

Utilities Sector Focus Group

Discovery Workshop

Organized by:

ParcelMap BC Adoption Working Group

Welcome / Opening Remarks

Workshop Background

ParcelMap BC Adoption Working Group & part of the ICI Society Virtual Café Series

Panel & Facilitator Introductions

Brian Greening, Director, ParcelMap BC Products, LTSA	Bill Johnstone, Principal Consultant, Spatial Vision Group		
Steve Mark, Director, Operations, ICI Society	Jason Hart, Owner, Harterra Spatial Solutions		
Irshad Jamal, Parcel Fabric Technician, LTSA	John Samulski, Project Manager, Spatial Vision Group		



Agenda

Welcome / Opening Remarks Brian Greening, LTSA	10:00 am	10:10 am	10 min
1. Prior Discovery Work in Utilities Sector – 2019 360 Lab Sessions Steve Mark, ICI Society	10:10 am	10:20 am	10 min
2. Introduction to ParcelMap BC & Utility-Focused Considerations Brian Greening, LTSA Bill Johnstone, LTSA/Spatial Vision Group / Jason Hart, Harterra Spatial Solutions		11:00 am	40 min
3. Discovery Exercises: Users / Workflows / Data / Integrations Bill Johnstone, LTSA/Spatial Vision Group / Jason Hart, Harterra Spatial Solutions 1. Business Areas & Users Who uses the data? 2. Workflows and Software Applications How do they use it? 3. Data (Business Objects, Spatial and Attributes) What content? 4. Integrating with Other Systems Tieing data together 4. Organizational & Program Dependencies John Samulski, LTSA/Spatial Vision Group	11:00 am	11:30 am	30 min
 Key drivers for adopting ParcelMap BC Primary challenges in transitioning to ParcelMap BC Dependencies with internal Business Areas Dependencies with partner / external organisations 			
 5. Close Out Panel: Questions & Discussion Detailed Input and Feedback: Follow-On Survey Monkey Questionnaire Possible future engagement with your organization to explore how to adopt ParcelMap BC 		12:00 noon	10 min



What We Are Trying To Learn About Your Organization

Key Questions:

- 1. Who in your organization uses (or needs to use) parcel-property data?
- 2. What parcel-property content do you need?
- 3. How do you use parcel-properties in your workflows?
- 4. Do you integrate parcel-property data into your other enterprise systems? How?
- 5. Are you currently adopting ParcelMap BC or just thinking about it?
- 6. What content needs to be added to the parcels-properties datasets?
- 7. Are there internal or external dependencies are influencing your migration to ParcelMap BC?

Primary Types of Utilities / Infrastructure Stakeholders

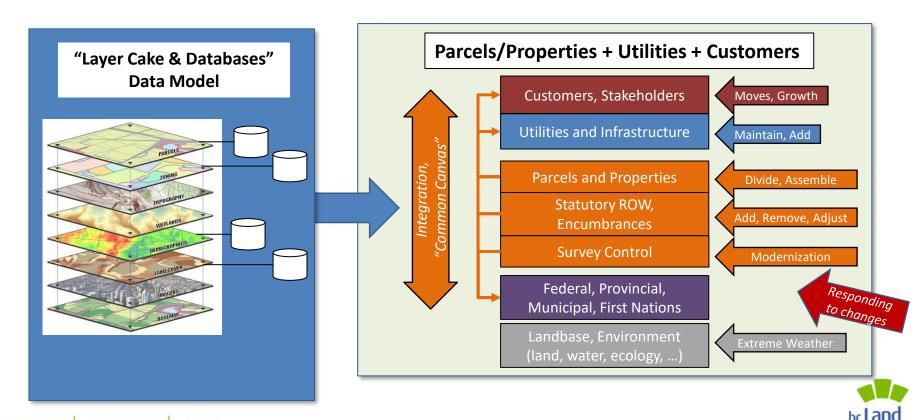
- Utilities
- Municipal & Regional Government who have utilities
- Provincial who provide infrastructure (MOTI)
- Federal
- Surveyors/Geomatics, Consulting Engineers, Construction, Locate services, Real Estate, ...

Utility Stakeholder Engagement for ParcelMap BC Adoption:

- 1. This Workshop: Discussion Questions (Survey Monkey)
- 2. Follow-On: Detailed Questionnaire (Survey Monkey)
- 3. Follow-On: ParcelMap BC Adoption Engagement Exercise (Adoption Facilitator Team)



This Workshop in One Diagram



Title & Survey

1. Prior Discovery Work in Utilities Sector: Fall 2019 360 Lab Sessions

(Steve Mark, ICI Society)



ICI Society – 360 LABS – September 17, 2019

Background

Next week, the ICI Society will host a 360°Labs workshop focused on using ParcelMap BC in your organization. The agenda brings together parcel mapping experts from the LTSA (ParcelMap BC), GeoBC (ICF) and BC Assessment (Assessment Fabric), along with your ICI Society data transformation and access team (GeoShare), and the folks who know best what's important about land records management in your organization... you!

Objectives

Workshop objectives include:

- 1. Learning how the ParcelMap BC operations team compiles the survey fabric so that you can better understand the product and how it is maintained.
- 2. Documenting your own parcel management workflow at a level that enables you to identify ParcelMap BC benefits for your organization and important characteristics to be considered for using ParcelMap BC.
- 3. Describing some specific ways that you can integrate ParcelMap BC updates into your workflow and the concrete actions that you can take to analyze, prototype, and ultimately, get the most out of ParcelMap BC on an ongoing basis.

ICI Society – 360 LABS

The "Work" in Workshop

In two working sessions, you will be asked to put pen-to-paper.

In the first session, you will be asked to sketch out significant steps in your parcel mapping workflow. What is a "significant step"? It is any step where you anticipate ParcelMap BC can make life easier for you (a "benefit") or where you do something in a specific way and you'd like to observe how that is reflected in ParcelMap BC (a "consideration"). Ultimately, seeing the benefits and being mindful of the considerations will provide a strong foundation for your plan to use ParcelMap BC.

In the second session, you will be asked to sketch out imagined amendments to your workflow to make use of ParcelMap BC updates. These amendments should be specifically designed to enable you to realize the benefits and manage the considerations that you highlighted earlier. Finally, you will be asked to list a set of practical actions and a timeline to test-drive and implement your ParcelMap BC workflow.

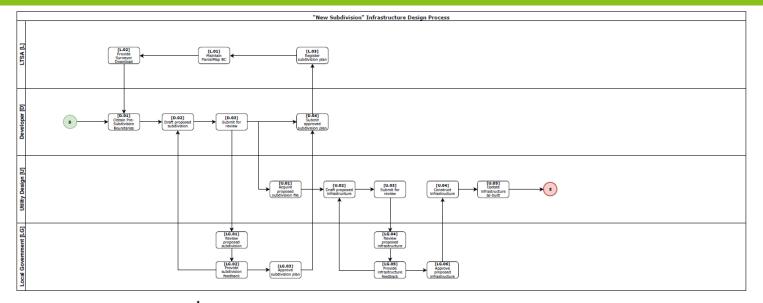


ICI Society – 360 LABS - Attendees



- BC Hydro
- Telus
- FortisBC
- Shaw Cable Systems
- City West Cable





Key Points

Where do the new subdivision boundaries originate?

- Are they provided by the Developer digitally?
- Are they drafted internally?

Is the new infrastructure designed in isolation?

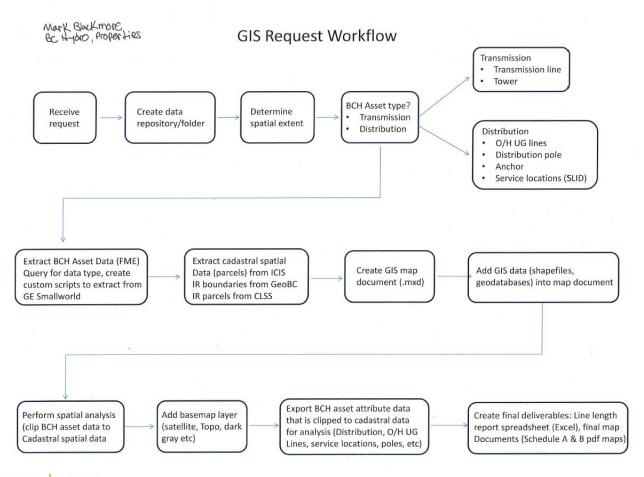
- Does the subdivision line-work need to be coincident/matching to the existing land base?
- Are design plans "independent" from the land base (i.e. as CAD drawings)?
- At what point does the infrastructure design need to be reconciled with the land base.

What organizations are the design plans shared with?

- What are the considerations for matching the design land base with other organizations' land base?

Notes







innovation.

integrity.

trust.

Operational / Business Impact Notes

What would be the impacts of using ParcelMap BC exclusively for mapping the land base even if the local government in a given jurisdiction is using a

- · central source of codostral data
- · Data is continually updated by authoritative sources · common system of reference across all of BC. · provides land related research

- · forcel map BC spatial Improvement Assessment APP.

ParcelMap BC Planning Notes

What are some practical activities / steps that you can envision taking in considering to use ParcelMap BC operationally?

- neviewing Parcelmap BC website to take a lock at feature and improvements to managing parech fabric on a provincial level.
- Having Porcelmap BC. come in house for a presentation

What other types of operational processes - aside from planning the extension of infrastructure in a new subdivision - may have different considerations for using a specific parcel fabric. For example, are there different considerations for major infrastructure projects? For projects spanning multiple

jurisdictions?

it. mans mantain project (kinder warran now canada)

Transmission Line re-routing

perhaps 6-12 months, however these types of decisions are out of my control. Executive t management team makes these types of decisions.



2. Introduction to ParcelMap BC& Utility Focused Considerations



Theme 1: Parcels+ Properties Fundamentals





Property Owners V

Professionals Y

Government ~

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ParcelMap BC

Home Page

LTSA > Products & Services > ParcelMap BC

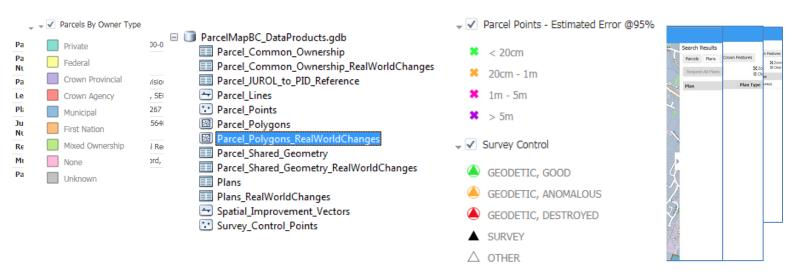
ParcelMapBc

The *current, complete,* and *trusted* visual representation of titled and Crown land parcels across all of British Columbia.

A key piece of **data infrastructure** supporting **economic and social development** in the province.



ParcelMap BC: Continually Improved, Comprehensive Property Information



Products & Descriptions

"Survey Aware":

- Parcel geometry directly represented by <u>survey plan datasets</u> from land surveyors
 "Closest to source":
- Rich attribution synchronized with land title records and the Crown land registry
 "Current":
- 2 Day service target: Hovering ~ 1 day since March 2018!

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ParcelMap BC: <u>Spatial Improvements</u>

Accuracy improvements driven by monthly assessments

Latest assessment to December 6th, 2021

Targeted:	
Rock Creek	December 2021
Osoyoos	December 2021
Galena Shores	December 2021
Spallumcheen	January 2022
Kedleston	January 2022
Christina Lake	January 2022
Peachland	February 2022

Completed (*Latest* only – full list <u>here</u>):

Chilliwack / Sardis - August 2021

Oyster River (CVRD) - August 2021

Cumberland - September 2021

Fraser Valley Regional District - September 2021

Little River - October 2021

West Kelowna – October 2021

Northwest of Okanagan Lake - November 2021

West Kelowna – November 2021

Moyie - November 2021

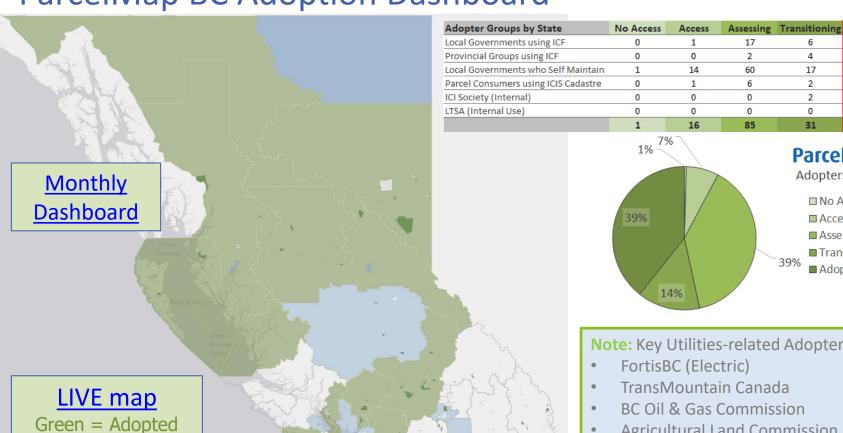
Note: Since August 2018, the Spatial Improvements Team has adjusted over **130,000** parcels with a combined total area representing over **4000** sq. km of the Province.

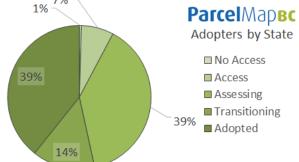


Adjustment Readin	ess Summary	₩ □ X
1_1	Area of Interest	115
	Candidate Areas	3,154
	Adjusted Areas	6,803

ParcelMap BC Adoption Dashboard

Blue = Transitioning





Note: Key Utilities-related Adopters include:

- TransMountain Canada
- BC Oil & Gas Commission
- Agricultural Land Commission
- BC Assessment Authority...

Adopted

27

0

2

86

17

Total

72

119

16

2

2

219

ParcelMap BC Adopters Example: BC Assessment



- Automated processes developed
- Weekly and daily scheduled jobs run overnight
- Weekly manual processing for exceptional (aka difficult) properties



Tom O'Brien & Mark Harris
ParcelMap BC Adoption Certificate
June 2019



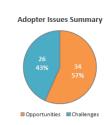
Leveraging ParcelMap BC: Beyond the initial scope

Since 2018, the <u>Adoption Working Group</u> (AWG) has been addressing Challenges & Opportunities of adopting ParcelMap BC



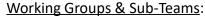
State of Opportunities by Priority

Actionad



Reporting Updated to:





Alignment, Land Records, Province, Large Municipality, Utilities...

Transition Planning Resources:

For assessment, planning & positioning of ParcelMap BC adoption

<u>Workshops and Seminars</u> and the <u>ParcelMap BC Newsletter</u> Resources available for future reference & staying up to date

Comprehensive product information:

Descriptions & definitions of ParcelMap BC data & services

innovation. integrity. trust.

Spatial Data Alignment Resources:

Toolkits, 3rd Party Datasets & other tools for parcel data alignment

<u>Dataset Enhancement & Enrichment Programs</u>:

Back-capture of Statutory RoWs over Crown land Titled Roads and Established Highway digitization Interest Parcel (historic encumbrances) intake Absolute Fee Book parcel conversion & capture

Other Enhancement & Enrichment Programs:

Proposed (pre-registration / confirmation) parcels Universal Parcel Identifier

Please head to the Chat panel:
Poll Question Time!



Theme 2: Utility-Focused Considerations for Adoption

Integrating Parcels+ Properties with Utility Assets + Customer Information

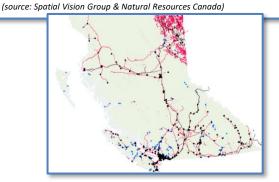


Who would use ParcelMap BC in the Utilities / Infrastructure Sectors? (Sources: US DHS 10-Sector CI Model, EMBC & NRCan)

Primary Types of Utilities / Infrastructure Stakeholders

- Utilities (Private & Crown)
- Municipal & Regional Government (water, sewer, storm, roads, ...)
- Provincial (Infrastructure, Regulatory)
- Federal (Infrastructure, Regulatory)
- Surveyors/Geomatics, Consulting Engineers, Construction, Locate services, Real Estate, ...

Sector Example: BC Provincial Energy Sector CI Map for Climate Change Resiliency Assessment



1 - Government

- 1 Municipal
- 2 Provincial
- 3 Federal
- 4 First Nations

2 - Energy and Utilities

- 1 Electric Generation
- $2-\mathsf{Electric}-\mathsf{Transmission}$
- 3 Electric Distribution
- 4 Natural Gas Extraction
- 5 Natural Gas Transmission
- 6 Natural Gas Distribution
- 7 Oil & Gas Extraction
- 8 Oil & Gas Transmission
- 9 Oil & Gas Distribution
- 10 Liquid Propane Ga
- 11 Nuclea
- 12 Co
- 13 Ethanol
- 14 Steam

3 - Communications & IT

- 1 Communications
- 2 Internet / Cloud

4 – Transportation

- 1 Roads
- 2 Rail
- 3 Rapid Transit
- 4 Ports & Harbours
- 5 Air

5 - Water (& Waste)

- 1 Water Supply & Distribution
- 2 Waste Water Management
- 3 Drainage
- 4 Solid Waste Management

6 – Safety (& Public Protection)

- 1 Polic
- 2 Fire
- 3 Ambulance Service
- 4 Emergency Facility
- 5 Other

7 – Manufacturing (& Service:

- 1 Chemical
- 2 Defence
- 3 Asphalt
- 4 Concrete
- Forestry
- 6 Mining
- 7 Metal
- 3 Manufacturing

8 - Food

- 1 Agriculture
- 2 Processing
- 3 Distribution

Finance

- 1 Banks & Credit Unions
- 2 Insurance
- Securities Exchang
- 4 Sector Support

0 – Health Care

- 1 Acute Care
- Primary Care
- 3 Community Care
- Public Health

aport Service:

Title & Survey

Very wide range, number and types of potential users who could combine parcel-properties datasets with utilities datasets

Leading Practices and Trends in Parcel-Property Adoption by Utilities and Infrastructure Organizations

- Design and engineering: Use ParcelMap BC as the starting point for designing infrastructure
- Administrative and or legal boundary alignment
- Planning, OCP, Zoning, Land Use, etc.
- As-Constructed Records
- Inspections, Maintenance, Operations

- Emergency Operations / Common Operating Picture
- Management of rights-of-way and easement
- Automation of alignment to ParcelMap BC fabric
- Business intelligence and decision support (Property Info, Assessment)
- Open access and sharing of data
- Driving data quality improvements



Technology Trends / Drivers



Big Data / Big Geodata / Analytics:

Descriptive: What is there? What's going on?

Explanatory: Why is this happening?

Predictive: What could happen in future?

Prescriptive: What should we do about it?

Systems of ..:

Record "As constructed, .. maintained"

Engagement "Sell services, Get feedback"

Insight "Work smarter, Find opportunities"

Geomatics/ Geospatial / Cloud:

- GPS, GNSSS, RTK, LiDAR, Drone, ...
- CAD/BIM (3D)
- GIS-CAD/BIM Integration (AEC)
- Digital Twins, 2D and 3D models



- Mobile/Field Data
- WebGIS Cloud Services, Data As A Service (DAAS)
- Direct asset inspects: cameras, geopigs
- Utilities Locate & One Call Services
- CSA utility standard for buried infrastructure

Technical trends will continue to drive and enable the use of parcel-properties datasets by utilities / infrastructure organizations





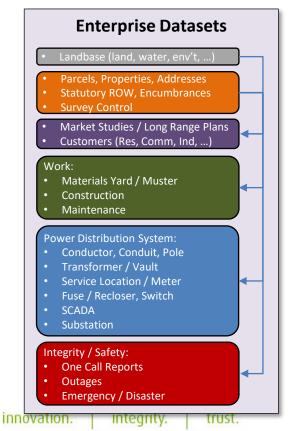
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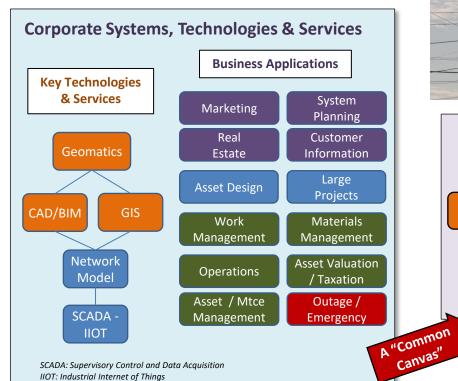
integrity.

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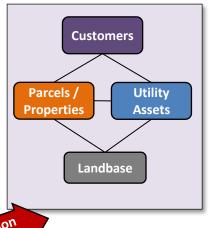
Example of Datasets, Workflows & Applications:

Electric Power Distribution









Drawing on a common canvas

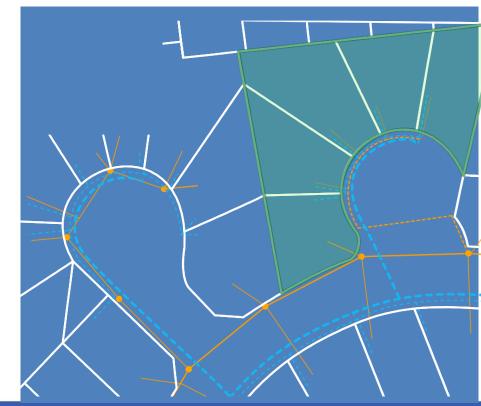
- Many organizations start with parcel boundaries for designing, planning and creation of their information and data.
- Historically, the source parcel boundaries have come from different sources with varying accuracies, precision and completeness.
- Results in data generated with varying accuracies, precision and completeness.



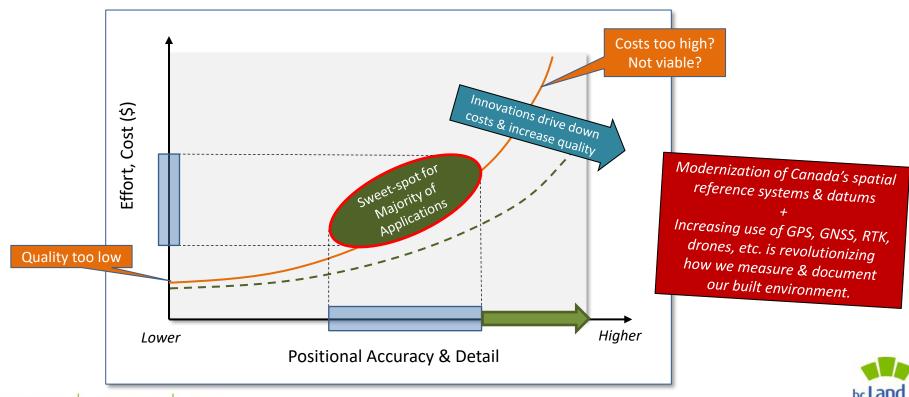
Benefits of a common canvas

 Use of a common parcel representation for design and planning has the effect of aligning datasets between and within organizations.

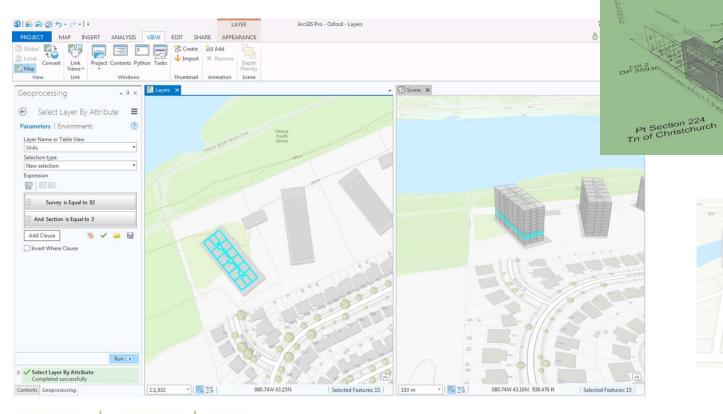
- Overall goals are to:
 - Reduce or eliminate errors
 - Increase confidence
 - Reduce duplication of information
 - Reduce costs
 - Provide new opportunities...



Spatial Data Accuracy for Properties-Parcels and Utilities-Infrastructure



Parcels/Assets/Customers (2D / 3D)





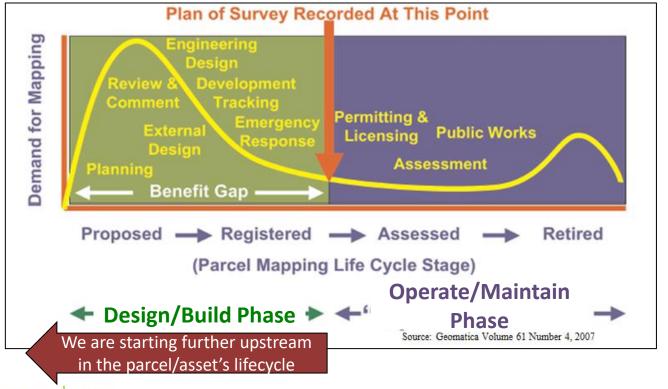


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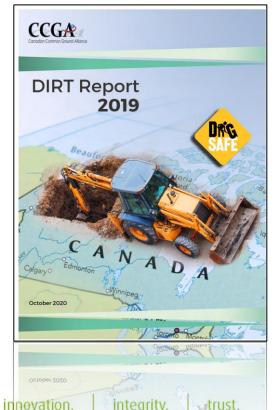


Supporting the Asset Lifecycle: Improving Timeliness & Currency, Moving "Upstream"





Hazards to Utilities, 3rd Party Hits, One Call, Standards



DIRT Rep		ce\Degion 2	2019	R	eportir	ng Stak	æholde	ers
Province /Region	% of Population ‡	Damages	% of Damages	Damages per Work Day	Locate Requests	Damages per 1,000 Requests*	Locate Notifications	Damages per 1.000 Notifications**
British Columbia	11%	1,304	12%	5	202,052	6.45	679,203	1.92
Alberta	9%	3,613	27%	14	403,434	8.96	1,463,751	2.47
Saskatchewan	1%	669	6%	3	141,518	4.73	450.209	1.49
Manitoba	2%	196	2%	1	74,861	2.62	191,226	1.02
Ontario	42%	5,005	44%	20	1.071,928	4.67	6,227,227	0.80

StatsCan (2019)
Locate request is defined as 'communication between an excavator and a staff member of a One-Call Centre in which a request for
locating underground facilities is processed

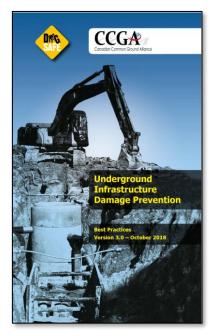
52.361

627.518

68,686 9,707,820

"Notifications: Ticket data transmitted to underground infrastructure owners.

Examples From CSA S250 Standard (see also: ASCE 38-02, UK PAS 128, NL KLIC/KLIP)						
Accuracy Level	Recording Location Information	Accuracy (95% C.I.)	Reference (absolute or relative)			
1	Exposed infrastructure, Measure XYZ	+/- 25 mm	Abs			
2	Exposed infrastructure, Measure XYZ	+/- 100 mm	Abs			
3	Exposed infrastructure, Measure XYZ	+/- 300 mm	Abs or Rel			
4	Exposed infrastructure, Measure XYZ	+/- 1,000 mm	Abs or Rel			
5	Not exposed. Geophysical. XY only	+/- 1,000 mm	Abs or Rel			
0	No Information					





Operational Benefits / Hazards & Disasters

Operations / Costs:

- Sharing utility asset data between the utilities
- Shared infrastructure, conduits, trenching, poles (joint use)

Hazards/Disasters:

- Infrastructure interdependencies:
 - Key CI sectors provide services other CI sectors
 - o Climate Resilience: NRCan studies in British Columbia
- Accuracy in location & addressing (nextGen 911)
 - Reaching people in need, properties associated with assets, restoration / reconstruction



Abbotsford, BC Nov 2021

Poll Question Time!

Title & Survey

Case Study: Building a Common Canvas

Jason Hart, Harterra Spatial GIS Solutions



ParcelMap BC at the City of Penticton

- City of Penticton was an earlier adopter of ParcelMap BC
 - Replaced their existing self-maintained cadastral base
 - Integrated with other business systems

- Leveraging ParcelMap BC to support operations including:
 - Service cards for water and wastewater
 - Tree trimming notification
 - Buried infrastructure locate requests automation
 - Many others...

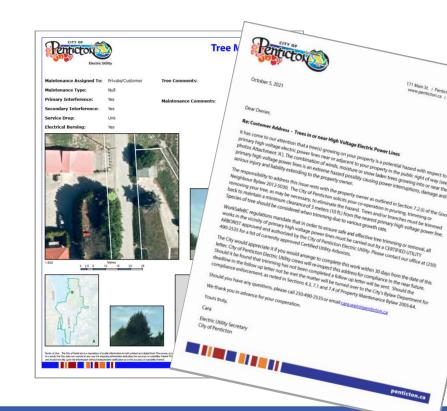


Tree trimming and notification

 Wanted efficient way to generate notifications of electrical interfering customer owned trees.

 Use field data collection to gather tree and trimming information.

 Spatial association of data collected in field with ParcelMap BC fabric



Service Utilities Report

 Historically used a non-spatial database for attributes about service and CAD for graphic representation.

Migrated data into GIS along with ParcelMap BC parcel fabric.

 Developed automated report that automatically provides dimensions to ParcelMap BC property

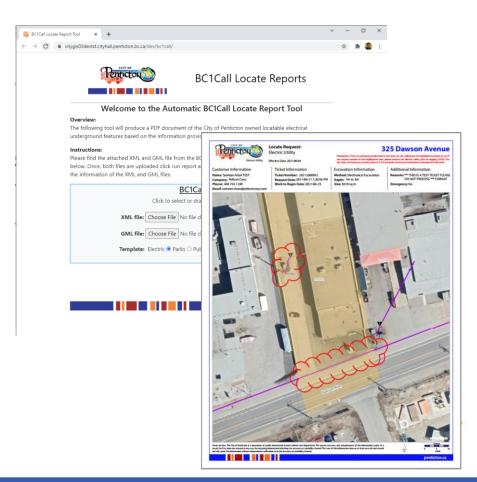


Underground locates

City responds to BC1Call requests

 Historically a very manual process to create map for response and involved multiple departments.

 Leveraged ParcelMap BC data to automate mapping for locate response.



3. Discovery

Bill Johnstone, LTSA/Spatial Vision Group Jason Hart, Harterra Spatial Solutions



Discovery Activities

Discovery Themes:

- 1. Business Areas & Users
- 2. Workflows and Software Applications
- 3. Data (Business Objects, Spatial and Attributes)
- 4. Integrating with Other Systems



Discovery 1: Business Areas and Users

Who Uses the Parcels/Properties Data?



Business Areas & Users: Who Creates and Uses This Data?

The types of utility departments and users who use parcel-properties data in some form is very large.

Departments / Groups:

Municipal Government

- Planning
- Engineering
- Public Works
- Operations
- Parks & Recreation

Utility

- Marketing
- Customer Relations
- Engineering
- System Integrity
- Transmission
- Distribution
- Joint Use / Foreign Utilities
- Operations / System Control
- Emergency Operations
- Lands and Real Estate
- Aboriginal Relations
- Records Management
- Finance, Taxation
- Human Resources

Regulatory

- Policy
- Environmental Stewardship
- Applications
- Permits and Operations
- Engineering / Integrity
- Major Projects
- Compliance & Records Management
- Liabilities, Closures, Restoration
- Strategic Relations
- Regulatory Affairs
- First Nations Relations
- Communications
- Legal Counsel
- Audit, Governance

User Types:

- Manager
- Planner
- Engineer
- Designers
- Constructor
- Operator
- Asset Manager
- Lands Administrator
- Environmental Specialist
- Land Surveyor
- Asset Surveyor
- Engineering Technicians
- Land Development Professional
- GIS Professional / Technician
- CAD-BIM Professional / Technician
- General Administrator
- Design Firms, Professional Consultants
- Constructions Firms,
- Owner's Engineer, Quantity Surveyors
- Environmental Monitoring



Parcel-Properties Data Use Cases

- Styles of Parcel-Properties Data Creation and Use:
 - Some use parcels directly
 - Many use parcels indirectly
 - Some are involved in the design of a new community new parcels

- Parcel-Properties Data Use Patterns:
 - Parcels as Context: A backdrop for other data
 - Inputs Service Demand Analysis and Trends
 - Long Range Planning / Asset Design
 - Asset record (as-built positioning)
 - Engineering Assessments and Analysis
 - Disaster: Service Restoration, Recovery



Discovery 2: Workflows and Software Applications

How Do Your Staff Use the Parcels/Properties

Datasets?



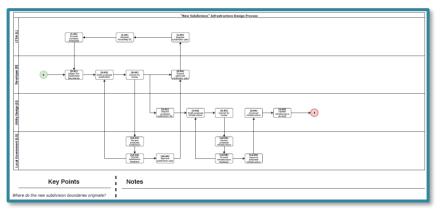
Business Contexts for Utilities & Infrastructure: Geographies, Workflows, Datasets

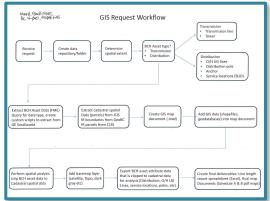
Each sector has its own workflows:

- Utility Workflows
- Provincial Gov't Asset Workflows
- Municipal Gov't Utility Workflows
- Regulators Workflows
- One Call Workflows

Examples:

- Stakeholder Inputs to 360 Labs
- Planning / Design / Construction / Records-"As Builts"
- Inspections / Maintenance
- Upgrade / Replace
- One Call / Emergency-Disaster / Restoration-Rebuild

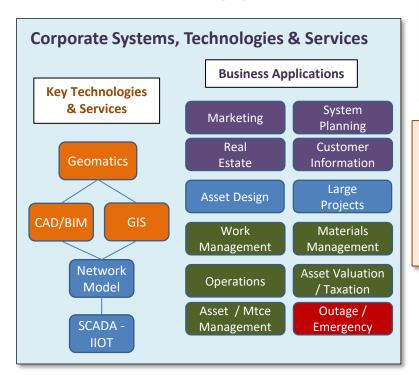








Software Applications



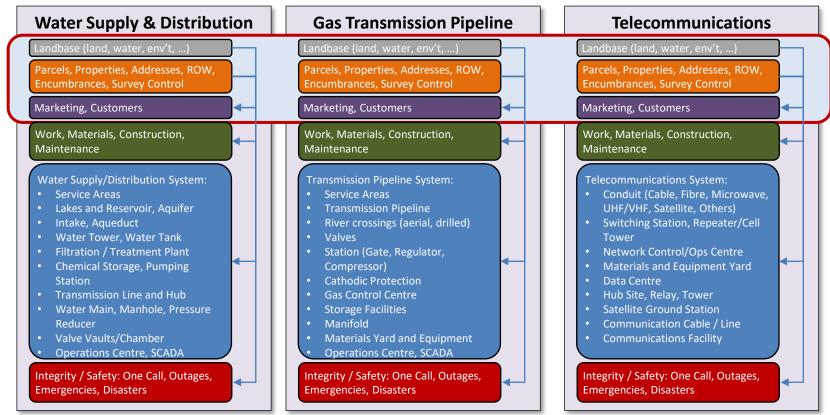


Discovery 3: Data / Business Objects

What Content Do You Use/Need? (spatial, attribute)



Examples of Business Data for Different Utility Sectors





Please head to the Chat panel:

Poll Question Time!



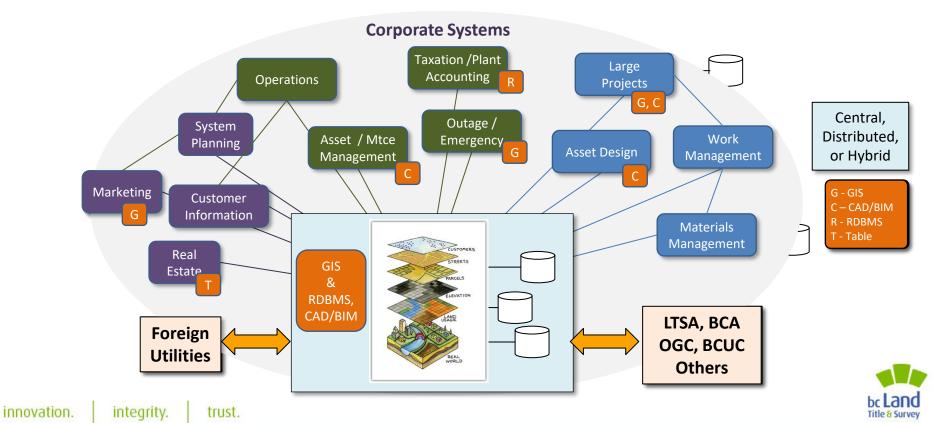


Discovery 4: Integrating With Other Systems

Where else do you use Parcel-Property data?



Integrating with Other Systems, Working with a Common Fabric





4. Organisational & Program Dependencies

John Samulski, LTSA/Spatial Vision Group



Key Drivers for Adopting ParcelMap BC

Benefits:

The benefits associated with ParcelMap BC adoption can be categorised into five main themes:

- Data Quality, Currency and Completeness,
- Workflow / Process Efficiency,
- Operational Savings,
- Improved Integrations and Collaborations (internal and external), and
- Improved Decision-Making and Risk Mitigation.



ONLINE RESOURCES FROM LTSA:
PARCELMAP BC
TRANSITION PLANNING TOOLKIT



Key Drivers for Adopting ParcelMap BC

Risks:

Organisations typically face one or more of the following risks in deferring the transition to ParcelMap BC:

- Errors during internal parcel data maintenance process resulting in decisions/actions based on incorrect information.
- Use of incorrect or inconsistent parcel fabric data relative to LTSA/LTO and BCA records.
- Damage by third-parties to buried infrastructure due to level of quality and completeness of utility "locate" maps provided to BC One Call.





Primary Challenges in Transitioning to ParcelMap BC

Adopter Organisations have identified one or more of the following challenges associated with the transition to ParcelMap BC:

- Lack of knowledge of / comfort with ParcelMap BC specifications and update processes
- Ability to quantify & articulate benefits associated with adoption
- Tailoring the transition plan to suit the specifics of your organisation
- Competing organisational priorities for application of limited resources
- Aversion to change





Dependencies with Internal Business Areas

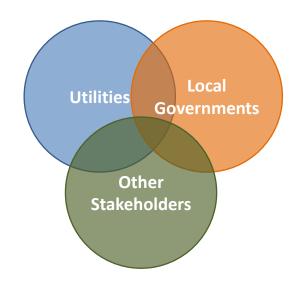
- "We will when they do..." (other internal business areas)
- Parcel data being managed by another internal Business Area
- Transition / Adoption tied to another internal project or initiative
- Internal project planning / budget cycle





Dependencies with Partner / External Organisations

- "We will when they do ..." (partner / external organisations)
- Regulatory compliance
- Increased value of working together / Working on a "common canvas"

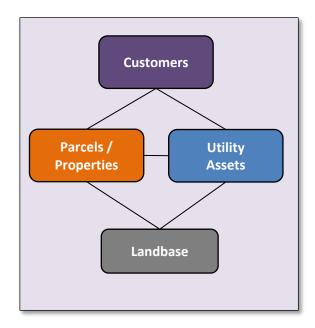




5. Summary

- 1. Prior Discovery Work in Utilities Sector 2019 360 Lab Sessions
- 2. Introduction to ParcelMap BC, Utility-Focused Considerations
- 3. Discovery Exercises:
- Business Areas & Users
- Workflows and Software Applications
- Data
- Integrating with Other Systems
- 4. Organizational & Program Dependencies
- Primary Transition Challenges
- Dependencies with Internal Business Areas
- Dependencies with External/ Partner Organisations
- 5. Close Out Panel: Questions & Discussion
- Follow-On Survey Monkey Questionnaire
- Possible future discussions to explore how to adopt ParcelMap BC

"A Common Canvas"





5. Open Discussion, Q&A

Brian Greening, Director, ParcelMap BC Products, LTSA

Steve Mark, Director, Operations, ICI Society

Bill Johnstone, LTSA/Spatial Vision Group

Jason Hart, Owner, Harterra Spatial Solutions

John Samulski, LTSA/Spatial Vision Group

Dave Gariepy, Esri Canada





Thank You For Participating!

Recording & Deck links will be sent out soon...

