



Laying the Foundation for a Well Built Assessment

The Framework of Land Valuation

Where do we start?

The MGA instructs us to value “property” and defines it as

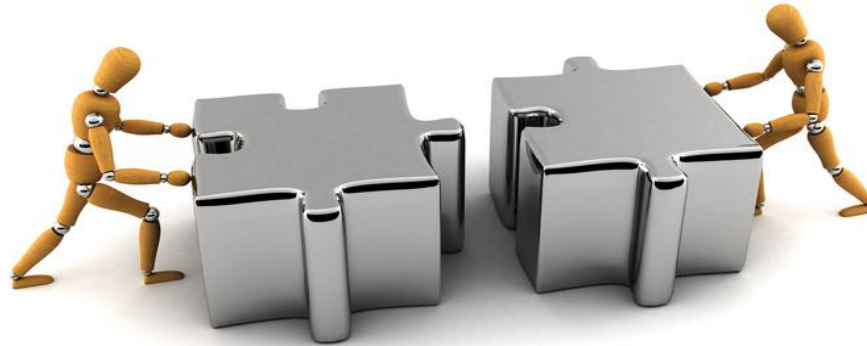
“a parcel of land”,

“an improvement”, or

“a parcel of land and the improvements to it”

Sec 289(1) & 284(1)(r)

Value can simply be looked at as a sum of two components:



PROPERTY VALUE =
LAND VALUE + IMPROVEMENT(S) VALUE
(Improvement Value = RCN – Depreciation)

8 Steps to Valuation:

- 1. Data Collection**
- 2. Market research**
 - Obtain value indicators
- 3. Sale Verification**
- 4. Property Type Classification**
 - Use Type Stratification
 - Location Stratification
- 5. Unit of Comparison selection**
- 6. Adjust Sales as necessary**
- 7. Analysis/Examination of Values**
- 8. Reconciliation/Application of Values**

Data Collection and Analysis

What kinds of data do we need?

- **General Data** (Economic Base Analysis)
 - Trends
 - Factors
 - Neighborhood Characteristics
- **Specific Data**
 - Site
 - Off-Site
 - Improvement
- **Comparative Data**
 - Costs
 - Sales

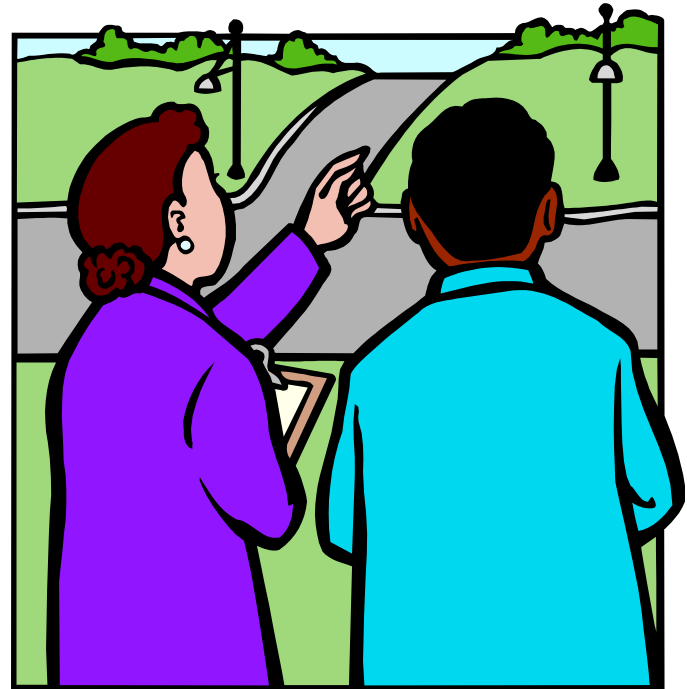


Economic Base Analysis

- An understanding of General Data is central to predicting changes in property values and future income streams.
 - The assessor must ensure reliance on the market as the best evidence of market value, in spite of the indications of economic base data.

Specific Data:

- Site Data:
 - What is it?
 - What do we collect?
 - Location
 - Units of Comparison
 - Zoning
 - Topography
 - Soil/Subsoil
 - Why is it important?



Specific Data (con't):

- Off-Site Data:
 - “Location Influences”
 - Lake/View Lots
 - Availability of Utilities (or not?)
 - Traffic flow/noise
 - Proximity for Non-Residential to transport routes, etc.

Comparative Data:



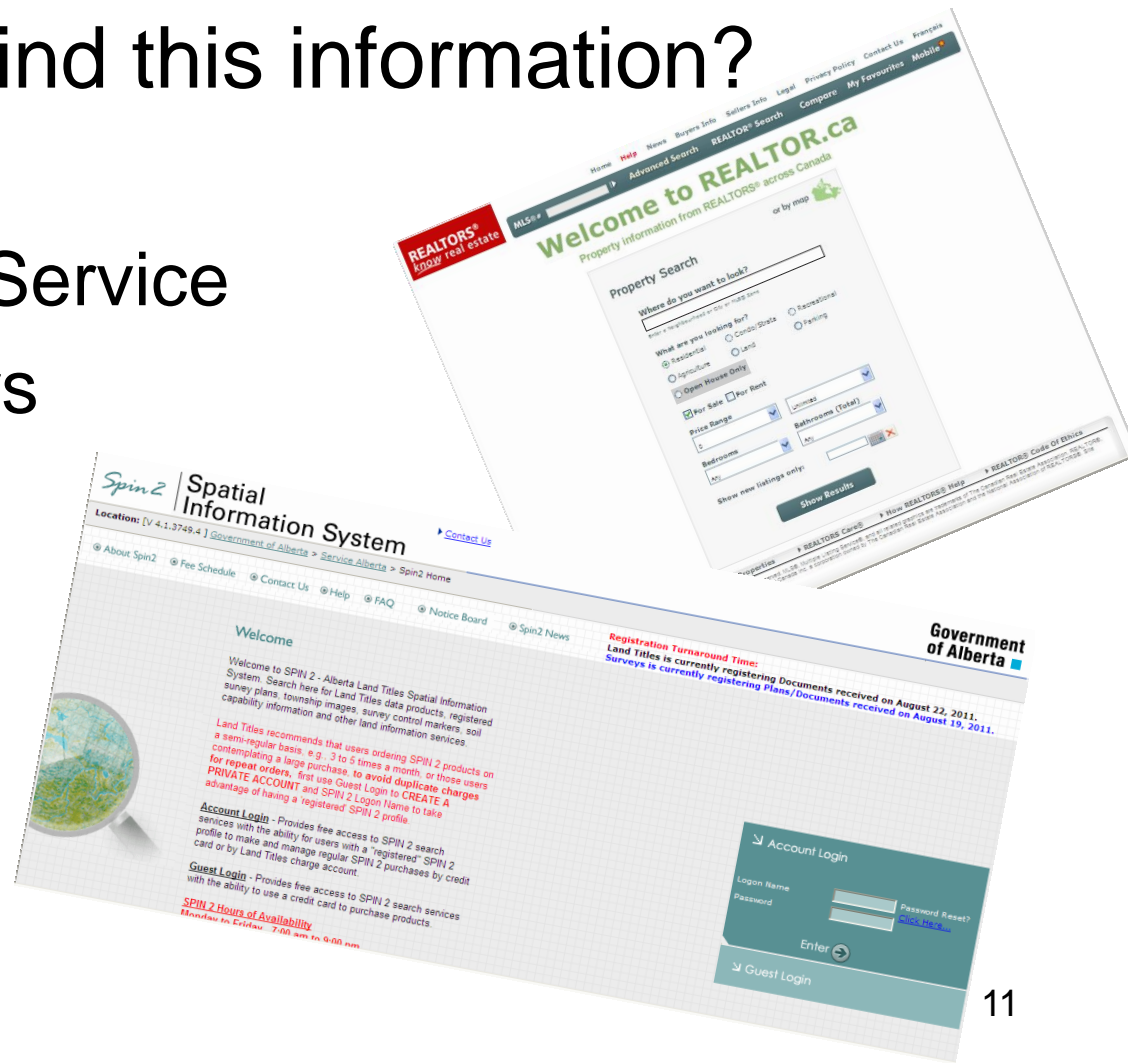
- Costs
 - Subdivision fees
 - Site Preparation
 - Servicing
 - Site Improvements

Market Research & Verification:

- What do we want to collect?
 - Vendor/Purchaser
 - Sale Price & Date
 - Location
 - Physical Details
 - Size, Servicing, Influences, Improvements pertinent info about each.
 - Financing
 - Chattels included, any other extraordinary conditions of sale?

Market Research & Verification (con't):

- Where can we find this information?
 - Land Titles
 - Realtors, MLS Service
 - Brokers/Bankers
 - Lawyers
 - Developers
 - Builders
 - Surveyors



Market Research & Verification (con't):

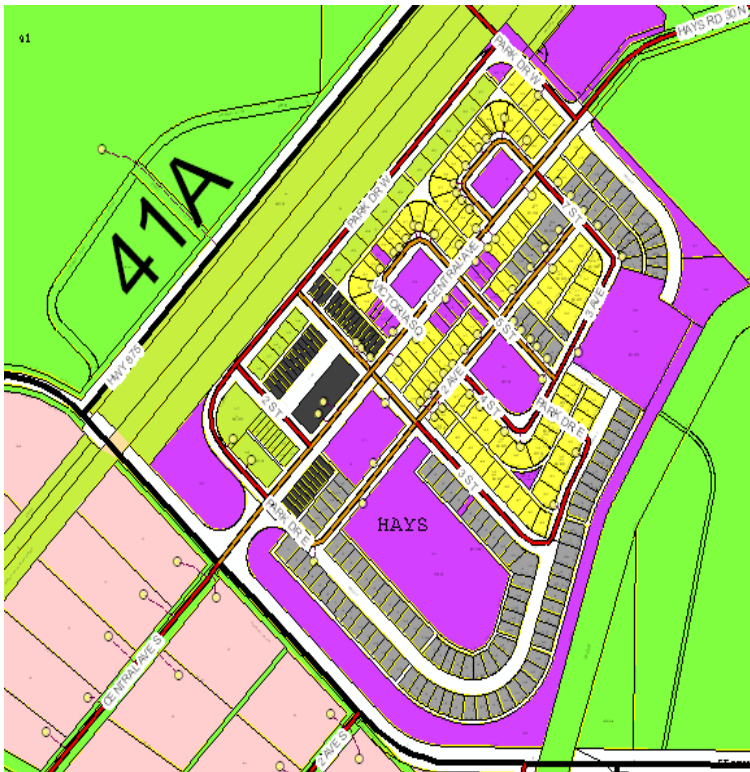
- How?
 - Physical Property Inspection
 - Phone Interviews
 - Surveys/ Real Property Reports
 - Transfer Documents (i.e. affidavits of value)
- Why?

Property Type Classification:

- The MGA and Regulations direct us to 'stratify' properties.
- Sec 297 outlines the minimum strata
 1. residential
 2. non-residential
 3. farm land
 4. machinery and equipment
- Highest and Best Use vs. Actual Use?

Property Type Classification (con't):

- Stratifications we typically use are:



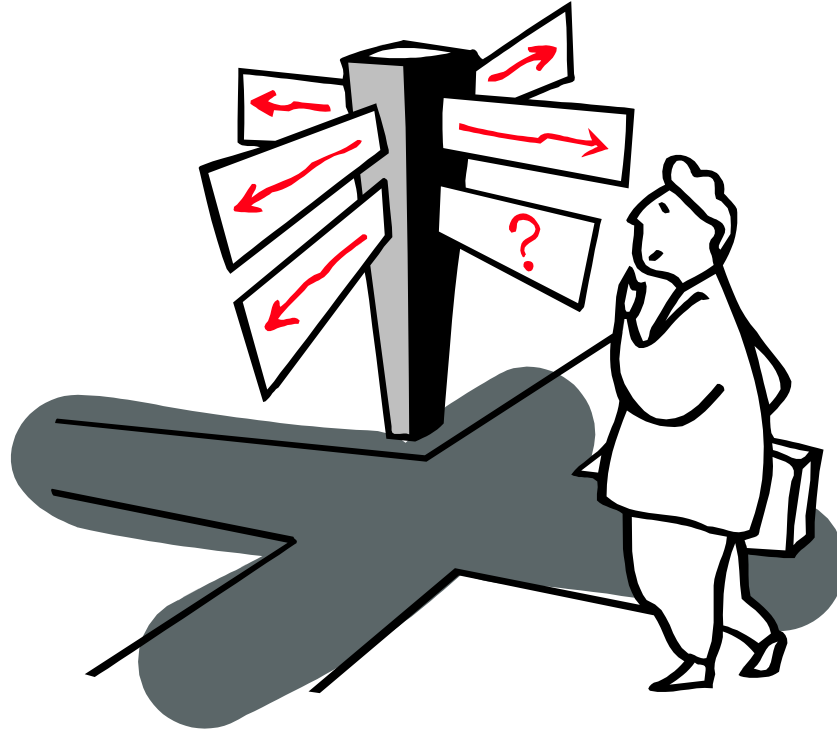
1. Property Classes (i.e. Residential, Multi-Family, Commercial, Industrial)
2. Vacant vs. Improved
3. Locations or Neighborhoods and/or Economic Zones
 - What's the difference?
 - What defines a neighborhood?
4. Property Types within a Class (i.e. SFD vs. Condo).
5. Model, Quality, Structure, Occupancy Types
6. Others?

Units of Comparison

- What are they?
- When and Why?
- How do we determine the appropriate unit?
 - When is one unit more appropriate than another?

Sale Adjustments:

- Why?
- What?
- When?
- How?
 - 3 ways
 - Specific Sequence of Adjustments

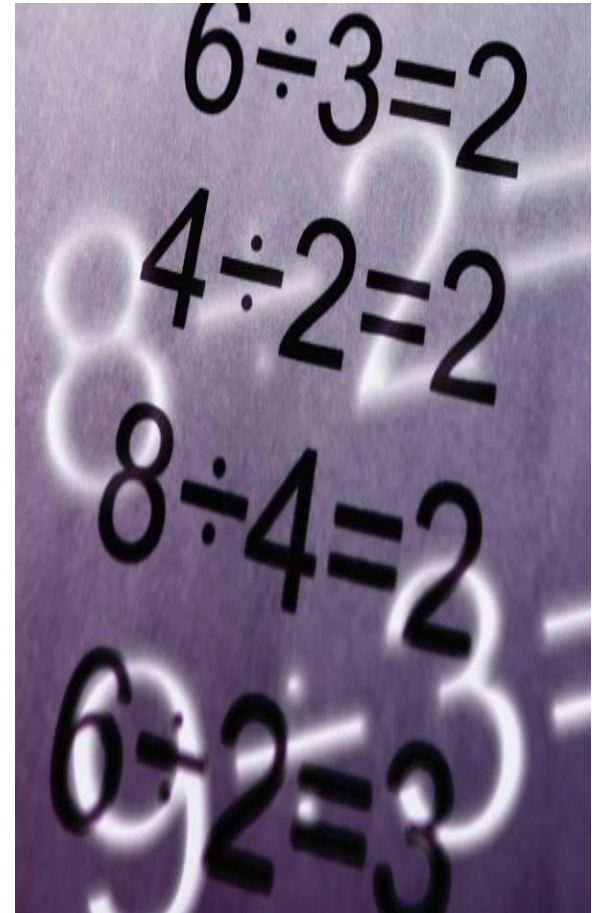


Analysis/Examination of Values:

- Matters Relating to Assessment and Taxation Regulation clearly defines “Market Value” as the valuation standard for a parcel.
- We are also instructed to assess using “Mass Appraisal” by the same Regulation

Analysis/Examination of Values (con't):

- There are 6 generally accepted methods of land valuation:
 1. Sales Comparison
 2. Allocation (Abstraction to the AIC)
 3. Abstraction (Extraction to the AIC)
 4. Anticipated Use or Development
 5. Capitalization of Ground Rent
 6. Land Residual Capitalization



Analysis/Examination of Values (con't):

- The Sales Comparison Method utilized in the Mass Appraisal of land can be divided further:



- Comparative Method
- Base-Lot Method



Analysis/Examination of Values (con't): Comparative Method

4 Steps of the Comparative Method



1. Group land by zoning &/or use type (class)
2. Determine average or typical 'per-unit' value for each group, usually by median sale price per unit.
3. Calculate COD to determine reliability of data. If not enough sales – consider combining property groups, adding more sales, and/or using residuals.
4. Once median values have been established apply to individual parcels and make minor adjustments for site specific influences.

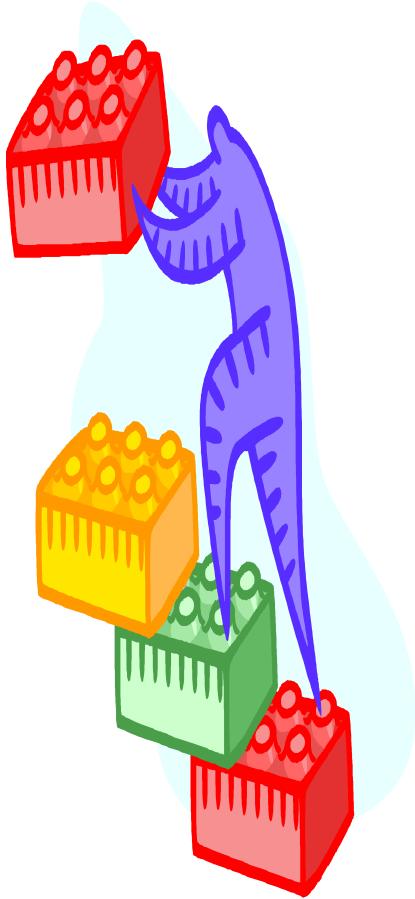
Analysis/Examination of Values (con't): Comparative Method

- Works well in areas where:
 - The primary variant is parcel size and other characteristics are highly similar.
 - There are an adequate number of sales to analyze.

Analysis/Examination of Values (con't): Base-Lot Method

4 Steps of the Base-Lot Method:

1. Set up a value for a typical, or “base” parcel in each group using sales comparison, this is now the ‘benchmark’ parcel.
2. The benchmark, or “base” lot, is now used to determine the values for individual parcels (it acts like a ‘subject property’).
3. Comparables are adjusted to the “base” lot (adjustments are based on paired sales-analysis).
4. Calculate measures of central tendency to gauge confidence in base lot value.



Analysis/Examination of Values (con't): Base-Lot Method

- Assumptions & Conditions:
 - Assumes lot characteristics, especially the major factors, are similar for most of the lots (adjustments are based on paired sales-analysis).
 - Requires adequate data.

Analysis/Examination of Values: Alternative Methods – Overview

1. Allocation/Abstraction

- a portion of property value is assigned to the site.
- Useful when there are no vacant sales available.
- Requires knowledge of: site values in previous years, land-to-improvement ratios in similar nbhds, & analysis of new construction on similar sites.

Analysis/Examination of Values: Alternative Methods – Overview

2. Abstraction/Extraction

- Simply, *Land Value* =
Sale Price – Dep'd RCN of Improvements
- Commonly referred to as
“Land Residual Technique”
- Poor substitute for sales comparison
approach use with caution.

Analysis/Examination of Values: Alternative Methods – Overview

3. Anticipated Use (Development Method)

- Used most often when highest and best use is changing (i.e. ag to res or comm use).
- *Land Value (as undeveloped) = Projected Sale Prices (of developed lots) – Total Development Costs*
- Use with caution, only when sales comparison is not viable as it is based on assumptions and estimates.
- Often “rules of thumb” are utilized in this approach reducing it’s credibility.

Analysis/Examination of Values: Alternative Methods – Overview

4. Capitalization of Ground Rent

- Based on the income approach.
- Usable where there is income data available from land rentals (i.e. parking lots) and few or no vacant sales.
- Relies on accuracy of highest and best analysis, rental income derived from the market, and capitalization rates for the property.

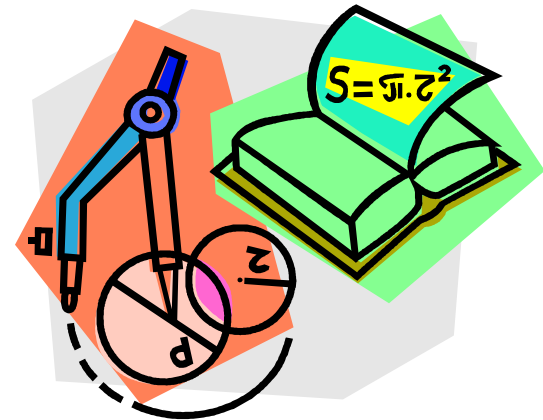
Analysis/Examination of Values: Alternative Methods – Overview

5. Land Residual Capitalization

- Only usable for income-producing properties and relies on an accurate improvement value.
- Requires NOI for the property and a Land-to-Building Cap Rate.
- $NOI^{Land} = Total\ Annual\ Income - NOI^{Imp}$
Finally, NOI^{Land} is capitalized into a value attributable to the land.

Application of Values:

- Calculated Unit values are finally applied to the population.
- There are different methods for doing this such as:
 - Delta Nabla depth tables
 - Constant & Area Rate
 - Others?



Application of Values: Methodologies

- Application of Sales Analysis Results to Land Valuation
 - Delta-Nabla Depth – a method for generating land values based on the idea value is tied to effective frontage rather than area. Useful in valuing irregular shaped lots.
 - Constant & Area Rate (K & AR) – a method for generating land values based on the premise there is a base value (constant) for a certain size plus a 'per unit' value to the next known value range.

Application of Values: History of K & AR

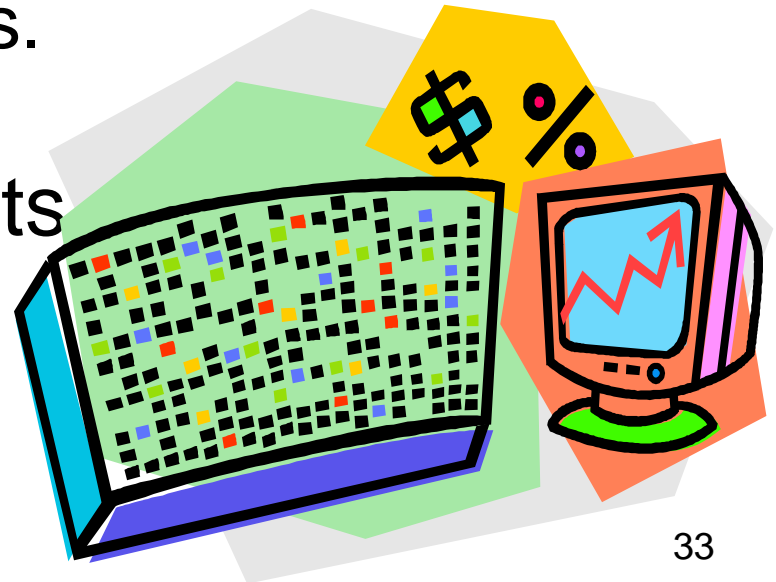
- Brief History of Constant & Area Rate
 - First used in the 1970's in the amalgamation of 5 municipalities into the Crowsnest Pass.
 - Implemented to solve the problem of having a defensible uniform land valuation for all sizes of parcels (0.01 to 160 acres).
 - Valuation standard at the time was Market Value, as it is now.
 - Incorporated into the CAMA lot Cama system used by most Alberta municipalities.

Application of Values: K & AR and Services

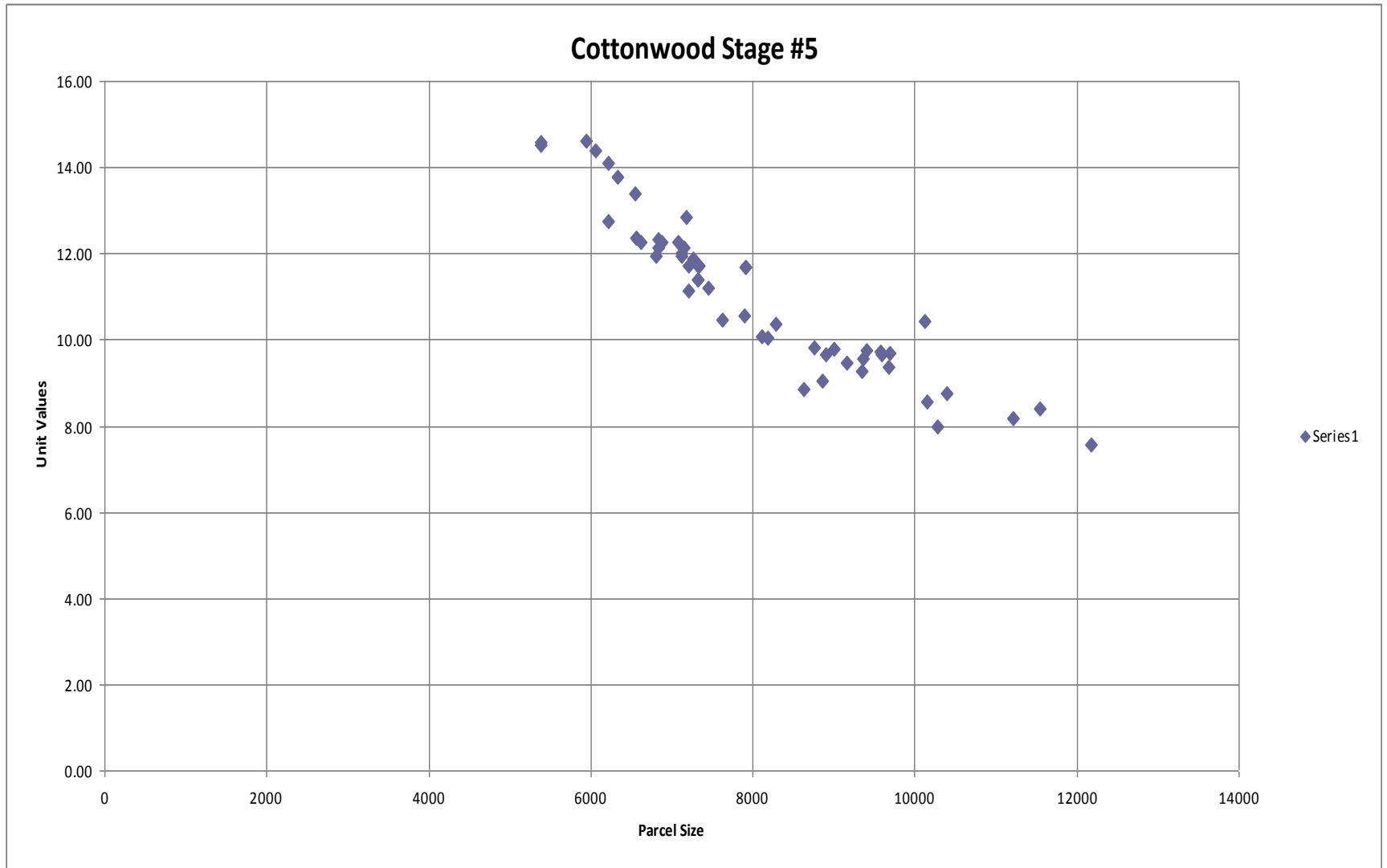
- Originally raw land and underground services were calculated as a constant and area rate. Physically existing services & site improvements (i.e. sidewalks) were added as they were found on a front foot basis.
- Methodology has evolved to include all services in the K & AR.

Application of Values: K & AR – Starting Points

- First - generate scatter graphs of size and unit values on the x and y axis, respectively.
 - The frequency of the sales establishes approximate break points.
- Next, calculate constants and area rates for each value bench.



K & AR - Scatter Plot



Application of Values: K & AR – How it Works:

- **Scatter Graph indicates:**
 - 6,000sqft is worth \$82,800, or \$13.80/sqft
 - 8,000sqft is worth \$84,000 or \$10.50sqft
- **Difference in:**
 - Size = 2,000sqft (8,000 – 6,000)
 - Value = \$1,200 (\$84,000 - \$82,800)
- **$\$1,200 / 2,000\text{sqft} = \0.60**
- **$\$82,800 - \$3,600 = \$79,200$**
 - $\$3,600 = 6,000\text{sqft} \times 0.60$
- **K = \$79,200 and AR = \$0.60/sqft**

Application of Values: K & AR – How it Works (con't):

- The resulting land rate table:



Low Area	High Area	Constant	Area Rate	Overall Unit Value
0	0	0	0	0
0	6,000	0	13.80	13.80
6,000	8,000	79,200	0.60	10.50
8,000	12,000	60,000	3.00	8.00
12,000	15,000	9,000	7.25	7.85

Application of Values:

K & AR – How it Works (con't):

Another Example:

<u>CAMA lot Tables Calculation</u>				
Lot Size	Unit	sq footage	Indicated MV	MV/Unit
10,000	sf	10,000	100,000	10
21780	sf	10,000	196,020	9
1	ac	43,560	230,000	230,000
3	ac	130,680	510,000	170,000
10	ac	435,600	1,700,000	170,000
20	ac	871,200	3,000,000	150,000

- The Bench Points can be any point as decided upon or dictated by the market.
- Tables can be calculated using sqft, m², acres, hectares, etc.

Application of Values: K & AR – How it Works (con't): Another Example - Calculations:

- ALL AREA up to 10,000sf is \$10.00/sf
- To establish the K and AR for the size range 10,000 – 21,780sf:
 - Diff in value between #1 & #2 96,020 (\$196,020 – 100,000)
 - Diff in size between #1 & #2 11,780 (21,780sf – 10,000)
 - Divide the value by the size 8.15 (96,020 / 11,780)
 - Establish the constant (K) 81,511 (\$8.15/sf x 10,000sf)
 - The value for 10,000sf is reduced by K 18,489 (100,000 – 81,511)
 - **The Constant is 18,489**
 - **The Area Rate is 8.15**
- To verify the value for 21,780sf:
 - $21,780 \times 8.15 + 18,499 = 196,006$
(the approximate indicated MV of the 21,780sf)

Application of Values: K & AR – Observations

- The premise is based on the theory/fact that as the parcel increases in size the unit value diminishes; thus the curve of value from one break point to the next.
- The theory/method can even account for when land values demonstrate a flat (straight) line – the unit value is consistent regardless of size, such as with Industrial land.

Application of Values: K & AR – Observations

- K & AR method links sqft to acres and/or m^2 to hectares in an effective manner.
- However, front foot to acre has some problems in the transition to acres.



- Can be used to plot residuals as well.
- What about 3 acre regulated sites?

Application of Values:

K & AR – Observations on Residuals

- Regardless of how land residual values are calculated their accuracy is *entirely* dependent the accuracy of the RCN's including Depreciation of the improvements.
- Perhaps residuals could be enhanced by considering only recent improvements in which depreciation is minimal.

Excess Land

- What is it??
 - Land that contributes an income, thus value, to a property over and above that attributable to the value of the property as if it had a typical land-to-building ratio.
 - Improved site: land not needed to serve or support the existing operation.
 - Vacant site: land that is not needed to accommodate the site's current primary highest and best use.



Excess Land – Income Approach

- What is it??
 - Land that is not required to maintain the current use of the building, yard, & parking areas.
- To determine whether there is excess land, the assessor analyzes local zoning bylaws and the current development of the property. The location of the buildings on the lot(s) is a factor in determining if there is excess land.

Excess Land – Income Approach (con't)

- For Example:
 - Industrial Parcel 2.5 acres
 - Building Size 10,000sqft
 - Land-to-Building Ratio 8:1
 - $2.5\text{ac} = 108,900\text{sqft}$
 - Building Size X 8 = 80,000sqft (expected land size)

Excess Land – Income Approach (con't)

- Example Con't:
- Income module's 'rental rate' includes 80,000sqft of land.
- Cama system calculates 28,900sqft of Excess Land (108,900 – 80,000).
- Value of Excess Land = 28,900sqft x \$/sqft for the parcel.

Bibliography

- **The Appraisal Of Real Estate**
 - Canadian Edition,
 - Appraisal Institute & Appraisal Institute Canada, ©1992,
 - ISBN 0-920058-17-5
- **Property Assessment Valuation**
2nd Edition
 - International Association of Assessing Officers, © 1996,
 - ISBN 0-88329-156-8 (cloth) 0-88329-157-6 (paper)