Lessons from Local Government and What's Next with ParcelMap BC

LTSA/ICI Society Virtual Café

May 22nd, 2024

Innovation. | Integrity. | Trust.

bc Land Title & Survey

Agenda

- **Brief Introduction:** Brian Greening (LTSA) – **5 mins**
- **ParcelMap BC Data Integration with Land Records:** Adoption of ParcelMap BC from a folio-centric approach
  - Brian Goble (Manager of GIS Data, City of Colwood) – **15 mins**
- **City of Nanaimo, ParcelMap BC Adoption Experience**
  - Mark Willoughby (Supervisor GIS, City of Nanaimo) - **10 mins**
- **City of Kelowna, ParcelMap BC Adoption Experience:**
  - Cheryl Trent (Data Services & Analytics Manager, City of Kelowna) – **10 mins**
- **What's Next for ParcelMap BC users?**
  - Brian Greening & Taylor McInnes (LTSA) – **15 mins**
- **Close Out, Q & A** – **10 mins**

City of Colwood

ParcelMap BC Data Integration with Land Records

Brian Goble (Manager of GIS Data, City of Colwood)

Colwood Configuration:

- Tempest Land (8500+ records), Prospero, and Calls for Service.
- ArcGIS Enterprise 11.x and ArcGIS Pro 3.x
- GIS Parcels (8000+ polygons) including roads (Interest) and detailed strata lots.

Parcel Updates:

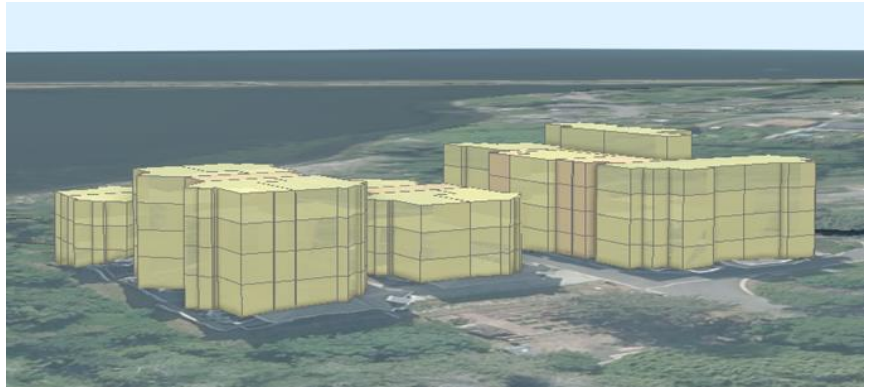
- ICI Society GeoShare weekly delivery of ParcelMap BC (PMBC) and BCA polygons.
- Legal Plans received from LTSA by email after plan registration complete.
- Daily emails from LTSA of Title Updates for import into Tempest Land.
- Weekly updates from BC Assessment for import into Tempest Land.
- Editing parcel geometry into GIS parcel polygon feature class.

City of Colwood

GIS Parcel Polygons:

- ArcGIS Web Maps use [GISLINK] from Tempest Land to link the Land Records with the GIS polygons.
- Folio, PID, Legal Description attributes updated from PMBC and BCA data.

- Detailed geometry of strata lots essential for business processes in Tempest. Therefore, GIS parcel polygons include the geometry of the strata common property and the strata lots. For multi-floor strata buildings, the strata lot polygons are “stacked” and include an attribute for level/floor/elevation.



Example of “stacked” strata parcels with attribute for elevation. Useful for generating 3D scenes showing the building envelope.

City of Colwood

Update Process:

1. Legal Plans prepared in AutoCad in support of as-built drawings, usually pre-subdivision.
2. Pre-subdivision records for new parcels created in Tempest Land with basic attribution and [GISLINK].
3. Geometry transferred/edited into the GIS polygons (pre-subdivision polygons) from AutoCad.
4. Updating areas of change when receiving legal plans, LTSA updates for Tempest, and ParcelMapBC updates.
5. Attribution into GIS from PMBC (PID, Legal, etc.) and BCA (Tempest) data.
6. QA using script to review GIS polygon attributes and compare against Tempest Land Records for matching PID, Folio, and Legal Descriptions.

Example parcel update showing PMBC polygons selected for update of new strata. Detailed strata lots inserted within PMBC "CP" polygon for Tempest Land.

NOTE: Updates and Queries sent to ParcelMapBC Support receive quick response and resolution.

City of Nanaimo – Celebrating 150 Years

City of Nanaimo, ParcelMap BC Adoption Experience

Mark Willoughby (Supervisor GIS, City of Nanaimo)

Nanaimo Current Operating Environment:

- ArcGIS Enterprise - (SDE with MS SQL Server)
- ArcGIS Pro and ArcMap (ouch)
- TEMPEST - land records management
- GeoCortex Essentials for staff facing web map ***HubMap***
- TEMPEST / GeoCortex Connector for property reports
- FME Desktop and Server

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

Pre-PMBC Adoption Nanaimo GIS Parcel Polygon Population:

- 36,400 titled parcel entities (includes side by side duplex Building Strata but no 3D Cadastre)
- 6,900 interest parcels (easements and statutory rights of way)
- 250 Provincially issued foreshore leases and water lots or the like recorded in Gator or Tantalus
- 75 Nanaimo Port Authority foreshore and onshore leases within the 'Federal Harbour' defined by Letters Patent
- 1630 Manufactured Home Park pads

Nanaimo GIS operating philosophy ***'If we collect tax on it, show it in GIS with a property report where possible.'***

[GISLINK (BCAA Folio)] in TEMPEST is primary key used to enable integrated property reporting in HubMap.

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

Pre PMBC Adoption Tasks:

We permanently separated the GIS parcel population into two groups:

- Provided in PMBC weekly update (Fee Simple, Strata Common, Bare Land Strata, Parks)

  and

- Not provided in PMBC weekly update (Provincial / Federal Leases, MHP pads, Building Strata)
  - We continue to maintain these datasets

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

PMBC Weekly Update Overview

'Clean Sweep' approach for updates is powered by *FME Desktop*:

- The geometry of our entire PMBC weekly dataset is ingested to replace the previous week's data
- TEMPEST GISLINK is transferred onto the incoming dataset using BCAA Folio as the primary key
- Internal Parcel Polygon ID is transferred to the incoming dataset

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

PMBC Weekly Update In Detail (*Powered by FME*)

- Rigorously compare the incoming dataset with the 'production' dataset and TEMPEST
- Check polygon counts and folios and parcel areas; investigate any differences and correct as needed

- New titled parcels not in the previous week's dataset are isolated:
    - Assign new internal parcel ID
    - Generate and assign new TEMPEST GISLINK

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

PMBC Weekly Update In Detail (*Powered by FME*)

- In some cases, the folio for a new title is not yet setup in TEMPEST -> do nothing and wait for Finance.
- Re-run the comparison until no differences with TEMPEST are detected.
- When everything perfectly matches, save the *production* dataset to *previous* and incoming to *production*
- This allows a quick rollback if something goes sideways or there is defect in the incoming dataset

City of Nanaimo

City of Nanaimo, ParcelMap BC Adoption Experience

PMBC Adoption Business Benefits

- Substantial reduction in parcel maintenance effort -> freeing valuable resources for other tasks
- Trusted and authoritative data, managed and compiled by SME's
- Responsive support process in place at PMBC

Benefits of Clean Sweep Approach to Updates

- Elimination of time spent tracking and applying updates to parcel geometry
- Any global least squares adjustment applied to parcel boundaries by PMBC are easily ingested

City of Kelowna

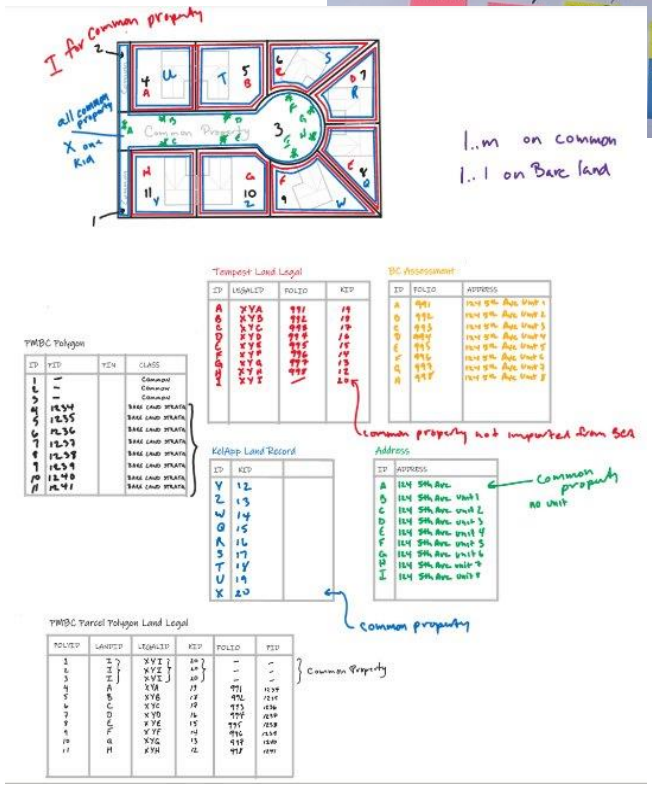
City of Kelowna, ParcelMap BC Adoption Experience

Cheryl Trent (Data Services & Analytics Manager, City of Kelowna)

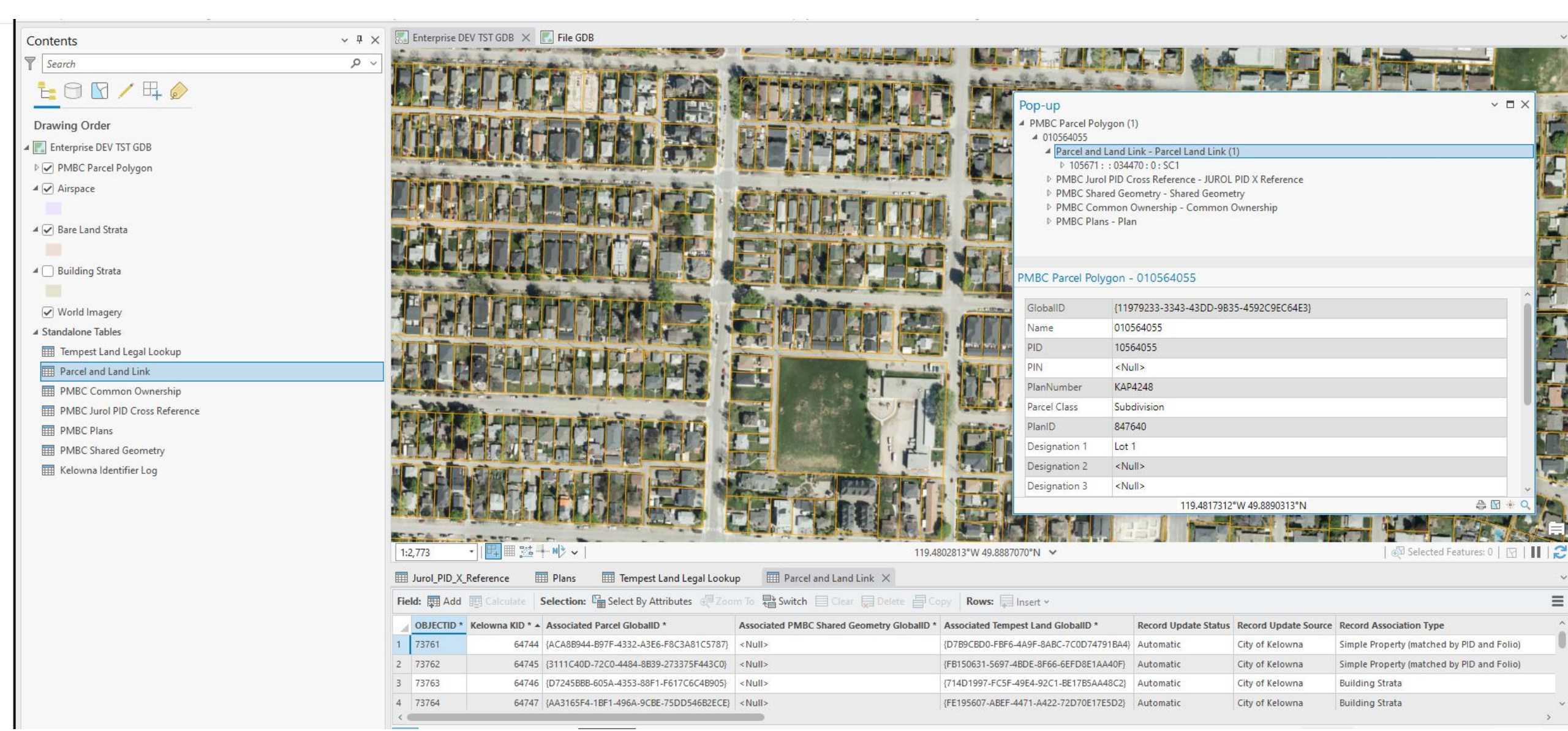
City of Kelowna - Benefits

- Provides a common system of reference for BC
- Sustainable, Standardized, Up-to-date
- Enable the Retirement of Legacy Applications
- Level of effort reduced from one day a week to one day a month
- Highly responsive support staff at LTSA
- GIS staff can focus on value-add and service delivery, not maintaining parcel data.

City of Kelowna - Challenges



- Time lags
- Consolidating information from CofK, LTSA and BC Assessment
- Dealing with Exceptions
  - Many Scenarios (up to 30!)
- Changes to the data
  - Lot dimensions, parcel line accuracy



City of Kelowna – The Easy Parts

- Aligning all geospatial layers to the new fabric
- Fast turn around for new subdivisions
- Responsive support for corrections

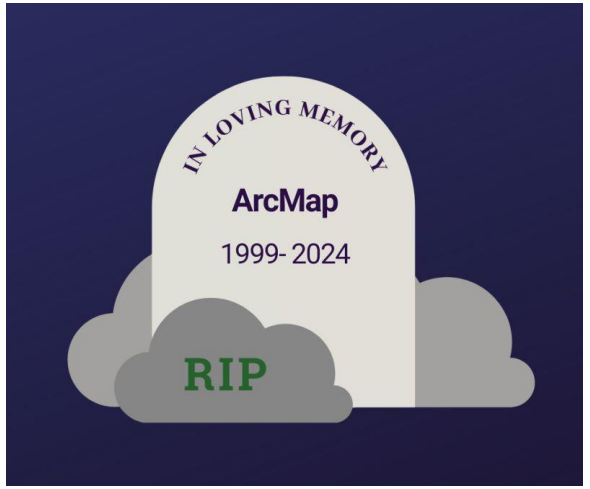
bc Land Title & Survey

What's Next for ParcelMap BC Users?

Some Changes On The Roadmap…

- ParcelMap BC migrates to ArcGIS Pro
- SurveyHub
- Universal Parcel Identifier
- “Proposed” Parcels

What's Next for ParcelMap BC Users?



Migration to ArcPro…

- ParcelMap BC will be transitioning to an ArcPro Parcel Fabric.
- The modernization will be an enabling piece of infrastructure that will help facilitate future enhancements and land data products and capabilities
- Minimal impact to customers

ParcelMap BC migrates to ArcGIS Pro

Expected Go-Live:
June 10th 2024

A SIGNIFICANT milestone of change for ParcelMap BC "behind the scenes"!!

Schema Changes coming to ParcelMap BC Data Products

Owner Type:

- Municipal to Local Government
  - NOTE: This will show up as an "ownertype" change on the first "Real World Change" download.
- First Nation to First Nations for domain code only
  - Note this is an update to the Domain Code, the Domain Description remains the same. First Nations for both

PlanID:

•Data Type Change - "PlanID" is changing from a Long Integer to a String
  •Still functions the same as the key field to link to plans.
  •PlanID will be a GlobalID in the 'Working Fabric' and formatted as a text string in the download products

ParcelMap BC migrates to ArcGIS Pro

Spatial Improvement Program Updates

Large Scale Spatial Improvements (as communicated on the Spatial Improvement Web App) will be on hold as we refine the LSA (Least Squares Adjustment) functionality in ArcPro.

Deep dive details: Least-square adjustments and the parcel fabric. Under the hood at ParcelMap BC the upgrade to ArcPro has given us a new LSA engine. Transitioning from SNAP to DynAdjust will result in the following:

- Adjustment of coordinates in three dimensions (x,y,z)
- Support of multiple measurement types, for example, horizontal angles and geodetic azimuths
- Constrained adjustments (adjustments using known, weighted control points)
- Minimally constrained or free network adjustments
- Estimation of precision of adjusted coordinates
- Statistical analyses of adjustment results

Attribute Updates:

- PMBC-COMPILATION: Positional Error is the average offset between Control points and associated fabric points in the neighborhood
- PMBC-OPERATIONS: Positional Error is an estimate of the maximum distance a parcel is from its real world position.
- LSA: Positional Error is a statistical measure of how likely a parcel is to be in its correct real-world position. It is calculated as circular error probable at 95%. The reported error is the worst CEP95 for the points on the parcel.

SurveyHub

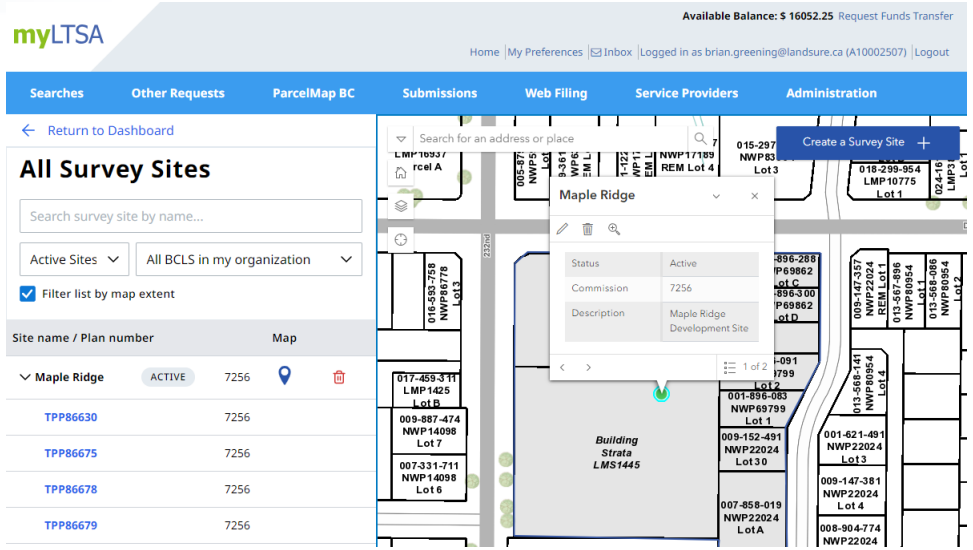
General Availability:
Late October 2024

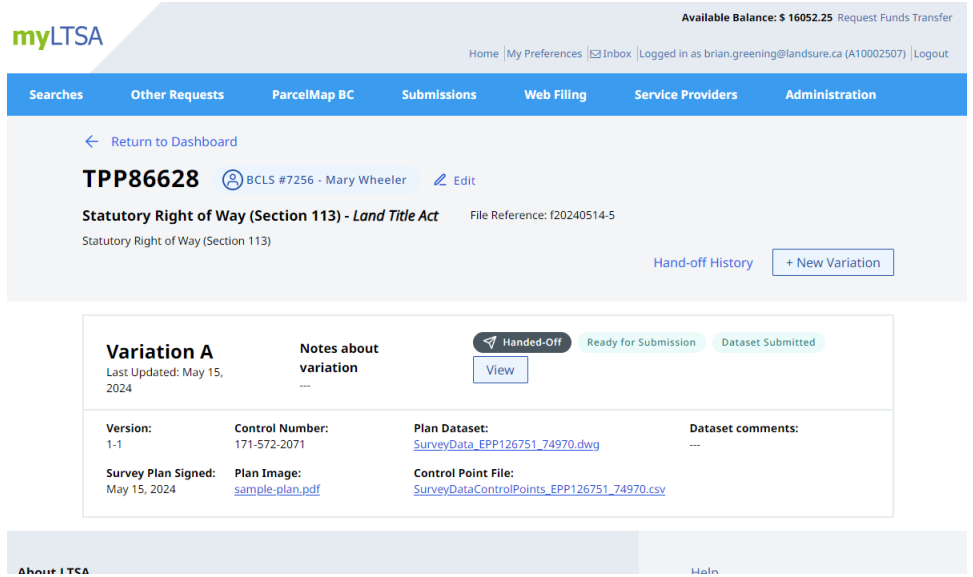
First Step in Survey Plan Modernization

SurveyHub is being developed for land surveyors and their staff who work with plan submissions to provide a single access point for a range of workflow and submission functionality.

Single web-based workspace to *create, assemble, validate, certify, share and submit* a *unified survey plan* and related material, including forms and datasets. Functionality will be rolled out over several phases.

Currently in Pilot Release v0.5 (roughly 30 land surveyors) with v0.6 expected in early June adding “hand-off” capability to legal professionals (and extended Pilot)





Universal Parcel Identifier (UPI)

Forecast Release:
December 2024

Business Problem:

- Numerous parcel records lack unique identifiers. The current count of parcels that do NOT include a PID or PIN today exceeds 125,000 parcels (Active and Historic), and this a growing issue. With UPI, all parcels will be assigned a unique identifier, regardless of whether they are assigned a PID or PIN.

Current State:

- Customers have resorted to building manual solutions, often using Excel, resulting in manual & tedious processes and limited "local" use

Proposed Solution:

- Introduce the Universal Parcel Identifier (UPI) to provide a standardized identifier for all parcel types, enabling consistent, province-wide identification & interoperation.

Why Now:

- Customer demand has existed for some time, and with the forthcoming ArcGIS Pro upgrade, it is feasible to include the UPI as a new attribute (which would ultimately be included as part of the Parcel Fabric download).
- This UPI implementation also paves the way for the Proposed Parcels initiative on the roadmap.

UPI is a managed service providing a unique business ID available for ALL "parcels", including roads, park dedications, common property and other interests

ParcelMap BC will be the 1st "consumer" of UPI

Key Milestones

1. November 2023 – Customer Consultations
2. Spring 2024 – Proof of Concept
3. Now – Refining POC into PROD and integrating into ParcelMap BC

bc Land Title & Survey

“Proposed” Parcels

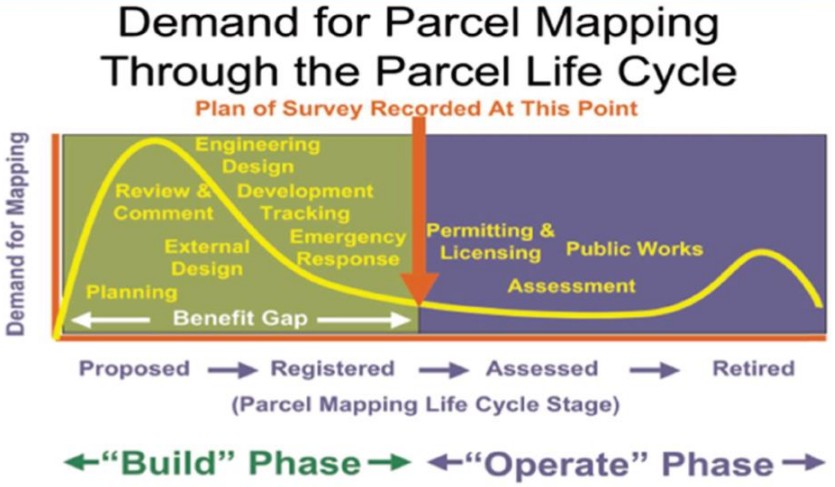
Targeted:
Late 2025

“Shifting left” the Modernization of Survey Plans

The idea / initial workings – and usefulness – of a “parcel” starts much earlier than when accepted into a register

Many stakeholders in the lifecycle of a parcel already have some concept of an “early copy”, “preliminary” or ”pre-registration” parcel

SurveyHub, UPI and ParcelMap BC bring together unique building blocks of capabilities (and related stakeholders) to address pains & realize opportunities, at scale, across BC for these earlier stage parcels… *helping bring efficiencies and traceability across the land & property ecosystem.*



Source: Geomatica Volume 61 Number 4, 2007

Target Milestones

1. Late Summer / Early Fall 2024 – Customer Consultations & Definition
2. Through 2025 – Iterative build / delivery…

Thank You For Participating!

Video recording & slide deck will posted soon!

https://help.ltsa.ca/parcelmap-bc-workshops-and-tutorials

Learn more at:

ltsa.ca/parcelmapbc

help.ltsa.ca/parcelmap-bc

Have questions? Contact us parcelmapbc@ltsa.ca

ParcelMap BC Newsletter: Sign up here!

Feedback, Questions & Closing Remarks

ParcelMap BC Resources:

- Adoption Resources & Tools
- Data Products & Descriptions
- Webinars & Workshops (slides & videos)