

# GIS & GPS Applications in Valuation/Appraisal Assessments

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**Key words:** GIS, GPS, mass assessments, 3-dimensional, modelling.

## SUMMARY

The development of GIS and GPS systems has substantially assisted the Victorian Government in successfully undertaking mass valuations for rating purposes. For the private sector, it has assisted with streamlining the process when, for instance, undertaking individual project cost assessments.

This paper will provide some practical examples of how these systems are used in mass valuation work and how they aide in identifying issues such as variations between assessments and individual market transactions, as well as variations across a municipality. The Valuer-General Victoria has interest in this area as it has the overall responsibility for ensuring that the levels of capital value across the State are “generally true and correct” for the municipal rating base.

GIS and GPS systems with the 3-Dimensional modelling capability of site-specific projects can enhance both the quality of the assessment and cost management issues of a project during its planning, construction and life. This paper will examine recent developments and illustrate practical application of the systems.

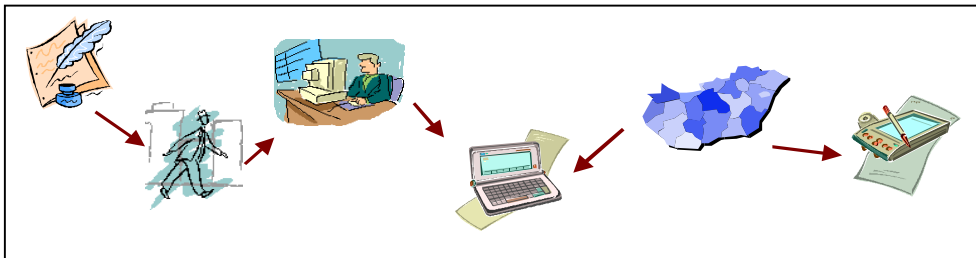
The layout of this paper endeavours to capsulate the topic via the use of pictures, diagrams and models. The poster presentation format at FIG Working Week is partly expressed in this paper.

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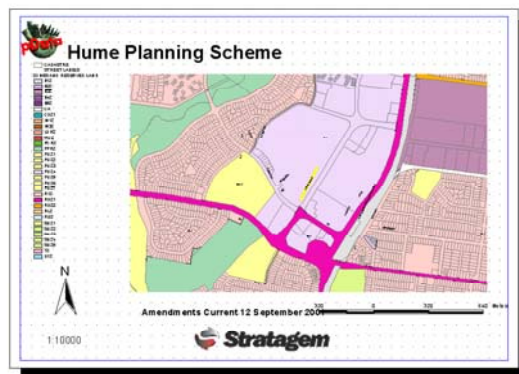
## 1. COMPUTER ASSISTED URBAN PLANNING AND PROPERTY VALUATION/APPRAISALS

The development of computer-assisted systems in recent times has been extensive. This has resulted in major improvements that have assisted manual urban planning and valuation appraisals, digital data and maps, desktop urban planning and valuation/appraisals. Analytical statistics, mapping and modelling, include mobile systems are key tools. Into the future ....



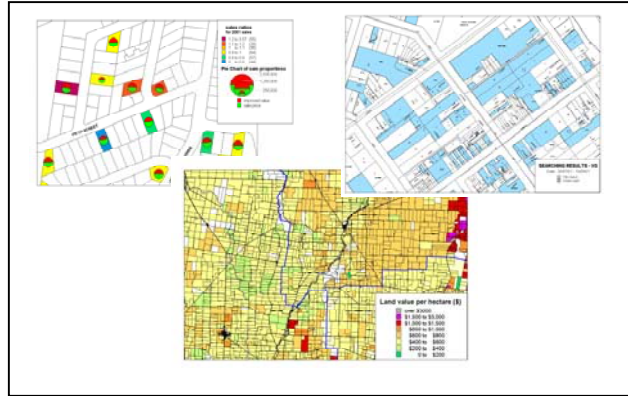
## 2. PLANNING SCHEME

The model planning scheme map provides a wealth of information and a platform to the future.



## 3. GIS IN MASS VALUATION ASSESSMENTS

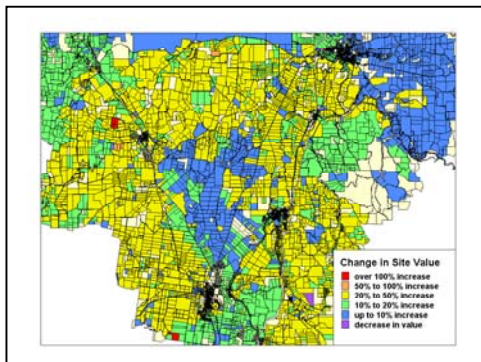
The ability to see levels of value and analyse this data is substantially enhanced by model mapping - the foundation of GIS.



#### 4. BASIC VALUE SHIFT MAP

The ability to ‘layer data’ and derive change of time is a concept that has become reality via GIS/GPS systems.

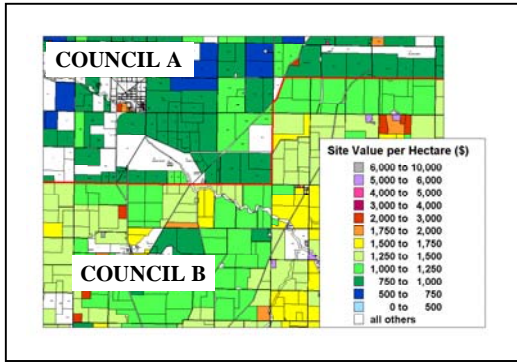
The system can feature change in land value, application in strategic urban mass valuation (from one valuation to the next and from one site use to the next), and identify trends and anomalies.



#### 5. LEVEL OF VALUE MAP

Key analysis across borders that are not ‘topography bases’ is an essential element in mass valuation tasks as it maintains ‘fairness’ in a rate base.

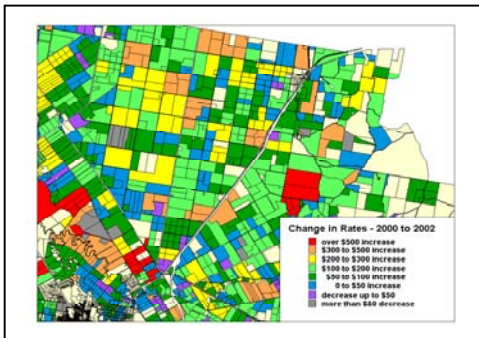
This system can identify anomalies and perform consistency checks which is especially relevant across borders.



## 6. MUNICIPAL RATING MODELLING

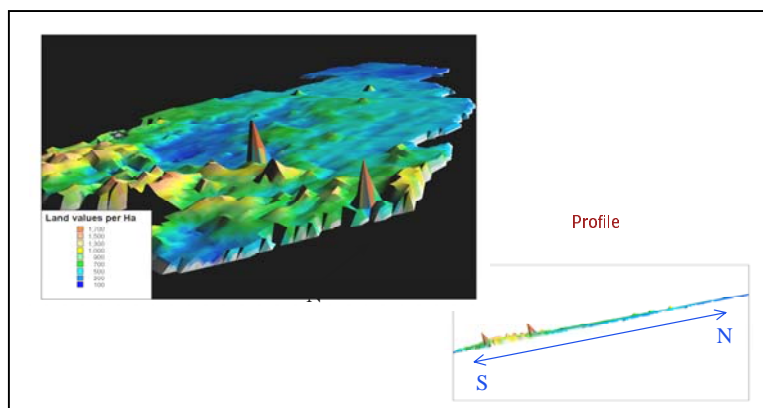
The ability to compare change and effect over time is a highly useful tool for:

- Changes in rates payable;
- Changes in land use;
- Preparing objections; and
- Measuring equity in values.



## 7. LAND VALUE SURFACES

The move to 'land value surface mapping' can build in the elements of effect of planning changes and enable 3-D viewing.



## 8. 3-D DEMONSTRATION

GIS Application in strategic planning and development and analysis provides superior valuation/appraisal assessments. Key benefits are:

8.1 Interactive e.g. before/after development

8.2 It enables 'platforms' of data behind detailing features of project

8.2.1 Building specifications

8.2.2 Financial Modelling (including property valuations/appraisals)

8.2.3 Alterations/alternatives can be efficient and effective

8.2.4 Visual travel 'through' the project

8.2.5 Visual travel 'around' outside of project

8.2.6 Cost efficient from 'conception' through 'life' of the development



These are not photographs – they are computer generated images.



## 9. CONCLUSION

GIS is part of the “new world foundation”.

It has many applications to assist strategies in Valuation/Appraisal assessments.

The future is in 3D and beyond.

## DISCLAIMER

I would like to draw to your attention that the views presented in this paper are my own; and should not be construed as representing those of State Government of Victoria, Australia.

## REFERENCES

John Rickard, Acting Executive Director, Land Registry

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## BIOGRAPHICAL NOTES

**Simon Adcock** has presented a number of international papers at FIG conferences and these include conferences, which have been held in Buenos Aires, South America, Durban, South Africa, Brighton, United Kingdom, Seoul, South Korea, Washington, United States. He also recently presented a paper in parallel session at the 46<sup>th</sup> IFHP World Congress held in Tianjin, China

Mr. Adcock has had a wide range of valuation experience in undertaking valuation tasks on major commercial valuation sites, major office buildings, residential development sites and specialist properties with some projects and values in excess of \$1 billion. In recent years, as Manager, Client Valuations, Valuer-General Victoria, Land Victoria, Mr. Adcock has lead the team for the development of procurement of valuations from the private sector and the related management of these valuations to enable government to achieve their desired goals.

Mr. Adcock has spoken at a number of international conferences since 1996 on topics covering such issues as “Professionals Managing Professionals”, “The Assessment of Compensation for Property Acquisitions and the Development of a Global Lease”. Is a member of the Australian Property Institute and a member of the Victorian division of the Institution of Surveyors Australia Inc. Has promoted the benefits of FIG to the Victorian

Government which, via Land Victoria, strongly supports his endeavour to obtain the position of Chair of Commission 9 in the future.

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