

# Managing Inaccurate Historical Survey Records in a Future Accurate Digital World.

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## **SUMMARY**

For many years survey plans have provided a level of spatial certainty that underpins confidence in the Torrens Title system in Australia. Retaining the legal and location intent of historical survey plans as we move into the digital world is important to ensure ongoing commercial and social stability. In spatially locating property boundaries the edict of ‘monument over measurement’ is the foundation of that system but there is a complexity in the hierarchy of field and survey plan evidence when redefining older surveys. The location outcome is an intuitive assessment by an experienced licensed survey practitioner. This process is not easily translated to an automated computational process, particularly with poor quality survey plans that may have large miscloses. Technology now provides the capability to manage all these issues in a digital environment. New survey data and the geometry referenced on the original survey records is used to generate a database geometry model in any reference frame. This process is available at two levels, the original Australian developed GeoCadastre technology which is used at a local level to collect and compute survey data into a wider survey database and the ESRI Parcel Editor which uses the same survey data management engine to manage the survey database within an SDI at regional or state levels. The process facilitates the transition from historical measurement based or coordinate based title systems to the position based measurement and digital title systems of the future. It has considerable rigour to generate high accuracies subject to data quality and redundancies allow the Least Squares Adjustment to automate intuitive aspects of the process. Several States in Australia are implementing the survey database cadastral modelling process by: 1. Manual entry of geometry from historical survey plans (generates highest accuracies and efficiencies but with initial higher costings) or 2. Migration of existing mapping cadastral databases to the survey database (existing accuracy initially retained with less up-front costs but higher ongoing ones) In NSW the intelligent data format has enhanced the implementation of the ePlan process. To register a new title, a LandXML survey plan file is lodged at the titles office portal and immediately undergoes over 40 tests of the plan’s jurisdictional information and geometry quality. This is followed by an automated location validation process. This is in line with NSW eGovernment implementation that is now providing efficiencies to their overall Spatial Data Infrastructure (SDI) workflows. In some cases this has resulted in a reduction of the time taken to register a new survey plan from 1-2 months under the existing manual workflows to 3-5 days. Economic benefits then apply to all stakeholders, the state requires less staff resources, receives property based revenue sooner and those looking to create new titles have their development holding costs reduced and their revenue returns are also faster. This presentation will discuss the benefits of the various methods of the survey database creation and case studies highlighting technical and business outcomes at local and state levels.