British Columbia Chapter

PRESENTATION ABSTRACTS – April 11, 2024

Next Generation 9-1-1 GIS Data Provision: Working Together for Data that Works Together

Joy Sinnett, Jed Harrison, and Robert Darts - BC Government and E-Comm9-1-1

Next Generation 9-1-1 is the future of emergency response. GeoBC and E-Comm will share how they, along with ICI Society, are working together to help coordinate GIS data provision for the new 911 system. While local governments and First Nations are the authorities for civic address information, many of the other required layers, such as Road Centrelines and Service Boundaries, have multiple authorities and may not be managed by the local government or First Nation. GeoBC and E-Comm have worked closely for the past 20+ years to manage roads and boundaries in close conjunction with one another, because alignment of these datasets can affect emergency response.

GeoBC and E-Comm will describe how our respective agencies are committed to working with local governments and First Nations to collaborate on provincial scale datasets that are aligned with one another and aligned at the edges of jurisdictions. We will discuss the need to work with Fire Public Safety Answering Points (PSAPs) to coordinate the provincial coverage of fire boundaries. This presentation will also provide a set of guiding principles for delineating Provisioning Boundaries, which need to match with adjacent jurisdictions, and (in places) consider Road Centreline position. Example situations illustrating how all of the required GIS layers for NG9-1-1 work together will be discussed. We will briefly share the new NG9-1-1 GeoHub, which is aimed at providing local government and First Nations with information and links to resources on GIS data responsibilities for Next Generation 9-1-1.

Geo-TRAIT (Geospatial Tree Risk Assessment and Inspection of Trails): A custom GIS solution for urban forestry management

Larry (Lei) Wu - City of Abbotsford

Climate change has significantly impacted urban forestry management, presenting various challenges that require careful consideration and adaptation strategies. Therefore, caring for and maintaining our urban forests is more important than ever. In response to the urgent need for climate resilience and adaptation, the City of Abbotsford's GIS team, in collaboration with the urban forestry team, has developed a comprehensive digital solution called Geo-TRAIT (Geospatial Tree Risk Assessment and Inspection of Trails). This GIS solution significantly improved urban forestry's maintenance and operation workflows. It replaced cumbersome paperwork and manual processes with digitized and automated workflows using mobile phones and manager portals. Geo-TRAIT provides an integrated and complete digital workflow for:

- Field inspection
- Automatic reporting
- Maintenance tracking
- Progress monitoring

This presentation highlights the processes, tools, technologies, and some of the challenges we have faced in this project.

Community Baseline: a GIS solution to support land use decision-making in Coquitlam

Mike Esovoloff and Natasha Lock - City of Coquitlam

The City of Coquitlam has developed an interactive GIS tool for staff that offers asset data to support land use and servicing decision-making. Given the recent and sweeping changes in planning legislation by the Province, the City is planning to use the Community Baseline tool to support a servicing impact assessment of the Transit-Oriented Areas (TOA) and Small-Scale Multi-Unit Housing (SSMUH) legislative amendments.

The Community Baseline is an inter-departmental initiative that has collected, mapped and analyzed a number of existing community assets, bringing together components of asset management and land use planning. The tool identifies major constraints and opportunities for development, drawing attention to patterns and relationships, and serves as a key input for decisions around land use, infrastructure and resource allocation.

The overall goal of the Community Baseline is to ensure staff have the best information available for making land use decisions, taking into account the financial and servicing impacts of those decisions, and working towards complete communities.

Objectives for the development of the Community Baseline include:

- Establish a repeatable methodology for integrating asset data into land use planning to support improved neighborhood planning processes that consider financial and servicing impacts at the outset;
- Create a data-driven and improved starting point for servicing assessments; and
- Develop an interactive spatial map based application to easily visualize, analyze and better understand asset data from multiple sources within one application.

This presentation will touch on how the Community Baseline was planned and developed, the methodology used and how ESRI GIS tools and integration with Safe Software FME are being used to achieve desired results.

The Community Baseline tool integrates asset data under four lenses, with indicators tied to each lens, as follows:

- Alignment with Goals: indicators include proximity to frequent transit, commercial areas, parks, recreational and cultural facilities and schools, and transportation, pedestrian and micro-mobility network connectivity.
- Likelihood of Redevelopment: indicators include building age and average land value ratio (highlighting areas likely to re-develop based on BC Assessment data).
- Infrastructure Capacity: indicators include water, sewer and drainage system capacity.
- Contextual Factors: indicators fall under four categories including infrastructure, current and future planning, social equity/demographics, and environmental.

To support decision-making analyses, many of the indicators are scored using defined criteria (based on the City's goals and objectives) and using GIS analysis efforts including proximity and walkshed analysis.

Initial success of the Community Baseline has been largely attributed to the collaborative approach used throughout its design and development. Bringing together workflows and data from multiple departments and bringing staff together in positive and effective ways, reinforces how GIS is encouraging collaboration across departments to meet the challenges facing the organization.

The Community Baseline methodology was developed with Urban Systems. Grant funding through the UBCM Complete Communities Program supported the consulting work.

Data-driven chatbots: How the City of Kelowna leverages AI and GIS to enhance customer service

Cheryl Trent and Kevin Wang - City of Kelowna

Join us as we share our journey of using artificial intelligence (AI) powered chatbots to improve the access and delivery of GIS-enhanced data at the City of Kelowna. Learn about the success of our PMBC adoption and how we are using this information as a solid foundation and enriching it with our property information and zoning data to modernize our building permit intake process with our Development Services chatbot project.

We will also describe our next steps on how we would like to incorporate our digital twin into the experience. Hear about how usability testing was key to designing a chatbot experience that enables dynamic and intelligent responses that provide a high level of service. Ethics in AI will be a crucial aspect of our discussion, explaining how we addressed the ethical and social implications of using AI in our chatbots, as well as how proper communication and change management is essential for success. To wrap things up, we will outline some exciting just-released OpenAI features that may improve our chatbots' user experience, providing a quick overview of the solutions that we are working on in the near future. By the end of this session, we hope you will have a better understanding of how AI and GIS can work together to create engaging and effective chatbots that can transform the way you interact with your customers.

Embracing the Ever-Shifting Landscape: How Standardization and Efficient Workflows Empower GIS in a Dynamic City

Adityaraj (Raj) Chavada, Keith Der and Rylee Harlos - City of Vancouver

The City of Vancouver's geospatial landscape is ever-evolving, demanding agility and adaptability from our GIS team. To navigate this dynamic environment, we established standards, guidelines, and workflows for our enterprise geodatabase. This presentation delves into our journey, showcasing how this streamlines operations, ensures data quality, and empowers informed decision-making across various city departments.

We'll begin by exploring the foundation of our approach, including:

- Standardized Operating Procedures (SOPs): Clear and consistent procedures for ServiceNow, ensuring efficient use of this critical platform.
- Best Practices and Tips: Valuable knowledge-sharing through ServiceNow's knowledge base, promoting continuous improvement.
- Enterprise Geodatabase Workflows: Defined processes for managing and maintaining our geospatial data efficiently.

- Standardized Geodata Modeling: Consistent data structures across projects, facilitating seamless integration and analysis.

Success Stories:

We'll then bring these concepts to life with two compelling case studies:

- Sewer and Drainage Design Development Project: Discover how tracking projects that are driven by real estate development projects in enterprise geodatabase helped us meet critical business requirements, featuring insights from Keith Der on the project's success and the utilization of Advanced Attribute Rules.
- Leaf Collection Project: Learn how we optimized image collection and compression processes, enhancing efficiency and data quality. Rylee Harlos will share her firsthand experience and the project's impact.

Challenges and the Road Ahead:

- We'll conclude by acknowledging the challenges we encountered and how we continue to adapt and improve our framework. Raj Chavada will shed light on these challenges and our ongoing efforts to address them.

This presentation offers valuable insights for GIS professionals facing similar challenges in dynamic environments. Join us to explore how standardization, well-defined workflows, and continuous improvement can empower your GIS team to thrive in the ever-shifting landscape.

Navigating GIS Solutions for Next-Gen 9-1-1 in Washington State

Eadie Kaltenbacher and Dan Miller - Kitsap 911

In our presentation, we will provide a layperson’s introduction to NG9-1-1 GIS, compare how it is different from the legacy system, and explain the integral role that GIS now plays. We will discuss the process and policy decisions that Washington State went through to implement NG9-1-1, with special focus on the GIS components which went fully live in November 2021.

We will share some of our technological and governance solutions that helped us overcome our challenges, including coordination between local agencies, an overarching state agency, vendors, and international standards. We hope to coordinate with our Canadian partners in the future to ensure the best quality 9-1-1 service along our shared border.

Victoria 3D Residential Capacity Modeling

Russell Prentice and Camille Gay - Licker Geospatial Consulting Co.

In 2023, Licker Geospatial Consulting (LGeo) was contracted by the City of Victoria to create a residential modeling tool. The tool was developed to predict where residential developments will occur through to the year 2050, and how many housing units will be created by these developments. It allows for Victoria staff to model:

- Land use policies and changes;
- Various building forms and;

- Changing financial conditions.

By considering land use information, the city's parcel fabric, the BC assessment building information report, current development approvals, seismic hazard as well as financial viability thresholds along with assumptions about building typology, the model provides a comprehensive assessment of predicted development scenarios. The model determines the quantity, size, and type of net new units expected from new development. The model evaluates the capacity and development impact of alternate land use scenarios relative to current trends. The capacity tool is set up to be reusable. As assumptions around financial viability and building form change, the modeling tool can be tailored by various assumptions changed and can create new outputs as land use policy evolves.

In addition, the tool generates a 3D model of the predicted building forms. The 3D model output combines the city's existing 3D building model with the newly developed building forms to visualize the city as a whole under each land use scenario. The 3D model considers lot line setbacks and height constraints, providing a holistic and realistic view of the development's impact in space. The visual component of this project helps to better understand the spatial relationships between the placement of new residential buildings, and where daily amenities can be accessed (i.e. mobility infrastructure, green spaces and grocery stores etc.). The modeling results are displayed for the City in an interactive online dashboard that displays and compares various 3D building model results through time (until 2050). This three dimensional visual output allows for urban planners, community stakeholders and decision-makers to visualize changes in density and design.

Leveraging Collaboration for Climate Resilience: Insights from the Capital Region Extreme Heat Information Portal

Gurdeep Singh and Trilby Buck - GeoBC, and Ruth Midgley - Capital Regional District

In response to the escalating threat of extreme heat events exacerbated by climate change, the Province, through the Emergency Management and Climate Readiness (EMCR) initiative, is actively bolstering community preparedness and risk reduction efforts, with a focus on communities like the Capital Regional District (CRD). By harnessing funding from the Community Emergency Preparedness Fund, these communities are embarking on vital extreme heat risk mapping endeavors.

As climate change intensifies, the frequency and severity of extreme heat events are on the rise, presenting unprecedented challenges. The Capital Region Extreme Heat Information Portal emerges as a pivotal resource, empowering individuals and planners with the necessary tools to fortify preparedness and cultivate resilience amidst these challenges. By delving into the nuanced vulnerabilities of different areas, communities can craft tailored strategies to shield the most vulnerable populations.

The resounding success of this collaborative initiative underscores the transformative power of cooperation. Through concerted efforts between GeoBC, EMCR, and the Capital Regional District, a dynamic tool has been crafted to address the distinctive challenges posed by extreme heat in the capital region. By nurturing synergy among government entities, community groups, and residents, the portal serves as a communal asset, fostering shared ownership and commitment to community well-being.

Central to the portal's efficacy are its comprehensive information repositories and interactive maps, offering invaluable insights into the capital region's vulnerability and exposure to extreme heat. By

immersing themselves in temperature maps from the 2021 extreme heat event (heat dome), users can proactively assess the potential impacts on both human populations and built infrastructure.

Join us as the presenters embark on a geospatial journey, sharing invaluable insights, lessons learned, best practices, and recommendations gleaned from the collaborative development of the Capital Region Extreme Heat Information Portal. Through this exploration, we aim to inspire similar collaborative endeavors in other jurisdictions, fostering resilience and sustainability in the face of climate change.

This collaborative effort is a big step in understanding extreme heat vulnerabilities in the capital region. As we deal with the impacts of climate change, tools like this become essential for building community resilience and preparedness. The portal is an innovative achievement, showcasing positive outcomes when communities come together to tackle shared challenges.

The portal hosts information and maps that will help residents and municipal planners explore and understand the capital region's vulnerability and exposure to extreme heat. Users can explore temperature maps from the 2021 extreme heat event (heat dome) and investigate how people and buildings may be affected by extreme heat.