

OVERVIEW OF LAND APPRAISAL METHODOLOGY

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I. INTRODUCTION

The City of Pittsburgh has requested that Sabre Systems and Service ("Sabre") provide an explanation of the methodology used to value land in the Allegheny County Revaluation Project ("Revaluation"). Sabre is pleased to do so.

This overview is not intended to be an all-inclusive discussion of land valuation theory, but rather an attempt to lead the reader through the intricate and sometimes complex land appraisal process. Initially, there are several industry-recognized methods for developing land values. These include, but are not limited to: (a) Comparable Sales; (b) Allocation; (c) Land Residual; (d) Capitalization of Ground Rent; and (e) Development Costs - Discounted Cash Flow.

Sabre uses the Comparable Sales method to value land. This entails analysis of vacant land sales within the neighborhood to establish base land rates. Where there are sufficient quantities of vacant land sales, the Sales Comparison method is a simple correlation of unit comparison, such as square foot divided by sale price.

However, the absence of adequate vacant land sales in a given neighborhood requires the appraiser to consider other methods, primarily the Land Residual option. This is particularly a common practice in the City of Pittsburgh where vacant land sales are scarce in a number of neighborhoods.

The Allocation technique, which attributes some percentage of sale prices to the land portion, can also be used, but is generally considered to be less reliable unless it is used in proper circumstances, such as a developing subdivision.

During the Allegheny County Revaluation Project ("Revaluation"), Sabre Systems ("Sabre") utilized cutting edge technology. The Manatron Sabre Market Data Analysis

(SMDA) 2000 Computer Assisted Mass Appraisal (CAMA) system to generate both building and land values. SMDA uses property and neighborhood characteristics, time-adjusted comparable sales, and an integration of computer analytical techniques to generate equitable and defensible property valuations. SMDA's user defined cost and depreciation tables consider a multitude of variables for the most accurate property values.

Sabre spent extensive time and energy delineating approximately 1,800 different neighborhoods within Allegheny County. Sabre used SMDA to assist in valuing the land component of the total property value by developing neighborhood Computer Assisted Land Pricing (CALP) tables that include: land lot type, base land rate, incremental and decremental land rates, to produce a base lot value.

Sabre developed the CALP tables by appraisal analysis and neighborhood boundary delineation. The individual land rates for each neighborhood are established using comparable sales, abstraction, allocation, and subdivision development techniques. The individual base lot value may be adjusted by appraisers, in the review process, for numerous possible influences to produce the final land value estimate.

Final land values can be and are often further adjusted throughout the informal discussions and formal appeals to correct any individual errors.

II. NEIGHBORHOOD DELINEATION

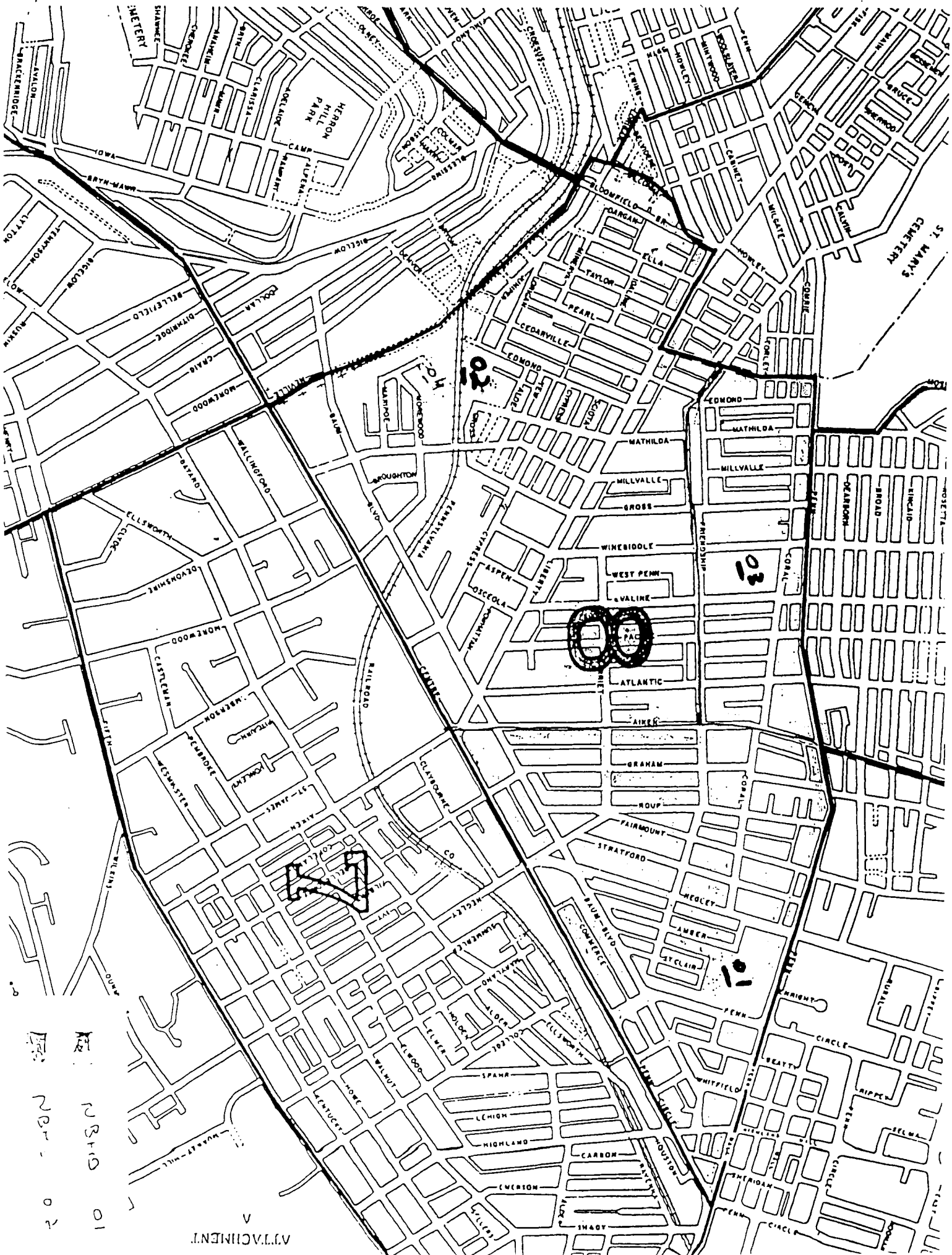
Neighborhood delineation is a critical step in the mass appraisal process. In Allegheny County, the Neighborhood Delineation process resulted in approximately 1,800 residential neighborhoods. The process requires that areas be defined that

exhibit a high degree of homogeneity, in governmental, social, economic, and physical characteristics. Neighborhood boundaries are shown on land valuation or neighborhood maps (example attached as Attachment "A"¹) during a physical inspection in the field. Sabre appraisal personnel drove virtually every street and roadway in Allegheny County during this stage of the project.

Appraisers identify and record specific data about each neighborhood such as: common amenities, characteristics, restrictions and boundary lines. These factors are recorded on Neighborhood Profile sheets (See Attachment "B") and define characteristics like type, trends, desirability, location, and common amenities.

It is important to remember that virtually all tables in the SMDA 2000 system are neighborhood driven. That is, the neighborhood code is referenced by the system for valuation instructions. Therefore, the development of neighborhood boundaries and profiles are paramount to the success of the system's ability to reflect current market values. Appraiser judgment and experience are key ingredients in the delineation of neighborhoods on any revaluation project. A limiting factor is that a sufficient number of validated sale properties must be in each neighborhood to allow for proper statistical and valuation analysis.

¹ Attached hereto are several documents generated during the Revaluation relating to the 8th Ward of the City of Pittsburgh. The attachments are all from the same Ward so that the reader may understand the documents generated for a particular area of the City.



ATTACHMENT

01

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ALLEGHENY COUNTY CAMP TABLE

8/1/00

ATTACHMENT
C

NEIGH	COD	REGIO	LAND	STD. SIZE	BASE	RINC	RATE	DEC	RATE	NEIGH	DESIR	Q. AREA
107C9	9	S1		5000	5		3.75	2.5	5		6	
107C9	9	S4		5000	5		3.75	2.5	5		6	
107C9	9	A1		22	165000		12375	82500	5		6	
107C9	9	A3		22	16500		12375	8250	5		6	
107C9	9	A4		22	165000		12375	82500	5		6	
10801		A9		1	3100				3			
10801		S1		5000	3.5		0.35	0.35	3			
10801		S3		5000	0.35		0.35	0.35	3			
10801		A1		1	31000				3			
10801		S4		5000	3.5		0.35	0.35	3			
10801		A3		1	15250				3			
10801		A4		1	31000				3			
10802		A9		1	2660				2			
10802		S4		5000	3		0.3	0.3	2			
10802		S3		5000	0.3		0.3	0.3	2			
10802		S1		5000	3		0.3	1.5	2			
10802		A1		1	26600				2			
10802		A3		1	13070				2			
10802		A4		1	26600				2			
10803		A9		1	3540				3			
10803		S3		5000	0.4		0.4	0.4	3			
10803		A1		1	35400				3			
10803		S1		5000	4		0.4	2.5	3			
10803		S4		5000	4		0.4	0.4	3			
10803		A3		1	17420				3			
10803		A4		1	35400				3			
10804		S4		5000	12.5		1.25	4.1	4			
10804		S1		2500	12.5		1.25	4.1	4			
10804		S3		5000	1.25		1.25	1.25	4			
10860		A9		1	3100				4			
10860		A3		1	15200				4			
10860		A4		1	31000				4			
10860		A1		1	31000				4			

A unique identification code is assigned for every neighborhood. The first 3 digits of the code are the municipality number as assigned by the County, i.e. 108 for the 8th Ward of the City of Pittsburgh. No neighborhood boundary can cross a governmental jurisdiction line, i.e. a municipality boundary automatically becomes a neighborhood boundary. This includes ward boundaries within the City of Pittsburgh.

The primary function of neighborhood delineation is for the appraisal of land. When the Land Valuation Module of the SMDA 2000 system is utilized, the first necessary item is the unique neighborhood code number, which directs the program to the appropriate pricing tables. The system then utilizes parcel specific information that has been previously collected and entered into the computer for estimating the Land Value.

III. BUILDING REPLACEMENT COSTS

One of the primary methods used in the appraisal of land on the Allegheny County Revaluation Project is the Land Residual Technique. In order to arrive at an estimated land value, the appraiser subtracts depreciated building value estimates from sale prices. This method requires that the appraiser have an accurate estimate of building value to develop land residual values. An elementary understanding of the Cost Approach is therefore necessary.

The Residential Cost Module of the SMDA 2000 system has complex cost data rates built into multiple tables to allow the appraiser to estimate Replacement Costs of residential property. There are many property characteristics reflected in the cost estimates. Some of these are square footage, exterior wall types, story height,

basement, etc. The list is extensive and reflects virtually any type construction the appraiser might encounter.

The cost tables allow the computer to quickly calculate replacement costs for hundreds of property characteristics on improvements virtually at the click of a button. Sabre developed the tables in the Cost System especially for Allegheny County based on local construction customs and costs.

Once a replacement cost is developed, depreciation must be applied to account for factors such as the age, condition, and desirability of the improvement. SMDA contains depreciation tables that allow varying rates of depreciation to be applied to different structures.

Once the replacement cost new less depreciation value ("RCNLD") is developed, it is subtracted from a given total sales price, resulting in a remaining amount ("residual") which is used as the land value estimate. For a 5,000 square feet parcel, an example of this would be:

Property Sale Price	\$100,000
RCNLD of Building	\$ 75,000
Attributed to Land	\$ 25,000 (Land Residual)
$\$25,000 / 5,000 \text{ sf} = \$5.00 \text{ per square foot}$	

The more accurate the building estimate of value the more confident the appraiser can be in the land value estimate. Again, proper appraisal judgment and careful application of known factors must be emphasized.

IV. COMPUTER ASSISTED LAND PRICING TABLES (CALP)

CALP tables assist the appraiser in accounting for economies of scale when valuing land. In other words, as the size of a parcel increases, the price per unit of

comparison decreases. For example, most buyers will pay a higher per acre price for one acre of land versus ten acres.

The CALP tables are designed to recognize this influence. Attachment "C" is the CALP table for the 8th Ward. As one can see, the tables include a base rate, an incremental rate, and a decremental rate. There is also a standard or base size lot developed. For Residential property in Allegheny County, including the City of Pittsburgh, all land up to one acre in size is appraised on a square foot unit of comparison basis.

All lots are identified as to "type" and "size" within a particular neighborhood. Attachment "D" contains a description of the various "types" as well as a more expansive discussion of the CALP tables. In the first step of the CALP program, the base lot multiplied by the base rate equals the base lot value for the neighborhood. If the subject lot being valued is larger than the base lot, the *incremental* rate is applied to the amount *over* the base size and added to the base lot value. If the subject lot being valued is smaller than the base lot, the *decremental* rate is applied to the amount *under* the base size and subtracted from the base lot value.

For example, in neighborhood 10801, which is neighborhood one in the 8th Ward of Pittsburgh, for an S1 type lot, the developed CALP table shows:

Base Lot = 5,000 sf
Base Rate = \$3.50 psf
Incremental Rate = \$.35
Decremental Rate = \$.35

Therefore, in this neighborhood the base lot value *always* starts at \$17,500 (5,000 sf x \$3.50). If the lot was 6,000 sf, the excess 1,000 sf is multiplied by \$.35 and the resulting total is \$17,850. If the subject were 4,000 sf, the deficient 1,000 sf is

Undeveloped

Potential building site

Water view

Full or partial view of the river

Condo land

Land allocation for condo unit i.e. SFLA size

Open land

Tillable or pastureland

Wood land

Uncleared wood land

Waste land

Wet land, swampland, ledges, ravines, not suitable for building or agricultural use

Homesite

Dwelling site, not used

Water front

Actual amount of frontage abutting the water i.e. 50'

multiplied by \$.35 and the resulting total is \$17,150. The results demonstrate the economy of scale theory:

$$\begin{aligned} \$17,150 / 4,000 \text{ sf} &= \$4.29 \text{ psf} \\ \$17,500 / 5,000 \text{ sf} &= \$3.50 \text{ psf} \\ \$17,850 / 6,000 \text{ sf} &= \$2.98 \text{ psf} \end{aligned}$$

Obviously, a change in any of the CALP components like the base size, base rate, incremental, or decremental factors can have a significant impact on the final value calculation. It must be understood that CALP limits the appraiser to one base size, one base rate, one incremental, and decremental rate for each lot type, per neighborhood. Before these base components were established in the Allegheny County Revaluation Project, Sabre conducted a careful analysis of sales to achieve consistent and uniform rates to produce credible and reliable results.

For instance, a comparative calculation was conducted to determine the average lot size within each neighborhood. Every lot within each neighborhood was arrayed by size to determine a mean and median lot size. Though this exercise suggests that selection of a base size could mathematically be almost anything, for consistency purposes, 5,000 square feet is a common standard or base size throughout many neighborhoods in the City of Pittsburgh.

Consider the following example.

$$\begin{aligned} \text{Lot 1} &- 4000\text{sf} \\ \text{Lot 2} &- 4500\text{sf} \\ \text{Lot 3} &- 5000\text{sf} \\ \text{Lot 4} &- 5500\text{sf} \\ \text{Lot 5} &- 6000\text{sf} \\ \text{Mean} &= 5000\text{sf}, \text{Median} = 5000\text{sf} \end{aligned}$$

The next step in the CALP development is the selection of a base rate. Either

vacant land sales, residual, or allocated land values, were compiled to determine an average rate per square foot. As an example, this analysis resulted in a base rate of \$3.50 for neighborhood 10801. This rate can and does vary from neighborhood to neighborhood depending on the market or sale prices. Using the previous five lots, a simple example shows:

	Amount of sale price	Lot	Indicated
	<u>Attributed to land</u>	<u>Size</u>	<u>PSF Rate</u>
Lot 1	\$12,000	4000	\$3.00
Lot 2	\$14,625	4500	\$3.25
Lot 3	\$17,500	5000	\$3.50
Lot 4	\$20,625	5500	\$3.75
Lot 5	\$24,000	6000	\$4.00

Mean Rate = \$3.50, Median Rate = \$3.50

Incremental and Decremental rates are developed in much the same manner. The above is obviously a textbook example and actual sales data does not often work this way in the marketplace. Appraisal judgment and proper application are crucial elements in land appraisal. However, the example clearly demonstrates the theory of the CALP development and calculation process.

V. REVIEW AND ADJUSTMENT

Construction of the CALP tables is the foundation of the mass appraisal process. The tables are designed to represent what is typical or "normal" for the neighborhood.

However, there are other processes in place to further refine the values. Prior to a final value, individual adjustments for a multitude of reasons may be necessary on a parcel by parcel basis.

After Sabre developed the initial CALP tables, the entire appraisal file, for every neighborhood, was run in a batch cost mode to calculate estimated land and building values for every parcel in the neighborhood. At that point, trained appraisal staff, armed with the appraisal documents, physically reviewed every parcel for a variety of individual influences including, but not limited to: (a) Topography; (b) Street / Roadway Types; (c) Location; (d) Shape / Size; (e) View; (f) Restrictions; and (g) Flooding.

The adjustments are made on a percentage basis and expressed as a percent good factor in the SMDA 2000 system. These adjustments are described and explained in much greater detail in Sabre's Residential Cost Review Manual, excerpts of which are appended hereto as Attachment "E". With varying factors such as neighborhood code, base lot size, individual lot sizes and individual adjustments being made (or at least considered) on every parcel, it is easy to see why a simple square footage comparison between properties may lead to an improper conclusion as to their relative values.

Proper appraisal practice² requires that review appraisers reflect any unique characteristics with atypical neighborhood physical or economic adjustments. This process was conducted on all 500,000+ residential properties in Allegheny County. Any

² Land valuation methodology excerpts from Eckert, Joseph K., Property Appraisal and Assessment Administration, published for The International Association of Assessing Officers is attached hereto as Attachment "F."

discrepancies or rate inconsistencies discovered during the Review process were brought to the attention of supervisory personnel and appropriate action taken, including recalibration of CALP tables, or redefinition of neighborhood boundaries, if necessary. The primary goal of the Revaluation Project is equalization. Therefore, proper judgment and consistent application of individual adjustments are always strongly recommended. The process of refining and adjusting values as outlined above continued through the Informal Review phase with the property owners.

VI. CONCLUSION

Given the unique diversity of Allegheny County and the City of Pittsburgh, it would be unrealistic to think that every table and every final value is perfect. It is recognized that individual problems exist and will continue to be addressed throughout the appeals process. That is to be expected on any Revaluation Project, particularly one of this magnitude.

Sabre would like to emphasize that, as with any revaluation, there is an annual maintenance aspect that is a vital phase to the valuation of both land and buildings. This phase is possibly being overlooked. This process requires an annual review of the values by way of market studies and annual adjustments, where indicated. The County has the authority and the obligation to continue to refine and improve the quality of the tax roll every year.

Sabre is happy to provide this brief overview in an effort to promote a clearer understanding of the complexities and intricacies of the massive Revaluation effort. Hopefully, this material can assist City leaders and the public to better understand their land valuation.

Identification

Boundary By _____
Revision By _____
Rating _____

6 TYPE	<u>2</u>	1. Inner City 2. Urban 3. Suburban 4. Village 5. Rural
7 OCCUPANCY	<u>1</u>	1. Sin. Fam. O/R 2. Two Fam. 3. Mult. 4. Res./Apt. 5. Res./Com.
8 EST. VACANCY	<u>1</u>	1. 0-10% 2. 11-30% 3. Over 30%
9 DENSITY	<u>3</u>	1. Sparce 2. Low 3. Medium 4. High
10 TREND	<u>3</u>	1. Declining 2. Transitional 3. Static 4. Improving
11 DESIRABILITY	<u>3</u>	1. Poor 2. Fair 3. Average 4. Good 5. Very Good
12 SPECIAL	<u>5</u>	1. Estate 2. Resort 3. Waterfront 4. Historic 5. Other
13 MEDIAN VALUE	<u>6</u>	1. 0-15M 2. 15-30M 3. 30-50M 4. 50-80M 5. 80-120M 6. Over 120M
14 TYP. DWEL. QUALITY	<u>3</u>	1. E 2. D 3. C 4. B 5. A
15 TYP. DWEL. CONDITION	<u>4</u>	1. V.P. 2. P. 3. F. 4. Avg. 5. G. 6. V.G.
16 TYP. DWEL. AGE	<u>6</u>	1. New-10 2. 11-15 3. 16-25 4. 26-40 5. 41-50 6. 51-Older

17 UTILITIES	<u>3</u>	1. None	2. Substandard	3. Standard
18 SHOPPING	<u>2</u>	1. Fair	2. Average	3. Good
19 ROADS & HIGHWAYS	<u>2</u>	1. Fair	2. Average	3. Good
20 PUBLIC TRANSPORTATION	<u>3</u>	1. Fair	2. Average	3. Good
21 SCHOOLS	<u>2</u>	1. None	2. Substandard	3. Standard
22 OTHER	_____	_____	_____	_____
23 OTHER	_____	_____	_____	_____
24 OTHER	_____	_____	_____	_____
25 OTHER	_____	_____	_____	_____

26 TAX RATE	_____	1. Low	2. Average	3. High	
27 ZONING	_____	1. None	2. Consistent	3. Inconsistent	
28 EASEMENTS	_____	1. None	2. Normal	3. Restrictive	4. Nuisance
29 OTHER	_____				

Liberty Ave. Bann Rd / Carter Ave. West Penn Hospital
located in Center of Ward 8

LAND VALUATION CALP TABLES

Allegheny County has been segregated into approximately 2,000 residential neighborhoods for valuation purposes. Each of these neighborhoods will have base land values for all land types i.e. primary, undeveloped residual, etc. These land rates were developed through analysis and are intended to represent the "norm" of the NBHD. Individual adjustments for a variety of reasons may be required on an individual basis.

Each NBHD will have a base lot size, a base rate, an incremental rate and a decremental rate. The calculations work like this:

Square Feet

Base lot size:	5,000 sq.ft. (will differ by NBHD)
Base lot rate:	3.00
Incremental rate:	.30
Decremental rate	.50

Example 1: Actual lot size 5,000 sq.ft. @ 3.00 = \$15,000

Example 2: Actual lot size 6,000 sq.ft. @ * = \$15,300

- 5,000 sq.ft. @ 3.00 = \$15,000

- 1,000 sq.ft. @ .30 = \$300

TOTAL = \$15,300

NOTE: If the above example were located on the river with 50' of frontage

Add - wff 50' @ \$600 = \$30,000 or \$45,300

Example 3: Actual lot size 4,000 sq.ft. @ * = \$14,500

- 5,000 sq.ft. base @ 3.00 = \$15,000

- 1,000 sq.ft. (missing) @ .50 = (\$500)

TOTAL = \$14,500

Acreage

Base lot is always one acre

Base lot rate = 25,000 (example only rates will vary)

Incremental rate = N/A Size adjustment

Decremental rate = N/A not less than 1 acre

Example 1: Actual lot size 1.0 acres @ 25,000 = \$25,000

Example 2:	Actual lot size 5.0 acres @ •	=	\$35,000
	*5 acres @ 25,000 = 125,000 – 72%		
	size adjustment	=	\$35,000
Example 3:	Actual lot size 40.0 acres @ •	=	\$120,000
	*40 acres @ 25,000 = 1,000,000 – 88%		
	size adjustment	=	\$120,000

The following land categories are in place for use on the Revaluation Program.

S = Sq. Ft.; A = Acres; W = Waterfront or Waterview

Code	Description
S0/A0	No land
S1/A1/WFA/WFS/WV1/WVA	Primary site
S2/A2	Secondary site (not used)
S3/A3/WV3/WFR	Residual or Excess
S4/A4/WV4	Undeveloped
WV1 thru WV4	Waterview
S6/A6	Condo land
A7	Open land (till/pasture)
A8	Wood land
A9	Waste land
AH	Homesite (not used)
WFF	Water front (linear foot)

NOTE: 1) Type codes A7 and A8 may be used in the remote areas of the County.

2) All parcels containing 10 acres or more will have 5% of the land assigned to A9 waste land.

Definition of Land Types

Type	Definition
No Land	Building on leased land i.e. mobile home
Primary site	Generally considered to be the home site
Secondary site	Not used
Residual	Excess or non-buildable land

GROUP	CODE	DESC
LANDCODE	A0	No Land
LANDCODE	A1	Primary Site
LANDCODE	A2	Secondary Site
LANDCODE	A3	Residual
LANDCODE	A4	Undeveloped
LANDCODE	A6	Condo Land
LANDCODE	A7	Open Land
LANDCODE	A8	Woodland
LANDCODE	A9	Wasteland
LANDCODE	AH	Homesite
LANDCODE	G1	Site Value (Flat)
LANDCODE	S0	No Land
LANDCODE	S1	Primary Site
LANDCODE	S2	Secondary Site
LANDCODE	S3	Residual
LANDCODE	S4	Undeveloped
LANDCODE	S6	Condo Land
LANDCODE	WFA	Water-Front Acres
LANDCODE	WFF	Water-Front Frontage
LANDCODE	WFP	Water-Front Primary SF
LANDCODE	WFR	Water-Front Residual SF
LANDCODE	WV1	WaterView Primary SF
LANDCODE	WV3	WaterView Residual SF
LANDCODE	WV4	WaterView Undevelop SF
LANDCODE	WVA	WaterView Acres

LAND INFLUENCE FACTORS

General

The technique of land pricing, as described in other portions of this section, provides for the development of unit land rates for all classes of real property within a given area or neighborhood. These land rates are developed from verified, recent sales and are expected to reflect market value for various prevalent land types as of the effective valuation date for each given area.

Land rates will be developed for parcels in the following categories –

Lot size - Water front parcels only

Square foot - (up to 1 acre)

Acreage - (1 acre or more)

It is significant to point out that assigned land rates are based on typical or normal conditions for that class of property and land type within a specific neighborhood or area. It is likely that some number of specific parcels, within a neighborhood, will have unique factors affecting the value of that land parcel. These factors, or "Land Influences," may affect the value of a specific parcel beneficially or detrimentally, i.e. plus or minus, compared to the norm for the neighborhood.

Proper appraisal practice indicates that a land rate adjustment or "Land Influence Factor" should be applied by the review appraiser to properly reflect the unique considerations for a parcel with significant physical or economic characteristics, deviating from the normal conditions reflected by the neighborhood land rates.

The following guidelines have been developed based on research of local market conditions, general appraisal experience and tradition, with consideration given to the various persons responsible for application of this manual.

As the primary goal of a revaluation program is equalization, it is strongly recommended that users of this manual exercise proper judgement and caution in the application of land influence factors.

Land Influence Factor Guidelines

Code – 0 (None) Un-Improved

No adjustment required. The value of the site improvements (site preparation, utility connections, well, septic, etc.) are included with the building value. Proposed subdivisions (paper streets) price as residual S3 or A3.

Code – 1 Topography

This category is reserved as a reviewer's judgement of the degree of difficulty due to poor topography in erecting a suitable improvement on the subject parcel, or reflecting an allowance on improved property due to topography conditions.

A topography influence may have to be applied in significant cases to un-improved and improved lots or tracts where poor topography represents an actual detriment to the presumed utilization of the parcel.

Topography factors include irregular land contour, poor drainage, potential subsidence, sub-surface rock ledge, potential erosion, far above or below street grade.

Topography Influence Factor Guide

Street Topography – it is common in Allegheny County to see one side of the street much higher than street level, and the other side much lower or level with the street. When this condition exists and it is not universally high or low throughout the NBHD adjust for topography as follows:

Above/Below Street Level	Condition	Factor
	6± feet or > alley access	- 10% or 90% Good
	6± feet or > no alley access	- 15% or 85% Good
	12± feet or > alley access	- 15% or 85% Good
	12± feet or > no alley access	- 20% or 80% Good
	25± feet or > alley access	- 20% or 80% Good
	25± feet or > no alley access	- 25% or 75% Good

NOTE: Be consistent with your application within a given block.

Utilization – Due to topography conditions many improved lots have less than full utilization of the land. Use the following guide for proper adjustments:

Condition	Factor
Full or near full utilization	No adjustment

Approx. 1/2 utilization (steep cliff, etc.) - 10 % or 90% Good
 Foot print utilization (steep cliff, etc.) - 20 % or 80% Good

Vacant Parcels With Topography Considerations (Sq.Ft. Lots)

Normal	Problem corrected or not significant	No adjustment
Minor	Moderate handicap to full utilization of the lot, but correctable	- 20 % or 80% Good
Major	Problem is significant (steep or fill required) but correctable	- 50 % or 50% Good
Unbuildable	The problem is so severe it is not feasible to attempt to correct and develop the lot	- 90 % or 10% Good

Rear land not useable due to severe topography condition price as residual with a – 75% or 25% Good factor.

Swamps, wetlands, cliffs treat as wasteland if acres. If square foot use residual land type – 50% or 50% Good.

Code – 2 Street Road

Many streets throughout greater Pittsburgh are two way but only one car can pass because the street is narrow and parking is permitted on both sides of the street. If this condition is the rule and not the exception then no adjustment is warranted. However, if one or a few streets are effected by this condition but not all streets in the NBHD, a negative adjustment of – 5% or 95% Good will be made to reflect the street width condition.

Code – 3 Location

Location land influence factor is normally a negative adjustment to recognize the loss of value due to either (a) influence from outside the property which is considered detrimental to the property value . . . heavy traffic influences, aircraft traffic noise, undesirable nuisances adjacent to the property, commercial or industrial encroachment; or (b) economic variations within a given neighborhood.

LOCATION INFLUENCE FACTOR GUIDE

Condition	Factor	% Good
Airport take off path (primary)	- 25%	75%
Airport take off path (secondary)	- 10%	90%
Under approach path	- 10%	90%
Abutting business property	- 15%	85%
Abutting landfill, salvage yard, mining operation	- 25%	75%
Abutting major interstate	- 15%	85%
*Located on busy residential street	- 10%	90%

*Assumption is the balance of the NBHD is not on a busy street therefore a heavily traveled street would be less desirable than the balance of the NBHD. Those parcels with NBHD numbers ending in 60 to 69, are assumed to be busy streets no further adjustment is required for that condition.

Code – 4 Shape or Size

Shape or size factor is normally a negative adjustment to account for loss of value to a parcel due to highly irregular shape or insufficient size for the presumed utilization of the parcel.

Shape or size factor is a review judgment and may apply to all land types. The basis for any factor is a negative adjustment reducing the subject lot value to the amount and degree of land utility applicable for the presumed utilization.

Shape Improved Parcel The shape of the lot makes the property less desirable than the surrounding property i.e. triangle shape as opposed to rectangle. Allow a – 10% or 90% Good factor for shape.

Size Improved Parcel Not applicable, built into CALP table.

Vacant Parcel If size would prevent development due to zoning regulations, treat as residual land. This is often the case in many older NBHD's with small 30± foot lots or row house areas. Most if not all are unbuildable, therefore treat as residual land.

Code – 5

View Influence

This factor is a negative adjustment for lots or parcels where the land value is significantly enhanced by the presence of a scenic or waterfront view – when compared to similar lots in the area where no significant view is present. The base rate assumes an unobstructed view; therefore obstructed views will have a negative adjustment.

VIEW INFLUENCE FACTOR GUIDE

	Condition	Factor	%Good
Partial obstruction	The subject property has a minor detriment due to an obstructed view. Example: The subject parcel has a view, but the view is partially or potentially obstructed by other structures or foliage.	- 25 %	75%
Major Obstruction	The subject property has a significant detriment due to an obstructed view.	- 40 %	60%
Unobstructed	The subject lot has a desirable water or scenic view (but not actually a waterfront lot) and no likelihood exists for structures to be built which obstruct the view.	N/A	

Code – 6

Restrictions

A negative land influence adjustment for restrictions is applicable for cases where the property is subject to a legal or physical restriction to its utilization. Typical examples would include – utility easements, such as power lines and sewer lines; zoning or deed restrictions to the property, limiting the utilization to a less than normal use for typical lots in the neighborhood; physical barriers to the property, such as bridges, highway medians, fence or abutments, and when on street only parking is not atypical for the NBHD.

RESTRICTIONS INFLUENCE FACTOR GUIDE

	Condition	Factor	% Good
Normal	No significant restriction to the property exists.	None	
Minor	A restriction of moderate significance, legal or physical, exists which causes the property to be less desirable than similar lots in the area which are not subject to this restriction, but does not prevent utilization of the property for the presumed use. This includes on street parking only when not typical for the NBHD	- 5%	95%
Major	A restriction of major significance, legal or physical, exists which causes the property to be restricted to a less than full utilization compared to similar lots in the area which are not subject to this restriction. Example: Power lines bisect the lot, preventing the building of a dwelling, but still suitable for a garage or secondary structure.	- 90%	10%
Un-buildable	A restriction of very severe impact, legal or physical, exists which causes the property to be rendered virtually un-buildable or unusable for any significant utilization compared to similar lots in the area which are not subject to this restriction. Example: Lot rendered non-accessible by a highway right-of-way. Classify as residual land, if sq.ft.	- 50%	50%
	If acres, class as a 4	- 90%	10%

Code – 6 Economic Mis-Improvement/Restrictions

This category is reserved as a reviewer's judgment of the comparative loss of value due to the presence of a structure, which represents an economic mis-improvement to the land (either under-improvement or over-improvement). In essence, this judgment is expressing the appraiser's opinion that the existing structure represents an encumbrance to the full utilization of the land.

The application of a mis-improvement factor for Residential/Agricultural property is possible, but very rare. Most instances occur in Commercial or Industrial situations where market evidence indicates a different economic utilization of the land than the current utilization. It is important to recognize in the application of economic mis-improvement factors that the land is presumed to be valued on the basis of typical "highest and best" utilization and the existing structure is non-contributory to this most economical utilization. Obviously, vacant tracts are not encumbered by any structure; therefore, vacant tracts are not subject to economic mis-improvement factors.

Further, the appraiser should recognize that the economic mis-improvement condition is "curable," i.e., if the structure is removed, the previously applied economic mis-improvement factor is normally no longer applicable.

Typical examples include dwellings in areas converting to commercial development; gross under-improvement, such as an old warehouse located in an area where market evidence indicates modern office complex development.

FREQUENT FLOODING INFLUENCE FACTOR GUIDE

	Condition	Factor	% Good
Normal	The property is not subject to any potential flooding.	None	
Minor	The property is subject to potential flooding at rare or infrequent intervals which does not prevent development, but represents a potential hazard. Example: Land lying in a 10-year flood plain.	- 20 %	80%
Major	The property is subject to potential flooding at a frequency which should or does limit the development of the property to seasonal and/or marginal utilization.	- 50 %	50%
UN-BUILDABLE	The property is subject to potential flooding to a degree of frequency and severity that it is not prudent nor possible to utilize the land for permanent structures. Example: Reserved ponding or run-off area adjacent to lakes or rivers. Classify as residual land if sq.ft.	- 50 %	50%
	If acres Class as A4	- 90%	10%

Special Cases

Builders Lots	Will be valued in a manner similar to surrounding lots.
Rear Land	(No access) use residual land type - 50% or 50% Good code 6
Rear Land	(No access) unusable, use residual land type - 75% or 25% Good code 1
If acres, class A4	- 90% or 10% Good code 1

Land accessed through ROW	-10% or 90% Good Code 6
Flaglot Parcels	No adjustment
Woodland Standing Timber	No adjustment
Woodland Stripped or Destroyed by Fire	- 25% or 75% Good Code 6
Land Stripped Mined and Not Reclaimed	Value as wasteland
Stripped but Reclaimed	No adjustment
Quarry Pits	Value as wasteland
Non Buildable Side Yards	Value as residual
Water Front (Boat launching)	No adjustment
Water Front (No boat launching)	- 25 % or 75% Good code 6
Waterfront Access Lots (land, sq.ft. size, use residual rate)	No adjustment
Waterfront Access Lots Frontage On the Water	- 90% or 10% Good code 6

Parcel ID: 0010000000		Land Type: A1		Acres: 13.1606		Rate: 0.00		Sub-Total: 0.00	
Area: 13.1606		Rate: 0.00		Sub-Total: 0.00		Adjustments: 0.00		Total: 0.00	
Land Use: 010		Single Family		Code List		Characteristics & Adjustments			
Zone: 1				1 (Topography)		100%			
				2 (Street/Road)		100%			
				3 (Location)		100%			
				4 (Shape/Size)		100%			
				5 (View)		100%			
				6 (Restrictions)		100%			
				7 (Flooding)		100%			
Notes:									
Browse - [Selected Land Lines]									
Parcel ID		Land Type		Acres		Rate			
0001 A 00100 0000 00		A1 - Primary Site		13.1606		0.00			

SUMMARY

LAND AND BUILDING INFLUENCE/VALUATION GUIDE

Influence/Valuation type	Land(L) or Bldg(B)	% Good	Code
Dwelling located next to business	L - 15 %	85%	3
Dwelling located next to business	B Cond Factor	- 1	
Dwelling located next to major detriment	L - 25 %	75%	3
Dwelling located next to major detriment	B Cond Factor	- 2	
Airport take-off path (major)	L - 25 %	75%	3
Airport take-off path (major)	B Cond Factor	- 2	
Airport take-off path (secondary)	L - 10 %	90%	3
Airport take-off path (secondary)	B Cond Factor	- 1	
Brick Front	B \$6.00 per sq.ft.		
Stone Front	B \$7.00 per sq.ft.		
Well	B + \$2,000		
Septic System	B + \$3,000		
Multi-family dwelling	B + 5,000 in Features		
Row End	B - \$2,500		
Row Interior	B - \$4,000		
Abutting major interstate	L - 15 %	85%	3
Abutting major interstate	B Cond Factor	- 1	
Dwelling located next to street	B Cond Factor	- 1	
Dwelling 20± above street	B Cond Factor	- 1	

Dwelling 1/2 or > below street	B Cond Factor - 1			
Lots 6'± or > above/below street - alley	L	- 10 %	90%	1
Lots 6'± or > above/below street - no alley	L	- 15 %	85%	1
Lots 12'± or > above/below street - alley	L	- 15 %	85%	1
Lots 12'± or > above/below street - no alley	L	- 20 %	80%	1
Lots 25'± or > above/below street - alley	L	- 20 %	80%	1
Lots 25'± or > above /below street - no alley	L	- 25 %	75%	1
Condemned or boarded dwellings	B	- 99 %	Depr.	
Fire damaged dwellings (total)	B	- 0 value		
Fire damaged dwellings (major)	B	- 99 %	Depr.	
Fire damaged dwellings (partial)	B Cond Factor - 2			
Lot utilization Approx 1/2 usable	L	- 10 %	90%	1
Lot utilization Foot print usable	L	- 20 %	80%	1
Vacant parcels-normal topography(buildable now)	L	- No adj.		N/A
Vacant parcels-minor topography(buildable, handicapped)	L	- 20 %	80%	1
Vacant parcels-major topography(buildable) (major correction)	L	- 50 %	50%	1
Vacant parcels-unbuildable (use residual land cat.)	L	- 50 %	50%	1
Rear land-not usable (use residual land cat.)	L	- 75 %	25%	1
Rear land-usable (use residual land cat.)	L	- 50 %	50%	6
Swamp, wetland, cliffs (acres)	L	Wasteland		N/A
Swamp, wetland, cliffs-residual land cat.	L	- 50 %	50%	1

Street narrow-(not common to NBHD)	L	- 5 %	95%	2
Shape-(limits use less desirable but buildable)	L	- 10 %	90%	4
Size-(vacant parcel only) less than zone size	L	Residual		N/A
Heavily traveled residential street (not common to NBHD)	L	- 10 %	90%	2
Frequent flooding - Minor	L	- 20 %	80%	7
Frequent flooding - Major	L	- 50 %	50%	7
Frequent flooding – unbuildable (use residual land)	L	- 50 %	50%	7
If acres, class as A4	L	- 90 %	10%	7
Restrictions/Easements - Minor	L	- 5 %	95%	6
Restrictions/Easements (vacant only) - Major	L	- 90 %	10%	6
Unbuildable (classify as residual)	L	- 50 %	50%	6
If acres class as A4	L	- 90%	10%	6
Water/Scenic view unobstructed	L	- No adj.		N/A
Water/Scenic view minor obstruction	L	- 25 %	75%	5
Water/Scenic view major obstruction	L	- 40 %	60%	5
ROW access only	L	- 10 %	90%	6
Flaglot parcels	L	No adj.		N/A
Woodland standing timber	L	No adj.		N/A
Woodland stripped/fire damaged	L	- 25 %	75%	6
Strip-mined not reclaimed	L	Waste		N/A
Strip-mined reclaimed	L	No adj.		N/A
Quarry pits	L	Waste		N/A

Non-buildable side yards	L	Residual	N/A
Waterfront-launching abilities	L	No adj.	N/A
Waterfront-no launching abilities	L	- 25 % 75%	6
Waterfront-access lots (land)	L	Residual	N/A
Waterfront-access lots (water frontage)	L	- 90 % 10%	6

Split/Group/Grandchild: Report Held

Parcel ID	Land Type	Acres	Rate
00100 0000 00	A1 - Primary Site	13.1606	0.00

MULTIPLE LAND INFLUENCE FACTOR PROCEDURE

If only one land influence is used per land category no special process is required. For multiple land influences for say size, topography and restriction it is not accrued i.e.

Size	-	85%
Topo	-	20%
Restriction	-	10%
Total	-	115% ?

The proper procedure for multiple land influence entries is as follows using the example given above:

Type	Influence	Total Inf.
Size	- 85% % Good = 15%	- 85%
Topo	- 20% % Good = $\frac{x .80}{12}$	- 88%
Restriction	- 10% % Good $\frac{x .90}{10.8}$	- 89%

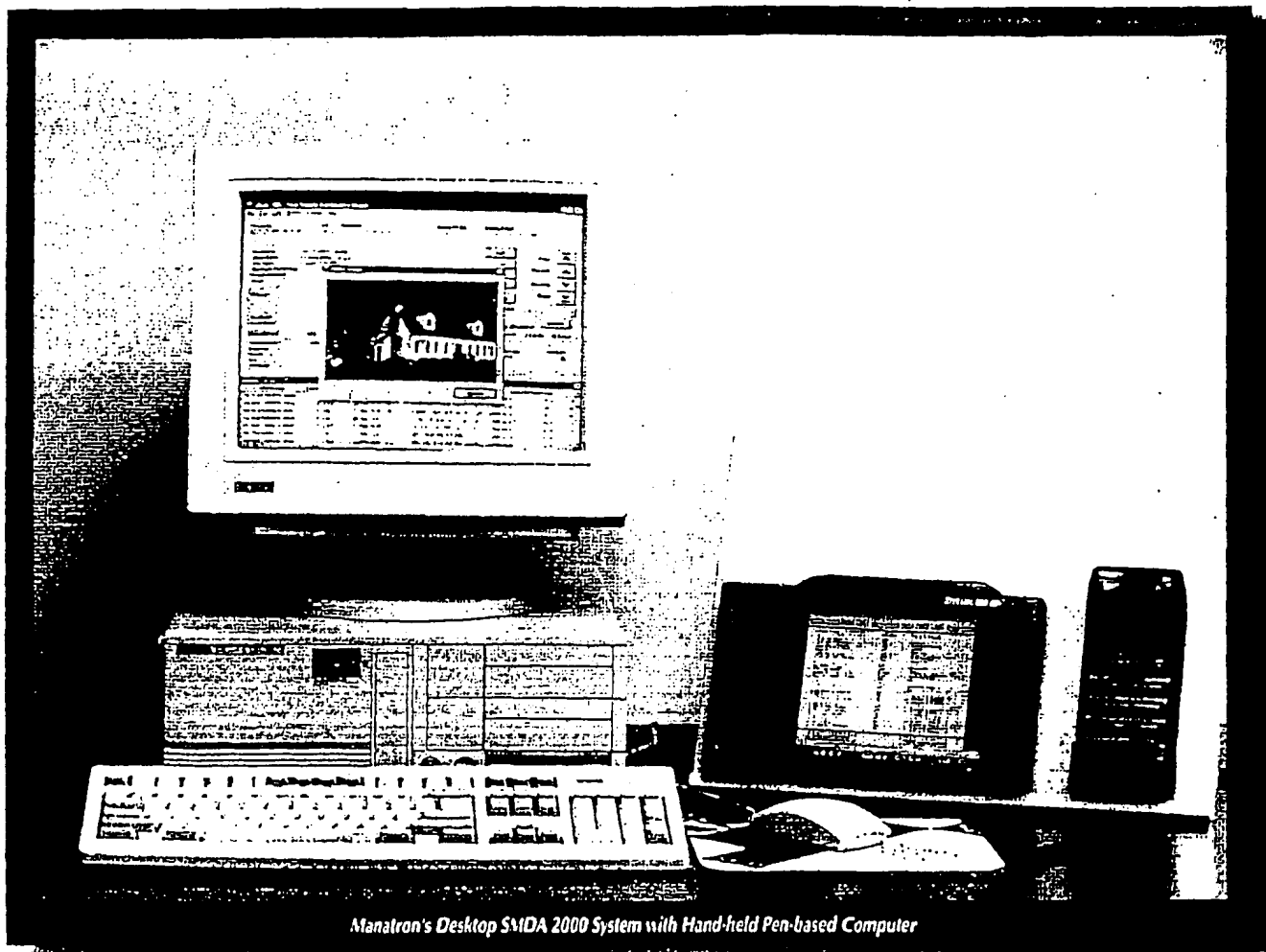
Simple rule is to multiply percent good X's percent good for each occurrence and subtract the final percent good calculation from 100 i.e.

$$.15 \times .80 \times .90 = 10.8 \text{ say } .11 \text{ subtracted from } 100 = 89 \% \text{ or } 11\% \text{ Good}$$

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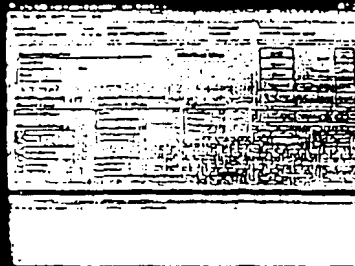
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System is ready to assist you
in generating equitable and
defendable property valua-
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and depreciation tables con-
sider all variables for the most
accurate property values.

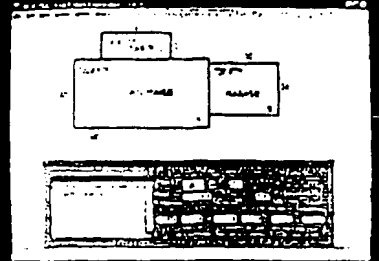


SMDA 2000 Maintenance (Land-Market Use)

SMDA 2000 FEATURES:

- Generation of the three accepted approaches to value including Cost, Market, and Income
- Finished product designed for the end-user
- User-definable table-driven valuation modules
- Marshall & Swift cost estimator for commercial and industrial properties

- Designated as "well designed" by the International Association of Assessing Officers
- Interactive processing



SMDA 2000 Maintenance (Sketch)

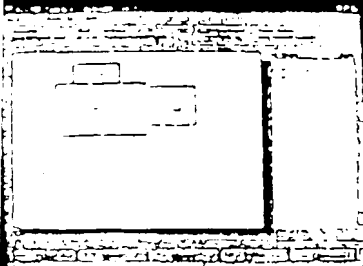
- Utilization of unit-in-place cost approach, comparable sale - dissimilarity market analysis, direct capitalization, and mortgage equity analysis
- Over 100 basic structure data elements
- User-modifiable depreciation tables
- Integrated sketch and data entry
- Flexible report writer capabilities
- Instant updating and verification of data
- Internal error-trapping which detects missing data or invalid input

ATRON

MASS APPRAISAL SYSTEM

extension in personal computer usage. Combining its ability to provide convenience and "user-friendliness" that has become synonymous with sophisticated computer-assisted mass appraisal methodologies.

- User-definable forms, property record card, valuation notice, appeals notice, etc.
- Touch screen design for public inquiry
- CAD/CAM-style sketch
- Appeals tracking
- Trending
- En masse update
- Parcel tracking with parent-child links, which includes combinations, splits, additions, and deletions
- "What if" analysis is accomplished on an isolated subset of the database with options of updating the database with the results

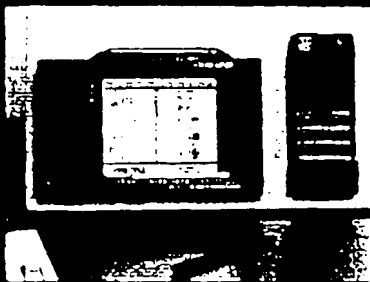


Public Access (Improvements Sketch)

CONTACT DATA COLLECTION:

- Hand-held Pen-based PC
- On-site data collection, entry

- Goes anywhere you go, weighs < 5 lbs.
- Handwritten character recognition for remarks



Hand-held Pen-based Computer

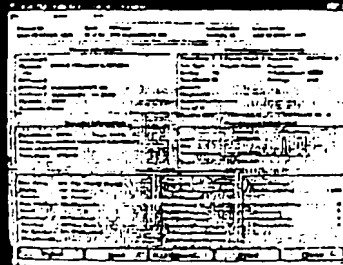
- Bitmap signature storage
- No codes, all English
- Generic listing format available
- Unlimited jurisdiction size
- Fully IBM compatible
- Built-in data transfer utility

OPERATING ENVIRONMENT:

- Client/Server Architecture
- Windows® 3.1x
- Windows NT™
- Windows® 95
- Qualified File Servers: Novell®, NT™, VAX™, Alpha™

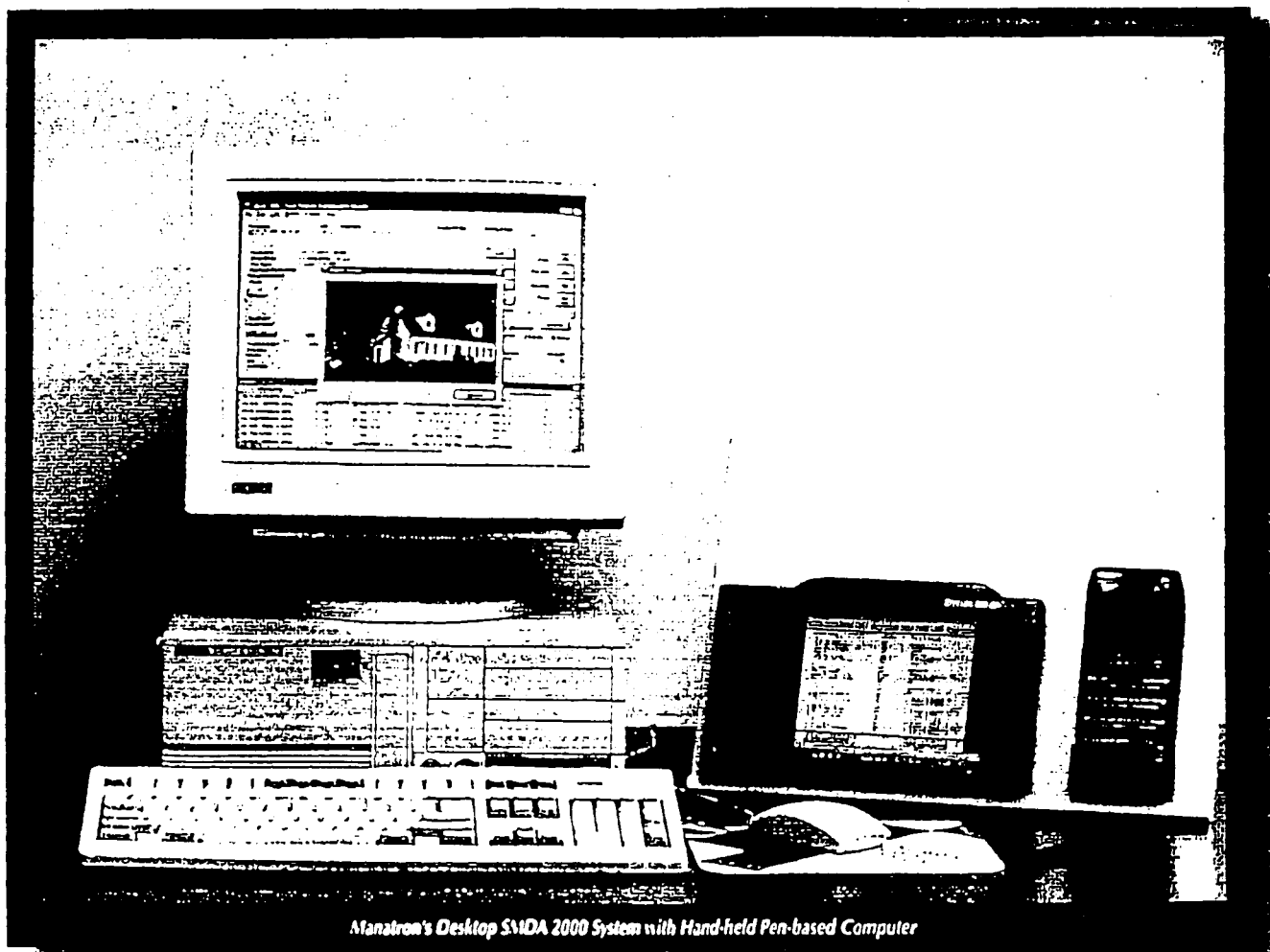
ADVANTAGES:

- Multi-tasking
- Graphical User Interface
- Query and Report Functions
- Video Imaging
- Compatible with many GIS systems
- Full Mouse and Pen-based Support
- Background Printing
- User-friendly and fast



Public Access (Base Parcel Information)

While many reports are predefined, such as statistical analysis and comparable sales analysis, the system comes equipped with a flexible report writer and data query techniques making user-definable inquiry and output as simple or as complex as your requirements dictate.



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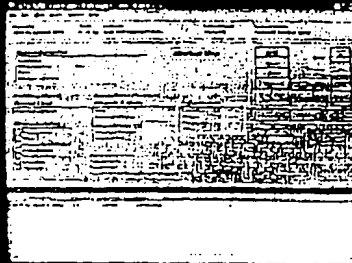
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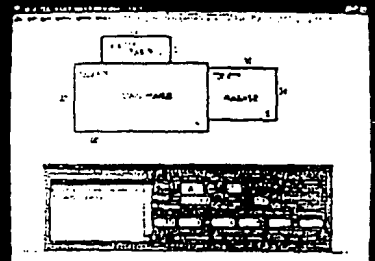


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