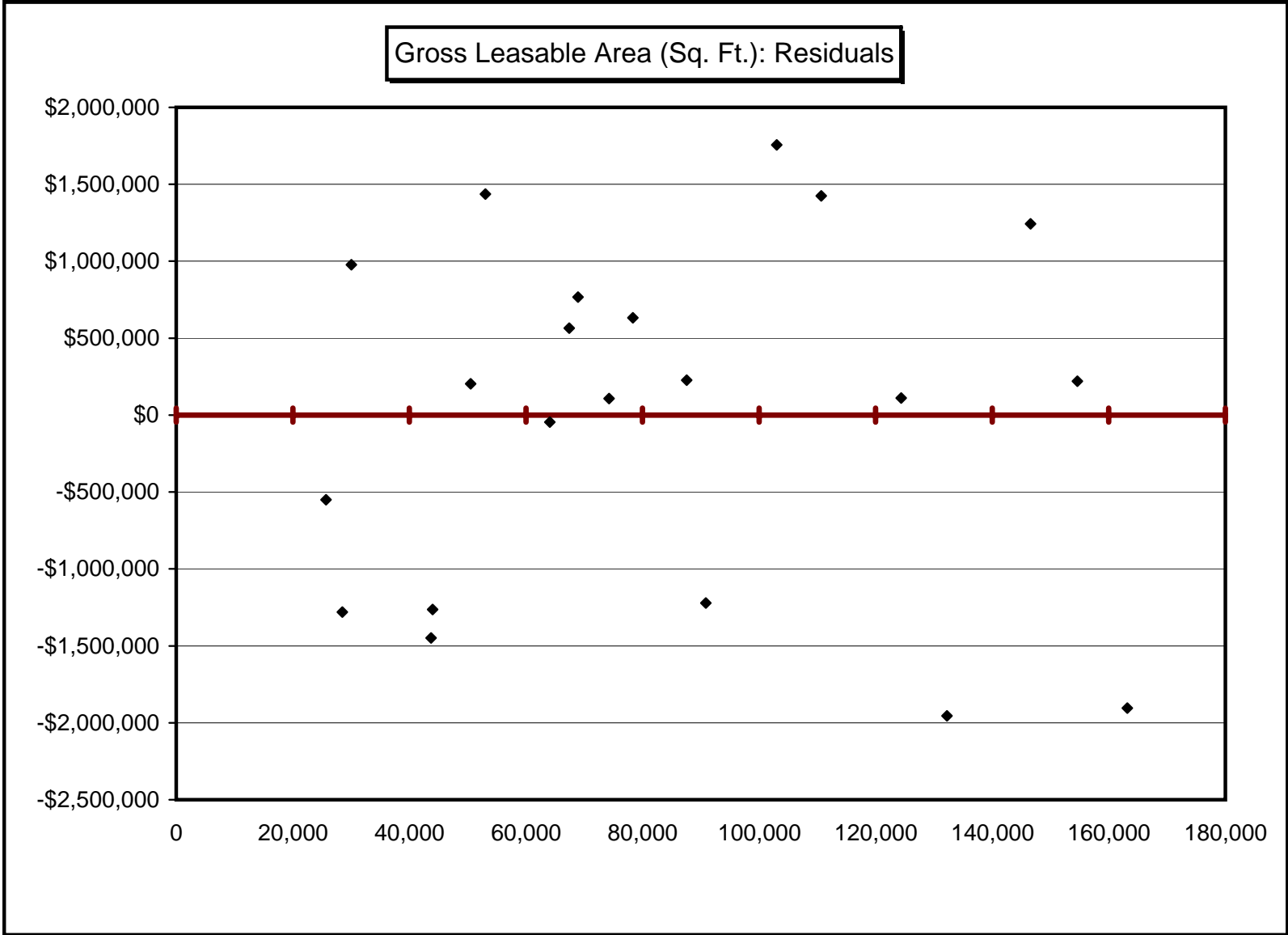
Subject Property = \$6,075,002 at Gross Leasable Area (Sq. Ft.) of 80,000.00



Gross Leasable Area (Sq. Ft.): Estimated Linear & Polynomial Trend Lines

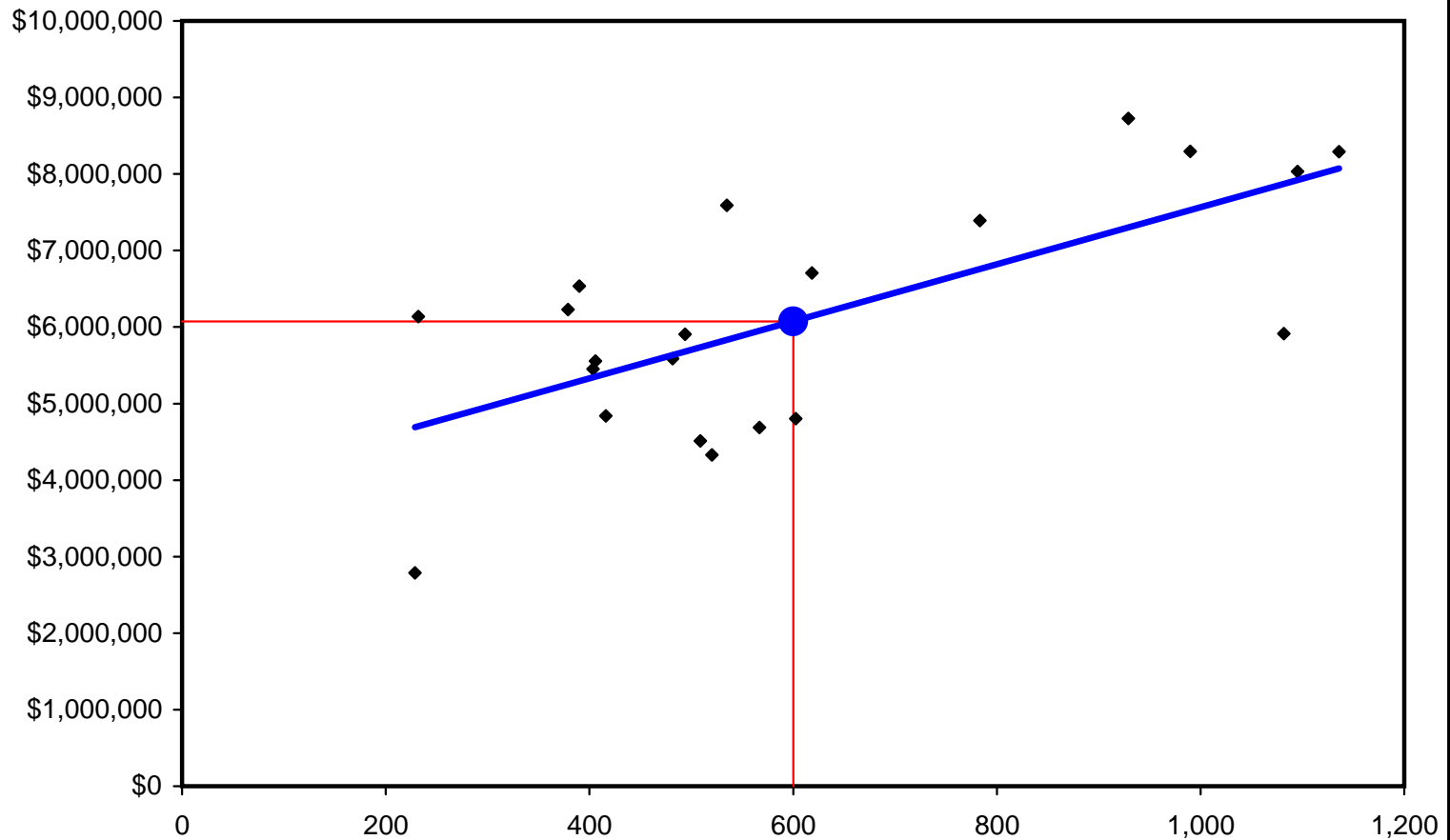


Subject Property = \$6,075,002 at Gross Leasable Area (Sq. Ft.) of 80,000.00



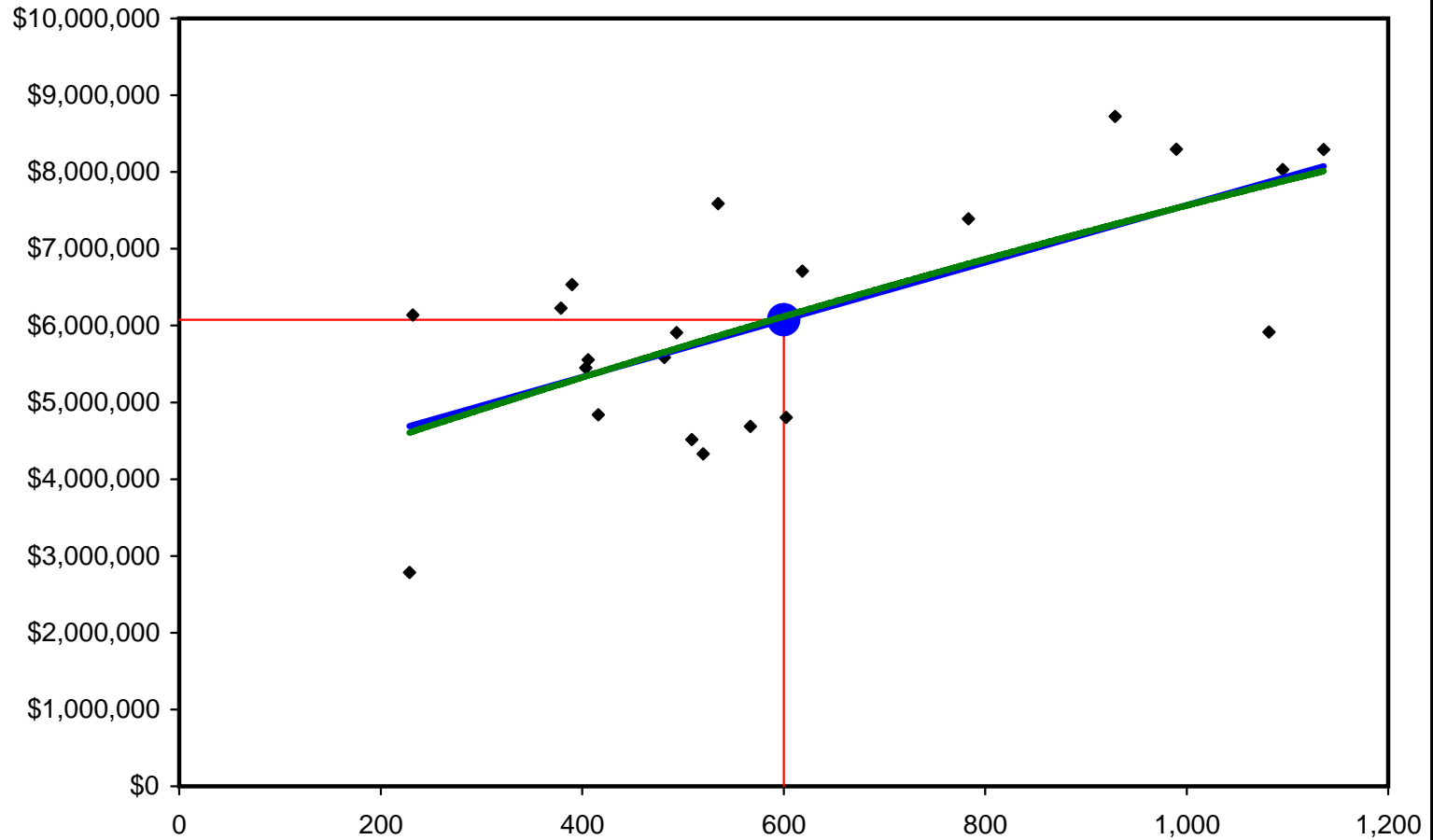


Street Frontage - Primary (Feet): Estimated Linear Trend Line

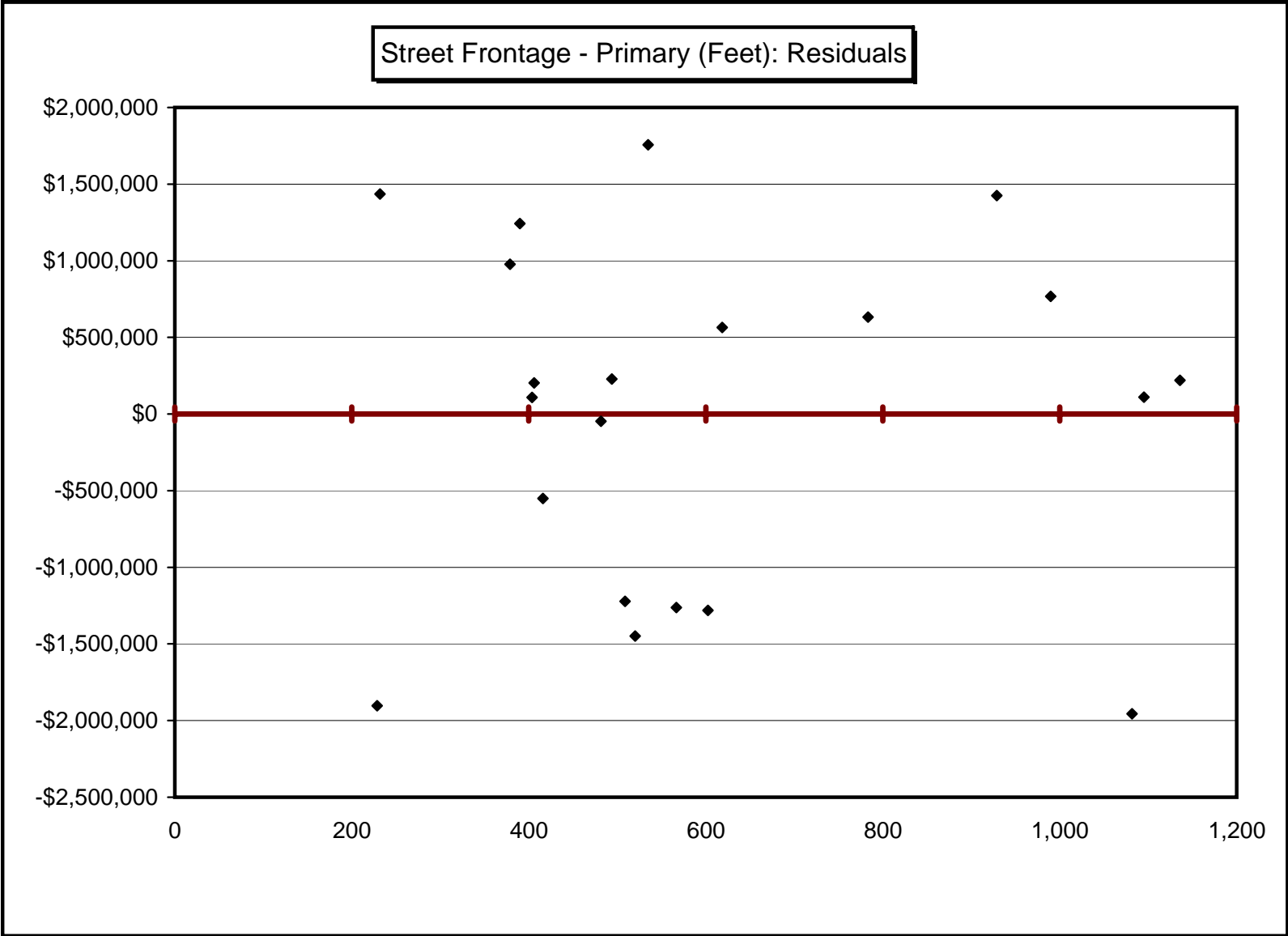


Subject Property = \$6,075,002 at Street Frontage - Primary (Feet) of 600.00

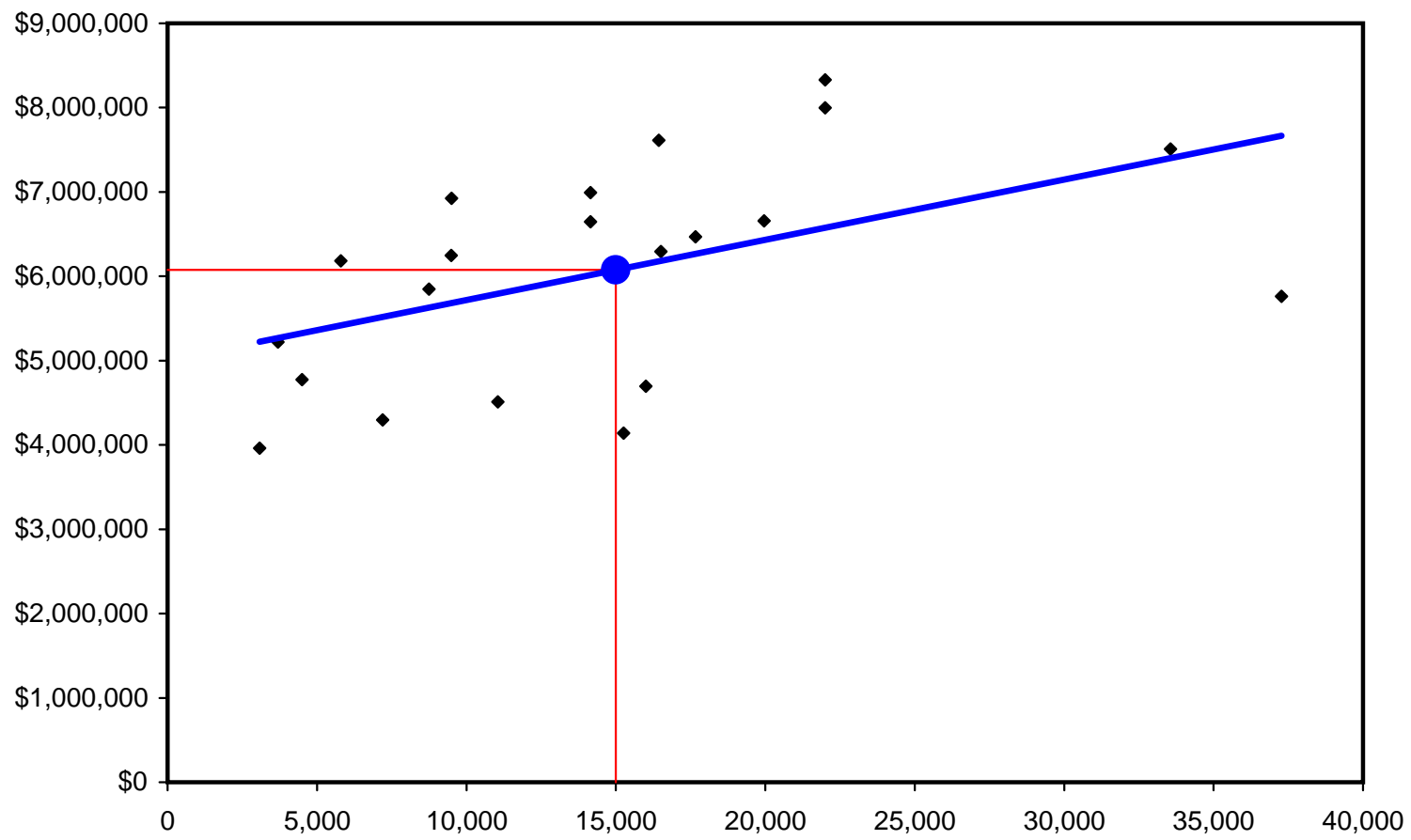
Street Frontage - Primary (Feet): Estimated Linear & Polynomial Trend Lines



Subject Property = \$6,075,002 at Street Frontage - Primary (Feet) of 600.00

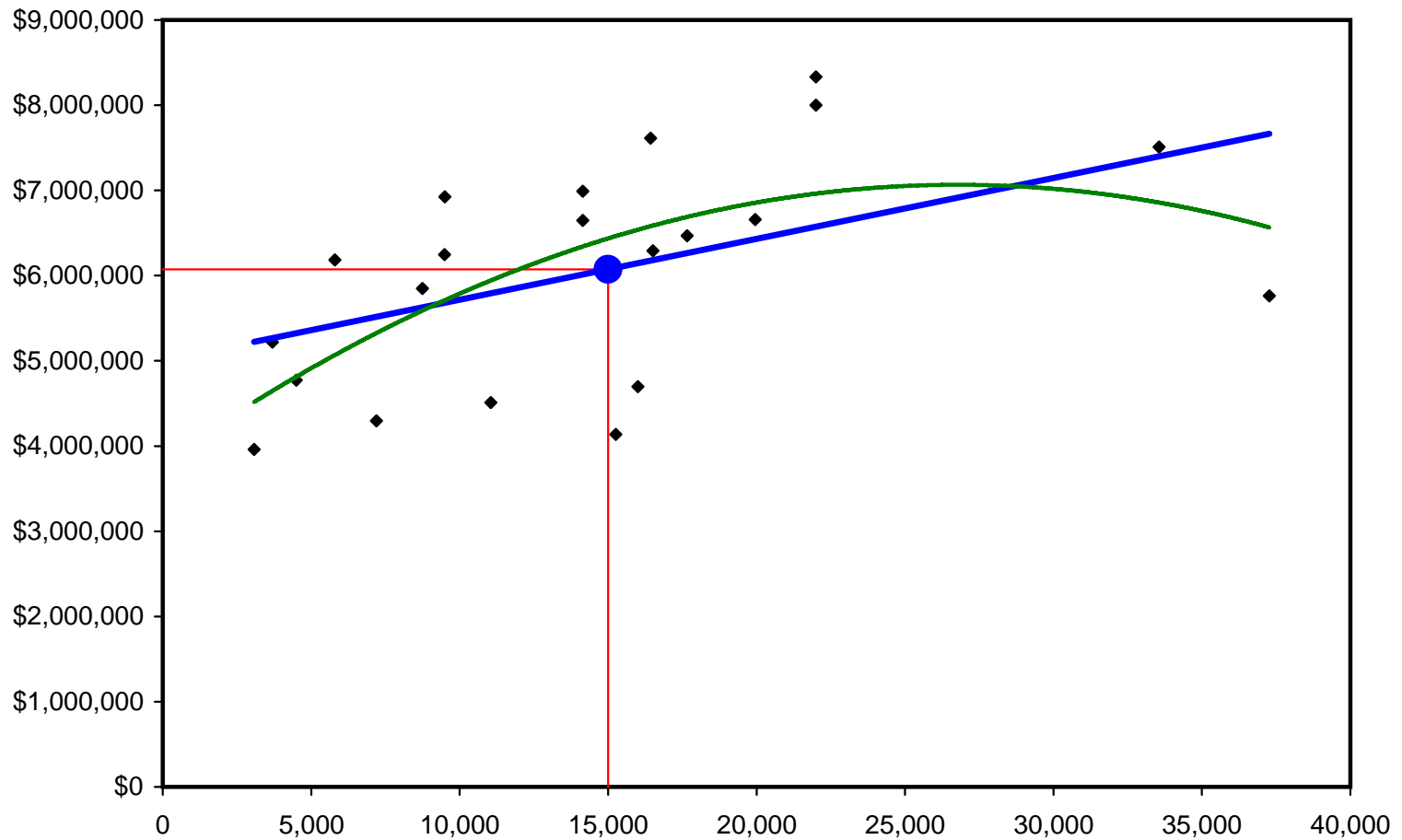


Traffic Count Peak Time (# Vehicles): Estimated Linear Trend Line



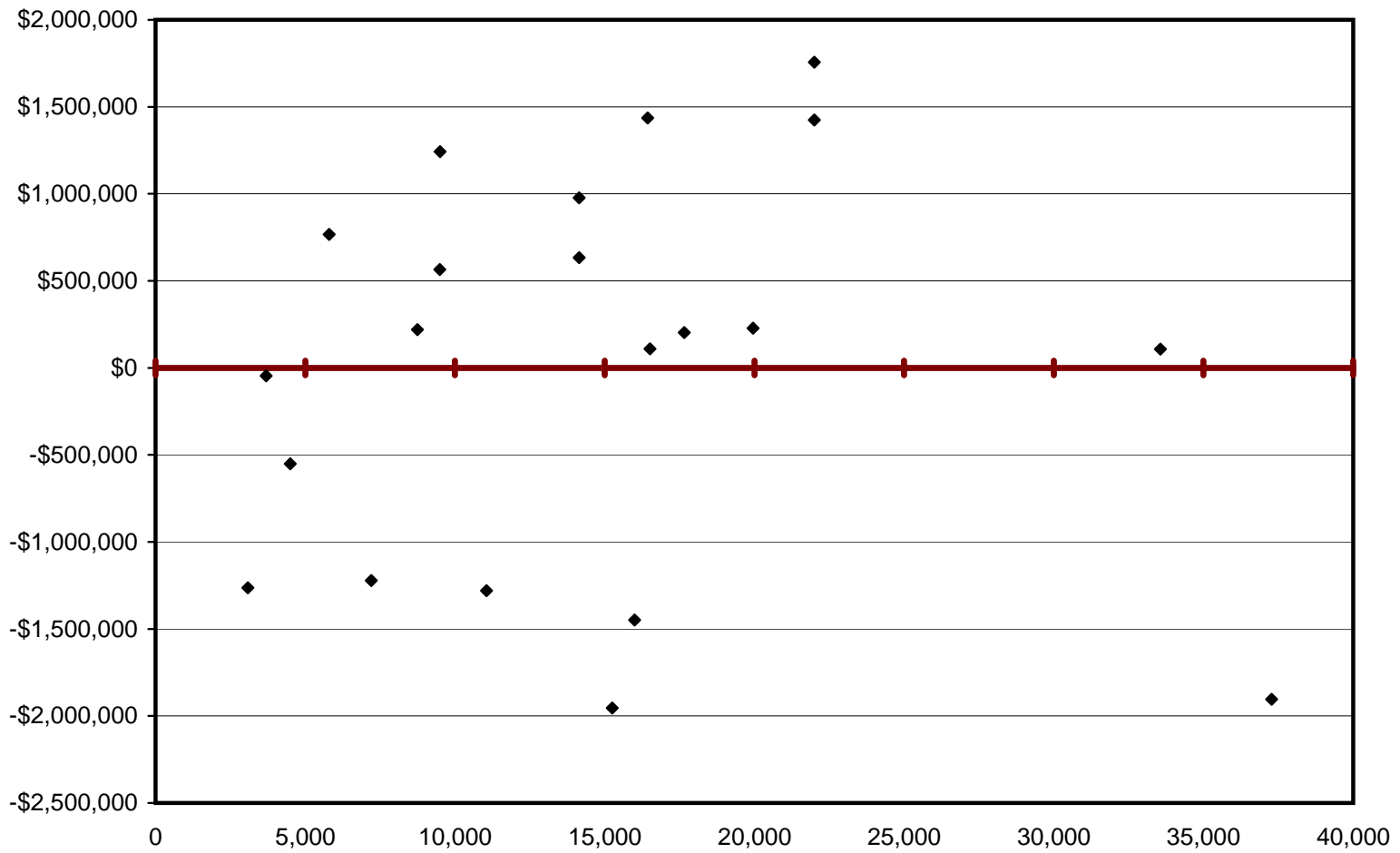
Subject Property = \$6,075,002 at Traffic Count Peak Time (# Vehicles) of 15,000.00

Traffic Count Peak Time (# Vehicles): Estimated Linear & Polynomial Trend Lines



Subject Property = \$6,075,002 at Traffic Count Peak Time (# Vehicles) of 15,000.00

Traffic Count Peak Time (# Vehicles): Residuals



<b>Current Sample Size = 21</b>		<b>VERIFICATION OF ADJUSTMENT CALCULATIONS</b>				
		Column 1	+ Column 2	= Column 3	- Column 4	= Column 5
Line No.	Comparable No. (Rank Order)	Price	Net Adj. To Subject Property	Adjusted Price	Indicated Value of Subject Property	Statistical Residual
1	1	\$ 5,975,000.00	\$ 208,005.10	\$ 6,183,005.10	\$ 6,075,002.10	\$108,002.9987
2	2	\$ 8,275,000.00	\$ (443,846.82)	\$ 7,831,153.18	\$ 6,075,002.10	\$1,756,151.0771
3	3	\$ 3,725,000.00	\$ 1,128,304.06	\$ 4,853,304.06	\$ 6,075,002.10	-\$1,221,698.0462
4	4	\$ 4,744,900.00	\$ 1,894,448.54	\$ 6,639,348.54	\$ 6,075,002.10	\$564,346.4387
5	5	\$ 3,650,000.00	\$ 2,378,610.06	\$ 6,028,610.06	\$ 6,075,002.10	-\$46,392.0471
6	6	\$ 4,325,000.00	\$ 1,977,658.28	\$ 6,302,658.28	\$ 6,075,002.10	\$227,656.1786
7	7	\$ 4,700,000.00	\$ 2,008,011.18	\$ 6,708,011.18	\$ 6,075,002.10	\$633,009.0788
8	8	\$ 2,900,000.00	\$ 1,893,883.69	\$ 4,793,883.69	\$ 6,075,002.10	-\$1,281,118.4094
9	9	\$ 2,200,000.00	\$ 2,426,083.15	\$ 4,626,083.15	\$ 6,075,002.10	-\$1,448,918.9536
10	10	\$ 3,176,000.00	\$ 3,102,743.73	\$ 6,278,743.73	\$ 6,075,002.10	\$203,741.6304
11	11	\$ 9,500,000.00	\$ (2,000,461.84)	\$ 7,499,538.16	\$ 6,075,002.10	\$1,424,536.0558
12	12	\$ 8,800,000.00	\$ (1,482,210.61)	\$ 7,317,789.39	\$ 6,075,002.10	\$1,242,787.2847
13	13	\$ 1,500,000.00	\$ 3,312,041.03	\$ 4,812,041.03	\$ 6,075,002.10	-\$1,262,961.0752
14	14	\$ 3,400,000.00	\$ 3,651,940.15	\$ 7,051,940.15	\$ 6,075,002.10	\$976,938.0462
15	15	\$ 5,200,000.00	\$ 2,310,669.60	\$ 7,510,669.60	\$ 6,075,002.10	\$1,435,667.4991
16	16	\$ 10,350,000.00	\$ (4,164,600.53)	\$ 6,185,399.47	\$ 6,075,002.10	\$110,397.3696
17	17	\$ 2,335,000.00	\$ 3,189,522.06	\$ 5,524,522.06	\$ 6,075,002.10	-\$550,480.0389
18	18	\$ 7,000,000.00	\$ (2,880,063.83)	\$ 4,119,936.17	\$ 6,075,002.10	-\$1,955,065.9323
19	19	\$ 4,000,000.00	\$ 2,842,339.00	\$ 6,842,339.00	\$ 6,075,002.10	\$767,336.8956
20	20	\$ 10,800,000.00	\$ (4,504,881.26)	\$ 6,295,118.74	\$ 6,075,002.10	\$220,116.6324
21	21	\$ 5,300,000.00	\$ (1,129,050.58)	\$ 4,170,949.42	\$ 6,075,002.10	-\$1,904,052.6831
Total of Residuals						\$0.0000
Sample Size:						\$0.0000
Average of Residuals						
21						
RESULT: The Average & the Total of the Residuals DO EQUAL ZERO, hence, the adjustments made by the appraiser are CORRECT.						
		1	Number of Sales		21	
		2	Constant a/k/a Intercept		1	
Data Range	8	3	=	Number of Sales Minus 1	20	
	9	4	-		Number of Independent Variables Adjustment	
	29	5	=	Residual Degrees of Freedom (must be equal to 20)		15
RESULT: The sample size is higher than the number of independent variable adjustment factors. Hence, the appraisal adjustments and the Critical T & F statistics can be calculated. The appraiser's adjustments are mathematically possible.						











**ADJUSTMENT GRID**  
**100 Penntown Avenue, Penntown, Montgomery County, PA**

	<b>Subject Property</b>	<b>Comparable No. 21</b>		
Address	100 Penntown Avenue	709 Route 113 & County Line Rd.		
City	Penntown	Hilltown		
County	Montgomery	Bucks		
State	PA	PA		
Date	31-Dec-01	30-Jun-1997		
Price	-	\$5,300,000		
Price	-	\$5,300,000		
Grantor	-	N/A		
Grantee	-	County Line Plaza Realty Asso. LP		
Book & Page	NA	1415/730		
Parcel No.	160044568009	15008032		
Block & Lot Number	200-750	200-248		
Gross Leasable Area (Sq. Ft.)	80000.00	163187		
\$/SF GLA	19198.00	32		
Market Conditions / Time	December 31, 2001	June 30, 1997		
Gross Leasable Area (Sq. Ft.)	80,000	163,187		
Age (Years)	20.00	32.60		
Traffic Count Peak Time (# Vehicles)	15,000	37,273		
Street Frontage - Primary (Feet)	600.00	228.66		
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Elements of Comparison		\$ Adj.	% Adj.	
<i>Adjustments to Transaction</i>		\$5,300,000		
Property Rights (leased fee / fee simple)		\$0	0.0%	
Financing (Cash equivalency)		\$0	0.0%	
Conditions of Sale		\$0	0.0%	
Transaction Adjusted Price		\$5,300,000	0.0%	
Unit of Value			1	
Price		\$5,300,000		
<i>Adjustments to Subject Property</i>	<i>Estimated Slope Coefficients</i>	<i>Net Dif.</i>	<i>\$ Adj.</i>	<i>% Adj.</i>
Market Conditions / Time	\$585.10345911	1,645.00	\$962,495	18.2%
Gross Leasable Area (Sq. Ft.)	\$35.45968595	-83,187.00	(\$2,949,785)	-55.7%
Age (Years)	-\$84,540.27018614	-12.60	\$1,065,579	20.1%
Traffic Count Peak Time (# Vehicles)	\$71.45701908	-22,273.00	(\$1,591,562)	-30.0%
Street Frontage - Primary (Feet)	\$3,727.64124905	371.34	\$1,384,222	26.1%
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Gross Adjustments			\$7,953,644	150.1%
Net Adjustments			(\$1,129,051)	-21.3%
Adjusted Sale Price per Unit of Value			\$4,170,949	
Reconciliation (Statistical Residual)			\$1,904,053	
Price	\$6,075,002		\$6,075,002	
Price	\$6,075,002		\$6,075,002	
Unit of Value	1	As of 31-Dec-2001		
Subject Value Estimate =	\$6,075,002	\$ 6,080,000 (Rounded)		

**Comparable No. 1  
2928 Street Road  
Bensalem, Bucks County, PA**

**Property Identification**

Address	2928 Street Road
City	Bensalem
County	Bucks
State	PA
Date	September 18, 1998
Price	\$5,975,000
Price	\$5,975,000
Grantor	Showcase Plaza SC Asso.
Grantee	Trackstar
Book & Page	1678/174
Parcel No.	2037005
Block & Lot Number	200-250
Gross Leasable Area (Sq. Ft.)	74270
\$/SF GLA	\$80.45

**Property Descriptive Factors**

Market Conditions / Time	September 18, 1998
Gross Leasable Area (Sq. Ft.)	\$74,270
Age (Years)	18.78
Traffic Count Peak Time (# Vehicles)	\$33,559
Street Frontage - Primary (Feet)	403.57
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**Verification/Source** William Howard Taft

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 1  
2928 Street Road  
Bensalem, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 5,975,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 5,975,000	0.0%
Unit of Value	1	
Price	\$ 5,975,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		18-Sep-1998		1,200.00	\$	585.1035		\$ 702,124	11.8%
Gross Leasable Area (Sq. Ft.)	80,000.00		74,270.00		5,730.00	\$	35.4597		\$ 203,184	3.4%
Age (Years)	20.00		18.78		1.22	\$	(84,540.2702)		\$ (103,353)	-1.7%
Traffic Count Peak Time (# Vehicles)	15,000.00		33,559.00		-18,559.00	\$	71.4570		\$ (1,326,171)	-22.2%
Street Frontage - Primary (Feet)	600.00		403.57		196.43	\$	3,727.6412		\$ 732,221	12.3%

Gross Adjustments	\$ 3,067,052	51.3%
Net Adjustments	\$ 208,005	3.5%
Adjusted Sale Price per Unit of Value	\$ 6,183,005	
Reconciliation (Statistical Residual)	\$ (108,003)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$6,075,002
(Rounded)	\$6,080,000

**Comparable No. 2**  
**Street Road & Route 611**  
**Warrington, Bucks County, PA**

**Property Identification**

Address	Street Road & Route 611
City	Warrington
County	Bucks
State	PA
Date	February 6, 2001
Price	\$8,275,000
Price	\$8,275,000
Grantor	Warrington 611 Asso.
Grantee	FWR Partners
Book & Page	2223/2197
Parcel No.	50023186
Block & Lot Number	200-212
Gross Leasable Area (Sq. Ft.)	103022
\$/SF GLA	\$80.32

**Property Descriptive Factors**

Market Conditions / Time	February 6, 2001
Gross Leasable Area (Sq. Ft.)	103,022
Age (Years)	25.19
Traffic Count Peak Time (# Vehicles)	22,000
Street Frontage - Primary (Feet)	535
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**Verification/Source** John F. Kennedy

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 2**  
**Street Road & Route 611**  
**Warrington, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 8,275,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 8,275,000	0.0%
Unit of Value	1	
Price	\$ 8,275,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		6-Feb-2001		328.00		\$ 585.103459		\$ 191,914	2.3%
Gross Leasable Area (Sq. Ft.)	80,000.00		103,022.00		-23,022.00		\$ 35.459686		\$ (816,353)	-9.9%
Age (Years)	20.00		25.19		-5.19		\$ (84,540.270186)		\$ 438,495	5.3%
Traffic Count Peak Time (# Vehicles)	15,000.00		22,000.00		-7,000.00		\$ 71.457019		\$ (500,199)	-6.0%
Street Frontage - Primary (Feet)	600.00		535.00		65.00		\$ 3,727.641249		\$ 242,297	2.9%

Gross Adjustments	\$ 2,189,257	26.5%
Net Adjustments	\$ (443,847)	-5.4%
Adjusted Sale Price per Unit of Value	\$ 7,831,153	
Reconciliation (Statistical Residual)	\$ (1,756,151)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000



**Comparable No. 3**  
**1050 E Philadelphia Ave**  
**Douglass Township, Montgomery County, PA**

***Property Identification***

Address	1050 E Philadelphia Ave
City	Douglass Township
County	Montgomery
State	PA
Date	July 31, 1998
Price	\$3,725,000
Price	\$3,725,000
Grantor	Gilbertsville Associates LP
Grantee	Gilbertsville Plaza Assocs Lp
Book & Page	5237/1371
Parcel No.	320005548009
Block & Lot Number	200-237
Gross Leasable Area (Sq. Ft.)	90,845
\$/SF GLA	\$41.00

***Property Descriptive Factors***

Market Conditions / Time	July 31, 1998
Gross Leasable Area (Sq. Ft.)	90,845
Age (Years)	18.6
Traffic Count Peak Time (# Vehicles)	7,200
Street Frontage - Primary (Feet)	509

***Verification/Source***

Ronald Reagan

***Narrative Comments***

Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 3**  
**1050 E Philadelphia Ave**  
**Douglass Township, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 3,725,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 3,725,000	0.0%
Unit of Value	1	
Price	\$ 3,725,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		31-Jul-1998		1,249.00		\$ 585.103459		\$ 730,794	19.6%
Gross Leasable Area (Sq. Ft.)	80,000.00		90,845.00		-10,845.00		\$ 35.459686		\$ (384,560)	0.0%
Age (Years)	20.00		18.64		1.36		\$ (84,540.270186)		\$ (114,733)	-3.1%
Traffic Count Peak Time (# Vehicles)	15,000.00		7,200.00		7,800.00		\$ 71.457019		\$ 557,365	15.0%
Street Frontage - Primary (Feet)	600.00		508.94		91.06		\$ 3,727.641249		\$ 339,439	9.1%

Gross Adjustments	\$ 2,126,891	57.1%
Net Adjustments	\$ 1,128,304	30.3%
Adjusted Sale Price per Unit of Value	\$ 4,853,304	
Reconciliation (Statistical Residual)	\$ 1,221,698	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 4**  
**1925 Norristown Rd**  
**Upper Dublin Township, Montgomery County, PA**

***Property Identification***

Address	1925 Norristown Rd
City	Upper Dublin Township
County	Montgomery
State	PA
Date	February 2, 2001
Price	\$4,744,900
Price	\$4,744,900
Grantor	Genuardi's Family Markets, Inc.
Grantee	GFM Acquisitions LP
Book & Page	5349/1038
Parcel No.	540012334005
Block & Lot Number	200-225
Gross Leasable Area (Sq. Ft.)	67436
\$/SF GLA	\$70.36

***Property Descriptive Factors***

Market Conditions / Time	February 2, 2001
Gross Leasable Area (Sq. Ft.)	67,436
Age (Years)	31.0
Traffic Count Peak Time (# Vehicles)	9,492
Street Frontage - Primary (Feet)	618
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***Verification/Source*** John Adams

***Narrative Comments*** Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 4**  
**1925 Norristown Rd**  
**Upper Dublin Township, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>		\$ 4,744,900	% Adj.
Property Rights (leased fee / fee simple)		\$ -	0.00%
Financing (Cash equivalency)		\$ -	0.0%
Conditions of Sale		\$ -	0.0%
Transaction Adjusted Price		\$ 4,744,900	0.0%
Unit of Value		1	
Price		\$ 4,744,900	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		2-Feb-2001		332.00		\$ 585.103459		\$ 194,254	4.1%
Gross Leasable Area (Sq. Ft.)	80,000.00		67,436.00		12,564.00		\$ 35.459686		\$ 445,515	9.4%
Age (Years)	20.00		31.00		-11.00		\$ (84,540.270186)		\$ 929,943	19.6%
Traffic Count Peak Time (# Vehicles)	15,000.00		9,492.00		5,508.00		\$ 71.457019		\$ 393,585	8.3%
Street Frontage - Primary (Feet)	600.00		618.47		-18.47		\$ 3,727.641249		\$ (68,850)	-1.5%

Gross Adjustments	\$ 2,032,148	42.8%
Net Adjustments	\$ 1,894,449	39.9%
Adjusted Sale Price per Unit of Value	\$ 6,639,349	
Reconciliation (Statistical Residual)	\$ (564,346)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 5**  
**360 2nd Street Pike**  
**Upper Southampton, Bucks County, PA**

**Property Identification**

Address	360 2nd Street Pike
City	Upper Southampton
County	Bucks
State	PA
Date	December 23, 1998
Price	\$3,650,000
Price	\$3,650,000
Grantor	RREEF Funds
Grantee	New Plan - Excel Realty Trust
Book & Page	1748/1166
Parcel No.	48012034
Block & Lot Number	200-234
Gross Leasable Area (Sq. Ft.)	64096
\$/SF GLA	\$56.95

**Property Descriptive Factors**

Market Conditions / Time	December 23, 1998
Gross Leasable Area (Sq. Ft.)	64,096
Age (Years)	19
Traffic Count Peak Time (# Vehicles)	3,692
Street Frontage - Primary (Feet)	482
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**Verification/Source** Franklin Pierce

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 5**  
**360 2nd Street Pike**  
**Upper Southampton, Bucks County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 3,650,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 3,650,000	0.0%
Unit of Value	1	
Price	\$ 3,650,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		23-Dec-1998		1104.00		\$ 585.103459		\$ 645,954	17.7%
Gross Leasable Area (Sq. Ft.)	80,000.00		64,096.00		15,904.00		\$ 35.459686		\$ 563,951	15.5%
Age (Years)	20.00		19.04		0.96		\$ (84,540.270186)		\$ (81,056)	-2.2%
Traffic Count Peak Time (# Vehicles)	15,000.00		3,692.00		11,308.00		\$ 71.457019		\$ 808,036	22.1%
Street Frontage - Primary (Feet)	600.00		481.50		118.50		\$ 3,727.641249		\$ 441,725	12.1%

Gross Adjustments	\$ 2,540,723	69.6%
Net Adjustments	\$ 2,378,610	65.2%
Adjusted Sale Price per Unit of Value	\$ 6,028,610	
Reconciliation (Statistical Residual)	\$ 46,392	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 6  
Cheltenham Ave. @ Front Street  
Cheltenham, Montgomery County, PA**

**Property Identification**

Address	Cheltenham Ave. @ Front Street
City	Cheltenham
County	Montgomery
State	PA
Date	June 1, 1999
Price	\$4,325,000
Price	\$4,325,000
Grantor	Warrens and Kelso Co. LP
Grantee	Melrose Center Associates LP
Book & Page	5279/2120
Parcel No.	310005332001 & 310005338004
Block & Lot Number	200-210
Gross Leasable Area (Sq. Ft.)	87590
\$/SF GLA	\$49.38

**Property Descriptive Factors**

Market Conditions / Time	June 1, 1999
Gross Leasable Area (Sq. Ft.)	\$87,590
Age (Years)	39.55
Traffic Count Peak Time (# Vehicles)	\$19,959
Street Frontage - Primary (Feet)	493.74

**Verification/Source** Millard Fillmore

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 6**  
**Cheltenham Ave. @ Front Street**  
**Cheltenham, Montgomery County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 4,325,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 4,325,000	0.0%
Unit of Value	1	
Price	\$ 4,325,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		1-Jun-1999		944.00		\$ 585.1035		\$ 552,338	12.8%
Gross Leasable Area (Sq. Ft.)	80,000.00		87,590.00		-7,590.00		\$ 35.4597		\$ (269,139)	-6.2%
Age (Years)	20.00		39.55		-19.55		\$ (84,540.2702)		\$ 1,652,716	38.2%
Traffic Count Peak Time (# Vehicles)	15,000.00		19,959.00		-4,959.00		\$ 71.4570		\$ (354,355)	-8.2%
Street Frontage - Primary (Feet)	600.00		493.74		106.26		\$ 3,727.6412		\$ 396,099	9.2%

Gross Adjustments	\$ 3,224,647	74.6%
Net Adjustments	\$ 1,977,658	45.7%
Adjusted Sale Price per Unit of Value	\$ 6,302,658	
Reconciliation (Statistical Residual)	\$ (227,656)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$6,075,002
(Rounded)	\$6,080,000



**Comparable No. 7**  
**1025 N. 2nd Street Pike**  
**Northampton, Bucks County, PA**

**Property Identification**

Address	1025 N. 2nd Street Pike
City	Northampton
County	Bucks
State	PA
Date	March 30, 1995
Price	\$4,700,000
Price	\$4,700,000
Grantor	N/A
Grantee	Davisville Prop.
Book & Page	1247/1754
Parcel No.	31005103
Block & Lot Number	200-236
Gross Leasable Area (Sq. Ft.)	78367
\$/SF GLA	\$59.97

**Property Descriptive Factors**

Market Conditions / Time	March 30, 1995
Gross Leasable Area (Sq. Ft.)	78,367
Age (Years)	33.35
Traffic Count Peak Time (# Vehicles)	14,149
Street Frontage - Primary (Feet)	783

**Verification/Source**

Rutherford B. Hays

**Narrative Comments**

Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 7**  
**1025 N. 2nd Street Pike**  
**Northampton, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 4,700,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 4,700,000	0.0%
Unit of Value	1	
Price	\$ 4,700,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		30-Mar-1995		2,468.00		\$ 585.103459		\$ 1,444,035	30.7%
Gross Leasable Area (Sq. Ft.)	80,000.00		78,367.00		1,633.00		\$ 35.459686		\$ 57,906	1.2%
Age (Years)	20.00		33.35		-13.35		\$ (84,540.270186)		\$ 1,128,984	24.0%
Traffic Count Peak Time (# Vehicles)	15,000.00		14,149.00		851.00		\$ 71.457019		\$ 60,810	1.3%
Street Frontage - Primary (Feet)	600.00		783.42		-183.42		\$ 3,727.641249		\$ (683,724)	-14.5%

Gross Adjustments	\$ 3,375,459	71.8%
Net Adjustments	\$ 2,008,011	42.7%
Adjusted Sale Price per Unit of Value	\$ 6,708,011	
Reconciliation (Statistical Residual)	\$ (633,009)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 8**  
**318 York Rd & Route 611**  
**Warminster, Bucks County, PA**

***Property Identification***

Address	318 York Rd & Route 611
City	Warminster
County	Bucks
State	PA
Date	September 7, 1999
Price	\$2,900,000
Price	\$2,900,000
Grantor	Joroken Asso.
Grantee	SJS 318
Book & Page	1923/1152
Parcel No.	49015033-002
Block & Lot Number	200-254
Gross Leasable Area (Sq. Ft.)	28,495
\$/SF GLA	\$101.77

***Property Descriptive Factors***

Market Conditions / Time	September 7, 1999
Gross Leasable Area (Sq. Ft.)	28,495
Age (Years)	11.7
Traffic Count Peak Time (# Vehicles)	11,054
Street Frontage - Primary (Feet)	603
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***Verification/Source***

Albert Gore

***Narrative Comments***

Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 8**  
**318 York Rd & Route 611**  
**Warminster, Bucks County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 2,900,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 2,900,000	0.0%
Unit of Value	1	
Price	\$ 2,900,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		7-Sep-1999		846.00		\$ 585.103459		\$ 494,998	17.1%
Gross Leasable Area (Sq. Ft.)	80,000.00		28,495.00		51,505.00		\$ 35.459686		\$ 1,826,351	0.0%
Age (Years)	20.00		11.72		8.28		\$ (84,540.270186)		\$ (699,780)	-24.1%
Traffic Count Peak Time (# Vehicles)	15,000.00		11,054.00		3,946.00		\$ 71.457019		\$ 281,969	9.7%
Street Frontage - Primary (Feet)	600.00		602.59		-2.59		\$ 3,727.641249		\$ (9,655)	-0.3%

Gross Adjustments	\$ 3,312,752	114.2%
Net Adjustments	\$ 1,893,884	65.3%
Adjusted Sale Price per Unit of Value	\$ 4,793,884	
Reconciliation (Statistical Residual)	\$ 1,281,118	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 9**  
**1805 Limekiln Pike**  
**Upper Dublin Township, Montgomery County, PA**

**Property Identification**

Address	1805 Limekiln Pike
City	Upper Dublin Township
County	Montgomery
State	PA
Date	August 1, 1997
Price	\$2,200,000
Price	\$2,200,000
Grantor	Penn Florida Realty, LP
Grantee	LSOFCynwyd. LP
Book & Page	5197/141
Parcel No.	540009973008
Block & Lot Number	200-246
Gross Leasable Area (Sq. Ft.)	43741
\$/SF GLA	\$50.30

**Property Descriptive Factors**

Market Conditions / Time	August 1, 1997
Gross Leasable Area (Sq. Ft.)	43,741
Age (Years)	19.6
Traffic Count Peak Time (# Vehicles)	16,000
Street Frontage - Primary (Feet)	520
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**Verification/Source** Andrew Johnson

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 9**  
**1805 Limekiln Pike**  
**Upper Dublin Township, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>		\$ 2,200,000	% Adj.
Property Rights (leased fee / fee simple)		\$ -	0.00%
Financing (Cash equivalency)		\$ -	0.0%
Conditions of Sale		\$ -	0.0%
Transaction Adjusted Price		\$ 2,200,000	0.0%
Unit of Value		1	
Price		\$ 2,200,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		1-Aug-1997		1,613.00		\$ 585.103459		\$ 943,772	42.9%
Gross Leasable Area (Sq. Ft.)	80,000.00		43,741.00		36,259.00		\$ 35.459686		\$ 1,285,733	58.4%
Age (Years)	20.00		19.65		0.35		\$ (84,540.270186)		\$ (29,728)	-1.4%
Traffic Count Peak Time (# Vehicles)	15,000.00		16,000.00		-1,000.00		\$ 71.457019		\$ (71,457)	-3.2%
Street Frontage - Primary (Feet)	600.00		520.12		79.88		\$ 3,727.641249		\$ 297,764	13.5%

Gross Adjustments	\$ 2,628,454	119.5%
Net Adjustments	\$ 2,426,083	110.3%
Adjusted Sale Price per Unit of Value	\$ 4,626,083	
Reconciliation (Statistical Residual)	\$ 1,448,919	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 10  
1936 Ridge Pike  
West Norriton, Montgomery County, PA**

**Property Identification**

Address	1936 Ridge Pike
City	West Norriton
County	Montgomery
State	PA
Date	September 29, 2000
Price	\$3,176,000
Price	\$3,176,000
Grantor	Genuardi's Market, LP
Grantee	Jeffersonville Realty Partners, LP
Book & Page	5333/1465
Parcel No.	630007081002
Block & Lot Number	200-229
Gross Leasable Area (Sq. Ft.)	50531
\$/SF GLA	\$62.85

**Property Descriptive Factors**

Market Conditions / Time	September 29, 2000
Gross Leasable Area (Sq. Ft.)	50,531
Age (Years)	35
Traffic Count Peak Time (# Vehicles)	17,661
Street Frontage - Primary (Feet)	406
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**Verification/Source** Harry S. Truman

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 10**  
**1936 Ridge Pike**  
**West Norriton, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 3,176,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 3,176,000	0.0%
Unit of Value	1	
Price	\$ 3,176,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		29-Sep-2000		458.00		\$ 585.103459		\$ 267,977	8.4%
Gross Leasable Area (Sq. Ft.)	80,000.00		50,531.00		29,469.00		\$ 35.459686		\$ 1,044,961	32.9%
Age (Years)	20.00		34.86		-14.86		\$ (84,540.270186)		\$ 1,256,491	39.6%
Traffic Count Peak Time (# Vehicles)	15,000.00		17,661.00		-2,661.00		\$ 71.457019		\$ (190,147)	-6.0%
Street Frontage - Primary (Feet)	600.00		405.92		194.08		\$ 3,727.641249		\$ 723,461	22.8%

Gross Adjustments	\$ 3,483,038	109.7%
Net Adjustments	\$ 3,102,744	97.7%
Adjusted Sale Price per Unit of Value	\$ 6,278,744	
Reconciliation (Statistical Residual)	\$ (203,742)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000



**Comparable No. 11**  
**1502 West Chester Pike**  
**Westtown Twp., Chester County, PA**

**Property Identification**

Address	1502 West Chester Pike
City	Westtown Twp.
County	Chester
State	PA
Date	September 17, 1997
Price	\$9,500,000
Price	\$9,500,000
Grantor	CIDAC
Grantee	LAB Westtown, LP
Book & Page	4239/1009
Parcel No.	6702 0042-004
Block & Lot Number	200-241
Gross Leasable Area (Sq. Ft.)	110642
\$/SF GLA	\$85.86

**Property Descriptive Factors**

Market Conditions / Time	September 17, 1997
Gross Leasable Area (Sq. Ft.)	\$110,642
Age (Years)	18.77
Traffic Count Peak Time (# Vehicles)	\$22,000
Street Frontage - Primary (Feet)	929.00
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**Verification/Source** Levi. P. Morton

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 11**  
**1502 West Chester Pike**  
**Westtown Twp., Chester County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 9,500,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 9,500,000	0.0%
Unit of Value	1	
Price	\$ 9,500,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		17-Sep-1997		1,566.00	\$	585.1035		\$ 916,272	9.6%
Gross Leasable Area (Sq. Ft.)	80,000.00		110,642.00		-30,642.00	\$	35.4597		\$ (1,086,556)	-11.4%
Age (Years)	20.00		18.77		1.23	\$	(84,540.2702)		\$ (103,585)	-1.1%
Traffic Count Peak Time (# Vehicles)	15,000.00		22,000.00		-7,000.00	\$	71.4570		\$ (500,199)	-5.3%
Street Frontage - Primary (Feet)	600.00		929.00		-329.00	\$	3,727.6412		\$ (1,226,394)	-12.9%

Gross Adjustments	\$ 3,833,006	40.3%
Net Adjustments	\$ (2,000,462)	-21.1%
Adjusted Sale Price per Unit of Value	\$ 7,499,538	
Reconciliation (Statistical Residual)	\$ (1,424,536)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$6,075,002
(Rounded)	\$6,080,000

**Comparable No. 12  
2603 New Rodgers Rd.  
Bristol, Bucks County, PA**

**Property Identification**

Address	2603 New Rodgers Rd.
City	Bristol
County	Bucks
State	PA
Date	September 30, 1999
Price	\$8,800,000
Price	\$8,800,000
Grantor	Manufacturers Life Insurance Co.
Grantee	EIG Bristol Plaza
Book & Page	1935/94
Parcel No.	05020003
Block & Lot Number	200-239
Gross Leasable Area (Sq. Ft.)	146556
\$/SF GLA	\$60.05

**Property Descriptive Factors**

Market Conditions / Time	September 30, 1999
Gross Leasable Area (Sq. Ft.)	146,556
Age (Years)	10.78
Traffic Count Peak Time (# Vehicles)	9,501
Street Frontage - Primary (Feet)	390
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**Verification/Source** George Washington

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 12  
2603 New Rodgers Rd.  
Bristol, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 8,800,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 8,800,000	0.0%
Unit of Value	1	
Price	\$ 8,800,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		30-Sep-1999		823.00		\$ 585.103459		\$ 481,540	5.5%
Gross Leasable Area (Sq. Ft.)	80,000.00		146,556.00		-66,556.00		\$ 35.459686		\$ (2,360,055)	-26.8%
Age (Years)	20.00		10.78		9.22		\$ (84,540.270186)		\$ (779,443)	-8.9%
Traffic Count Peak Time (# Vehicles)	15,000.00		9,501.00		5,499.00		\$ 71.457019		\$ 392,942	4.5%
Street Frontage - Primary (Feet)	600.00		390.00		210.00		\$ 3,727.641249		\$ 782,805	8.9%

Gross Adjustments	\$ 4,796,785	54.5%
Net Adjustments	\$ (1,482,211)	-16.8%
Adjusted Sale Price per Unit of Value	\$ 7,317,789	
Reconciliation (Statistical Residual)	\$ (1,242,787)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 13**  
**223 W. Butler Ave.**  
**New Britain Twp., Bucks County, PA**

**Property Identification**

Address	223 W. Butler Ave.
City	New Britain Twp.
County	Bucks
State	PA
Date	September 27, 1999
Price	\$1,500,000
Price	\$1,500,000
Grantor	N/A
Grantee	Chalfont Plaza Asso.
Book & Page	1932/1716
Parcel No.	26013032
Block & Lot Number	200-217
Gross Leasable Area (Sq. Ft.)	44,000
\$/SF GLA	\$34.09

**Property Descriptive Factors**

Market Conditions / Time	September 27, 1999
Gross Leasable Area (Sq. Ft.)	44,000
Age (Years)	26.8
Traffic Count Peak Time (# Vehicles)	3,082
Street Frontage - Primary (Feet)	567

**Verification/Source**

Chester A. Arthur

**Narrative Comments**

Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 13**  
**223 W. Butler Ave.**  
**New Britain Twp., Bucks County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 1,500,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 1,500,000	0.0%
Unit of Value	1	
Price	\$ 1,500,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		27-Sep-1999		826.00		\$ 585.103459		\$ 483,295	32.2%
Gross Leasable Area (Sq. Ft.)	80,000.00		44,000.00		36,000.00		\$ 35.459686		\$ 1,276,549	0.0%
Age (Years)	20.00		26.83		-6.83		\$ (84,540.270186)		\$ 577,150	38.5%
Traffic Count Peak Time (# Vehicles)	15,000.00		3,082.00		11,918.00		\$ 71.457019		\$ 851,625	56.8%
Street Frontage - Primary (Feet)	600.00		566.89		33.11		\$ 3,727.641249		\$ 123,422	8.2%

Gross Adjustments	\$ 3,312,041	220.8%
Net Adjustments	\$ 3,312,041	220.8%
Adjusted Sale Price per Unit of Value	\$ 4,812,041	
Reconciliation (Statistical Residual)	\$ 1,262,961	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 14**  
**1034 N. 2nd Street Pike**  
**Northampton, Bucks County, PA**

**Property Identification**

Address	1034 N. 2nd Street Pike
City	Northampton
County	Bucks
State	PA
Date	April 7, 1998
Price	\$3,400,000
Price	\$3,400,000
Grantor	N/A
Grantee	ABGS School House Asso.
Book & Page	1564/296
Parcel No.	31009030
Block & Lot Number	200-227
Gross Leasable Area (Sq. Ft.)	30050
\$/SF GLA	\$113.14

**Property Descriptive Factors**

Market Conditions / Time	April 7, 1998
Gross Leasable Area (Sq. Ft.)	30,050
Age (Years)	22.3
Traffic Count Peak Time (# Vehicles)	14,149
Street Frontage - Primary (Feet)	379
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**Verification/Source** George Dallas

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 14**  
**1034 N. 2nd Street Pike**  
**Northampton, Bucks County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 3,400,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.00%
Financing (Cash equivalency)	\$ -	0.00%
Conditions of Sale	\$ -	0.00%
Transaction Adjusted Price	\$ 3,400,000	0.00%
Unit of Value	1	
Price	\$ 3,400,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		7-Apr-1998		1,364.00		\$ 585.103459		\$ 798,081	23.5%
Gross Leasable Area (Sq. Ft.)	80,000.00		30,050.00		49,950.00		\$ 35.459686		\$ 1,771,211	52.1%
Age (Years)	20.00		22.34		-2.34		\$ (84,540.270186)		\$ 197,880	5.8%
Traffic Count Peak Time (# Vehicles)	15,000.00		14,149.00		851.00		\$ 71.457019		\$ 60,810	1.8%
Street Frontage - Primary (Feet)	600.00		378.96		221.04		\$ 3,727.641249		\$ 823,958	24.2%

Gross Adjustments	\$ 3,651,940	107.4%
Net Adjustments	\$ 3,651,940	107.4%
Adjusted Sale Price per Unit of Value	\$ 7,051,940	
Reconciliation (Statistical Residual)	\$ (976,938)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000



**Comparable No. 15**  
**106 Lincoln Hwy**  
**Falls, Bucks County, PA**

***Property Identification***

Address	106 Lincoln Hwy
City	Falls
County	Bucks
State	PA
Date	October 8, 1996
Price	\$5,200,000
Price	\$5,200,000
Grantor	Confederation Life Ins. Co.
Grantee	I L Oxford Pyt. Asso.
Book & Page	1300/1260
Parcel No.	13004086
Block & Lot Number	200-244
Gross Leasable Area (Sq. Ft.)	53053
\$/SF GLA	\$98.02

***Property Descriptive Factors***

Market Conditions / Time	October 8, 1996
Gross Leasable Area (Sq. Ft.)	53,053
Age (Years)	8
Traffic Count Peak Time (# Vehicles)	16,435
Street Frontage - Primary (Feet)	232
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***Verification/Source*** John C. Calhoun

***Narrative Comments*** Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 15**  
**106 Lincoln Hwy**  
**Falls, Bucks County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 5,200,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 5,200,000	0.0%
Unit of Value	1	
Price	\$ 5,200,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		8-Oct-1996		1910.00		\$ 585.103459		\$ 1,117,548	21.5%
Gross Leasable Area (Sq. Ft.)	80,000.00		53,053.00		26,947.00		\$ 35.459686		\$ 955,532	18.4%
Age (Years)	20.00		7.79		12.21		\$ (84,540.270186)		\$ (1,031,902)	-19.8%
Traffic Count Peak Time (# Vehicles)	15,000.00		16,435.00		-1,435.00		\$ 71.457019		\$ (102,541)	-2.0%
Street Frontage - Primary (Feet)	600.00		231.93		368.07		\$ 3,727.641249		\$ 1,372,033	26.4%

Gross Adjustments	\$ 4,579,556	88.1%
Net Adjustments	\$ 2,310,670	44.4%
Adjusted Sale Price per Unit of Value	\$ 7,510,670	
Reconciliation (Statistical Residual)	\$ (1,435,667)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 16**  
**W. Strasburg Rd**  
**East Bradford, Chester County, PA**

***Property Identification***

Address	W. Strasburg Rd
City	East Bradford
County	Chester
State	PA
Date	January 22, 2001
Price	\$10,350,000
Price	\$10,350,000
Grantor	Wellsford Capital Properties, LLC
Grantee	Bradford Plaza Inv. Group
Book & Page	4893/762
Parcel No.	5105 0058-001
Block & Lot Number	200-252
Gross Leasable Area (Sq. Ft.)	124381
\$/SF GLA	\$83.21

***Property Descriptive Factors***

Market Conditions / Time	January 22, 2001
Gross Leasable Area (Sq. Ft.)	\$124,381
Age (Years)	10.09
Traffic Count Peak Time (# Vehicles)	\$16,511
Street Frontage - Primary (Feet)	1,095.24
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***Verification/Source***

Charles G. Dawes

***Narrative Comments***

Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 16**  
**W. Strasburg Rd**  
**East Bradford, Chester County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 10,350,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 10,350,000	0.0%
Unit of Value	1	
Price	\$ 10,350,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	<i>\$ Adj.</i>	<i>% Adj.</i>
Market Conditions / Time	31-Dec-2001		22-Jan-2001		343.00	\$	585.1035		\$ 200,690	1.9%
Gross Leasable Area (Sq. Ft.)	80,000.00		124,381.00		-44,381.00	\$	35.4597		\$ (1,573,736)	-15.2%
Age (Years)	20.00		10.09		9.91	\$	(84,540.2702)		\$ (837,506)	-8.1%
Traffic Count Peak Time (# Vehicles)	15,000.00		16,511.00		-1,511.00	\$	71.4570		\$ (107,972)	-1.0%
Street Frontage - Primary (Feet)	600.00		1,095.24		-495.24	\$	3,727.6412		\$ (1,846,077)	-17.8%

Gross Adjustments	\$ 4,565,981	44.1%
Net Adjustments	\$ (4,164,601)	-40.2%
Adjusted Sale Price per Unit of Value	\$ 6,185,399	
Reconciliation (Statistical Residual)	\$ (110,397)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$6,075,002
(Rounded)	\$6,080,000

**Comparable No. 17**  
**142 E. Butler Ave.**  
**Chalfont Borough, Bucks County, PA**

***Property Identification***

Address	142 E. Butler Ave.
City	Chalfont Borough
County	Bucks
State	PA
Date	February 9, 1998
Price	\$2,335,000
Price	\$2,335,000
Grantor	Chalfont Square Realty LLC
Grantee	Chalfont Village Square LLC
Book & Page	1530/1999
Parcel No.	07008001
Block & Lot Number	200-230
Gross Leasable Area (Sq. Ft.)	25697
\$/SF GLA	\$90.87

***Property Descriptive Factors***

Market Conditions / Time	February 9, 1998
Gross Leasable Area (Sq. Ft.)	25,697
Age (Years)	8.13
Traffic Count Peak Time (# Vehicles)	4,500
Street Frontage - Primary (Feet)	416
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***Verification/Source***

William Henry Harrison

***Narrative Comments***

Arms length transaction

***Adjustments to Transaction***

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 17**  
**142 E. Butler Ave.**  
**Chalfont Borough, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 2,335,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 2,335,000	0.0%
Unit of Value	1	
Price	\$ 2,335,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	<i>\$ Adj.</i>	<i>% Adj.</i>
Market Conditions / Time	31-Dec-2001		9-Feb-1998		1,421.00		\$ 585.103459		\$ 831,432	35.6%
Gross Leasable Area (Sq. Ft.)	80,000.00		25,697.00		54,303.00		\$ 35.459686		\$ 1,925,567	82.5%
Age (Years)	20.00		8.13		11.87		\$ (84,540.270186)		\$ (1,003,103)	-43.0%
Traffic Count Peak Time (# Vehicles)	15,000.00		4,500.00		10,500.00		\$ 71.457019		\$ 750,299	32.1%
Street Frontage - Primary (Feet)	600.00		416.15		183.85		\$ 3,727.641249		\$ 685,327	29.4%

Gross Adjustments	\$ 5,195,728	222.5%
Net Adjustments	\$ 3,189,522	136.6%
Adjusted Sale Price per Unit of Value	\$ 5,524,522	
Reconciliation (Statistical Residual)	\$ 550,480	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 18**  
**222 E. Main St & Route 29**  
**Collegeville Borough, Montgomery County, PA**

**Property Identification**

Address	222 E. Main St & Route 29
City	Collegeville Borough
County	Montgomery
State	PA
Date	July 31, 1998
Price	\$7,000,000
Price	\$7,000,000
Grantor	Collegeville Assocs Lp
Grantee	Collegeville Plaza Assocs Lp
Book & Page	5238/1440
Parcel No.	40001192001
Block & Lot Number	200-211
Gross Leasable Area (Sq. Ft.)	132,224
\$/SF GLA	\$52.94

**Property Descriptive Factors**

Market Conditions / Time	July 31, 1998
Gross Leasable Area (Sq. Ft.)	132,224
Age (Years)	20.6
Traffic Count Peak Time (# Vehicles)	15,256
Street Frontage - Primary (Feet)	1,082
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**Verification/Source**

Thomas Jefferson

**Narrative Comments**

Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 18**  
**222 E. Main St & Route 29**  
**Collegeville Borough, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>	\$ 7,000,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 7,000,000	0.0%
Unit of Value	1	
Price	\$ 7,000,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		31-Jul-1998		1,249.00		\$ 585.103459		\$ 730,794	10.4%
Gross Leasable Area (Sq. Ft.)	80,000.00		132,224.00		-52,224.00		\$ 35.459686		\$ (1,851,847)	0.0%
Age (Years)	20.00		20.65		-0.65		\$ (84,540.270186)		\$ 54,812	0.8%
Traffic Count Peak Time (# Vehicles)	15,000.00		15,256.00		-256.00		\$ 71.457019		\$ (18,293)	-0.3%
Street Frontage - Primary (Feet)	600.00		1,081.68		-481.68		\$ 3,727.641249		\$ (1,795,530)	-25.7%

Gross Adjustments	\$ 4,451,276	63.6%
Net Adjustments	\$ (2,880,064)	-41.1%
Adjusted Sale Price per Unit of Value	\$ 4,119,936	
Reconciliation (Statistical Residual)	\$ 1,955,066	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000



**Comparable No. 19**  
**10 Ridge Ave**  
**Whitemarsh Township, Montgomery County, PA**

**Property Identification**

Address	10 Ridge Ave
City	Whitemarsh Township
County	Montgomery
State	PA
Date	December 23, 1993
Price	\$4,000,000
Price	\$4,000,000
Grantor	Harriet B. Kravitz
Grantee	Glenmont Associates LP
Book & Page	5065/1119
Parcel No.	650009997009
Block & Lot Number	200-243
Gross Leasable Area (Sq. Ft.)	68933
\$/SF GLA	\$58.03

**Property Descriptive Factors**

Market Conditions / Time	December 23, 1993
Gross Leasable Area (Sq. Ft.)	68,933
Age (Years)	38.1
Traffic Count Peak Time (# Vehicles)	5,797
Street Frontage - Primary (Feet)	990
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**Verification/Source** Richard Nixon

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 19**  
**10 Ridge Ave**  
**Whitemarsh Township, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>		\$ 4,000,000	% Adj.
Property Rights (leased fee / fee simple)		\$ -	0.00%
Financing (Cash equivalency)		\$ -	0.0%
Conditions of Sale		\$ -	0.0%
Transaction Adjusted Price		\$ 4,000,000	0.0%
Unit of Value		1	
Price		\$ 4,000,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	<i>\$ Adj.</i>	<i>% Adj.</i>
Market Conditions / Time	31-Dec-2001		23-Dec-1993		2,930.00		\$ 585.103459		\$ 1,714,353	42.9%
Gross Leasable Area (Sq. Ft.)	80,000.00		68,933.00		11,067.00		\$ 35.459686		\$ 392,432	9.8%
Age (Years)	20.00		38.11		-18.11		\$ (84,540.270186)		\$ 1,530,783	38.3%
Traffic Count Peak Time (# Vehicles)	15,000.00		5,797.00		9,203.00		\$ 71.457019		\$ 657,619	16.4%
Street Frontage - Primary (Feet)	600.00		989.75		-389.75		\$ 3,727.641249		\$ (1,452,848)	-36.3%

Gross Adjustments	\$ 5,748,035	143.7%
Net Adjustments	\$ 2,842,339	71.1%
Adjusted Sale Price per Unit of Value	\$ 6,842,339	
Reconciliation (Statistical Residual)	\$ (767,337)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 20**  
**State St. & Route 100**  
**Pottstown Boro, Montgomery County, PA**

**Property Identification**

Address	State St. & Route 100
City	Pottstown Boro
County	Montgomery
State	PA
Date	October 3, 2001
Price	\$10,800,000
Price	\$10,800,000
Grantor	Ahold Real Estate Co.
Grantee	Pottstown Plaza LLC
Book & Page	5382-1205
Parcel No.	160028568009
Block & Lot Number	200-253
Gross Leasable Area (Sq. Ft.)	154627
\$/SF GLA	\$69.85

**Property Descriptive Factors**

Market Conditions / Time	October 3, 2001
Gross Leasable Area (Sq. Ft.)	154,627
Age (Years)	16
Traffic Count Peak Time (# Vehicles)	8,750
Street Frontage - Primary (Feet)	1,136
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**Verification/Source** John Quincy Adams

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 20**  
**State St. & Route 100**  
**Pottstown Boro, Montgomery County, PA**

**Elements of Comparison**

<i>Adjustments to Transaction</i>		\$ 10,800,000	% Adj.
Property Rights (leased fee / fee simple)		\$ -	0.0%
Financing (Cash equivalency)		\$ -	0.0%
Conditions of Sale		\$ -	0.0%
Transaction Adjusted Price		\$ 10,800,000	0.0%
Unit of Value		1	
Price		\$ 10,800,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	<i>\$ Adj.</i>	% Adj.
Market Conditions / Time	31-Dec-2001		3-Oct-2001		89.00		\$ 585.103459		\$ 52,074	0.5%
Gross Leasable Area (Sq. Ft.)	80,000.00		154,627.00		-74,627.00		\$ 35.459686		\$ (2,646,250)	-24.5%
Age (Years)	20.00		15.75		4.25		\$ (84,540.270186)		\$ (359,296)	-3.3%
Traffic Count Peak Time (# Vehicles)	15,000.00		8,750.00		6,250.00		\$ 71.457019		\$ 446,606	4.1%
Street Frontage - Primary (Feet)	600.00		1,136.00		-536.00		\$ 3,727.641249		\$ (1,998,016)	-18.5%

Gross Adjustments	\$ 5,502,242	50.9%
Net Adjustments	\$ (4,504,881)	-41.7%
Adjusted Sale Price per Unit of Value	\$ 6,295,119	
Reconciliation (Statistical Residual)	\$ (220,117)	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$ 6,075,002
(Rounded)	\$ 6,080,000

**Comparable No. 21**  
**709 Route 113 & County Line Rd.**  
**Hilltown, Bucks County, PA**

**Property Identification**

Address	709 Route 113 & County Line Rd.
City	Hilltown
County	Bucks
State	PA
Date	June 30, 1997
Price	\$5,300,000
Price	\$5,300,000
Grantor	N/A
Grantee	County Line Plaza Realty Asso. LP
Book & Page	1415/730
Parcel No.	15008032
Block & Lot Number	200-248
Gross Leasable Area (Sq. Ft.)	163187
\$/SF GLA	\$32.48

**Property Descriptive Factors**

Market Conditions / Time	June 30, 1997
Gross Leasable Area (Sq. Ft.)	\$163,187
Age (Years)	32.60
Traffic Count Peak Time (# Vehicles)	\$37,273
Street Frontage - Primary (Feet)	228.66
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**Verification/Source** Woodrow Wilson

**Narrative Comments** Arms length transaction

**Adjustments to Transaction**

Property Rights:	No adjustment to sale price.
Cash Equivalency:	No adjustment to sale price.
Conditions of Sale:	No adjustment to sale price.

**Comparable No. 21**  
**709 Route 113 & County Line Rd.**  
**Hilltown, Bucks County, PA**

**Elements of Comparison**

Adjustments to Transaction	\$ 5,300,000	% Adj.
Property Rights (leased fee / fee simple)	\$ -	0.0%
Financing (Cash equivalency)	\$ -	0.0%
Conditions of Sale	\$ -	0.0%
Transaction Adjusted Price	\$ 5,300,000	0.0%
Unit of Value	1	
Price	\$ 5,300,000	

**Adjustments to Subject Property**

	<i>Subject</i>	-	<i>Sale</i>	=	<i>Net Dif.</i>	x	<i>Slope</i>	=	\$ Adj.	% Adj.
Market Conditions / Time	31-Dec-2001		30-Jun-1997		1,645.00	\$	585.1035		\$ 962,495	18.2%
Gross Leasable Area (Sq. Ft.)	80,000.00		163,187.00		-83,187.00	\$	35.4597		\$ (2,949,785)	-55.7%
Age (Years)	20.00		32.60		-12.60	\$	(84,540.2702)		\$ 1,065,579	20.1%
Traffic Count Peak Time (# Vehicles)	15,000.00		37,273.00		-22,273.00	\$	71.4570		\$ (1,591,562)	-30.0%
Street Frontage - Primary (Feet)	600.00		228.66		371.34	\$	3,727.6412		\$ 1,384,222	26.1%

Gross Adjustments	\$ 7,953,644	150.1%
Net Adjustments	\$ (1,129,051)	-21.3%
Adjusted Sale Price per Unit of Value	\$ 4,170,949	
Reconciliation (Statistical Residual)	\$ 1,904,053	
Price	\$ 6,075,002	

**Indicated Value of Subject Property**

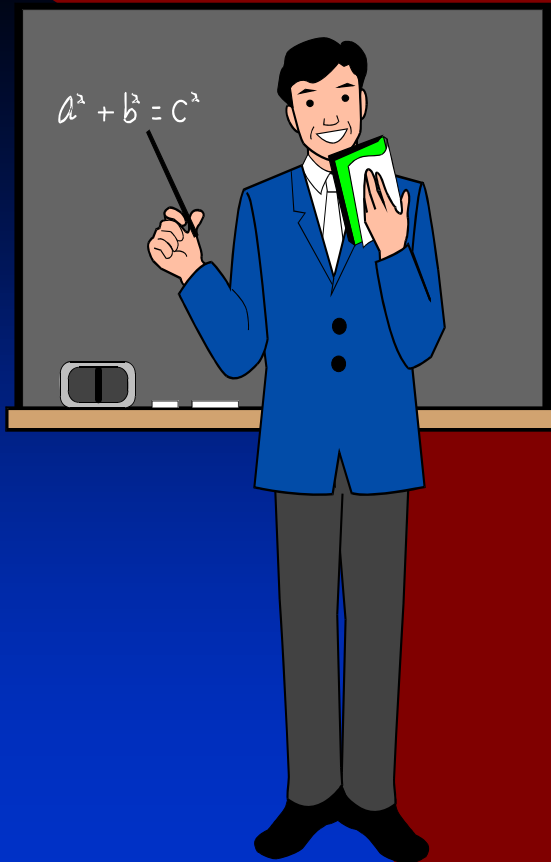
As of	31-Dec-2001
Price	\$ 6,075,002
Unit of Value	1
Subject Value Estimate =	\$6,075,002
(Rounded)	\$6,080,000

# ***Econometric Solutions for Real Estate Valuation***

**Eugene Pasymowski, MAI  
RealStat®<sup>®</sup>, Inc.**

**Chester Springs, Pennsylvania  
USA**

**[www.realstat.com](http://www.realstat.com)**



Eugene Pasymowski, MAI  
RealStat<sup>®</sup>, Inc.

502 Fairmont Road

Chester Springs, PA 19425-0410

United States of America

610.458.0400

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

[infoperson@realstat.com](mailto:infoperson@realstat.com)



# ***ECONOMETRICS & REGRESSION ANALYSIS***

The term econometrics literally means economic measurement. It is the application of statistical analytical mathematical tools, mainly regression analysis, to the real world of economics. Its purpose is to:

- Describe economic reality (via regression charts),
- Test hypotheses about economic theory and significance of factors,
- Predict economic activity (estimate value of real estate)

# Regression analysis is defined as:

“A method that examines the relationship between one or more independent variables and a single dependent variable by plotting points on a graph; used to identify and weight analytical factors and to make forecasts.”

Appraisal Institute. The Dictionary of Real Estate Appraisal, 3rd Edition Appraisal Institute, 1993, Page 299.

# Traditional v. Regression

<b>Methods:</b>	<b>Traditional</b>	<b>Regression</b>
Nature of Analysis	Subjective	Objective
Quantification of Factors	No	Yes
Market Supported Adjustments	No	Yes
Hypothesis Testing	No	Yes
Charts With Trend Lines	No	Yes
Replication / Scientific Testing	No	Yes
Variance Calculation	No	Yes
“Paired Sales” Analysis	False Assumption: Perfect Market	NA

## ***Comparable Data Selection Criteria***

	<b>Traditional</b>	<b>Regression</b>
<b><i>Types of Use</i></b> (Residential, Commercial, Industrial, etc.)	Similar	Similar
<b><i>Property Features</i></b> (Bedrooms, Bathrooms, Building Size, Ceiling Height, etc.)	Similar	Dissimilar
<b><i>Data Diversity</i></b>	Narrow	Wide
<b><i>Data Bias Potential</i></b>	High	Low

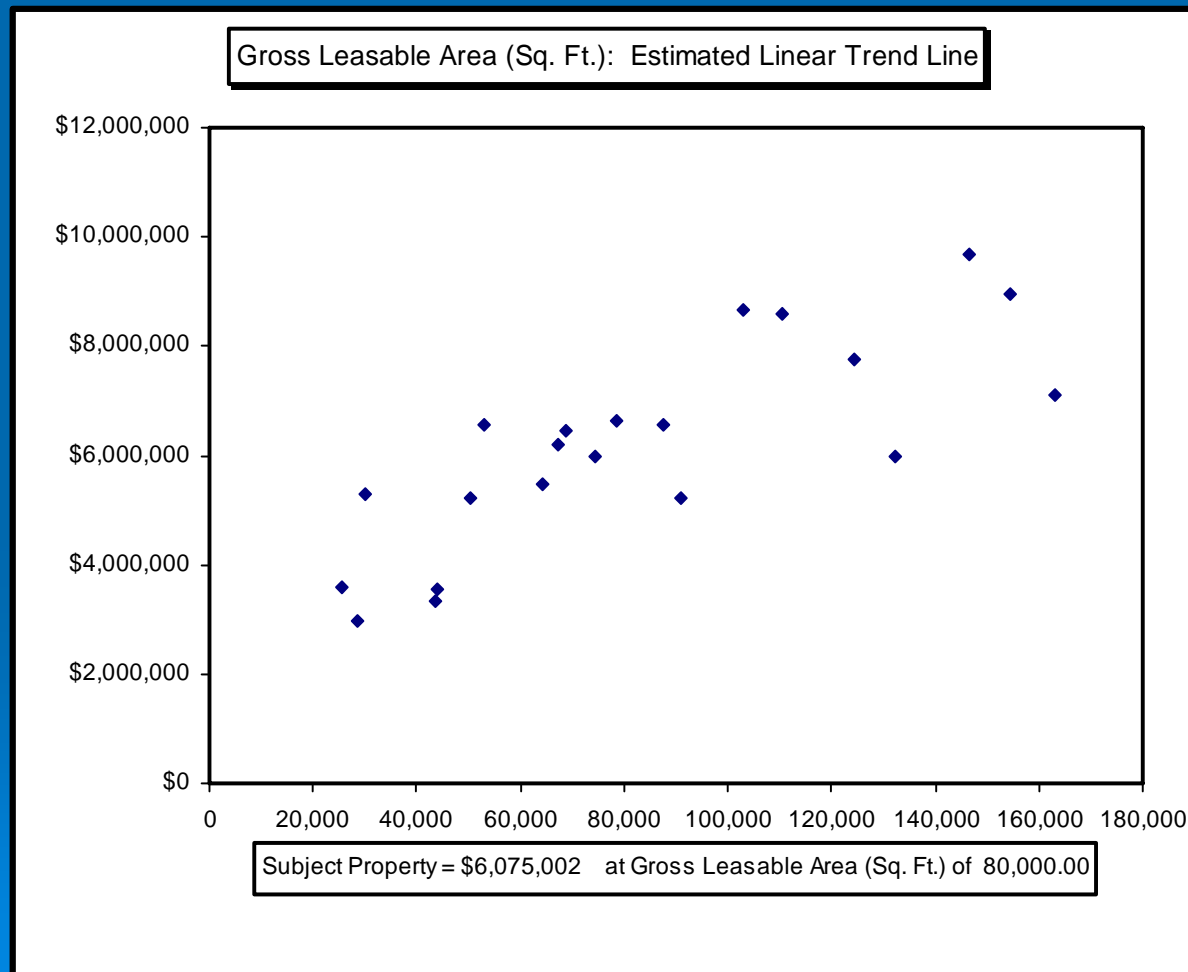
<b>Method DATA</b>	<b>Traditional Analysis BIASED</b>	<b>Regression Analysis UNBIASED</b>
<b>Selection</b>	"Data Mining": Comparable sales selected to closely "match" the subject property	Random sample of sales from market transactions.
<b>Analysis</b>	Often a self fulfilling prophecy.	Regression analysis is independent of the subject property.
<b>Adjustments</b>	Guesswork to support a value.	Derived from market transactions and then applied to subject property.
<b>USPAP Ethics Provision</b>	Possibly Misleading Report	Meaningful Report

## ***CASE STUDY - NEIGHBORHOOD RETAIL STRIP SHOPPING CENTER***

Gross Leasable Area (Sq. Ft.)	80,000
Traffic Count Peak Time (# Vehicles)	15,000
Street Frontage - Primary (Linear Feet)	600
Street Frontage - Secondary (Linear Feet)	250
Age (Years)	20
Market Conditions – Time Adjustment	31-Dec-01

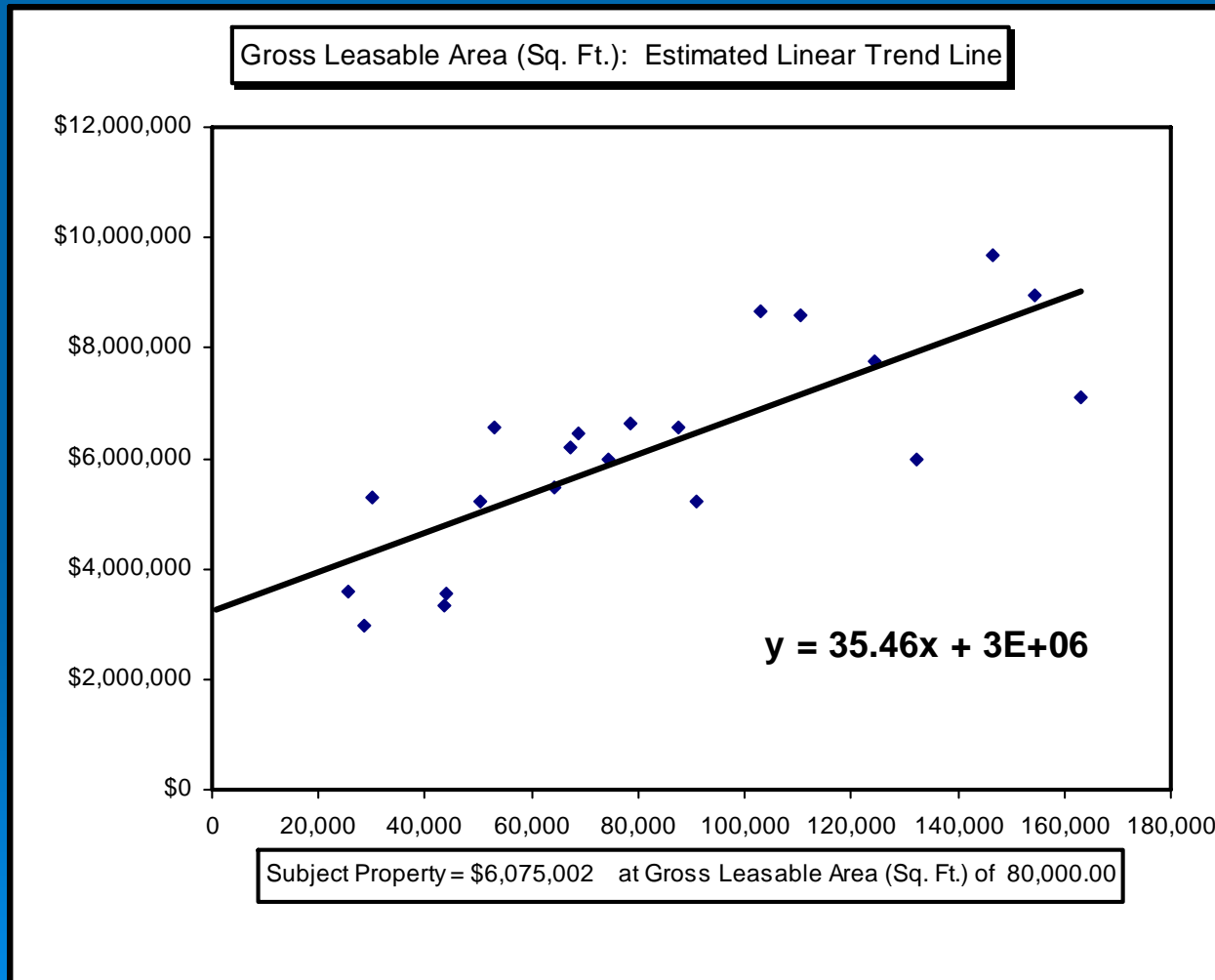
<b>Sample Size = 21</b>	<b>Low</b>	<b>High</b>	<b>Average</b>	<b>Median</b>
Date	Dec-93	Oct-01	Oct-98	Sep-98
Price	\$1,500,000	\$10,800,000	\$5,326,471	\$4,700,000
<b>Independent Factors / Variables</b>				
Gross Leasable Area (Sq. Ft.)	25,697	163,187	82,940	74,270
Traffic Count Peak Time (# Vehicles)	3,082	37,273	14,668	14,149
Street Frontage - Primary (Feet)	229	1,136	609	520
Market Conditions / Time	0	2,841	1,753	1,730
Age (Years)	7.8	39.5	22.1	19.6

# Regression Chart Step No. 1: Plot the Sales Data Points

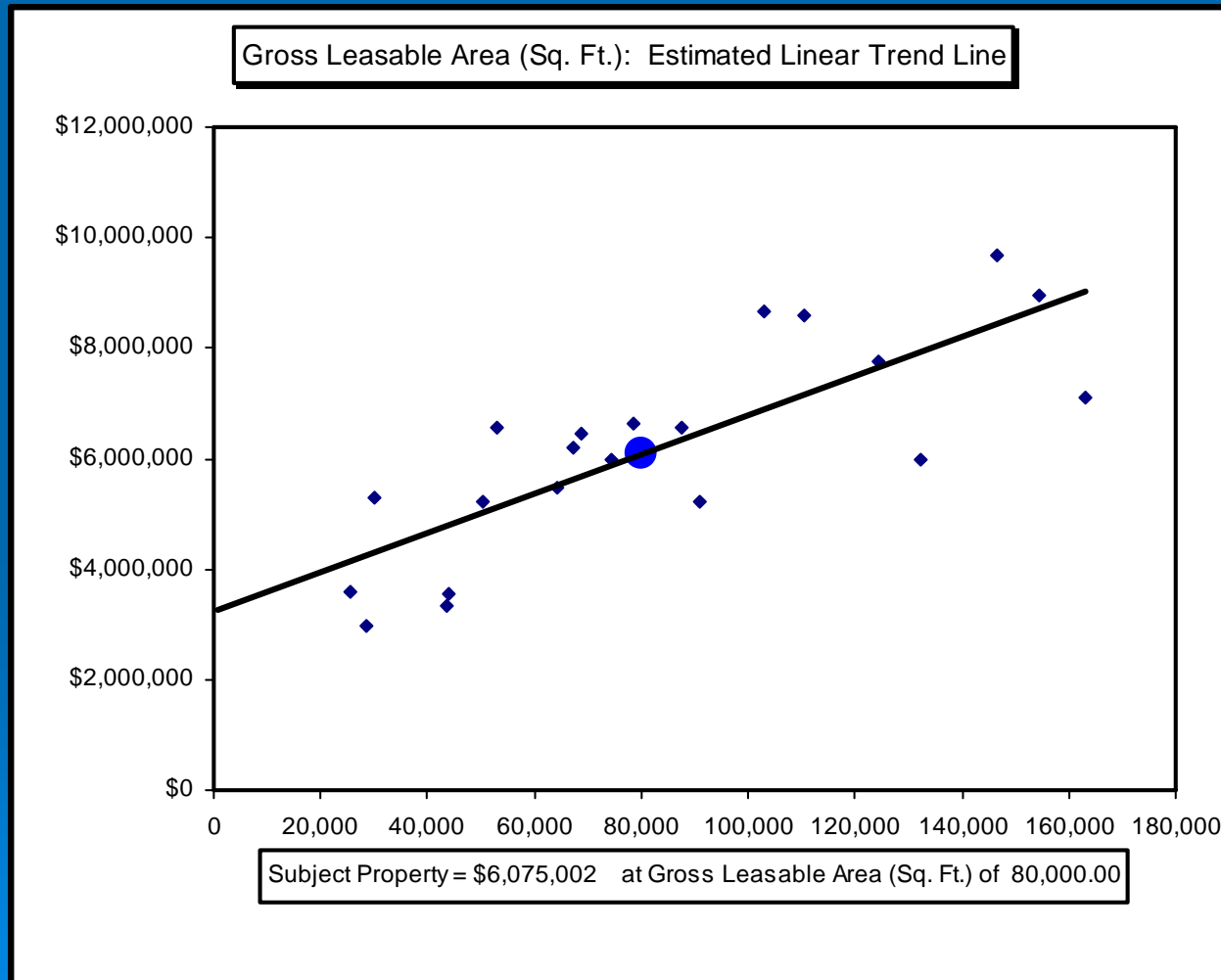




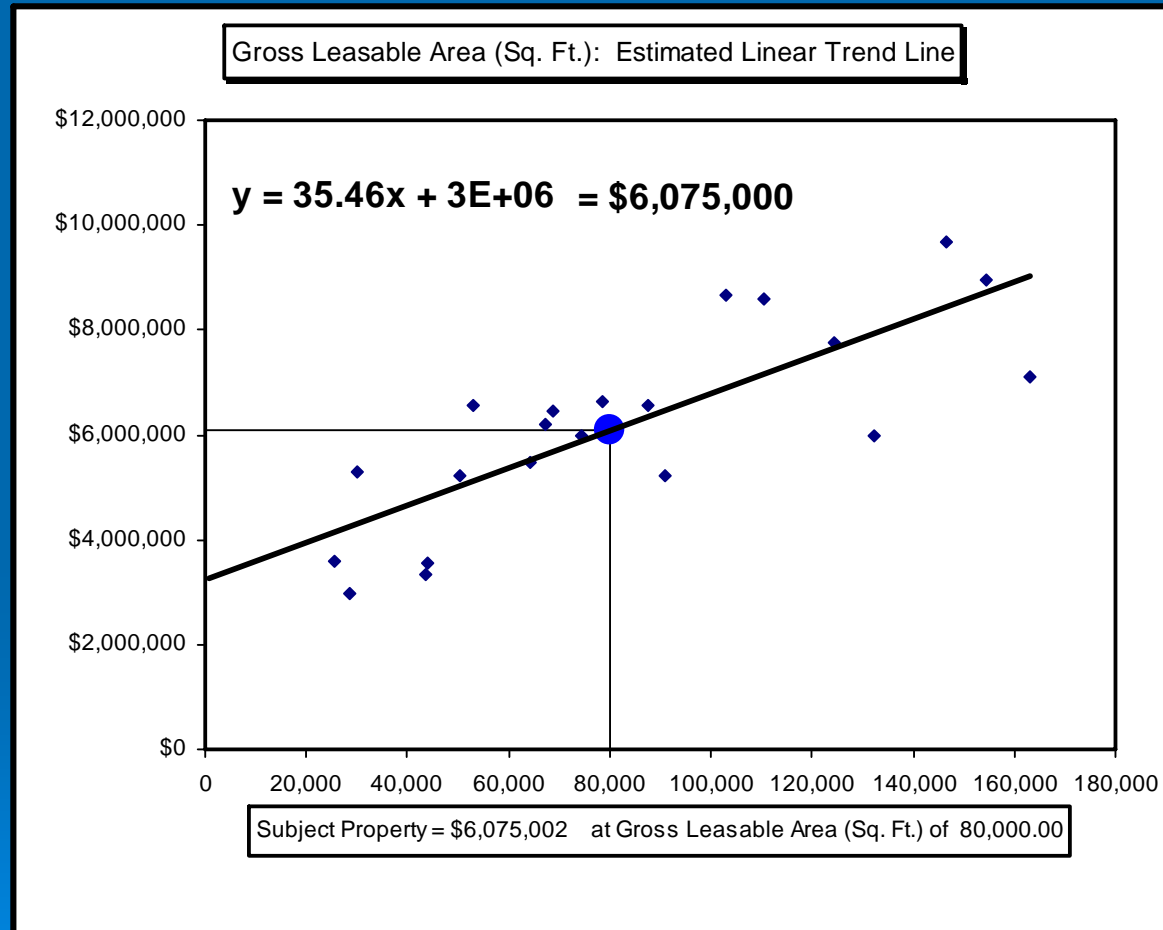
# Regression Chart Step No. 2: Draw the Regression Line



# Regression Chart Step No. 3: Plot the Subject Data Point



# Regression Chart Step No. 4: Plot Value of the Subject Property



### ***Statistical Indicators***

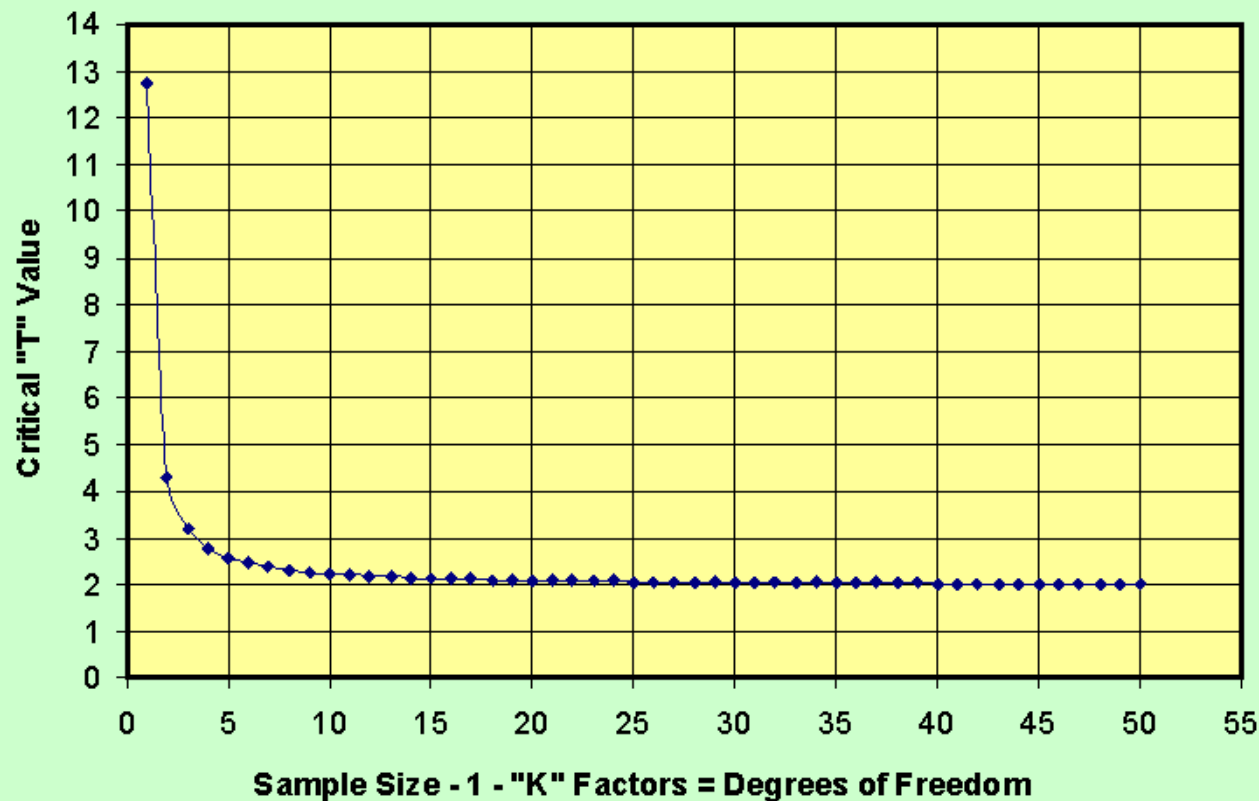
Correlation "R"	91.2%
Coefficient of Determination "R Squared"	83.2%
Standard Error	\$1,309,662
F Statistic of 14.84 = Confidence Level	100.0%
Durbin-Watson Statistic	1.99
Observations (n)	21

# “T” Statistic / Confidence Level

Sample Data Coefficient T-Distribution Confidence & Significance Levels					
One Sided		Two Sided		T-Distribution Statistic	
Confidence	Significance	Confidence	Significance		
Market Conditions / Time	90.2%	9.8%	80.4%	19.6%	1.353174
Gross Leasable Area (Sq. Ft.)	99.9%	0.1%	99.9%	0.1%	3.991203
Traffic Count Peak Time (# Vehicles)	95.2%	4.8%	90.5%	9.5%	1.781194
Street Frontage - Primary (Feet)	99.5%	0.5%	99.0%	1.0%	2.9717741
Age (Years)	99.2%	0.8%	98.4%	1.6%	-2.717489

# How Many Sales Are Enough?

Critical "T" Values @ 95% Confidence Level



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# Sample Size

## The "Formula"

Sample Size "n" - 1 - "K" Factors = Degrees of Freedom

95% Confidence Level	"n"	"n" - 1	-	"K"	=	DF	"T"
	"n" Sales	"n" - 1 Constant	-	# Features	=	Degrees of Freedom	Critical "T" Value
Typical Residential	3	2	-	7	=	-5	N/A
Typical Commercial & Industrial	6	5	-	7	=	-2	N/A
	7	6	-	7	=	-1	N/A
	8	7	-	7	=	0	N/A
	9	8	-	7	=	1	12.7062
Typical Regression	35	34	-	7	=	27	2.0518

**Note:**

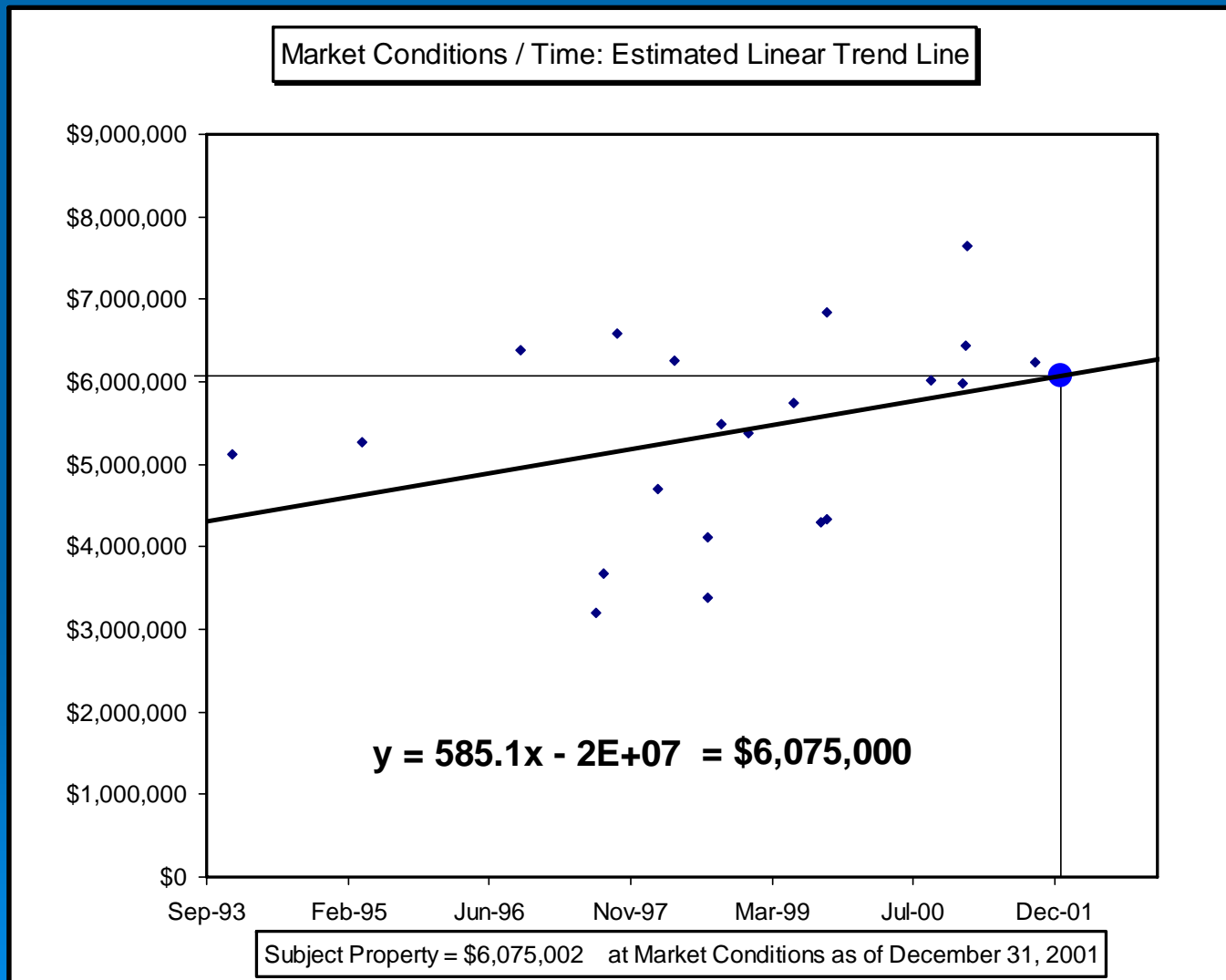
It is a mathematical impossibility to estimate value when the degrees of freedom are less than 1. Typically the number of comparable sales should be 20 to 25 plus 1 for the constant and 1 for each "K" features.

# Estimated Value

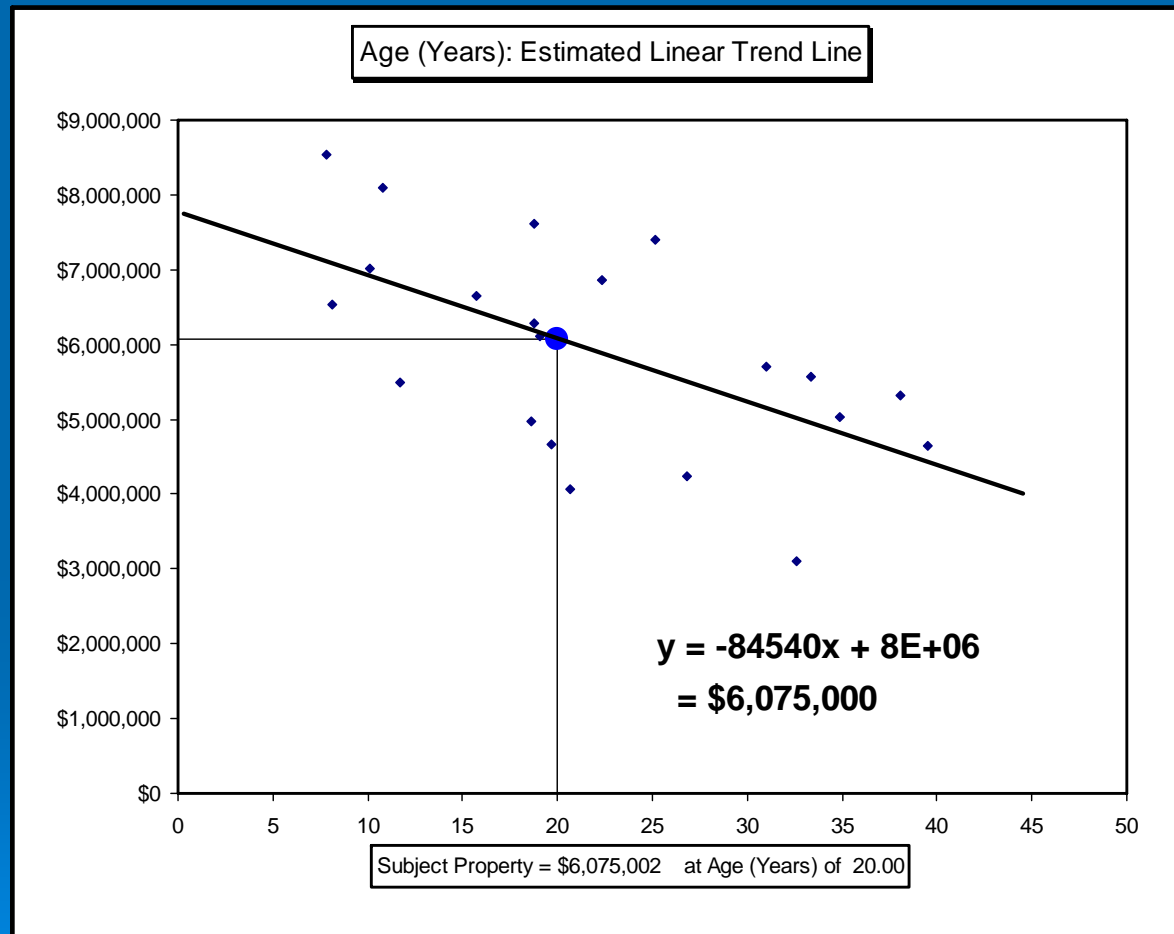
<b>Estimated Value: 100 Penntown Avenue, Penntown, PA</b>					
<b>FACTORS</b>	<b>SUBJECT</b>	<b>X</b>	<b>SLOPE COEFFICIENTS</b>	<b>=</b>	<b>VALUE</b>
Intercept	1.00	x	(\$93,760.54)	=	\$ (93,761)
Market Conditions / Time	2,930	x	\$585.10	=	\$ 1,714,353
Gross Leasable Area (Sq. Ft.)	80,000	x	\$35.46	=	\$ 2,836,775
Traffic Count Peak Time (# Vehicles)	15,000	x	\$71.46	=	\$ 1,071,855
Street Frontage - Primary (Feet)	600	x	\$3,727.64	=	\$ 2,236,585
Age (Years)	20	x	(\$84,540.27)	=	\$ (1,690,805)
Price					= \$ 6,075,002
Unit of Value					x 1
Estimated Value		\$76.00 per Sq. Ft. GLA		=	\$ 6,075,002
Estimated Value (Rounded):		December 31, 2001		=	\$ 6,080,000



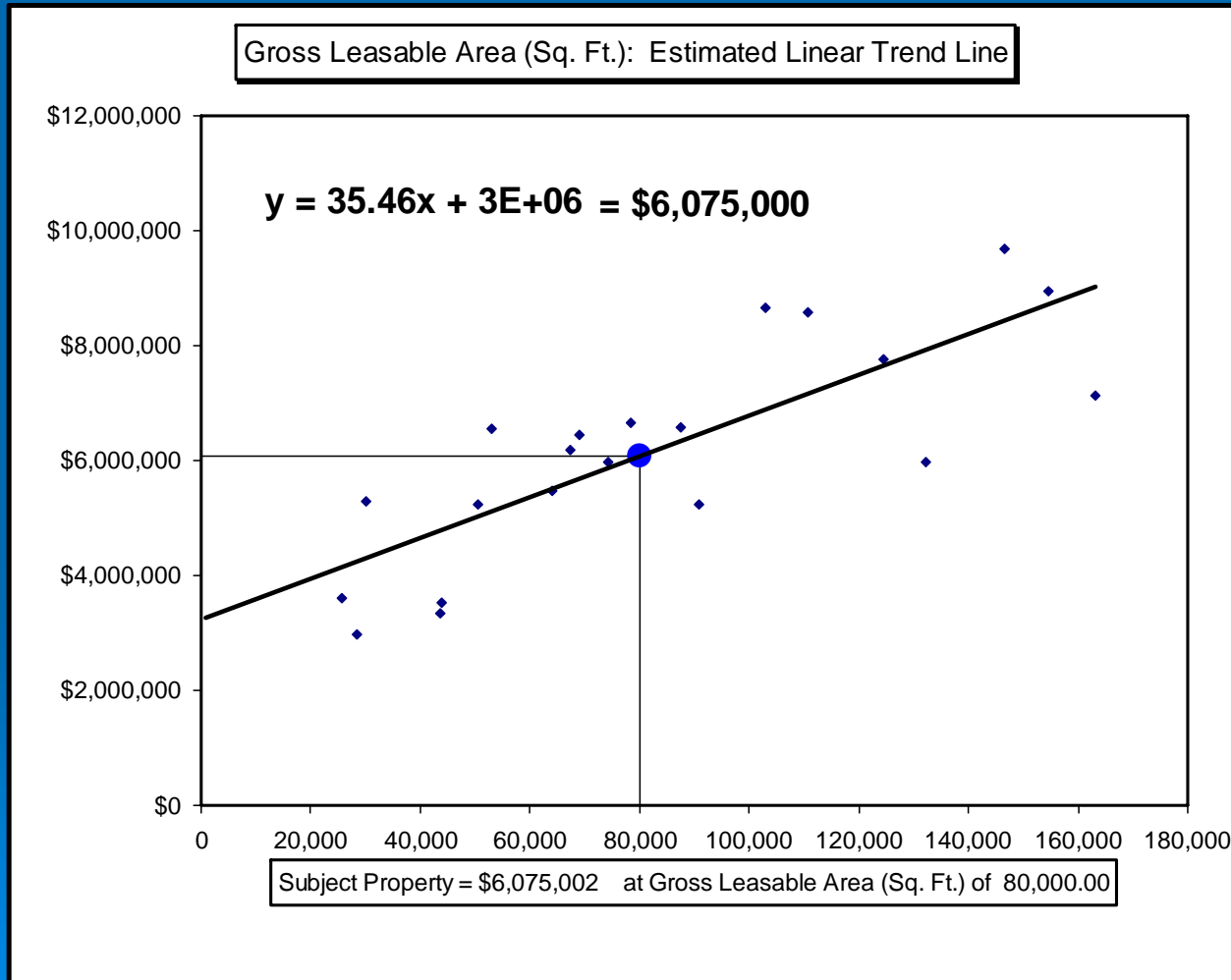
# Value Increases @ \$585 per Day



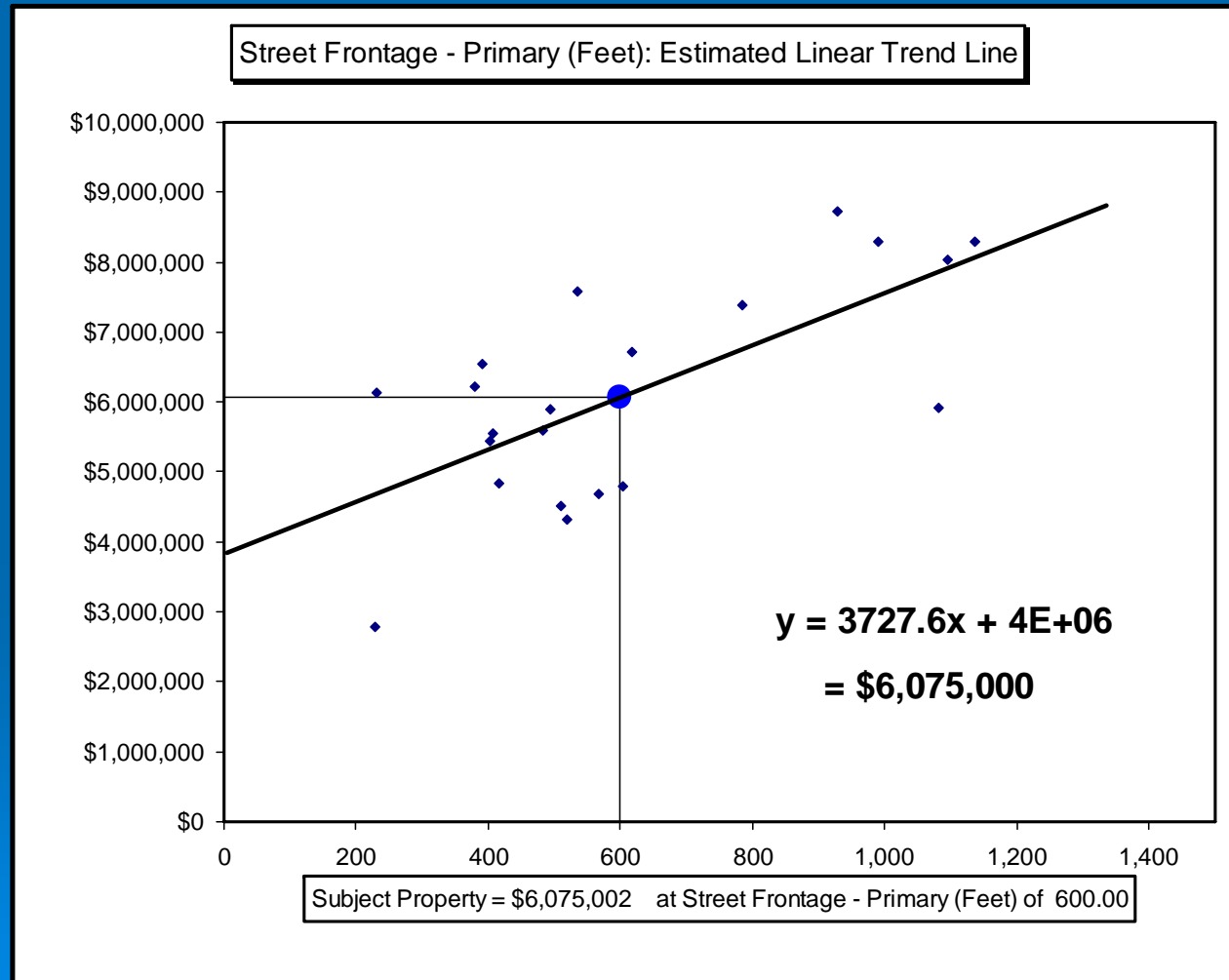
# Value Decreases by Age (years) @ \$84,540 per year



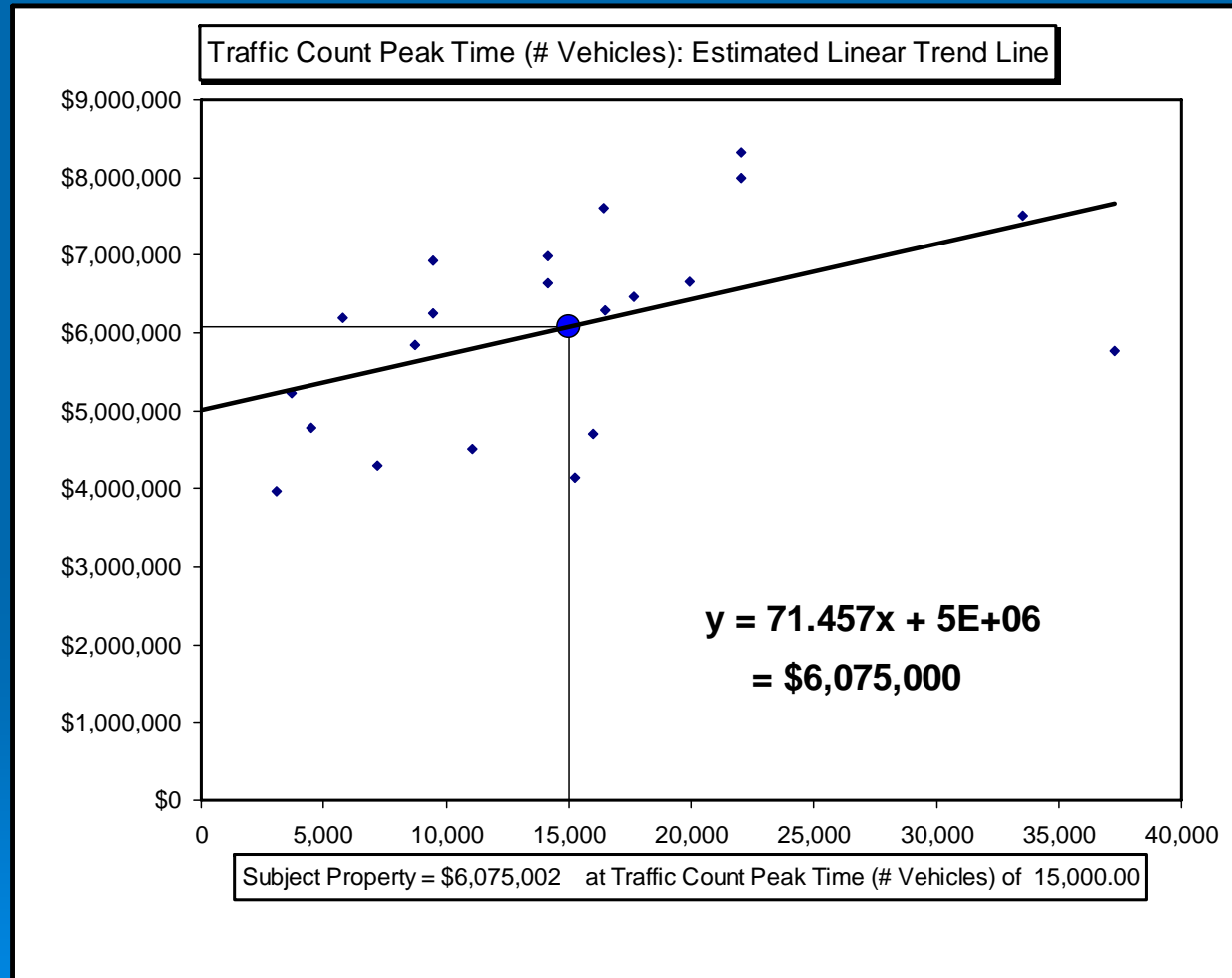
# Value Increases @ \$35.46 per SF of Gross Leasable Area



# Value Increases @ \$3,728 per Linear Feet of Primary Street Frontage



# Value Increases @ \$71.46 per vehicle at Peak Time



# Adjustments To Sale #1

Comparable No. 1 2928 Street Road Bensalem, Bucks County, PA									
<i>Adjustments to Subject Property</i>	<i>Subject</i>	<i>-</i>	<i>Sale</i>	<i>=</i>	<i>Net Dif.</i>	<i>x</i>	<i>Slope =</i>	<i>\$ Adj.</i>	<i>% Adj.</i>
Market Conditions / Time	31-Dec-2001		18-Sep-1998		1,200.00	\$	585.1035	\$ 702,124	11.8%
Gross Leasable Area (Sq. Ft.)	80,000.00		74,270.00		5,730.00	\$	35.4597	\$ 203,184	3.4%
Age (Years)	20.00		18.78		1.22	\$	(84,540.2702)	\$ (103,353)	-1.7%
Traffic Count Peak Time (# Vehicles)	15,000.00		33,559.00		-18,559.00	\$	71.4570	\$ (1,326,171)	-22.2%
Street Frontage - Primary (Feet)	600.00		403.57		196.43	\$	3,727.6412	\$ 732,221	12.3%
-									
Gross Adjustments								\$ 3,067,052	51.3%
Net Adjustments								\$ 208,005	3.5%
Adjusted Sale Price per Unit of Value								\$ 6,183,005	
Reconciliation (Statistical Residual)								\$ (108,003)	
Price								\$ 6,075,002	
<b><i>Indicated Value of Subject Property</i></b>									
As of	31-Dec-2001								
(Rounded)	\$6,080,000								

	Subject Property	Comparable No. 1			Comparable No. 2			Comparable No. 3		
Address	100 Penntown Avenue	2928 Street Road			Street Road & Route 611			1050 E Philadelphia Ave		
City	Penntown	Bensalem			Warrington			Douglass Township		
County	Montgomery	Bucks			Bucks			Montgomery		
State	PA	PA			PA			PA		
Date	31-Dec-01	18-Sep-1998			6-Feb-2001			31-Jul-1998		
Price	-	\$5,975,000			\$8,275,000			\$3,725,000		
Price	-	\$5,975,000			\$8,275,000			\$3,725,000		
Grantor	-	Showcase Plaza SC Asso.			Warrinton 611 Asso.			Gilbertsville Associates LP		
Grantee	-	Trackstar			FWR Partners			Gilbertsville Plaza Assocs Lp		
Book & Page	NA	1678/174			2223/2197			5237/1371		
Parcel No.	160044568009	2037005			50023186			320005548009		
Gross Leasable Area (SF)	80000	74270			103022			90845		
-	-	-			-			-		
\$/SF GLA	-	\$80.45			\$80.32			\$41.00		
Market Conditions / Time	December 31, 2001	September 18, 1998			February 6, 2001			July 31, 1998		
Gross Leasable Area (Sq. Ft.)	80,000	74,270			103,022			90,845		
Age (Years)	20.00	18.78			25.19			18.64		
Traffic Count Peak Time (# Vehicles)	15,000	33,559			22,000			7,200		
Street Frontage - Primary (Feet)	600	404			535			509		
-	-	-			-			-		
Elements of Comparison			\$ Adj.	% Adj.		\$ Adj.	% Adj.		\$ Adj.	% Adj.
Adjustments to Transaction			\$5,975,000			\$8,275,000			\$3,725,000	
Property Rights (leased fee / fee simple)			\$0	0.0%		\$0	0.0%		\$0	0.0%
Financing (Cash equivalency)			\$0	0.0%		\$0	0.0%		\$0	0.0%
Conditions of Sale			\$0	0.0%		\$0	0.0%		\$0	0.0%
Transaction Adjusted Price			\$5,975,000	0.0%		\$8,275,000	0.0%		\$3,725,000	0.0%
Unit of Value			1			1			1	
Price			\$5,975,000			\$8,275,000			\$3,725,000	
Adjustments to Subject Property	Estimated Slope Coefficients	Net Dif.	\$ Adj.	% Adj.	Net Dif.	\$ Adj.	% Adj.	Net Dif.	\$ Adj.	% Adj.
Market Conditions / Time	\$585.10345911	1,200.00	\$702,124	11.8%	328.00	\$191,914	2.3%	1,249.00	\$730,794	19.6%
Gross Leasable Area (Sq. Ft.)	\$35.45968595	5,730.00	\$203,184	3.4%	-23,022.00	(\$816,353)	-9.9%	-10,845.00	(\$384,560)	-10.3%
Age (Years)	-\$84,540.27018614	1.22	(\$103,353)	-1.7%	-5.19	\$438,495	5.3%	1.36	(\$114,733)	-3.1%
Traffic Count Peak Time (# Vehicles)	\$71.45701908	-18,559.00	(\$1,326,171)	-22.2%	-7,000.00	(\$500,199)	-6.0%	7,800.00	\$557,365	15.0%
Street Frontage - Primary (Feet)	\$3,727.64124905	196.43	\$732,221	12.3%	65.00	\$242,297	2.9%	91.06	\$339,439	9.1%
-	-									
Gross Adjustments			\$3,067,052	51.3%		\$2,189,257	26.5%		\$2,126,891	57.1%
Net Adjustments			\$208,005	3.5%		(\$443,847)	-5.4%		\$1,128,304	30.3%
Adjusted Sale Price per Unit of Value			\$6,183,005			\$7,831,153			\$4,853,304	
Reconciliation (Statistical Residual)			(\$108,003)			(\$1,756,151)			\$1,221,698	
Price	\$6,075,002		\$6,075,002			\$6,075,002			\$6,075,002	
Price	\$6,075,002									
Unit of Value	1									
Subject Value Estimate =	\$6,075,002		As of 31-Dec-2001							
			\$ 6,080,000 (Rounded)							

## VERIFICATION OF ADJUSTMENT CALCULATIONS

Price	Net Adj. To Subject Property	Adjusted Price	Indicated Value of Subject Property	Statistical Residual
\$ 5,975,000	\$ 208,005	\$ 6,183,005	\$ 6,075,002	\$ 108,003
\$ 8,275,000	\$ (443,847)	\$ 7,831,153	\$ 6,075,002	\$ 1,756,151
\$ 3,725,000	\$ 1,128,304	\$ 4,853,304	\$ 6,075,002	\$ (1,221,698)
\$ 4,744,900	\$ 1,894,449	\$ 6,639,349	\$ 6,075,002	\$ 564,346
\$ 3,650,000	\$ 2,378,610	\$ 6,028,610	\$ 6,075,002	\$ (46,392)
\$ 4,325,000	\$ 1,977,658	\$ 6,302,658	\$ 6,075,002	\$ 227,656
\$ 4,700,000	\$ 2,008,011	\$ 6,708,011	\$ 6,075,002	\$ 633,009
\$ 2,900,000	\$ 1,893,884	\$ 4,793,884	\$ 6,075,002	\$ (1,281,118)
\$ 2,200,000	\$ 2,426,083	\$ 4,626,083	\$ 6,075,002	\$ (1,448,919)
\$ 3,176,000	\$ 3,102,744	\$ 6,278,744	\$ 6,075,002	\$ 203,742
\$ 9,500,000	\$ (2,000,462)	\$ 7,499,538	\$ 6,075,002	\$ 1,424,536
\$ 8,800,000	\$ (1,482,211)	\$ 7,317,789	\$ 6,075,002	\$ 1,242,787
\$ 1,500,000	\$ 3,312,041	\$ 4,812,041	\$ 6,075,002	\$ (1,262,961)
\$ 3,400,000	\$ 3,651,940	\$ 7,051,940	\$ 6,075,002	\$ 976,938
\$ 5,200,000	\$ 2,310,670	\$ 7,510,670	\$ 6,075,002	\$ 1,435,667
\$ 10,350,000	\$ (4,164,601)	\$ 6,185,399	\$ 6,075,002	\$ 110,397
\$ 2,335,000	\$ 3,189,522	\$ 5,524,522	\$ 6,075,002	\$ (550,480)
\$ 7,000,000	\$ (2,880,064)	\$ 4,119,936	\$ 6,075,002	\$ (1,955,066)
\$ 4,000,000	\$ 2,842,339	\$ 6,842,339	\$ 6,075,002	\$ 767,337
\$ 10,800,000	\$ (4,504,881)	\$ 6,295,119	\$ 6,075,002	\$ 220,117
\$ 5,300,000	\$ (1,129,051)	\$ 4,170,949	\$ 6,075,002	\$ (1,904,053)
Total of Residuals				\$0
Average of Residuals				\$0



# Mathematical Proof

RESULT: The Average & the Total of the Residuals DO EQUAL ZERO, hence, the adjustments made by the appraiser are CORRECT.

1		Number of Sales	21
2	-	Constant a/k/a Intercept	1
3	=	Number of Sales Minus 1	20
4	-	Number of Independent Variables Adjustment Factors	5
5	=	Residual Degrees of Freedom (must be equal to or greater than 1)	15

RESULT: The sample size is higher than the number of independent variable adjustment factors. Hence, the appraisal adjustments and the Critical T & F statistics can be calculated. The appraiser's adjustments are mathematically possible.

**We Made It !**

**The End**



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502 Fairmont Drive, Chester Springs, Pennsylvania 19425 USA  
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## **Company Profile**

Eugene Pasymowski, MAI is the president of RealStat, Inc. and has more than 20 years experience in real estate brokerage and valuation. He is an MAI designated member of the Appraisal Institute and serves on its National Experience Review Committee, Regional Ethics and Counseling Committee and is a director of the Philadelphia Metropolitan Chapter of the Appraisal Institute. He is also a Pennsylvania licensed real estate broker.

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RealStat is a multiple regression hedonic econometric analysis software program for the valuation of all types of real estate. It requires the user to type information on the subject property, as well as comparable sales and then run the built-in regression function in Microsoft Excel. All report pages are then instantaneously ready for printing. RealStat operates as a template using Excel. Requires Excel 2000 or later for Windows.

A unique and powerful automated valuation model that allows the user to value real estate statistically in relation to comparable sales. Educated guesswork is replaced with scientific modeling to estimate property value. You need not be an expert in statistics to use this software. Simply enter information on a subject property and comparable sales and the software will do the work. A detailed report is instantaneously ready for printing.

RealStat was designed for use by real estate analysts, appraisers, brokers, salespersons and practitioners. It is fully automated requiring the user in input data on the subject property and the comparable sales. Then run the built-in Microsoft Excel regression function, save the results and print your reports. That's it!

RealStat operates as a template using Microsoft Excel. You must have Excel 2000 for Windows installed on your computer to use this program.

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- Expert witness testimony in U.S. Bankruptcy Court, Boards of Tax Assessment Appeal and other types of real estate related litigation.
- Developed RealStat a multiple regression econometric analysis computer software program based on Microsoft Excel for the sales comparison approach to real estate valuation. We are one of the leading proponents in of automated valuation models for the real estate industry.

**Contact Information:**

RealStat, Inc.  
502 Fairmont Drive  
Chester Springs, Pennsylvania 19425  
USA

**Tel:** 1-610-458-0400  
[pasym@realstat.com](mailto:pasym@realstat.com)  
[www.realstat.com](http://www.realstat.com)

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