

**Practice Name:****Date Created:** 26-May-09**Author:****Last Updated:****Abstract:****GENERAL INFORMATION**

Name of Practice	Municipal Census Application
Date	25-June-08
Name of Municipality	<a href="#">City of Airdrie</a>
Your Name and Title	Kari Kitiuk, Assistant City Clerk
Phone Number	403-948-8816
Fax Number	403-948-6567
E-mail for Practice Contact(s)	<a href="mailto:kari.kitiuk@airdrie.ca">kari.kitiuk@airdrie.ca</a>
Mailing Address	400 Main Street SE Airdrie

**DISCLAIMER**

Terms of Use

This site is set up to allow municipalities to share their practices with each other. Information within the municipal practices is provided by municipalities. Information provided is solely for the user's information and is provided strictly as is without warranty of any kind. Alberta Municipal Affairs does not guarantee the accuracy of the practices. The municipal practices should not be relied upon without seeking legal or other professional advice.

Limitation of Liability

The Crown, its agents, employees or contractors (including Alberta Municipal Affairs) shall not be liable to any user for any losses, claims, or damages that may result either directly or indirectly from access to or any reliance upon the information contained within the municipal practices or information provided at any other site that can be accessed from this site.

Copyright

The copyright in the information within the municipal practices belongs to the municipality that submitted the practice to the Municipal Excellence Web site. The user should contact the municipality who posted the materials for permission to use or reproduce the materials.

[Click here for the site disclaimer](#)

**THE ISSUE****Abstract:**

What is the practice you developed or are developing (brief abstract)?

Please briefly describe the final practice developed. (e.g. if you developed a new Council agenda, list the agenda items, or if a new communications plan was created, provide a summary of the plan's goals, objectives and highlights.)

The City Clerk's and Information Technology teams at City of Airdrie collaborated in the development of a secure online Municipal Census application. The Municipal Census application is a database application with a web interface, designed to ensure integrity and security of data collected. The innovative features of this application include the ability to generate a unique PIN for each municipal address and the integration with GIS. A census parcel map updates real time to identify which addresses have completed the census. Enumerators only visit addresses that have not completed the census and use wireless mobile devices to complete the census online.

**Need:**

Please describe (just a couple of sentences or bullet points) why you needed to create this practice (policy or process).

What issue made it necessary? (e.g. “We needed a comprehensive plan to deal with...”, or “We needed an annual forecasting tool because...”)

The City Clerks team at the City of Airdrie recognized a need to enhance the approach to census data collection as the current process was a painstakingly manual process with many avenues for errors to enter the process. There was also a need for the information to be secured when the data was collected from the internet to maintain data integrity. One last need was to address our sustainability initiatives at the City and if possible reduce the use of paper to a minimum.

**CREATING YOUR PRACTICE**

**Research:**

How did you obtain information to help design your practice (including consultation with stakeholders, formal and informal research)?

Please include any research documentation you can share, or give us a source reference (e.g. Web site, literature, “We reviewed the bylaws from other municipalities in the area...”).

**Process:**

How did you go about designing your practice? For instance, did you create a team, hire a consultant, borrow something ready-made from another jurisdiction?

Describe briefly who did the design work and what process they followed.

The City Clerk's Unit conducted a general inquiry with peers during a round table discussion held at the annual conference of the Alberta City Clerks Association which revealed that no secure method of online census data collection was in use.

The online census involved two phases.

Phase 1: The City of Airdrie contracted the private consulting firm of Lopedia in 2007 to collaborate with staff in IT and the City Clerks Unit to complete the development of a Census Application, to design, develop, and launch a partial online census, with corresponding databases, unique PIN generator, and results reporting.

Phase II: The City of Airdrie contracted the GIS consulting firm of GeoNorth to develop and implement the integration of the Census Application with the City's GIS applications (ArcSDE and MapOptix). All other enhancements in developing the full 2008 Census Application were completed by City of Airdrie staff.

## GETTING APPROVAL FOR YOUR PRACTICE

### Authority:

Whose/what approval did you need to create and implement the practice?

Following Phase 1 (2007) of the online census, the City advised Municipal Affairs of the online census method used and confirmed that with the security feature being used by Airdrie, there were no concerns with this new process.

### Reporting:

How did you inform the decision-maker(s) about the practice and your need for their approval?

Please note the name of any documents provided to the decision-makers that you would be willing to share.

This particular census project is something that has evolved over time. Most decisions for enhancements and process improvements were contemplated and endorsed primarily at the City Clerk's level. Formal approval was not needed for the change in process per se. A higher level of approval only came into play at the time that a significant impact on the budget was expected.

In 2005 and 2006, the City Clerk's Unit worked with IT to have the census form available online. As the budget impact was not significant, no further approvals were required and the census was offered online.

The City Clerk's Unit became quite concerned with the lack of security and potential for bogus submissions. At that time, the Unit met with IT regarding the possibility of adding security for 2007. The concern was at the point where the options considered were adding security or removing the ability for residents to respond on line. IT concurred with the City Clerk's Unit and endorsed the addition of formal security. From this meeting, the project to add security to the on-line census was taken forward to the IT Steering Committee for endorsement, which was received, and the project became an approved project within the IT departmental budget. As the work was to be done in house by the IT department, no further approvals were required.

The move to a fully electronic census project was then planned and anticipated for 2008. From a design perspective, this project was supported and endorsed by the IT Department. With that endorsement, the project went forward to the IT Steering Committee, who further endorsed the project, which allowed it to become an approved project for the IT Department. As the work was to be done in house, no further approvals were required. From a capital perspective, the purchase of 10 tablets was taken through the decision levels of IT Steering Capital and the Corporate Planning Team as a part of the capital budget review. Council endorsed the project as a part of the 2008 capital budget.

**Consultation:**

Did you consult with stakeholders as part of your approval process?

If so, how? If possible, attach a copy of templates, surveys or other documents you used as part of your consultation.

Consultation within the City Clerk's Unit and IT Department was undertaken to ensure the effectiveness of the proposed process changes.

**IMPLEMENTING YOUR PRACTICE****Plan:**

Describe the process you went through to implement the practice. If you used an implementation plan, please note it here.

2007

Implementation of the addition of security primarily involved the development of the PIN generation process by IT. Once the process had been developed, tested and solidified, PINs and addresses were merged into an introductory letter for residents. Airdrie does not have door-to-door mail delivery. Mail is delivered to super mailboxes or post offices. PIN letters were delivered by hand to all residential dwellings within the City of Airdrie by census workers. Hand delivery was chosen as it was felt to be a more secure method of delivery and cheaper than using the mail. Residents could access the online census by inputting their municipal address and PIN. To access the census form, these two pieces of information had to match. Residents were provided with 3 weeks to respond online. After this 3-week period, census workers attended at those homes that had not responded to collect the information personally. An online response rate of 49.86% was achieved.

2008

Implementation for 2008 primarily involved the redesign of the census form and database, a move to the use of tablets, and the addition of the mapping component. IT was responsible for designing the census form, database, and mapping feature, and for programming the tablets. Once IT had completed their front end work, a test site was developed. Both the IT Department and City Clerk's Unit tested the census form and tablets. This resulted in further modifications and further testing. PIN letters were printed and delivered similar to 2007. Rather than a 3-week response period being provided, a 2-week response period was provided as there was little response activity during the third week in 2007. Once testing was completed, a training session was held with census workers. They were provided with a 4-day period in which to access the test site and practice with the tablet. The change in process allowed for a reduction in census workers from 18 to 10 and it appears an online response rate in excess of 60% will be achieved.

**Policy:**

What changes to bylaws, regulations or procedures were needed to implement this practice and how did you deal with them?

Please attach a copy of the change in bylaw, policy or procedure.

N/A However, the City did provide Alberta Municipal Affairs with a summary of the online process in 2007. Alberta Municipal Affairs was satisfied with the level of security employed by Airdrie and accepted Airdrie's 2007 population number.

**When:**

When did your municipality begin to use the practice? Was it implemented all at once or in stages?

Phase 1 was implemented in 2007 and included development of the following:

- a secure online census form
- a census address list database
- a method to generate a unique PIN for each municipal address
- a census PIN lookup application
- a mechanism to query the database
- a method to notify enumerators of outstanding addresses

Phase 2 was implemented in 2008 and included:

- expanding the census application to accommodate increased questions for a full census
- implementation of a secure server with SSL encryption
- development of a SQL database PIN notification
- establishment of a test environment
- dynamically linking the census responses to online GIS applications
- development of an online Community Needs Assessment questionnaire
- development of a mobility solution for the census enumerators

**Who:**

Who was responsible for implementing the practice?

If someone else is responsible for ongoing management, who is it?

The Information Technology department and the City Clerk's Unit.

**RESOURCES REQUIRED****Budget:**

How much did it cost you to design and implement your practice (i.e. We saved/spent \$XX per year)?

What are your ongoing operational and capital costs, if any?

Phase II - 2008 Full Census & Community Needs Assessment  
 - Windows Server, SSL Certificate, SQL license = \$3,200

b) Hardware:

Phase I – 2007 Partial Census – no hardware purchased to complete this project

Phase II – 2008 Full Census & Community Needs Assessment  
 - Notebook computers (10) with cases & wireless cards = \$35,200

Hard (including ROI, if available):

- ROI will be realized in 2009 as the cost to conduct a full municipal census reduces from \$2.54 to \$1.19 per dwelling
- 50% reduction in number of enumerators hired

	2003	2005	2006	2007	2008	2009
	Projected	Projected				
Census Type	Full	Partial	Population			
Partial	Full	Full				
Advertising \$	\$ 495	\$ 470	\$ 300	\$ 300		
Stationery \$	1,675	4,209	936	5,908		
	2,190	2,190				
Enumeration** \$	11,340	10,794	11,631	13,798	14,400	14,400
Form Development \$	9,000					
IT Support Costs \$			6,000	45,000		
Total \$	22,015	15,498	12,567	26,176	61,890	16,890
Dwelling Count	8,673	9,799	10,523	11,723	13,094	14,143
Cost Per Dwelling \$	2.54	1.58	1.19	2.23	4.73	1.19
Population	23,680	27,069	29,035	31,512	35,199	38,190
Cost Per Capita \$	0.93	0.57	0.43	0.83	1.76	0.44
# of Enumerators	21	17	15	17	10	10

\*\*Enumeration costs include Notice Delivery, Door Collection, Training, and Enumerator Bonuses\*\*

**Staff:**

What human resources did you need to design, implement and manage your practice? (e.g. "It took X staff member (s) X months on this" or "This is part of normal staff duties.")

c) People (FTE and Professional Services\*):

Phase I – 2007 Partial Census:

- Consulting services (Lopedia) = \$6,000 (80 hrs)
  - IT resources = 40 hrs
  - City Clerk resources 20 hrs
- Total FTE = .07

Phase II – 2008 Full Census & Community Needs Assessment

- Consulting services (GeoNorth) = \$6,600 (80 hrs)
  - IT resources = 430 hrs
  - City Clerk resources = 80 hrs
  - Community Services resources = 10 hrs
- Total FTE = .3

**Infrastructure:**

What "capital costs" (such as information technology, other equipment or building assets) did you need to design, implement, manage, and/or evaluate your practice?

Phase II – 2008 Full Census & Community Needs Assessment

- Notebook computers (10) with cases & wireless cards = \$35,200

Phase II - 2008 Full Census & Community Needs Assessment

- Windows Server, SSL Certificate, SQL license = \$3,200

**EVALUATING YOUR PRACTICE****Formal:**

If you did a formal evaluation (e.g. user satisfaction survey, analysis of annual expenditures or number of rate payers served) for your practice, please describe the evaluation tool and the process used.

No formal evaluation was completed. A debriefing and post-mortem will be held on the new process with two groups – the census workers and, subsequently, the census team within the City Clerk's Unit and IT Department.

Tell us who was involved.

**Informal:**

If you did an informal evaluation, describe what you did (such as discussing the practice with people in the office or on the street, or letters/comments received).

- feedback from enumerators included resident satisfaction with Airdrie moving to a paperless process and great interest in the new technology being used by the City.

**Performance measures:**

Please list the performance measures for this practice (i.e. reduced number of complaints, money saved, or change in equipment life expectancy.)

Please list the process you used for measuring performance, (i.e. We do annual surveys on...) examples include:

- collecting data

- establishing a baseline
- applying the measures
- results
- follow up

**Performance Measures:**

Increased confidence in data integrity  
Decrease in number of census workers  
Decrease in administrative time spent by census workers  
Immediate verification of property coverage  
Decrease in administrative time spent by staff  
Use of Census for ground truthing of address information

**Performance Measurement:**

Data integrity: increased as point of human contact was reduced from 4 to 1.

Number of census workers: reduced from 18 to 10.

Administrative time spent by census workers: reduced and estimated at approximately 25 hours per census worker as they no longer need to complete paper forms, check accuracy of paper forms, colour maps to verify properties that have been covered, complete cover sheets for the City Clerk's Unit, and return paper forms to the City Clerk's Unit.

Verification of property coverage: reduced and estimated at in excess of 100 hours as members of the City Clerk's Unit no longer needed to colour maps to ensure information from properties within the City had been collected.

Administrative time spent by staff: reduced and estimated at in excess of 100 hours as members of the City Clerk's Unit no longer needed to check paper forms for accuracy and completion, organize paper forms into communities, verify totals for payment purposes, and scanning of forms.

Grounding of address information: increased accuracy within the City's GIS addressing as census takers are able to verify actual addresses being used by residents. This information is confirmed and consolidated with City information to ensure addressing information is up-to-date and accurate. This affects not only

**Changes:**

(a) Based on the evaluation (formal or informal), describe any changes you have made, or would like to make, to your practice as a result. (e.g. "After implementing this practice, we decided that it would be better if...")

-or-

(b) Has your practice met your expectations and if so, how?

As outlined by the measures above, this practice has more than met expectations. There were minor revisions made throughout the process, more in terms of administration on the City Clerk's side than for census workers. Response by City residents has been extremely positive.

After implementing this process, the City Clerk's Unit would continue to refine the process. Some things we will undertake are:

- Increase the number of census workers by 2 for 2009 to accommodate growth and allow for 1 spare tablet.
- Provide census workers with additional batteries for the tablets to enable them to collect information for longer periods of time. Census workers were limited by battery life. On sunny days, battery life was compromised by the need to brighten the viewing screen.
- Ensure the wireless provider has a tower in Airdrie to provide sufficient speed and coverage.
- Tighten the ability for census workers to input new or update addresses. If addresses do not match the City's database, the census worker will need to contact the City Clerk's Unit to have these changes made.

**LESSONS LEARNED / BENEFITS RECEIVED****Benefits:**

What are the benefits of this practice to your municipality? (eg. Preparation of Council agenda packages now requires less time, etc.)

Benefits include the following:

- elimination of all paper from the census collection process
- a more secure method of collecting information from residents
- improved data integrity
- reduction in avenues for potential human error in data collection
- census data collected for 100% of residential addresses
- 60% of citizens completed the census online
- 25% reduction in number of enumerators hired to collect census data
- reduction of 160 hrs of resource time (City Clerks and Enumerators) to complete the annual census
- increased efficiency and accuracy, and reduced duplicate effort in gathering, compiling and analysing census data
- census results monitored real time in GIS
- increased efficiency with administration page, running totals, instant total, PIN look up, enumerator administration
- no manual data entry into spreadsheets
- reduced overtime
- no need to notify enumerators of addresses completed
- ability to capture suite/secondary dwelling status
- security/auditing of enumerators
- no feeding of ballots
- no organizing of ballots
- no double checking of totals
- no duplicate ballots
- ability to add addresses on the fly
- improved data quality and verification of municipal address to GIS
- address determined the community, eliminating human error
- education of public re grants received
- better informed public (letter, explanation of questions on the form, FAQ sheet)
- ability to submit online resulted in increased comfort of residents not having enumerator come to door (elderly especially feel safer)
- great PR – residents are fascinated
- integration of apartment lists into GIS
- processing of enumerator pay (info stored by enumerator)

**Key Lessons:**

What key lessons have you/your municipality learned through the process of:

- designing;
- obtaining approval;
- implementing; and
- evaluating your practice?

Include any problems, surprises, and unanticipated benefits. (e.g. “We realized that we needed to spend more time...”)

- designing the need for the units involved to take the time to sit down and make sure they are speaking the same language right at the beginning. During the design of the census form, we found that there was a disconnect between the two units in how the form actually needed to work. Further dialogue was required to correct the problem. IT would have been saved time if this understanding had been achieved at the front end.

- obtaining approval there were no learnings or issues.

- implementing there was a greater need for testing. A higher degree of concern needed to be assigned to some issues that appeared minor and turned out to be more difficult to solve than originally thought. As Rogers did not have a cell tower in Airdrie, census workers experienced a slow response by the tablet at times and

- evaluating your practice? This was the absolutely right direction to take for the census.

#### ADDITIONAL LESSONS:

##### City Clerks

- Need more rigorous testing before deployment
- Need to test with different age groups and technical knowledge
- Need to test or verify that mitigation plan will work eg. carrying paper forms for use when wireless signal not available was not feasible when transporting the notebooks
- Timing and scope – tried to do too much in a narrow timeline
- Need more time for training and testing
- Need to verify if questions are mandatory and ensure process in place when resident refuses to answer a question
- Test site was very effective and valuable
  
- More research and testing for method of carrying notebooks
- Started testing too late in the project
- need to provide user training closer to actual use

##### Information Technology

- Allow more time for training

**Advice to Municipal Peers:**

What advice would you give to another municipality that is considering adopting your practice? Is there anything you might have done differently?

I would strongly advise implementing the online portion of the census even if a municipality is not able to go totally electronic. In the Calgary area, response rates seem to be hovering around 50-60%, which has a significant impact on the number of census workers required for door-to-door collection.

**PRACTICE UPDATES****New Information:**

There may be some new information to add since this practice was first posted. This is especially true if:

- a new process has been implemented in your municipality;
- there are new practice evaluation results; or
- there has been a change affecting organizational direction. For example, explain how new economic conditions or a new vision/strategy affect the practice.

Please indicate those changes here. Don't forget to list any new documents that may be useful to your peers. Then go to "Other Information" to attach the new documents.

**OTHER INFORMATION****Suggestions:**

Please list relevant information sources that others might use or you would be willing to share (courses, Web sites, literature, experts).

I would strongly encourage you to please visit our test site at <http://test.airdrie.ca/> and log in as an enumerator by using @irdrie as the username and password to experience the Airdrie Census for yourself. The site may produce an error at the end of the census as the database is not active. Please contact Corey Halford of the Information Technology Department for technical questions @ [corey.halford@airdrie.ca](mailto:corey.halford@airdrie.ca).

**Documents & Attachments:**

Please attach (using the "Browse" button below) any documents you would be willing to share with others interested in your practice (e.g. a bylaw, a policy, approval documents, templates).

\* Note: If you do not have an electronic copy of a document, please send Municipal Excellence a paper copy for scanning to:

Alberta Municipal Affairs  
Municipal Excellence Network  
17th Floor, Commerce Place  
10155-102 Street

Edmonton, AB  
T5J 4L4

**Nominations:**

Do you have any suggestions of other individuals or municipalities with municipal practices that we should add to the Municipal Excellence network? Please list their practice, municipality, and contact information.

Or, e-mail [menet@gov.ab.ca](mailto:menet@gov.ab.ca) and let us know about a municipal colleague that has a really good way of doing things.

**COMMENTS**

Have we missed something; anything you'd like to add to the areas we have touched on, or an area we have not mentioned?