



ABOUT THE DISTRICT OF SECHELT

The District of Sechelt is centrally located on the Sunshine Coast, approximately 60 kilometres northeast of the city of Vancouver. With a population of 9,200 (as of 2009), the District spans approximately 4,000 hectares of land. Its central location makes Sechelt the service center for the residents of the picturesque Sunshine Coast. The overall objective of this Local Government is to create a strong, vibrant community where people want to live, work and play.

CHALLENGES

Part of Sechelt's Planning Department, Sandra Brown has been in the position of GIS Coordinator since 2007 when she was hired as the first full-time GIS staff member for Sechelt. She is part of a team that includes the Director of Planning, two Planners and an Administrative Assistant. Sandra works closely with Sechelt's Information Technology Manager.



Sandra was challenged by limited resources, but lots of GIS work to be done. Most communities have available survey control that form a coordinate framework for location referencing, such as legal surveys (cadastral), engineering surveys, topographic mapping, aerial mapping, asset management, etc. With a proper survey control framework, locations are consistent, and the information is easily integrated together within a GIS. Without a proper survey control framework, each individual survey project is referenced with coordinates and elevations, which may or may not have good "global" referencing, and this leads to integration problems within the GIS.

GIS ACCURACY RESULTS IN BETTER DECISIONS

Sechelt in particular had very limited available survey control. The Provincial database of survey control (MASCOT) showed no high-accuracy horizontal survey control within Sechelt, and the few vertical control stations in the area had mostly been

destroyed as well. This historical lack of good quality survey control created the difficult situation that Sechelt finds itself in today - with much of the location information within the GIS not fitting well. With the rapid and extensive developments underway and planned for Sechelt, it was time to establish a proper survey control framework and ensure that these projects started out with good geo-referencing. Old projects could then be corrected in areas that are adjacent to the new projects, and over time the entire GIS accuracy upgraded leading to better mapping, higher confidence, and better decisions.

Sechelt has been a member of ICIS since 2001. With matching funds available from the District, Sechelt applied for and received a \$10,000 CivicSpatial Grant from ICIS in 2009 to begin the establishment of a Municipal Geospatial Reference System (MGRS).



Monument Site Location

"There is a trend towards 'active' control (being a GPS tracking station), and away from 'passive' control (physical survey monuments on the ground)," says Sandra Brown. "This is recognized as an evolution of survey methods, but it does not

mean that passive control networks are no longer needed. Much of the Sechelt area is not suitable for practical, accurate GPS as a replacement for routine conventional survey methods (angles and distances measured by a total station)."



District of Sechelt Public Works Department installs monuments.

With only one full time GIS resource, Sechelt had to be creative to ensure the best possible return on investment. They retained a British Columbia Land Surveyor (BCLS) to provide guidance in selecting the number and location of monuments that should be established, but also used their own Public Works Department to install the monuments. The brass monuments were set in either rock outcrops or in existing concrete structures such as curb gutters, sidewalk, traffic islands, etc. In all cases, the monument caps were grouted into a countersunk recess to improve monument survival rate. The locations were selected based on the requirements for both conventional and GPS surveys, as well as where new development was planned. Plans are to continue to densify the MGRS network each year.



ICIS CIVICSPATIAL GRANT MAKES THINGS HAPPEN

"The result of the establishment of the MGRS has been a significant improvement to geo-spatial referencing of the cadastral fabric within the District of Sechelt," remarks Sandra Brown. "For smaller municipalities like us, we could not have completed this project without the help of ICIS."

In 2001, uncorrected aerial photos had been obtained for the entire Municipal area. No digital elevation model (DEM) data was obtained at that time and therefore no derived contour data was created. In 2009, new orthophotography of the entire Municipal area as well as a DEM and contours from LiDAR were collected. Sechelt was able to use the new MGRS for photo control, which saved them considerable time and money.

The District has also benefited from ICIS through data sharing with the Sunshine Coast Regional District (SCRD), another CivicSpatial Grant recipient. The SCRD received a \$10,000 grant plus an additional \$1,500 for each of the three (3) municipal governments within the SCRD, the District of Sechelt being one on those municipalities. The focus of both organizations is to improve the cadastral fabric, so even though their respective projects were different, both were able to benefit from the other's efforts.

For example, the SCRD used many of Sechelt's Municipal Geospatial Reference System monuments as photo control for a transportation study requiring orthophotos. Sechelt has benefited from the adjustments that the SCRD is making to legal survey plans through the use of GPS and coordinate geometry. The resulting collective GIS accuracy has been upgraded leading to better mapping, higher confidence and better decision making.

"Because ICIS is dedicated to collaborative sharing of cadastral information and helping Local Governments like the District of Sechelt through the Civic Spatial Grant Program, it made it possible to more rapidly realize one of Sechelt's major GIS goals. Now, with a proper survey control framework, locations are consistent, and the information is easily integrated within our GIS."

Sandra Brown
GIS Coordinator
District of Sechelt