

Spatial Data  
Warehouse Ltd.

# INITIATIVE 3:

## CROWN LAND DISPOSITION MAPPING (DIDS)

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:



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

By the late 1990s the Alberta Government was administering between 10,000 and 20,000 new dispositions per year – many on Crown land. The majority of these dispositions were for oil and gas surface activities and forestry-related permits. In 1999 it was estimated that there were over 185,000 active dispositions throughout the province. Disposition types included areas for:

- Grazing
- Recreation
- Roads
- Well sites
- Seismic cut lines
- Pipelines
- Timber production

By 2004, the total number of dispositions had grown to 232,000. The administration of these dispositions was managed through the manual entry of information into a mainframe database, LSAS (Land Status Automated System).

Thousands of survey plans were being submitted in a variety of paper-based and digital formats. There was no digital spatial representation or map display. Instead, the shape and extent of dispositions were transferred and sketched onto the original township mylar Plats by hand. Reference paper records, associated with the dispositions, were kept in various formats and types in file cabinets at Sustainable Resource Development’s Public Land Division in downtown Edmonton. Manual sketching on the township Plats was inconsistent and inaccurate. It was not in a modern geospatial data environment that would support updating and distribution.

**“I am not familiar with any other jurisdiction in the world that has such a comprehensive and efficient system as Alberta.”**

**- Craig Barnes**

*former Director, Public Lands, Alberta Sustainable Resource Development*

## THE PROBLEM

SDW/AltaLIS, shortly after being formed, became aware of extensive interest from the public to gain online access to digital information about Crown land dispositions. Resource companies (forestry, mining and energy) were particularly interested in obtaining access to accurate positional data related to proposed activities and development on public land. There was consensus that significant improvements in operational efficiencies, and an improved ability to plan activities on the land, would benefit government and industry users if this data could be digital, accessible and accurate.

The need for accurate and complete data, in an electronic spatial database format, was so great that several forestry companies such as Sunpine Forest Products, Sundance Forest Industries and Weyerhaeuser Ltd., as well as municipalities, such as Greenview, had either already started mapping and building spatially linked databases or were in the process of planning disposition mapping initiatives within their jurisdiction. The concern was that these individual actions would lead to duplication of cost and effort, a hodgepodge of standards, and limited ability to share data with other interdependent parties including government departments and resource companies.

There needed to be a single, coordinated initiative to load and manage submitted survey plans for all Crown lands in Alberta.

The Government of Alberta expressed a desire to have dispositions mapped in CAD format, similar to the cadastral



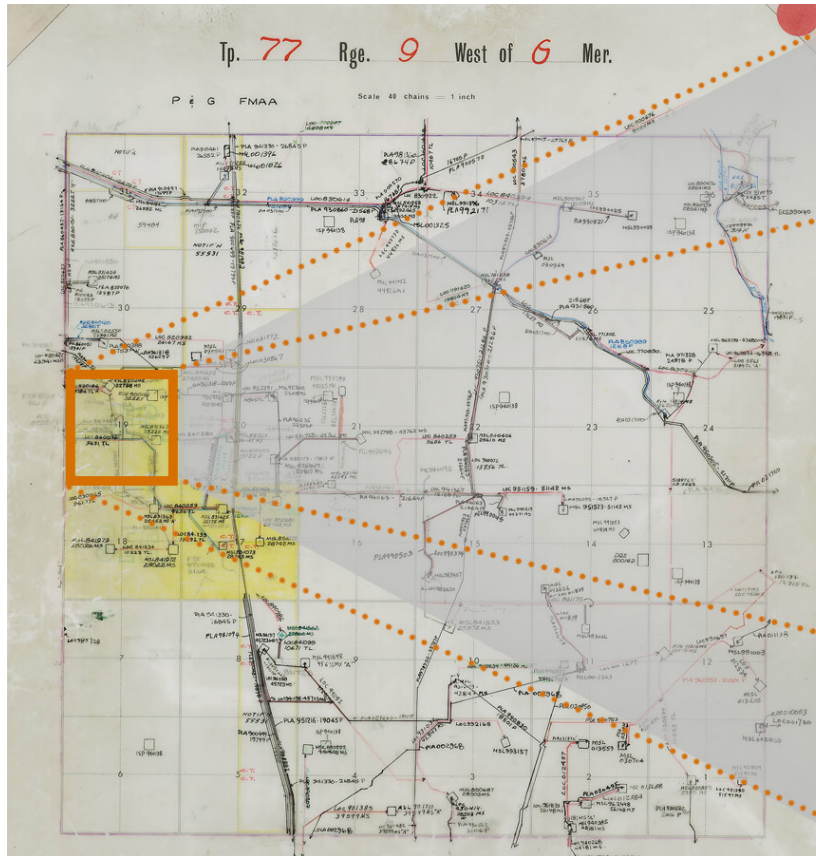
## The DIDs Initiative

The DIDs initiative was approved on November 25, 2005 when Brad Pickering moved from Municipal Affairs to become Deputy Minister of SRD. To better represent the interests of the industrial groups using and paying for the updating process through the proposed filing fees, three new stakeholders were added to the SDW Board:

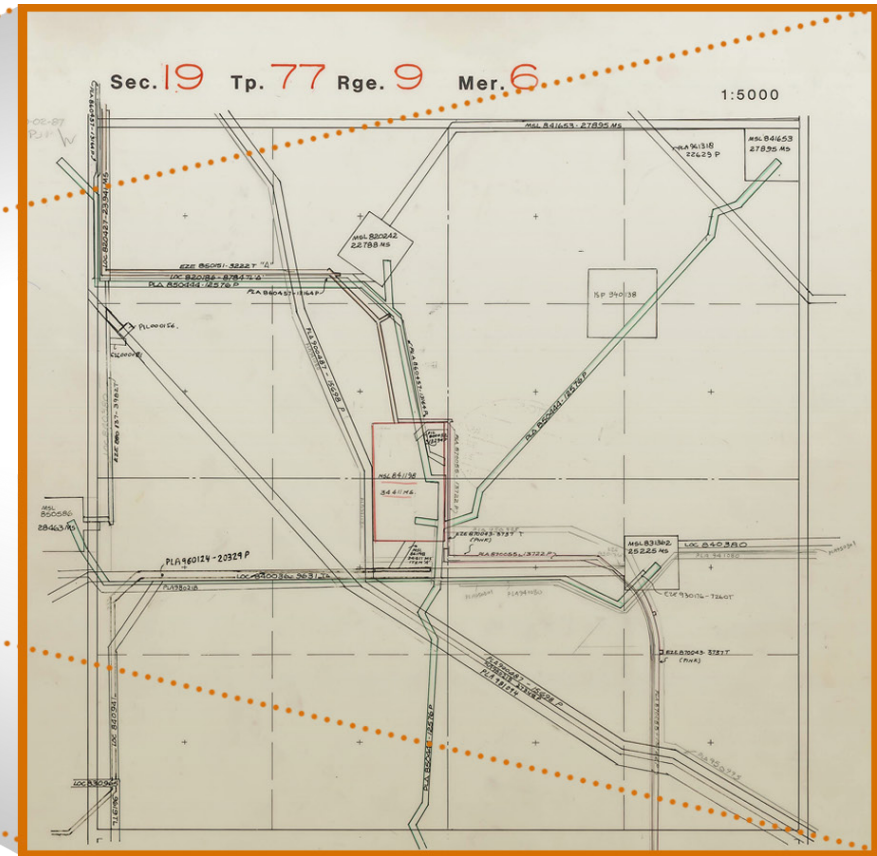
- Alberta Forest Products Association (AFPA) in 2004
- Canadian Association of Petroleum Producers (CAPP) in 2004
- Alberta Chamber of Resources (ACR) in 2009



## COMPLEX & CUMBERSOME: TRADITIONAL HARDCOPY PLATS



Township Plat (Highlighted Sections Contain Extreme Activity).



Magnified Portion of Township Plat Illustrating Numerous Surface Dispositions.

base. It would be even better to have the dispositions in GIS format similar to the planned title mapping initiative. The desired outcomes included:

- Significant reduction in manual labour, administrative and copying costs
- Streamlining of the submission process using a standardized digital filing approach similar to the SDW/AltaLIS system for cadastral data
- The creation of a single definitive mapping layer and associated dataset of dispositions that all users and participants active on Crown Lands (including industry, policy makers and regulators in all levels of government) could use to plan and coordinate activities

## CHALLENGES

Numerous challenges were identified in the process of developing the proposal:

- Sheer volume of applications
- Resistance to conversion from a very old, proven (but manual) system into a digital environment
- Mix of paper and digital submissions (with no mandatory requirement for digital submissions)
- Lack of survey and data format standards



The filing fee model, where the entity causing the change or use of the land pays the fee, and where SDW (representing all users) acts as the custodian of the data, ensures that maintenance of the data is sustainable and independent of government budget constraints or limitations thus providing improved accountability and affordability.

- Lack of georeferenced survey plans
- Cooperation of the survey and oil and gas service sectors
- Lack of a sustainable funding model

Cost estimates to create a province-wide digital spatial dataset for the historical Crown land dispositions ranged from \$8 million to \$20 million (in 1999 dollars) - just for the initial basic mapping of the dispositions. The estimated cost to build a new system, complete with a digital submission process and software, combined with the cost of the ongoing staffing and operating costs varied from \$16 million to \$46 million over a 10 year period.



## Moving to The New DIDs System

"The need was clear. The existing system and approach was antiquated, costly and did not meet even our internal departmental needs let alone the needs of other departments and agencies or of the industries we are responsible for regulating. A new system funded and operated in the traditional government model would have cost the tax payer at least \$30-\$60 million over an initial 10 years of operations versus the zero cost / zero risk option provided by SDW/AltaLIS. Our (SRD's) core business was not the data systems and their management, but assuring they were there to meet the needs of our stakeholders and to fulfill our policy and regulatory mandate - which is our core business".

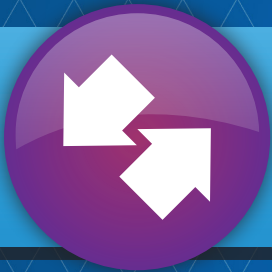
### -Brad Pickering

*Deputy Solicitor General and Deputy Minister of Public Security (2008-Present)*

*Deputy Minister Sustainable Resource Development (2004-2008)*

*Deputy Minister Municipal Affairs (2002-2004)*

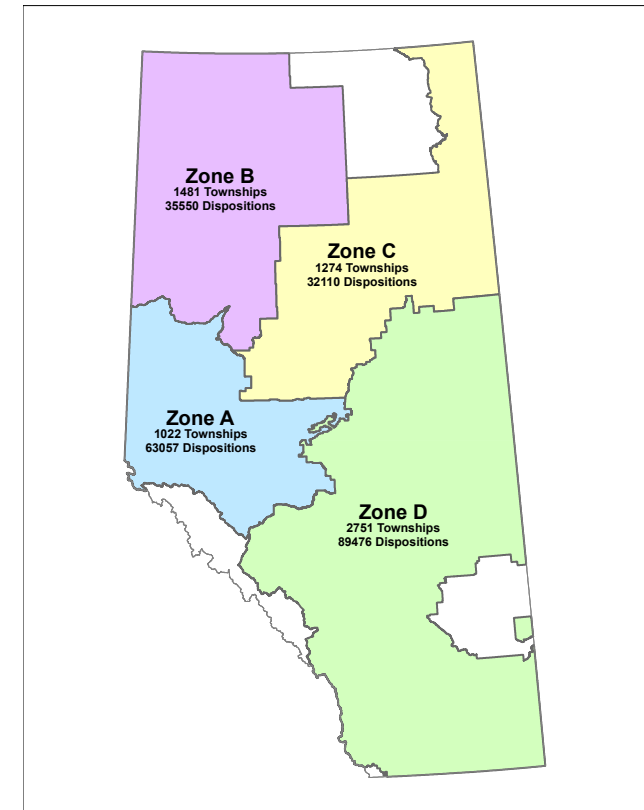
Important initiatives, such as the Land Use Framework or the planned Regulatory Enhancement Project, would be difficult to contemplate without a comprehensive, province-wide common base mapping database that includes highly accurate DIDs, cadastral, title and base features data managed and distributed via SDW/AltaLIS.



## How It Works

The cost of building the system and database was solely undertaken by AltaLIS. The initial investment and ongoing cost of maintenance are now being recovered through the filing fee paid by members of CAPP, the ACR and AFPA - based on their activity on the land. This user-pay model fits with the government's philosophy in this area of industrial regulation. Further, unlike the taxpayer funded model, the SDW/AltaLIS P3 is responsive to all data users and is financially sustainable based on the activity of the industry. SDW/AltaLIS has the incentive and clear responsibility to continue to invest in improvement that its customers are demanding. Industry and other users of the data, including municipalities and NGOs, now have a standard and common base mapping system on which to do their planning and coordinate development activities on the land. This is a significant step forward for all users. The small fee paid when filing a disposition is more than worth the cost given the quality of the data and new system the public now has access to.

### DISTRIBUTION OF SURFACE DISPOSITIONS IN ALBERTA (CA.2005)



There are a lot of Crown Land Dispositions scattered throughout the province.





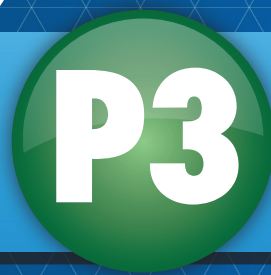
## APPROACH

SDW and AltaLIS worked jointly with interested groups from industry to convince the government of the merits of the SDW approach. In 2002, SDW/AltaLIS submitted an unsolicited proposal to the Government to:

- Map all the historical dispositions
- Input and maintain future dispositions (assuming mandatory digital submissions)
- Fund the initiative with an innovative P3 (Public Private Partnership) model where a filing/mapping fee (similar to the cadastral filing fee) paid by the initiator of the change would cover the cost of updating

Conditions addressed in the proposal included:

- The government would not have to provide funding for data loading and conversion of the 232,000 historical dispositions (\$8 to \$20 million)
- The government would not have to pay for the development of new software and systems (\$4 million to \$8 million) or the on-going costs of maintaining, managing and distributing the data (\$2 million to \$4 million annually)
- Maintenance of new dispositions would commence immediately



## The P3 Model

“The SDW/AltaLIS structure was already in place and had proven to be highly successful with the Cadastral and Title mapping systems which had requirements very similar to DIDs. It was the ideal P3 model for a number of other reasons. SDW already was contractually positioned as the outsource service provider for the Government for future geospatial and mapping requirements. SDW provides the Government a continuing seat at the table to oversee our regulatory duties as well as providing a seat for key user groups such as the ACR, AFPA and CAPP. We continue to be able to set the standards for what data is collected, protected and maintained. Clearly these datasets are critical to many Government departments and public sector initiatives including the Land Use Framework, other Integrated Resource and Landscape Management initiatives and many private sector interests, however, the improvement, maintenance, management and distribution of these datasets is not part of the core business of any of its users including the Government.”

### -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 Benefits

“As the SRD team lead for the Mobile Office Initiative, I can attest to the significant change in the way we deliver on the Lands program as a result of finally getting our public land dispositions into the geospatial world. It was only a few years ago that we were doing our best with paper maps, land use plats and a stack of land use files and then trying to match all that with what we were seeing out there in the field. With DIDs, we were, for the first time, truly able to understand where a disposition existed on the landscape in relation to everything else that we considered important from a land management regulatory decision making perspective. This data set nearly single handedly moved us into the geospatial world allowing us to efficiently and effectively review and approve land use applications, provide improved client service, assess regulatory compliance, increase staff's field time and their satisfaction in being able to do a better job and to deliver on the Department's mandate. The energy and forest industry also now consider the DIDs information as base level information to be used in building quality land use proposals/ applications and it facilitates integrated land management. It has also eliminated the have/ have-not situation where some companies had better land use information than other companies or even government and put all of us on even-footing as we develop/review and implement various operational plans.”

**-George Robertson**  
*Sustainable Resource Development*

- Historic dispositions would be mapped over a four year period
- There would be a long term maintenance agreement that would allow AltaLIS time to recover its investment in conjunction with SDW/AltaLIS having the right to distribute the data
- Similar to the other datasets managed by SDW/AltaLIS, all Crown land dispositions data would continue to be owned by the Government and the management of the data would be assigned to SDW/AltaLIS under the MDLA (Mapping Data Licensing Agreement)

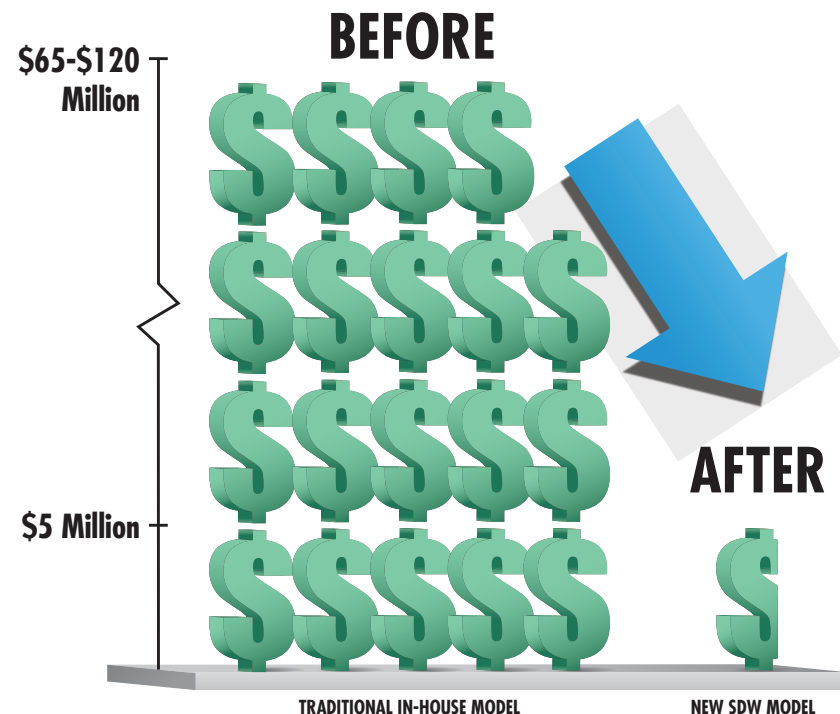


A model for allocating surpluses (profit) from the joint operation of SDW/AltaLIS allows for a pool of funds to be available for continuous improvement and expansion of data and services. This encourages AltaLIS to continue to invest in improving and growing the business to meet the evolving needs of spatial data users in Alberta.

## THE SOLUTION

Immediately following the GoA's approval, AltaLIS started the process of building the new DIDs (Digital Integrated Dispositions) data set and developing the new tools and software required to maintain the database. Within weeks all new dispositions were recorded through the new digital filing process. New dispositions were immediately available online and historic dispositions were added area by area; in part based on priority and activity levels.

### SUBSTANTIAL SAVINGS UNDER THE P3 MODEL

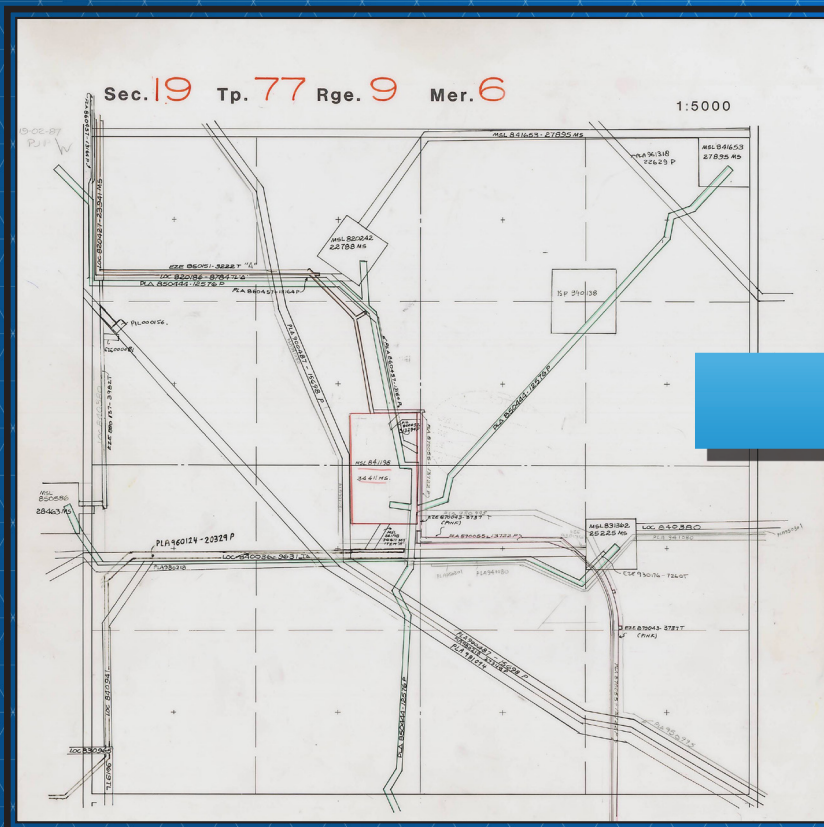


SDW/AltaLIS Has Driven Costs Down – For Cadastral, Titles and Crown Disposition Mapping

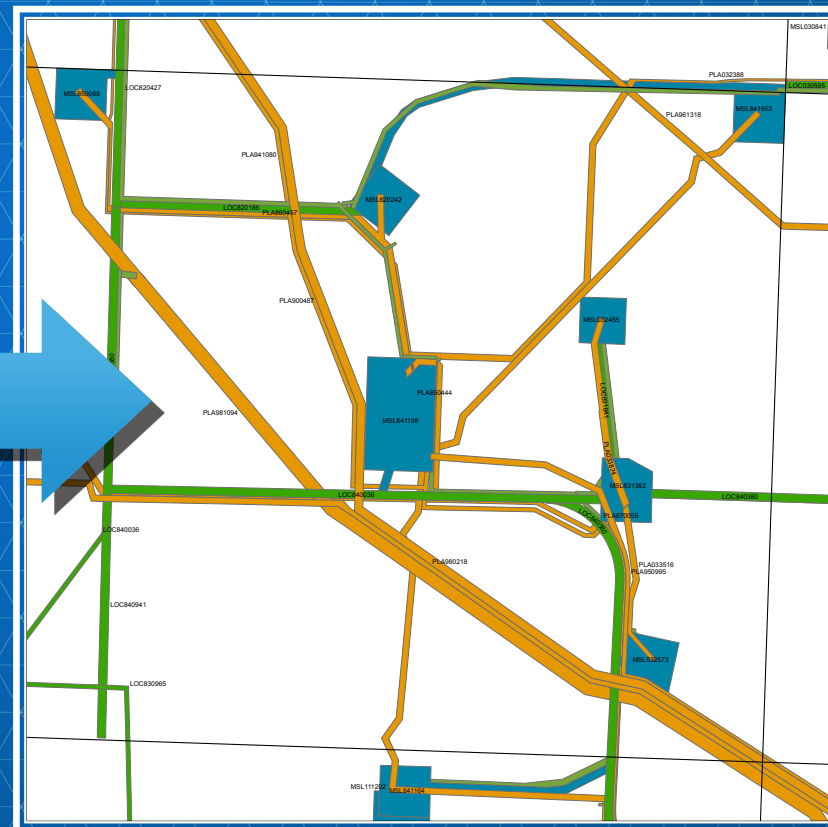


# Significantly Improved Geospatial Data

## DIDs Data: Before and After Converting to a Geospatial Database

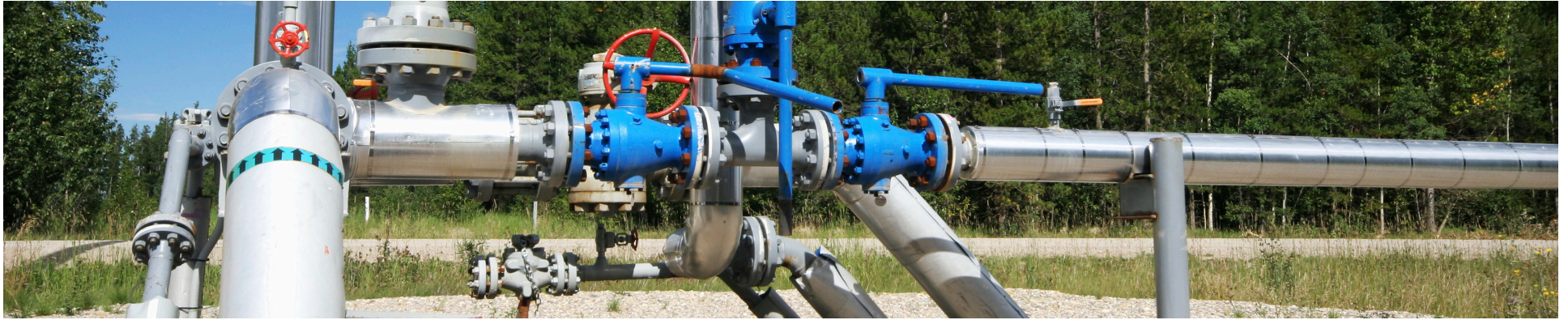


Before: Original Hardcopy Township Plat.



After: New Digital Geospatial Format and Display of DIDs Data.





## CONCLUSION

By October 1, 2009 - less than four years after starting - 232,000 historical dispositions plus over 51,000 “new” dispositions (post 2005) had been added to the system and the ongoing system was fully functional.

By 2010 it was clear the process was an operational success and worth the risk and investment made by SDW/AltaLIS. There has been a significant increase in the usage of the data. DIDs is recognized as the “authoritative data set” for Crown land dispositions. It is widely used for regulatory, permitting and planning applications, by all industry, public and private sector interests that are active on crown lands including:

- Different sectors and levels of government
- Developers
- Utilities
- The resource industry
- Engineering and construction enterprises
- The general public

In combination with the cadastral, title and base features mapping data, managed and distributed by SDW/AltaLIS, Alberta now has a comprehensive, accurate, accessible and affordable multi-layered base mapping dataset available to all who are active on the landscape. This facilitates improved land use planning and coordination at all levels.

