Spatial Data Warehouse Ltd.

INITIATIVE 2:
TITLES MAPPING

AltaLIS

P3 The SDW/AltaLIS Model

Spatial Data Warehouse (SDW) is a "Part 9", not-for-profit corporation that oversees a P3 (Public Private Partnership) with AltaLIS Ltd. The SDW Board includes members from government, industry (utilities, energy, forestry) and municipalities including:

CAPP Canadian Association of Petroleum Producer

Alberta Chamber of Resources

AFPA Alberta Forest Products Association

aamdc trade • jubilee Alberta Association of Municipal Districts and Counties

TELUS

ATCO Electric

ATCO Gas

Government of Alberta

AUMA The Alberta Urban Municipalities Association

FORTIS ALBERTA

Alberta 1 Call

SDW is modeled as an information utility, where SDW acts as the "regulator" over the "operator", AltaLIS. SDW has a unique relationship with the government. Through a data licensing agreement, SDW has the sole responsibility for reengineering, updating and distributing a series of indispensable data sets in Alberta including the cadastral (parcel) data, titles mapping and Crown land disposition surveys. AltaLIS is responsible for undertaking the physical tasks on behalf of SDW (i.e. loading, storing and marketing the provincial data sets). Work is conducted under the auspices of the SDW/AltaLIS Joint Venture (JV) with all SDW and AltaLIS costs covered by JV operations. Profits are reinvested into data and systems improvements.

BACKGROUND

Title mapping is of critical importance to municipalities as well as development, resource and utility companies. Typical uses include:

- Assessment
- Municipal and infrastructure planning
- Landowner consultations
- Operational activities that occur on the land

The foundation for title data is the cadastral base or survey fabric which depicts registered plans of survey and the Alberta Township Survey fabric (ATS). Title mapping needs to be kept in-sync with this base as new plans are added and spatial adjustments and improvements are made. Prior to this initiative, many municipalities were building their own title datasets on an as-needed basis, independent of a provincial system. Unfortunately, historical methods for creating and maintaining this titles information were:

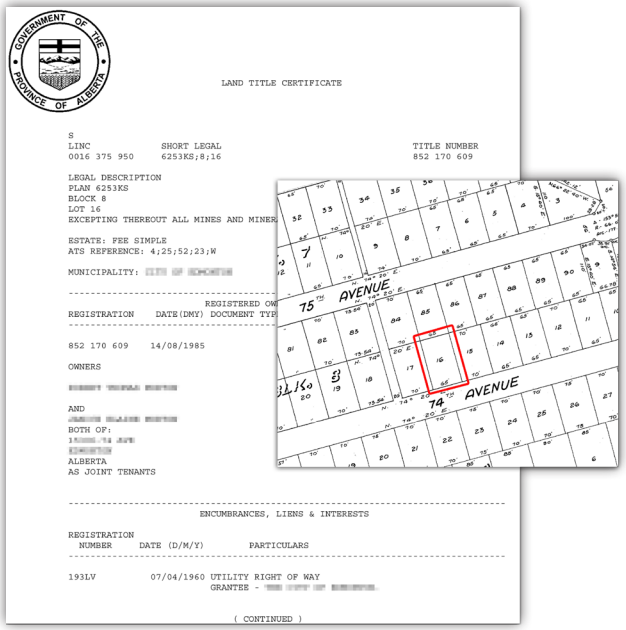
- Cumbersome
- Inconsistent
- Labour intensive
- Costly
- Prone to errors or omissions

Similar to the earlier situation with cadastral mapping, there was concern about the duplication of cost and effort, as well as about the difficulty regarding the ability of a variety of potential user groups to access the data from individual municipalities (particularly without a provincial standard and implementation).

THE PROBLEM

There was no linkage or spatial referencing that reconciled the line work contained within the cadastral dataset with the description of property ownership contained within the Land Title certificates. It was essential to graphically capture

LAND TITLES CERTIFICATES



LAND TITLE CERTIFICATE

S
LINC 0016 375 950 — SHORT LEGAL 6253KS;8;16 — TITLE NUMBER 852 170 609

LEGAL DESCRIPTION
PLAN 6253KS
BLOCK 8
LOT 16
EXCEPTING THEREOUT ALL MINES AND MINER

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;25;52;23;W

MUNICIPALITY: [redacted]

REGISTRATION DATE(DMY) DOCUMENT TYP — REGISTERED OW

852 170 609 14/08/1985

OWNERS

[redacted]

AND
[redacted]
BOTH OF:
[redacted]
ALBERTA
AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER — DATE (D/M/Y) — PARTICULARS

193LV 07/04/1960 UTILITY RIGHT OF WAY
GRANTEE - [redacted]

(CONTINUED)

Land Titles Certificates officially define property ownership but are not georeferenced.

The Value Proposition

"The need for titles mapping was clear from the perspective of municipalities, industry, and multiple provincial departments. Spatial Data Warehouse (SDW) was the ideal delivery mechanism for a number of reasons. First, it is governed by a Board comprised of government, industry and municipal representatives (the AUMA and AAMD&C were added during this period) – ensuring that the data needs of all are met and providing guidance and oversight to the private sector operator - AltaLIS. Second, while these datasets are critical to many government departments, other public sector users and many private sector interests, the improvement, maintenance, management and distribution of data is not part of the core business of any of its users including the Government. It is, however, the core and only focus of SDW. Finally, AltaLIS as the private sector operator of what has become a "data utility company", is incented to invest in, and be creative, efficient and responsive to the needs of all users inside and outside of government while remaining accountable to SDW. AltaLIS also was responsible for all risk related to budget and deliverables and for the creation of a self-funding (user pay) maintenance model."

-Brad Pickering
Deputy Solicitor General and Deputy Minister of Public Security (2008-Present)
Deputy Minister Sustainable Resource Development (2004-2008)
Deputy Minister Municipal Affairs (2002-2004)

"The $4.5 million grant to the AUMA (Alberta Urban Municipalities Association and AAMDC (Alberta Association of Municipal Districts and Countries) was a bargain for the department strictly in meeting its mandate to support municipal needs. AltaLIS provided project management and quality control oversight for several subcontracted survey companies which did the majority of the actual title mapping data creation. AltaLIS, at its own cost, built the software, data updating systems and integration with the existing provincial cadastral system. The Mapping Data Licence Agreement (MDLA) positioned SDW as the pre-approved Strategic Alliance Partner for spatial data outsourcing."

-Brad Pickering
Deputy Solicitor General and Deputy Minister of Public Security (2008-Present)
Deputy Minister Sustainable Resource Development (2004-2008)
Deputy Minister Municipal Affairs (2002-2004)

the extent of ownership for each Certificate of Title registered at Alberta's Land Title Office. After the cadastral process was re-engineered and was in production mode, it was clear that the next logical step was to build a GIS-ready "parcel" dataset for every ownership title in Alberta.

What was needed was a common, authoritative source of accessible, accurate, up-to-date titles mapping information to provide a base for improved collaboration at all stages between the various levels of government, individuals and the private sector companies active on the land.

CHALLENGES

Challenges associated with loading, reconciling and maintaining the titles map included:

- Magnitude of the issue: Land titles are legal deeds, maintained by Alberta's Land Title Office, that provide a description of property parcels throughout Alberta – an extensive area comprising tens of thousands of certificates
- Each title is unique and, to add to the complexity, there were approximately 100,000 titles that were described by metes and bounds that could only be interpreted and mapped manually. It was therefore necessary to retain the services of Alberta Land Surveyors to ensure correct professional interpretation of these titles and for accuracy, and reliability of the product
- Lack of a sustainable funding model

APPROACH

Under the leadership of Bill Martin (a Director of AltaLIS), and with the strong support of the SDW Board, extensive consultation was undertaken at the expense of AltaLIS to build a business case and further refine the needs and requirements. A number of potential user groups including the Alberta Urban Municipalities Association (AUMA) and the Alberta Association of Municipal Districts and Counties (AAMDC), municipalities, developers, land agents, and resource companies expressed strong interest in quickly moving this initiative forward.

Building the titles mapping database involved:

- Designing a spatial database containing the "linc" number and legal description for each title
- Converting historical textual metes and bounds descriptions into a graphical format

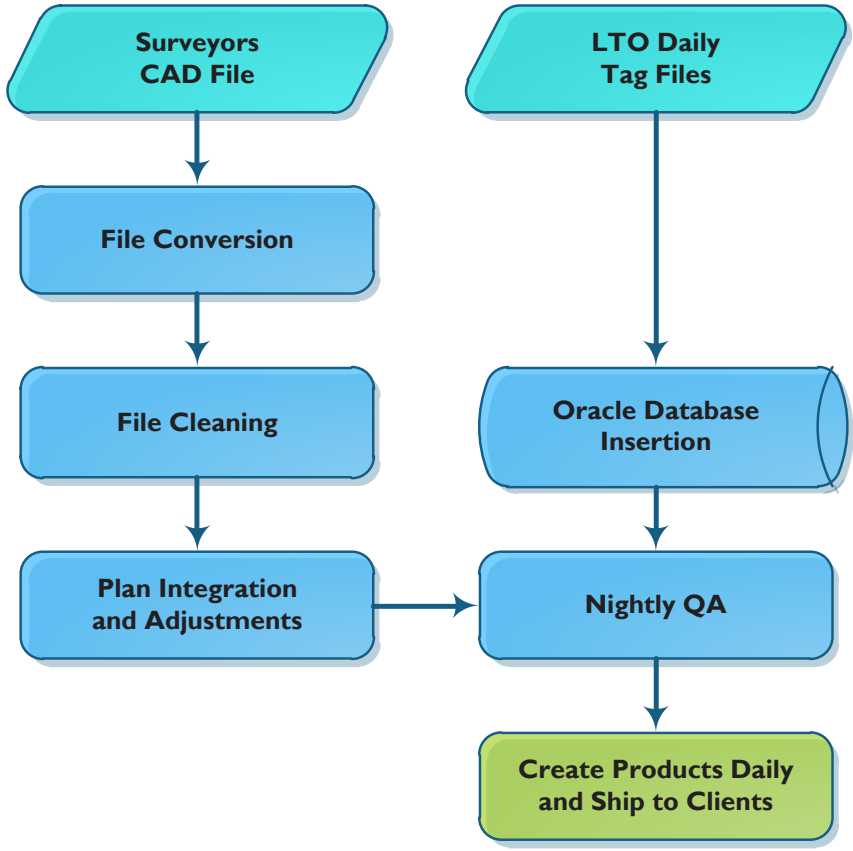
- Integrating the titles information into the cadastral map fabric
- Constructing title polygons based on the "extent" of the title

THE SOLUTION

SDW, through the existing Mapping Data Licensing Agreement, was in the position of being the approved "Strategic Alliance Partner" for the maintenance and distribution of mapping and geospatial related data for the GoA. An unsolicited proposal was prepared by SDW/AltaLIS and submitted to GoA. Alberta Municipal Affairs agreed to fund the creation of the initial provincial dataset so long as SDW/AltaLIS would then agree to maintain and update the dataset at their expense. In addition, SDW was to add the Alberta Urban Municipal Association (AUMA) and the Alberta Association of Municipal Districts and Counties (AAMDC) to the Board of SDW. With this agreement in place in 2001, the Alberta Municipal Affairs provided a grant of $4.5 Million to be administered through the AUMA and AAMDC to create the initial title mapping dataset. Other options were considered to be more costly and would take significantly more time and effort.

The logistics were daunting; over one million titles were to be mapped in three years. A major task was creating an Oracle database to replicate the mainframe database used by Alberta Land Titles Office (LTO) and establishing a bilateral method to exchange data between the organizations on a daily basis. The cooperation, support and participation of the Alberta

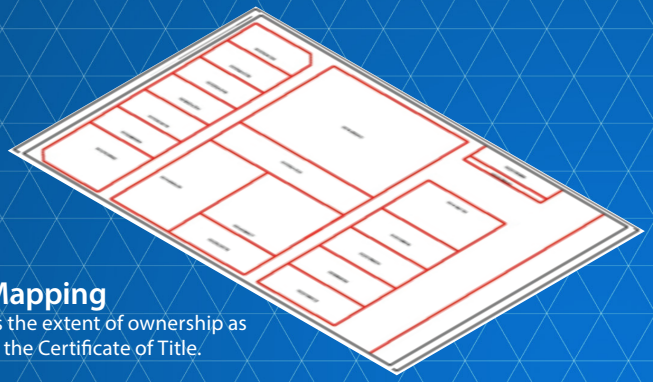
TITLES MAPPING WORKFLOW



Titles Mapping is now a well organized and quality controlled process.

Improved Efficiency

Property Ownership Alignment with Land Certificates



Titles Mapping
Represents the extent of ownership as defined by the Certificate of Title.

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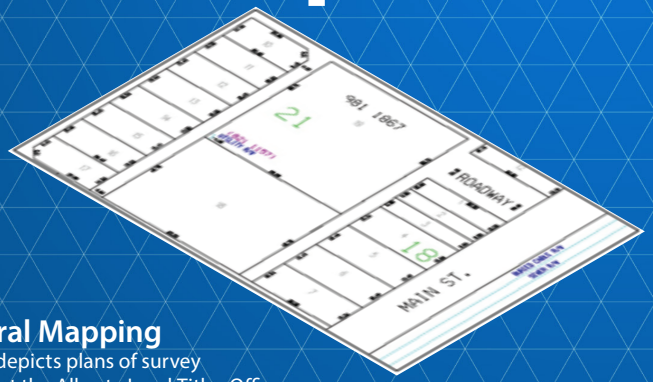

Cadastral Mapping
Line work depicts plans of survey registered at the Alberta Land Titles Office.

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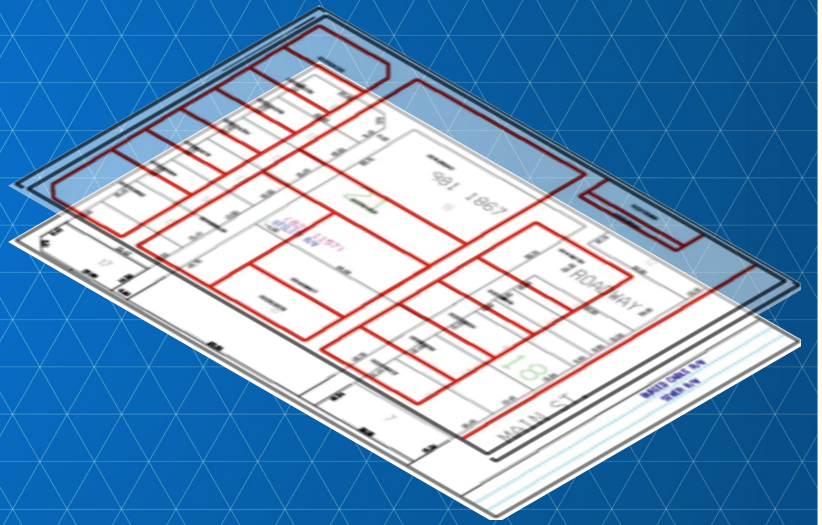


Alignment of Plans
The Cadastral Map and the Titles Map are integrated and brought into alignment with one another so that boundaries now match.

Land Titles Office was instrumental in successfully completing this project and in establishing processes for the ongoing maintenance of the datasets.

As the rollout proceeded on a region-by-region basis starting in 2001, AltaLIS took on, at its sole cost, the updating of the database as changes occurred. This was done in conjunction with the updating of the cadastral data but included extra costs that were not covered by the filing fee associated with the cadastral dataset. The additional cost of updating, maintaining and distributing the Title Mapping dataset was expected to be offset by revenues from the sale or licensing of the data in the future but was by no means a certainty.

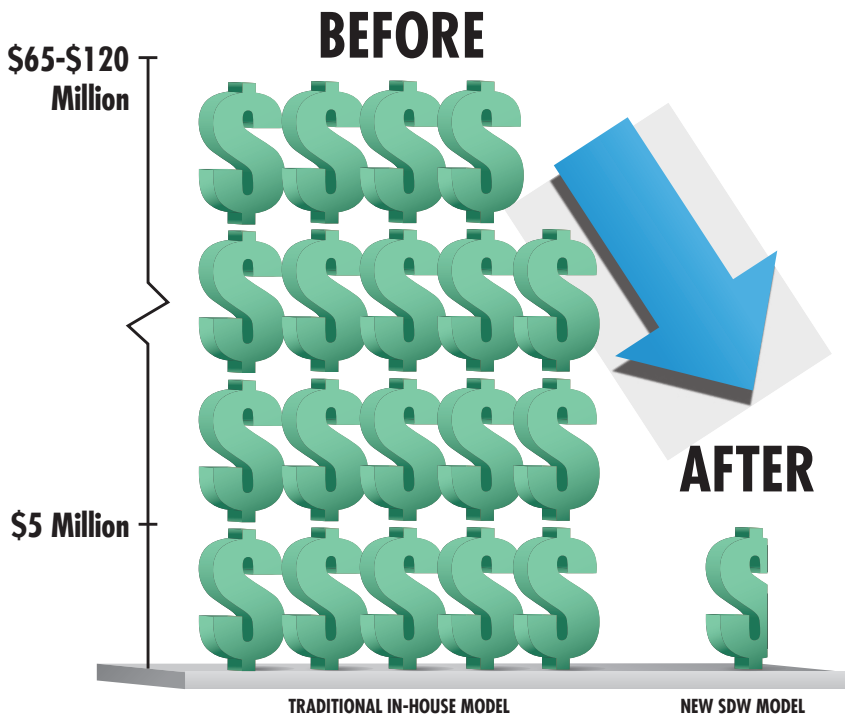
In just two and a half years, over one million titles were mapped. The new titles mapping dataset was available on a province-wide basis in 2003.

CONCLUSION

The titles mapping initiative was completed by AltaLIS 6 months ahead of schedule and $600,000 under-budget, meeting all stated objectives. Based on discussions with key stakeholders, including Municipal Affairs and the AAMDC and AUMA, surplus funds were used to undertake several additional projects, including:

- A pilot study examining the best approaches to build a provincial addressing system to be utilized for a number of purposes, but most importantly for emergency response. A free data template was made available for

SUBSTANTIAL SAVINGS UNDER THE P3 MODEL



SDW/AltaLIS Has Driven Costs Down – For Cadastral, Titles and Crown Disposition Mapping

municipalities to assist in creating their own address datasets

- An additional GIS dataset comprising polygons for all roads, road allowances and hydrology
- Support for Title mapping problems identified by municipalities
- Creation of a municipal "geo-admin" boundary dataset that would be maintained in synchronization with the cadastral and title information

By 2005, it was clear the title mapping initiative was a major success and justified the risk and investment by Municipal Affairs and SDW/AltaLIS. The majority of municipalities, both large and small throughout the province, were using the data and a growing number of private sector users (developers, land agents, utilities and resource companies) were subscribing to the dataset.