



ESRI Canada

Case Study

Online census dramatically boosts productivity, improves security and cuts costs.



City of Airdrie implements a secure, real-time and virtually paperless online census

Airdrie, Alberta left behind their manual, paper-based method of collecting census data to embrace an online system that has increased productivity by 50% and reduced annual costs by almost 80%. This environmentally sound, completely secure and almost entirely paperless system is serving as a model for neighbouring municipalities looking to streamline and drastically improve the census data collection process.



Challenge

Airdrie Alberta's City Clerks who are in charge of the annual census process were frustrated with their legacy, paper-based process of collecting data. It involved manually creating census ballots, tracking completed addresses and processing both statistics and static, paper-based maps that were marked up with coloured pencils.

This operation was time consuming, costly and not conducive to maintaining data integrity. In response, City Clerks turned to the IT department to request a Web-based process that would improve the collection of demographic data across the City of Airdrie. This led to the creation of a virtually paperless, online census.

Several key challenges arose in developing the paperless census. For example, in 2008, the ability to view a GIS Web map containing live status information was introduced; however, the bandwidth available on each tablet fell short of fully supporting this functionality. Furthermore, the new process created a security challenge as there was no way to authenticate enumerators. But the team quickly found solutions to these challenges and the online census was born.



The community mapping interface shows residences that have completed the census process and residences that enumerators must still visit.



The online census home page where Airdrie residents log in to conveniently complete the census process.

“Moving to the online census system has greatly enhanced efficiency for enumerators, particularly with the addition of mapping components. Not having to double and triple check the scan sheet prior to delivering information to City Clerks cuts their time in half.”

Corey Halford

IT Data Services Team Leader
City of Airdrie

Solution

Development occurred through four stages and the census has since evolved to be a 99% electronic process. Enumerators use a ruggedized tablet PC supported by a wireless network card and a stylus pen to collect information. To overcome security concerns, a Personal Identification Number (PIN) system was implemented that processes municipal addresses and creates eight character identifications numbers. PIN numbers are hand delivered to residents who are then given three weeks to fill out the online census, after which time enumerators go door to door to the outstanding addresses.

The tablet's wireless card equips each enumerator with GIS mapping. By installing ESRI's ArcView and base map data on each tablet, the bandwidth issue was resolved and enumerators now have access to live maps that are fed to the tablets through the corporate network. To further enhance security, the network can only be accessed through fingerprint authentication.

A logic-based question and answer system was developed in 2008 to allow a variety of information to be collected about each person in a household rather than only capturing the number of people per household. This information is now fed into a database that allows customized reports to be generated, replacing legacy Excel spreadsheet reporting.

Benefits

By 2008, 55% of residents participating in the census were using the online system, reducing the amount of field enumeration by over 50%. The Web-based system allows Airdrie to conduct a census for only \$1.42 per address compared to the national average of \$5 to \$7 per address. This creates an overall annual census budget of approximately \$20,000 compared to similar sized municipalities that operate on a budget in excess of \$100,000.

The new system also provides guidance with regards to the growth of the community and enables City Clerks to make changes to address information based on what is collected in the field, so that data is always current. The collected data is more secure than ever before since fewer people are involved in handling information. Workflows are streamlined and the overall amount of effort put into the preparation, collection and reporting of census information has now been cut in half.

The city's success and innovation now serves as a model for neighbouring municipalities. As well, Airdrie was recently awarded URISA's 2009 Exemplary Systems in Government (ESIG) award.



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