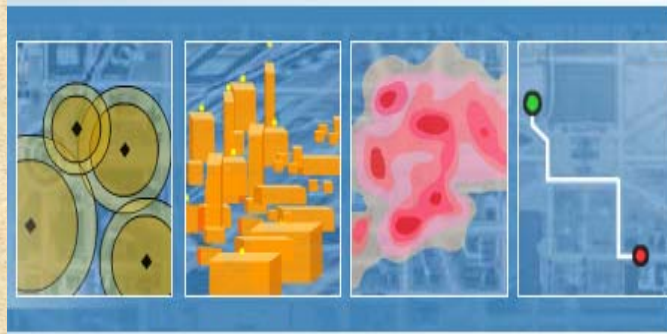# Real-estate Evaluation and GIS
## (Geographic Information Systems)
Where, What, Why and How

Personal Introduction

- The author is an experienced real estate appraiser,member of the Real Estate Appraisers Association in Israel, graduate of Yeshiva (Jewish high religious institution) as well as graduate of the Jerusalem Hebrew University, the Tel Aviv University and M.A. of Urban Planning.
- His appraisal practice is qualified by intensive use of G.I.S models.

Land – Man - Value

The role of the Appraiser is to let Man know the Value of the Land

Man
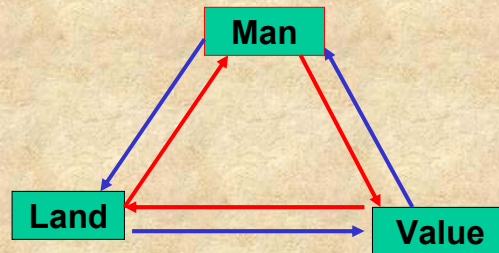
Land

Value

The Value of the Land depends in it's use for Man

The crucial questions of Land Value

- Where is the property? Location
- What is the extent of the property? - Measures
- What are the relevant land uses (current and possible legal land use)?
- What are the rights in the property.- Ownership, Lease, Mortgage etc.
- Where and what is the value of comparative properties?

What affords us G.I.S.

Locating events and entities in the following aspects:

·   Spatial location on the X,Y,Z, axis.

·   Relating to linear, polygonal and three-dimensional entities.

·   Attribution of values and labels to the various entities.

·   Various spatial calculations and conclusions.

Basic conditions for proper appraisal use of G.I.S

- Proper case definition.
- Providing appropriate layers fitting to the appraisal issues.
- Appropriate georeferencing adequate to the appraisal issues.

Inherent Objections

- Area and R.M .S
- Vertical Mistakes
- Details & simplicity
- Mistakes of old schemes
- Unfitness of stitch lines between maps (combined raster maps).

Case study No. 1-The property

- A residential house in Jerusalem. In 1991 was planned a new highway in a distance of 9 M. from the house.

Case Study No. 1

- The aim of the Appraisal: To evaluate the depreciation in the value of a house, caused by paving a new Highway which was approved in 1991.
- Issue definition: the extent of a highway influence on the price for $/Sq.m
- The method: locating prices of properties in various distances from roads.
- Figuring out the function of distance and the price for $/Sq.m

The property before the pavement of the Highway
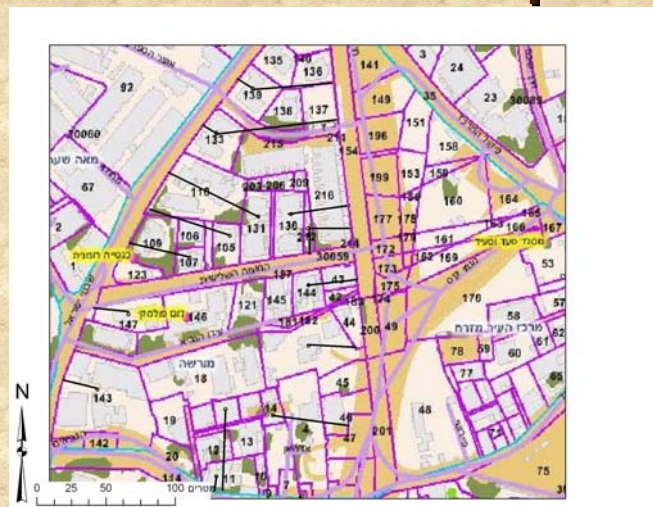
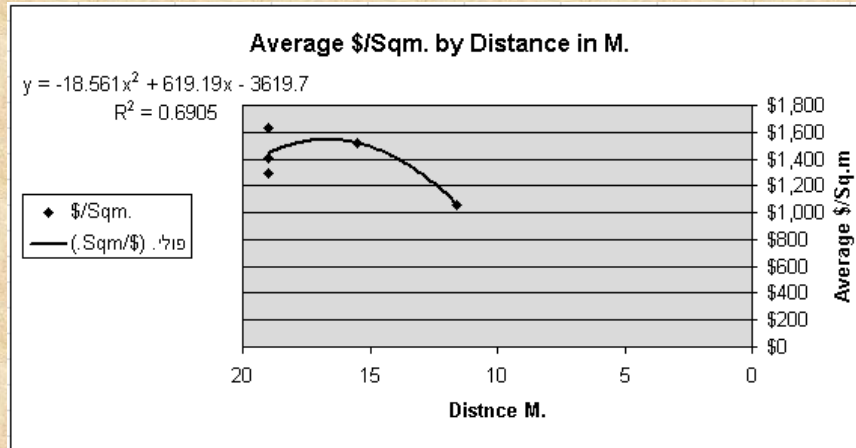**12.07.91**

The property after the pavement of the Highway

29.04.93

Price Location Map

Price and Distance

Average $/Sqm. by Distance in M.

$y = -18.561x^2 + 619.19x - 3619.7$
$R^2 = 0.6905$

Legend:
- ◆ $/Sqm.
- — (.Sqm/$) פולי.

Y-axis (Average $/Sq.m): $1,800 · $1,600 · $1,400 · $1,200 · $1,000 · $800 · $600 · $400 · $200 · $0

X-axis (Distnce M.): 20 · 15 · 10 · 5 · 0

Case Study No. 2

- The Property

- An old craft use building, replanned to high density commercial and residential use.

The property on A.F. from 2000


Case Study No. 2

- The aim of the Appraisal: the betterment of land value caused by approval of a new municipal plan.

- General method: Reduction the old value (Before) from the new value (After).

- Issue definition: Is it the Before Value influenced by external municipal improving plans.

- The method: Projecting neighbor plan boundaries upon aerial photograph valid for the determining time, and examining land uses.

Abstract Figures

- New Value (After) – Old Value (Before) = **Betterment**

The value of betterment important for taxes and fees

- Old Value inc. Expectation > Old Value exc. Expectation
- **Expectation** = Taking in account the present value of additional construction, caused by realistic expectation to replanning.
- **Realistic expectation** = Approved planes near the property + construction

Neighbor Plans and the Property
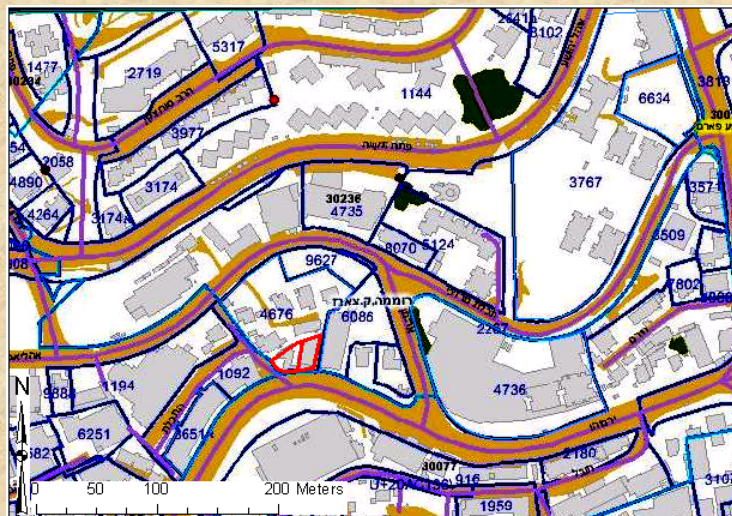
Neighbor Land Use and Planning
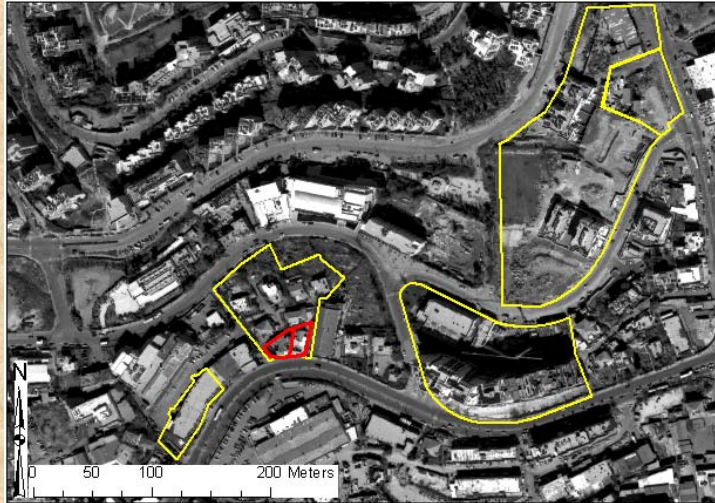
Conclusion

- We can realize that in the determine date, near the property their was a massive high density improvement according to legal approved plans.
- We have to take in account the contribution of high density expectations when evaluating the Before Value of the property.

Advantages and Basic conditions for G.I.S. based appraisals

·   Clear-cut spatial conclusions.

·   Appropriate presentation for the decision maker.

·   Optimizing survey costs.

You can never reach better results then the quality of your input layers.