Postal Codes by Federal Ridings File (PCFRF) 2003 Representation Order, Reference Guide

December 2009 Postal codes

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Statistics Canada

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What's new?

- The postal code reference date for this update is December 2009. This is the same as for the Postal Code Conversion File (PCCF). The Postal Code by Federal Ridings File (PCFRF) refers to the federal electoral districts (FED) based on the 2003 Representation Order.

- The 'unique link' variable indicates if the postal code is linked to one or more FEDs.

- The 'weight' variable estimates the proportion of the population of a postal code that resides within each FED.

- Table B.1 (Number of postal codes by federal electoral district) in Appendix B, includes the variable 'Number of postal codes linked to other FEDs' to indicate the quantity of postal codes associated with a given federal electoral district that are linked to one or more different federal electoral districts. The variable 'Percentage of postal codes linked to other FEDs' is given to indicate the percentage of postal codes for a given FED that are linked to one or more different federal electoral districts.

Table of contents

1 About this guide

This reference guide is intended for users of the Postal Codes by Federal Ridings File (PCFRF). The guide provides an overview of the file, the general methodology used to create it, and important technical information for users.

Geographic terms and concepts are briefly described in the glossary (Appendix A). More details can be found in the *2006 Census Dictionary* (Catalogue no. 92-566-XWE). Supplementary information is provided in the appendices.

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2 Overview

The Postal Codes by Federal Ridings File (PCFRF) is a digital file which provides a link between the six-character postal code and Canada's federal electoral districts (which are also known as federal ridings). The current version of the PCFRF links 837,058 active postal code records, existing as of December 2009, to the 308 federal electoral districts.

Elections Canada defines a federal electoral district as any place or territorial area entitled to return a Member of Parliament (MP) to serve in the House of Commons. Federal electoral district (FED) legal limits and descriptions are the responsibility of the Chief Electoral Officer, and are usually revised every 10 years after the results of the decennial census. There are 308 FEDs in the 2003 Representation Order, the most recent revision of the federal electoral districts limits. The FEDs are based on the 2001 Census population data.

Reference dates

The reference date is December 2009 for postal codes contained in the PCFRF. This is the same date as the postal codes contained in the Postal Code Conversion File (PCCF) product released in July 2010.

The geographic reference date is a date determined by Statistics Canada to finalize the geographic framework for which the census data are collected, tabulated and reported. The geographic reference date for the 2006 Census is January 1, 2006.

3 How to use this product

Purpose of the product

The Postal Codes by Federal Ridings File (PCFRF) was conceived as a tool for use with files containing postal codes. By using the postal code as a link, data from files may be organized and/or tabulated by federal electoral district.

Limitations

Some postal codes straddle one or more federal electoral district (FED) boundaries. The 'unique link' variable indicates if the postal code is linked to one or more federal electoral districts (FEDs).

Users often link the postal code in their data set to the FED in the PCFRF. When performing this link, users should be aware that the postal code in their data set may represent a mailing address used by a person, not necessarily where the person actually resides. Similarly, a postal code in a business-based mailing address may not necessarily indicate where the business activity took place.

Limitations of the relationship between postal codes and geographic areas are described in section 4, Data quality. Before using this file, users should first familiarize themselves with the information provided in this section.

Content

The PCFRF contains a total of 828,978 postal codes. The number of postal codes by FED, and whether those postal codes are linked to other FEDs, is provided in Appendix B.

Each record of the file contains the following:

- six-character postal code
- federal electoral district code – 2003 Representation Order
- federal electoral district name – English
- federal electoral district name – French
- unique link – an indicator of whether the postal code is linked to more than one electoral district
- weight – for use in proportional allocation

Please see section 5, Technical Specifications for the data descriptions and definitions.

Comparison with other products

Linkage of postal codes to more detailed geographic areas, such as dissemination area or dissemination block, is available in the Postal Code Conversion File (PCCF).

4 Data quality

Linkage data quality elements provide information on the fitness-for-use of a spatial database by describing why, when and how the data are created, and how accurate the data are. The elements include an overview describing the purpose and usage, as well as specific quality elements reporting on the lineage, attribute accuracy, logical consistency and completeness. This information is provided to users for all linkage data products disseminated for the census.

Postal code characteristics

Before using the Postal Codes by Federal Ridings File (PCFRF) with administrative files containing postal codes, users should be aware of some characteristics of postal codes that may affect their linkage to federal electoral districts on the PCFRF.

Postal delivery areas do not respect federal electoral district boundaries

A postal delivery area (as represented by the six-character postal code) may straddle one or more federal electoral district boundaries. This means that, in the Postal Code Federal Riding File, the same postal code may be linked to two or more (adjacent) federal electoral districts. Most federal electoral districts are affected in this way in both urban and rural areas. Refer to Logical consistency later in this section for further details.

Postal codes may be associated with post office boxes at a postal station that is not in the same federal electoral district as the client using the post office box

The postal code associated with a lock box (post office box) may be geocoded to the physical location of the associated postal installation (post office). This could be located in a federal electoral district that is different from the ultimate destination of the mail delivery – the residential, industrial, or commercial location of the client renting the lock box.

Canada Post Corporation (CPC) regularly retires postal codes and may also reactivate retired postal codes for use again

Users of the PCFRF must keep in mind that the file contains only the postal codes from CPC that are active as of December 2009.

If the addresses of postal codes in a user's administrative file are not updated to December 2009, there may be non-matches with the PCFRF because some of the postal codes in the user's file may have been retired, or may even have been reactivated and re-assigned by CPC to another range of addresses outside the riding where they had previously been used.

Statistics Canada maintains an audit trail of the birth dates and retirement dates of postal codes in the PCCF. Users may wish to consult the *Postal Code Conversion File (PCCF), Reference Guide* (Catalogue no. 92-153-GWE), available on the Statistics Canada website. An updated version of the file including December 2009 postal codes is released in July 2010.

Lineage

Lineage describes the history of the linkage data, including descriptions of the source material from which the data were derived, and the methods of derivation. It also contains the dates of the source material, and all transformations involved in producing the final digital files.

Sources

The sources used to derive the PCFRF are as follows:

- The December 2009 PCCF links postal codes (provided by CPC on the Address Lookup File updated to December 2009) to geographic codes for all 2006 Census geographic areas, including province and federal electoral district 2003 Representative Order codes. It also provides the geographic point coordinates representing the postal codes. The December 2009 PCCF contains over 1.6 million postal code records linked to the geographic areas used in the 2006 Census. These geographical areas have a reference date of January 1, 2006, except for the Federal electoral district – 2003 Representation Order.

- The PCFRF contains postal code data under license from Canada Post Corporation. The most recent Canada Post Corporation file from which this data is copied is dated December 2009.

- Federal electoral district names are derived from Geography Division's Spatial Data Infrastructure. The source of the geographic names and codes of federal electoral districts is the 2003 Representation Order of the Chief Electoral Office, Elections Canada. The Spatial Data Infrastructure contains a table with the name of each federal electoral district and its associated identification code. This table is updated based on name changes provided by Elections Canada. Where changes to the electoral boundaries have been provided by Elections Canada, the correspondence between the federal electoral district and postal codes is updated.

- The 2006 Census of Population is used as a source for deriving the weights. When a postal code is linked in the PCFRF to more than one FED, the number of persons reporting the postal code in the census may be used to derive the weights.

Method of derivation

The PCFRF is created by extracting the active postal codes and the related FED codes included in the December 2009 PCCF, containing December 2009 postal codes. Each FED code in this file is linked to the list of federal electoral districts – 2003 Representation Order codes and names. The linkage to the FED on the December 2009 PCCF is based on the dissemination block or dissemination area geocoded in the PCCF.

The resulting PCFRF file contains 837,058 active postal code records of which 821,607 are unique links to one federal electoral district. In total, 7,371 active postal codes (15,451 records) are linked to more than one federal electoral district (further details are provided in Logical consistency later in this section). The number of postal code records by federal electoral district and whether those postal codes are linked to other FEDs is provided in Appendix B, Postal codes by federal electoral district.

The unique link variable is derived based on the postal code and FED codes in the PCFRF. If the postal code is linked to only one FED, the unique link is assigned a value of 1, otherwise it is assigned a value of 2.

The 'weight' estimates the proportion of the population of a postal code that resides within each FED. If a postal code is linked to only one FED in the PCFRF, the weight is equal to 1. If the postal code is linked to more than one FED and is reported in the 2006 Census, the weight is equal to the proportion of the population that reported the postal code in each of the FEDs. If the postal code was not reported in the census, the weight is estimated using the address ranges in the service area of the postal code as found in the Address Lookup File from Canada Post Corporation. If necessary, the weights for a postal code are normalised and adjusted using the Single Link Indicator variable in the PCCF so that the sum of weights equals 1.0.

Attribute accuracy

Attribute accuracy refers to the accuracy of the quantitative and qualitative information attached to each feature (such as population for an urban area, street name, census subdivision name and code).

The attribute accuracy of the PCFRF is dependent on the accuracy of the geocodes for the dissemination blocks and dissemination areas in the PCCF. The linkage of the dissemination blocks or dissemination areas to the FEDs is based on the boundaries of the FEDs as found in the Spatial Data Infrastructure.

The accuracy of the weight variable is based on the linkage to the FED in the PCFRF, the population reporting the postal code in the census as well as address range data in Canada Post's Address Lookup File.

The population on which the weight variable in the PCFRF is based was derived from the total population data of the 2006 Census. Population counts are determined according to the 'de jure' method. This means that people are enumerated at their usual place of residence, regardless of where they may have been on Census Day, May 16, 2006. See Appendix E for notes on the quality of the 2006 Census data.

If a postal code is linked to more than one FED in the PCFRF and was not reported in the census, address range data from the Address Lookup File is used to estimate the weight. This is the case for about 1% of the postal codes in the PCFRF. Because large populations residing in apartments or collective dwelling units may be represented by only one address, this method can underestimate the weight associated with these populations.

Logical consistency

Logical consistency describes the fidelity of relationships encoded in the data structure of the digital linkage data.

Of the 837,058 active postal code records found on this file, there are 821,607 active postal codes uniquely linked to one federal electoral district and 7,371 active postal codes that are linked to two or more federal electoral districts. The following table summarizes them.

Table 4.1 Count of postal codes linked to federal electoral districts (FEDs)

Number of federal electoral districts	Active postal codes	Number of records
1	821,607	821,607
2	6,803	13,606
3	473	1,419
4	68	272
5	12	60
6	11	66
7	4	28
Total	**828,978**	**837,058**

Consistency with other products

Data contained in the PCFRF are consistent with all 2006 Census related geographic products with the exception of the 2006 Census Forward Sortation Area Boundary File (Catalogue no. 92-170-XWE, XCE), which represents only the forward sortation areas reported in the 2006 Census. The PCFRF is derived from the Postal Code Conversion File (PCCF), and is consistent with that file.

Completeness

Completeness refers to the degree to which geographic features, their attributes and their relationships are included or omitted in a dataset. It also includes information on selection criteria, definitions used, and other relevant mapping rules.

Completeness in the context of the PCFRF is the degree to which all valid postal codes are accounted for. All postal codes, valid and active as of December 2009 according to CPC, have been linked to census geography.

There are 308 FEDs in the 2003 Representation Order of the Chief Electoral Office, Elections Canada. All of these FEDs are included in the PCFRF.

The data files are named using a file naming convention described in section 5, Technical specifications. Each file contains the following number of active postal code records:

Table 4.2 Number of postal code records per region in Postal Codes by Federal Ridings File (PCFRF) data files

File name	Number of records
pcfrfEastFED2003_DEC09_fcpcefEstCEF2003.zip	101,521
pcfrfQueFED2003_DEC09_fcpcefQuéCEF2003.zip	211,257
pcfrfOntFED2003_DEC09_fcpcefOntCEF2003.zip	278,368
pcfrfWestFED2003_DEC09_fcpcefOuestCEF2003.zip	129,067
pcfrfBCFED2003_DEC09_fcpcefCBCEF2003.zip	116,845
pcfrfNatFED2003_DEC09_fcpcefNatCEF2003.zip	837,058

Table 4.3 lists abbreviations for the region names used in the data file names and the province and territories that they represent.

Table 4.3 Region abbreviations and associated province and/or territory in Postal Codes by Federal Ridings File (PCFRF) data files

English abbreviation - region name	Associated province and/or territory - English	French abbreviation - region name	Associated province and/or territory - French
East	Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick	Est	Terre-Neuve-et-Labrador, Île-du-Prince-Édouard, Nouvelle-Écosse, Nouveau-Brunswick
Que	Quebec	Qué	Québec
Ont	Ontario	Ont	Ontario
West	Manitoba, Saskatchewan, Alberta, Northwest Territories, Nunavut	Ouest	Manitoba, Saskatchewan, Alberta, Territoires du Nord-Ouest, Nunavut
BC	British Columbia, Yukon	CB	Colombie-Britannique, Yukon
Nat	Canada	Nat	Canada

5 Technical specifications

File specifications

The current version of the Postal Codes by Federal Ridings File (PCFRF) is an ASCII file and does not include any software or instructions on how to use the product within specific Geographical Information Systems (GIS) or mapping packages.

Record layout

Table 5.1 Postal Codes by Federal Ridings File (PCFRF) record layout

Position	Size	Type[1]	Description
1	6	C	Postal code
7	5	C	Federal electoral district code
12	56	C	Federal electoral district name - English
68	56	C	Federal electoral district name - French
124	1	C	Unique link
125	3	C	Weight

1. The field type 'C' refers to both alphabetic and numeric characters.

Data descriptions

Postal code
The postal code is a six-character alphanumeric code defined and maintained by CPC for the sortation and delivery of mail.

The alphanumeric characters are arranged in the form ANA NAN, where 'A' represents a letter of the alphabet and 'N' a numeric digit. The first character of a postal code (allocated in alphabetic sequence from east to west across Canada) represents a province or territory or a major sector entirely within a province.

The first three characters represent a set of well-defined and stable areas known as the forward sortation area (FSA). Rural FSAs are identifiable by the presence of a '0' in the second position of the FSA code.

The last three characters identify the local delivery unit (LDU). In established urban areas, the LDU can specify a small and easily defined area within an FSA such as block-face (one side of a city street between consecutive intersections with streets), an apartment building, an office building, or a large firm or organization which does large volume business with the post office. In rural areas, the LDU denotes a service area – the area serviced by rural route delivery from a post office or station (e.g., a rural route, general delivery, or post office box).

Federal electoral district code
A federal electoral district (FED) is any place or territorial area entitled to return a member to serve in the House of Commons. FED legal limits and descriptions are the responsibility of the Chief Electoral Officer, and are usually revised every 10 years after the results of the decennial census. The 2003 Representation Order is the most current revision, and is based on 2001 Census population data. This code uniquely identifies a federal electoral district – 2003 Representation Order. The first two digits identify the province or territory.

Federal electoral district name – English
This contains the English name of the federal electoral district from the 2003 Representation Order.

Federal electoral district name – French
This contains the French name of the federal electoral district from the 2003 Representation Order.

Unique link
The unique link value given in the file can be either '1', which indicates the postal code is linked to one FED, or '2', which indicates that the postal code is linked to two or more FEDs.

Weight
The 'weight' estimates the proportion of the population of a postal code that resides within each FED. If a postal code is linked to only one FED in the PCFRF, the weight is equal to 1. When a postal code is linked to more than one FED, the sum of weights for that postal code equals 1.0.

File naming convention

The naming convention for PCFRF data files is bilingual and reflects the reference date of the CPC data used in the release.

Data files in this release are:

National file

> pcfrfNatFED2003_DEC09_fcpcefNatCEF2003.zip

Regional files

> pcfrfEastFED2003_DEC09_fcpcefEstCEF2003.zip
> pcfrfQueFED2003_DEC09_fcpcefQuéCEF2003.zip
> pcfrfOntFED2003_DEC09_fcpcefOntCEF2003.zip
> pcfrfWestFED2003_DEC09_fcpcefOuestCEF2003.zip
> pcfrfBCFED2003_DEC09_fcpcefCBCEF2003.zip

Table 5.2 File name structure of Postal Codes by Federal Ridings File (PCFRF)

Name component	Description
pcfrf	file name - english
region – english (Nat, East, Que, Ont, West, BC)	english abbreviation of region (see Table 4.3 for region definitions)
FED2003	FED representation order - english
DEC09	reference date of CPC postal code data (month, year)
fcpcef	file name - french
region – french (Nat, Est, Qué, Ont, Ouest, CB)	french abbreviation of region (see Table 4.3 for region definitions)
CEF2003	FED representation order - french

Appendix A Glossary

Adjusted counts
'Adjusted counts' refer to previous census population and dwelling counts that were adjusted (i.e., recompiled) to reflect current census boundaries, when a boundary change occurs between the two censuses.

Block-face
A block-face is one side of a street between two consecutive features intersecting that street. The features can be other streets or boundaries of standard geographic areas.

Block-faces are used for generating block-face representative points, which in turn are used for geocoding and census data extraction when the street and address information are available.

Cartographic boundary files
Cartographic boundary files (CBFs) contain the boundaries of standard geographic areas together with the shoreline around Canada. Selected inland lakes and rivers are available as a supplementary layer.

Census agricultural region
Census agricultural regions (CARs) are composed of groups of adjacent census divisions. In Saskatchewan, census agricultural regions are made up of groups of adjacent census consolidated subdivisions, but these groups do not necessarily respect census division boundaries.

Census consolidated subdivision
A census consolidated subdivision (CCS) is a group of adjacent census subdivisions. Generally, the smaller, more urban census subdivisions (towns, villages, etc.) are combined with the surrounding, larger, more rural census subdivision, in order to create a geographic level between the census subdivision and the census division.

Census division
Census division (CD) is the general term for provincially legislated areas (such as county, *municipalité régionale de comté* and regional district) or their equivalents. Census divisions are intermediate geographic areas between the province/territory level and the municipality (census subdivision).

Census metropolitan area and census agglomeration
A census metropolitan area (CMA) or a census agglomeration (CA) is formed by one or more adjacent municipalities centred on a large urban area (known as the urban core). A CMA must have a total population of at least 100,000 of which 50,000 or more must live in the urban core. A CA must have an urban core population of at least 10,000. To be included in the CMA or CA, other adjacent municipalities must have a high degree of integration with the central urban area, as measured by commuting flows derived from census place of work data.

If the population of the urban core of a CA declines below 10,000, the CA is retired. However, once an area becomes a CMA, it is retained as a CMA even if its total population declines below 100,000 or the population of its urban core falls below 50,000. The urban areas in the CMA or CA that are not contiguous to the urban core are called the urban fringe. Rural areas in the CMA or CA are called the rural fringe.

When a CA has an urban core of at least 50,000, it is subdivided into census tracts. Census tracts are maintained for the CA even if the population of the urban core subsequently falls below 50,000. All CMAs are subdivided into census tracts.

Census metropolitan area and census agglomeration influenced zone
The census **m**etropolitan area and census agglomeration **i**nfluenced **z**one (MIZ) is a concept that geographically differentiates the area of Canada outside census metropolitan areas (CMAs) and census agglomerations (CAs). Census subdivisions outside CMAs and CAs are assigned to one of four categories according to the degree of influence (strong, moderate, weak or no influence) that the CMAs and/or CAs have on them.

Census subdivisions (CSDs) are assigned to a MIZ category based on the percentage of their resident employed labour force that has a place of work in the urban core(s) of CMAs or CAs. CSDs with the same degree of influence tend to be clustered. They form zones around CMAs and CAs that progress through the categories from 'strong' to 'no' influence as distance from the CMAs and CAs increases.

Census subdivision
Census subdivision (CSD) is the general term for municipalities (as determined by provincial/territorial legislation) or areas treated as municipal equivalents for statistical purposes (e.g., Indian reserves, Indian settlements and unorganized territories).

Census tract
Census tracts (CTs) are small, relatively stable geographic areas that usually have a population of 2,500 to 8,000. They are located in census metropolitan areas and in census agglomerations with an urban core population of 50,000 or more in the previous census.

A committee of local specialists (for example, planners, health and social workers, and educators) initially delineates census tracts in conjunction with Statistics Canada. Once a census metropolitan area (CMA) or census agglomeration (CA) has been subdivided into census tracts, the census tracts are maintained even if the urban core population subsequently declines below 50,000.

Coordinate system
A coordinate system is a reference system based on mathematical rules for specifying positions (locations) on the surface of the earth. The coordinate values can be spherical (latitude and longitude) or planar (such as Universal Transverse Mercator).

Cartographic boundary files, digital boundary files, representative points and road network files are disseminated in latitude/longitude coordinates.

Datum
A datum is a geodetic reference system that specifies the size and shape of the earth, and the base point from which the latitude and longitude of all other points on the earth's surface are referenced.

Designated place
A designated place (DPL) is normally a small community or settlement that does not meet the criteria established by Statistics Canada to be a census subdivision (an area with municipal status) or an urban area.

Designated places are created by provinces and territories, in cooperation with Statistics Canada, to provide data for submunicipal areas.

Digital boundary files
Digital boundary files (DBFs) portray the boundaries used for 2006 Census collection and, therefore, often extend as straight lines into bodies of water.

Dissemination area
A dissemination area (DA) is a small, relatively stable geographic unit composed of one or more adjacent dissemination blocks. It is the smallest standard geographic area for which all census data are disseminated. DAs cover all the territory of Canada.

Dissemination block
A dissemination block (DB) is an area bounded on all sides by roads and/or boundaries of standard geographic areas. The dissemination block is the smallest geographic area for which population and dwelling counts are disseminated. Dissemination blocks cover all the territory of Canada.

Economic region
An economic region (ER) is a grouping of complete census divisions (CDs) (with one exception in Ontario) created as a standard geographic unit for analysis of regional economic activity.

Ecumene
Ecumene is a term used by geographers to mean inhabited land. It generally refers to land where people have made their permanent home, and to all work areas that are considered occupied and used for agricultural or any other economic purpose. Thus, there can be various types of ecumenes, each having their own unique characteristics (population ecumene, agricultural ecumene, industrial ecumene, etc.).

Federal electoral district
A federal electoral district (FED) is an area represented by a member of the House of Commons. The federal electoral district boundaries used for the 2006 Census are based on the 2003 Representation Order.

Geocoding
Geocoding is the process of assigning geographic identifiers (codes) to map features and data records. The resulting geocodes permit data to be linked geographically.

Households, postal codes and place of work data are linked to block-face representative points when the street and address information is available; otherwise, they are linked to dissemination block (DB) representative points. In some cases, postal codes and place of work data are linked to dissemination area (DA) representative points when they cannot be linked to DBs. As well, place of work data are linked to census subdivision representative points when the data cannot be linked to DAs.

Geographic code
A geographic code is a numerical identifier assigned to a geographic area. The code is used to identify and access standard geographic areas for the purposes of data storage, retrieval and display.

Geographic reference date
The geographic reference date is a date determined by Statistics Canada for the purpose of finalizing the geographic framework for which census data will be collected, tabulated and reported. For the 2006 Census, the geographic reference date is January 1, 2006.

Land area
Land area is the area in square kilometres of the land-based portions of standard geographic areas.

Land area data are unofficial, and are provided for the sole purpose of calculating population density.

Locality
'Locality' (LOC) refers to the historical place names of former census subdivisions (municipalities), former designated places and former urban areas, as well as to the names of other entities, such as neighbourhoods, post offices, communities and unincorporated places.

Map projection
A map projection is the process of transforming and representing positions from the earth's three-dimensional curved surface to a two-dimensional (flat) surface. The process is accomplished by a direct geometric projection or by a mathematically derived transformation.

The Lambert conformal conic map projection is widely used for general maps of Canada at small scales and is the most common map projection used at Statistics Canada.

National Geographic Database
The National Geographic Database (NGD) is a shared database between Statistics Canada and Elections Canada. The database contains roads, road names and address ranges. It also includes separate reference layers containing physical and cultural features, such as hydrography and hydrographic names, railroads and power transmission lines.

Place name
'Place name' refers to the set of names that includes current census subdivisions (municipalities), current designated places and current urban areas, as well as the names of localities.

Population density
Population density is the number of persons per square kilometre.

Postal code
The postal code is a six-character code defined and maintained by Canada Post Corporation for the purpose of sorting and delivering mail.

Province or territory
Province and territory refer to the major political units of Canada. From a statistical point of view, province and territory are basic areas for which data are tabulated. Canada is divided into 10 provinces and 3 territories.

Reference map
A reference map shows the location of the geographic areas for which census data are tabulated and disseminated. The maps display the boundaries, names and codes of standard geographic areas, as well as major cultural and physical features, such as roads, railroads, coastlines, rivers and lakes.

Representative point
A representative point is a point that represents a line or a polygon. The point is centrally located along the line, and centrally located or population weighted in the polygon.

Representative points are generated for block-faces, dissemination blocks, dissemination areas, census subdivisions, urban areas and designated places.

Households, postal codes and place of work data are linked to block-face representative points when the street and address information is available; otherwise, they are linked to dissemination block (DB) representative points. In some cases, postal codes and place of work data are linked to dissemination area (DA) representative points when they cannot be linked to DBs. As well, place of work data are linked to census subdivision representative points when the data cannot be linked to DAs.

Road network file
The road network file (RNF) contains roads, road names and address ranges for the entire country. Most commonly, address ranges are dwelling-based.

Rural area
Rural areas include all territory lying outside urban areas. Taken together, urban and rural areas cover all of Canada.

Rural population includes all population living in the rural fringes of census metropolitan areas (CMAs) and census agglomerations (CAs), as well as population living in rural areas outside CMAs and CAs.

Spatial Data Infrastructure
The Spatial Data Infrastructure (SDI), formerly known as the National Geographic Base (NGB), is an internal, maintenance database that is not disseminated outside of Statistics Canada. It contains roads, road names and address ranges from the National Geographic Database (NGD), as well as boundary arcs of standard geographic areas that do not follow roads, all in one integrated line layer. The database also includes a related polygon layer consisting of basic blocks (BB) (basic blocks are the smallest polygon units in the database, and are formed by the intersection of all roads and the arcs of geographic areas that do not follow roads), boundary layers of standard geographic areas, and derived attribute tables, as well as reference layers containing physical and cultural features (such as hydrography, railroads and power transmission lines) from the NGD.

The SDI supports a wide range of census operations, such as the maintenance and delineation of the boundaries of standard geographic areas (including the automated delineation of dissemination blocks, dissemination areas and urban areas), and geocoding. The SDI is also the source for generating many geography products for the 2006 Census, such as cartographic boundary files and road network files.

Spatial data quality elements
Spatial data quality elements provide information on the fitness for use of a spatial database by describing why, when and how the data are created, and how accurate the data are. The elements include an overview describing the purpose and usage, as well as specific quality elements reporting on the lineage, positional accuracy, attribute accuracy, logical consistency and completeness. This information is provided to users for all spatial data products disseminated for the census.

Standard Geographical Classification
The Standard Geographical Classification (SGC) is Statistics Canada's official classification for three types of geographic areas: provinces and territories, census divisions (CDs) and census subdivisions (CSDs). The SGC provides unique numeric identification (codes) for these hierarchically related geographic areas.

Statistical Area Classification
The Statistical Area Classification (SAC) groups census subdivisions according to whether they are a component of a census metropolitan area, a census agglomeration, a census **m**etropolitan area and census agglomeration **i**nfluenced **z**one (strong MIZ, moderate MIZ, weak MIZ or no MIZ), or the territories (Yukon, Northwest Territories and Nunavut). The SAC is used for data dissemination purposes.

Thematic map
A thematic map shows the spatial distribution of one or more specific data themes for standard geographic areas. The map may be qualitative in nature (e.g., predominant farm types) or quantitative (e.g., percentage population change).

Urban area
An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count. All territory outside urban areas is classified as rural. Taken together, urban and rural areas cover all of Canada.

Urban population includes all population living in the urban cores, secondary urban cores and urban fringes of census metropolitan areas (CMAs) and census agglomerations (CAs), as well as the population living in urban areas outside CMAs and CAs.

Urban core, urban fringe and rural fringe
'Urban core, urban fringe and rural fringe' distinguish between central and peripheral urban and rural areas within a census metropolitan area (CMA) or census agglomeration (CA).

'Urban core' is a large urban area around which a CMA or a CA is delineated. The urban core must have a population (based on the previous census) of at least 50,000 persons in the case of a CMA, or at least 10,000 persons in the case of a CA.

The urban core of a CA that has been merged with an adjacent CMA or larger CA is called the 'secondary urban core'.

'Urban fringe' includes all small urban areas within a CMA or CA that are not contiguous with the urban core of the CMA or CA.

'Rural fringe' is all territory within a CMA or CA not classified as an urban core or an urban fringe.

Urban population size group
The term 'urban population size group' refers to the classification used in standard tabulations where urban areas are distributed according to the following predetermined size groups, based on the current census population.

1,000	to	2,499
2,500	to	4,999
5,000	to	9,999
10,000	to	24,999
25,000	to	49,999
50,000	to	99,999
100,000	to	499,999
500,000	and over	

Tabulations are not limited to these predetermined population size groups; the census database has the capability of tabulating data according to any user-defined population size group.

Appendix B Postal codes by federal electoral district

Table B.1 Number of postal codes by federal electoral district

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
10001	Avalon	682	30	4.40
10002	Bonavista - Gander - Grand Falls - Windsor	899	38	4.23
10003	Humber - St. Barbe - Baie Verte	1,620	20	1.23
10004	Labrador	379	4	1.06
10005	Random - Burin - St. George's	925	34	3.68
10006	St. John's East	3,704	122	3.29
10007	St. John's South - Mount Pearl	2,650	99	3.74
11001	Cardigan	409	8	1.96
11002	Charlottetown	1,799	11	0.61
11003	Egmont	1,035	6	0.58
11004	Malpeque	37	13	35.14
12001	Cape Breton - Canso	3,233	81	2.51
12002	Central Nova	1,331	29	2.18
12003	Dartmouth - Cole Harbour	3,275	126	3.85
12004	Halifax	3,545	52	1.47
12005	Halifax West	2,357	154	6.53
12006	Kings - Hants	1,569	43	2.74
12007	Cumberland - Colchester - Musquodoboit Valley	2,815	81	2.88
12008	Sackville - Eastern Shore	2,021	232	11.48
12009	South Shore - St. Margaret's	2,270	98	4.32
12010	Sydney - Victoria	5,137	72	1.40
12011	West Nova	705	21	2.98
13001	Acadie - Bathurst	5,043	24	0.48
13002	Beauséjour	8,439	73	0.87
13003	Fredericton	4,678	37	0.79
13004	Fundy Royal	7,070	284	4.02
13005	Madawaska - Restigouche	4,307	16	0.37
13006	Miramichi	4,737	68	1.44
13007	Moncton - Riverview - Dieppe	4,864	107	2.20
13008	New Brunswick Southwest	8,020	194	2.42
13009	Saint John	4,551	62	1.36
13010	Tobique - Mactaquac	7,415	39	0.53
24001	Abitibi - Témiscamingue	2,552	15	0.59
24002	Ahuntsic	2,269	4	0.18
24003	Alfred-Pellan	3,442	5	0.15
24004	Argenteuil - Papineau - Mirabel	2,005	68	3.39
24005	Beauce	2,690	41	1.52
24006	Beauharnois - Salaberry	2,454	18	0.73
24007	Beauport - Limoilou	3,677	54	1.47
24008	Berthier - Maskinongé	2,358	61	2.59
24009	Bourassa	2,145	43	2.00
24010	Brome - Missisquoi	3,040	35	1.15

Table B.1 Number of postal codes by federal electoral district (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
24011	Brossard - La Prairie	2,840	5	0.18
24012	Chambly - Borduas	3,578	9	0.25
24013	Charlesbourg - Haute-Saint-Charles	3,884	64	1.65
24014	Montmorency - Charlevoix - Haute-Côte-Nord	1,842	54	2.93
24015	Châteauguay - Saint-Constant	2,885	7	0.24
24016	Chicoutimi - Le Fjord	3,784	10	0.26
24017	Compton - Stanstead	1,701	62	3.64
24018	Drummond	3,859	17	0.44
24019	Gaspésie - Îles-de-la-Madeleine	1,434	9	0.63
24020	Gatineau	3,490	2	0.06
24021	Hochelaga	2,061	82	3.98
24022	Honoré-Mercier	2,563	44	1.72
24023	Hull - Aylmer	4,117	2	0.05
24024	Jeanne-Le Ber	2,800	141	5.04
24025	Joliette	1,524	36	2.36
24026	Jonquière - Alma	4,662	12	0.26
24027	Lac-Saint-Louis	3,842	32	0.83
24028	La Pointe-de-l'Île	2,961	73	2.47
24029	LaSalle - Émard	1,774	4	0.23
24030	Laurentides - Labelle	2,037	45	2.21
24031	Laurier - Sainte-Marie	2,503	23	0.92
24032	Laval	3,000	32	1.07
24033	Laval - Les Îles	3,097	39	1.26
24034	Lévis - Bellechasse	2,647	39	1.47
24035	Longueuil - Pierre-Boucher	2,760	6	0.22
24036	Lotbinière - Chutes-de-la-Chaudière	2,275	26	1.14
24037	Louis-Hébert	3,733	26	0.70
24038	Louis-Saint-Laurent	3,623	91	2.51
24039	Manicouagan	2,263	0	0.00
24040	Marc-Aurèle-Fortin	3,639	35	0.96
24041	Haute-Gaspésie - La Mitis - Matane - Matapédia	2,413	16	0.66
24042	Mégantic - L'Érable	3,139	48	1.53
24043	Montcalm	2,537	70	2.76
24044	Mount Royal	2,402	24	1.00
24045	Notre-Dame-de-Grâce - Lachine	2,971	36	1.21
24046	Abitibi - Baie-James - Nunavik - Eeyou	1,502	15	1.00
24047	Outremont	1,498	15	1.00
24048	Papineau	1,737	2	0.12
24049	Pierrefonds - Dollard	2,828	10	0.35
24050	Pontiac	2,524	28	1.11
24051	Portneuf - Jacques-Cartier	3,627	26	0.72
24052	Québec	4,215	43	1.02
24053	Repentigny	4,014	4	0.10
24054	Bas-Richelieu - Nicolet - Bécancour	3,082	33	1.07
24055	Richmond - Arthabaska	3,462	37	1.07

Table B.1 Number of postal codes by federal electoral district (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
24056	Rimouski-Neigette - Témiscouata - Les Basques	2,316	23	0.99
24057	Rivière-des-Mille-Îles	2,659	33	1.24
24058	Montmagny - L'Islet - Kamouraska - Rivière-du-Loup	1,733	53	3.06
24059	Rivière-du-Nord	3,441	7	0.20
24060	Roberval - Lac-Saint-Jean	2,849	4	0.14
24061	Rosemont - La Petite-Patrie	1,767	5	0.28
24062	Saint-Bruno - Saint-Hubert	3,045	0	0.00
24063	Saint-Hyacinthe - Bagot	2,496	15	0.60
24064	Saint-Jean	2,926	13	0.44
24065	Saint-Lambert	2,831	3	0.11
24066	Saint-Laurent - Cartierville	2,693	27	1.00
24067	Saint-Léonard - Saint-Michel	1,908	16	0.84
24068	Saint-Maurice - Champlain	4,065	26	0.64
24069	Shefford	2,708	27	1.00
24070	Sherbrooke	3,796	44	1.16
24071	Terrebonne - Blainville	2,695	59	2.19
24072	Trois-Rivières	4,412	16	0.36
24073	Vaudreuil-Soulanges	2,265	1	0.04
24074	Verchères - Les Patriotes	1,518	20	1.32
24075	Westmount - Ville-Marie	3,373	157	4.65
35001	Ajax - Pickering	2,607	30	1.15
35002	Algoma - Manitoulin - Kapuskasing	1,054	47	4.46
35003	Ancaster - Dundas - Flamborough - Westdale	2,743	46	1.68
35004	Barrie	2,859	10	0.35
35005	Beaches - East York	2,301	228	9.91
35006	Bramalea - Gore - Malton	3,056	106	3.47
35007	Brampton - Springdale	2,039	49	2.40
35008	Brampton West	2,816	29	1.03
35009	Brant	4,279	23	0.54
35010	Burlington	3,923	11	0.28
35011	Cambridge	3,809	15	0.39
35012	Carleton - Mississippi Mills	2,133	94	4.41
35013	Chatham-Kent - Essex	2,567	45	1.75
35014	Durham	1,903	26	1.37
35015	Davenport	1,682	34	2.02
35016	Don Valley East	1,603	31	1.93
35017	Don Valley West	2,612	117	4.48
35018	Dufferin - Caledon	2,766	32	1.16
35019	Eglinton - Lawrence	2,384	9	0.38
35020	Elgin - Middlesex - London	2,750	67	2.44
35021	Essex	2,517	26	1.03
35022	Etobicoke Centre	2,869	6	0.21
35023	Etobicoke - Lakeshore	3,466	5	0.14
35024	Etobicoke North	1,944	9	0.46
35025	Glengarry - Prescott - Russell	1,035	60	5.80

Table B.1 Number of postal codes by federal electoral district (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
35026	Bruce - Grey - Owen Sound	1,765	44	2.49
35027	Guelph	3,623	26	0.72
35028	Haldimand - Norfolk	1,908	25	1.31
35029	Haliburton - Kawartha Lakes - Brock	1,027	46	4.48
35030	Halton	3,052	53	1.74
35031	Hamilton Centre	3,874	10	0.26
35032	Hamilton East - Stoney Creek	3,815	10	0.26
35033	Hamilton Mountain	3,538	50	1.41
35034	Huron - Bruce	1,055	72	6.82
35035	Kenora	1,219	6	0.49
35036	Kingston and the Islands	3,802	17	0.45
35037	Kitchener Centre	3,180	32	1.01
35038	Kitchener - Conestoga	2,522	38	1.51
35039	Kitchener - Waterloo	3,722	32	0.86
35040	Lanark - Frontenac - Lennox and Addington	2,725	72	2.64
35041	Leeds - Grenville	1,573	47	2.99
35042	London - Fanshawe	2,547	43	1.69
35043	London North Centre	3,774	42	1.11
35044	London West	3,152	42	1.33
35045	Markham - Unionville	2,699	22	0.82
35046	Lambton - Kent - Middlesex	1,667	94	5.64
35047	Mississauga - Brampton South	2,794	103	3.69
35048	Mississauga East - Cooksville	1,725	40	2.32
35049	Mississauga - Erindale	2,337	42	1.80
35050	Mississauga South	3,143	35	1.11
35051	Mississauga - Streetsville	1,997	57	2.85
35052	Nepean - Carleton	2,856	98	3.43
35053	Newmarket - Aurora	2,991	5	0.17
35054	Niagara Falls	4,351	12	0.28
35055	Niagara West - Glanbrook	1,484	69	4.65
35056	Nickel Belt	1,162	62	5.34
35057	Nipissing - Timiskaming	2,230	22	0.99
35058	Northumberland - Quinte West	2,568	36	1.40
35059	Oak Ridges - Markham	3,188	34	1.07
35060	Oakville	3,960	35	0.88
35061	Oshawa	3,557	31	0.87
35062	Ottawa Centre	4,192	49	1.17
35063	Ottawa - Orléans	2,744	121	4.41
35064	Ottawa South	3,383	98	2.90
35065	Ottawa - Vanier	3,288	24	0.73
35066	Ottawa West - Nepean	3,125	81	2.59
35067	Oxford	3,066	36	1.17
35068	Parkdale - High Park	1,745	21	1.20
35069	Parry Sound - Muskoka	1,117	12	1.07

Table B.1 Number of postal codes by federal electoral district (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
35070	Perth - Wellington	1,970	63	3.20
35071	Peterborough	3,094	21	0.68
35072	Pickering - Scarborough East	2,235	41	1.83
35073	Prince Edward - Hastings	1,714	42	2.45
35074	Renfrew - Nipissing - Pembroke	3,018	33	1.09
35075	Richmond Hill	2,493	6	0.24
35076	St. Catharines	4,493	21	0.47
35077	St. Paul's	2,224	12	0.54
35078	Sarnia - Lambton	2,871	22	0.77
35079	Sault Ste. Marie	2,931	15	0.51
35080	Scarborough - Agincourt	1,636	13	0.79
35081	Scarborough Centre	2,131	77	3.61
35082	Scarborough - Guildwood	1,797	7	0.39
35083	Scarborough - Rouge River	1,969	28	1.42
35084	Scarborough Southwest	2,253	14	0.62
35085	Simcoe - Grey	1,680	55	3.27
35086	Simcoe North	2,318	23	0.99
35087	Stormont - Dundas - South Glengarry	2,174	28	1.29
35088	Sudbury	3,241	35	1.08
35089	Thornhill	3,256	196	6.02
35090	Thunder Bay - Rainy River	2,710	75	2.77
35091	Thunder Bay - Superior North	2,539	76	2.99
35092	Timmins - James Bay	1,925	27	1.40
35093	Toronto Centre	2,678	359	13.41
35094	Toronto - Danforth	2,175	214	9.84
35095	Trinity - Spadina	3,111	373	11.99
35096	Vaughan	2,900	182	6.28
35097	Welland	4,426	41	0.93
35098	Wellington - Halton Hills	1,944	63	3.24
35099	Whitby - Oshawa	3,508	29	0.83
35100	Willowdale	2,514	8	0.32
35101	Windsor - Tecumseh	3,319	26	0.78
35102	Windsor West	4,299	17	0.40
35103	York Centre	2,261	5	0.22
35104	York - Simcoe	1,960	37	1.89
35105	York South - Weston	2,139	11	0.51
35106	York West	1,503	9	0.60
46001	Brandon - Souris	2,150	12	0.56
46002	Charleswood - St. James - Assiniboia	2,248	52	2.31
46003	Churchill	777	17	2.19
46004	Dauphin - Swan River - Marquette	714	17	2.38
46005	Elmwood - Transcona	2,269	21	0.93
46006	Kildonan - St. Paul	2,094	32	1.53

**Table B.1 Number of postal codes by federal electoral district** (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
46007	Portage - Lisgar	1,342	23	1.71
46008	Provencher	607	37	6.10
46009	Saint Boniface	2,486	32	1.29
46010	Selkirk - Interlake	882	46	5.22
46011	Winnipeg Centre	2,853	48	1.68
46012	Winnipeg North	2,164	25	1.16
46013	Winnipeg South	1,944	38	1.95
46014	Winnipeg South Centre	2,178	8	0.37
47001	Battlefords - Lloydminster	1,126	23	2.04
47002	Blackstrap	1,831	22	1.20
47003	Desnethé - Missinippi - Churchill River	209	24	11.48
47004	Cypress Hills - Grasslands	1,072	19	1.77
47005	Palliser	2,762	34	1.23
47006	Prince Albert	1,473	25	1.70
47007	Regina - Lumsden - Lake Centre	1,825	34	1.86
47008	Regina - Qu'Appelle	1,840	75	4.08
47009	Saskatoon - Humboldt	1,507	26	1.73
47010	Saskatoon - Rosetown - Biggar	1,981	110	5.55
47011	Saskatoon - Wanuskewin	1,785	121	6.78
47012	Souris - Moose Mountain	1,198	16	1.34
47013	Wascana	2,766	51	1.84
47014	Yorkton - Melville	794	21	2.64
48001	Fort McMurray - Athabasca	1,475	15	1.02
48002	Calgary East	3,790	150	3.96
48003	Calgary Centre-North	4,245	74	1.74
48004	Calgary Northeast	2,696	58	2.15
48005	Calgary - Nose Hill	2,246	16	0.71
48006	Calgary Centre	4,869	103	2.12
48007	Calgary Southeast	3,106	99	3.19
48008	Calgary Southwest	2,882	49	1.70
48009	Calgary West	3,261	54	1.66
48010	Crowfoot	1,494	52	3.48
48011	Edmonton - Mill Woods - Beaumont	2,954	307	10.39
48012	Edmonton Centre	5,215	255	4.89
48013	Edmonton East	4,633	302	6.52
48014	Edmonton - Leduc	3,580	188	5.25
48015	Edmonton - St. Albert	3,601	53	1.47
48016	Edmonton - Sherwood Park	3,491	231	6.62
48017	Edmonton - Spruce Grove	3,032	135	4.45
48018	Edmonton - Strathcona	4,708	149	3.16
48019	Lethbridge	3,725	7	0.19
48020	Macleod	1,152	101	8.77
48021	Medicine Hat	3,039	9	0.30
48022	Peace River	2,171	14	0.64
48023	Red Deer	2,935	10	0.34

Table B.1 Number of postal codes by federal electoral district (continued)

FEDCODE	Federal electoral district name	Number of postal codes	Number of postal codes linked to other FEDs	Percentage of postal codes linked to other FEDs
48024	Vegreville - Wainwright	1,581	158	9.99
48025	Westlock - St. Paul	1,434	69	4.81
48026	Wetaskiwin	1,308	43	3.29
48027	Wild Rose	2,075	73	3.52
48028	Yellowhead	948	48	5.06
59001	Abbotsford	2,911	0	0.00
59002	Burnaby - Douglas	3,486	50	1.43
59003	Burnaby - New Westminster	3,135	64	2.04
59004	Cariboo - Prince George	3,983	108	2.71
59005	Chilliwack - Fraser Canyon	2,158	21	0.97
59006	Delta - Richmond East	3,565	120	3.37
59007	Pitt Meadows - Maple Ridge - Mission	3,647	8	0.22
59008	Esquimalt - Juan de Fuca	3,849	23	0.60
59009	Fleetwood - Port Kells	2,755	176	6.39
59010	Kamloops - Thompson - Cariboo	3,014	17	0.56
59011	Kelowna - Lake Country	4,095	1	0.02
59012	Kootenay - Columbia	1,552	9	0.58
59013	Langley	3,168	1	0.03
59014	Nanaimo - Alberni	3,734	34	0.91
59015	Nanaimo - Cowichan	3,014	41	1.36
59016	Newton - North Delta	3,129	109	3.48
59017	New Westminster - Coquitlam	3,874	36	0.93
59018	Okanagan - Shuswap	2,834	20	0.71
59019	North Vancouver	4,063	19	0.47
59020	Okanagan - Coquihalla	2,453	18	0.73
59021	Port Moody - Westwood - Port Coquitlam	2,743	30	1.09
59022	Prince George - Peace River	3,426	103	3.01
59023	Richmond	2,544	52	2.04
59024	Saanich - Gulf Islands	4,016	30	0.75
59025	Skeena - Bulkley Valley	1,798	10	0.56
59026	British Columbia Southern Interior	2,444	17	0.70
59027	South Surrey - White Rock - Cloverdale	3,439	116	3.37
59028	Surrey North	3,264	46	1.41
59029	Vancouver Centre	2,980	91	3.05
59030	Vancouver East	3,328	82	2.46
59031	Vancouver Island North	3,243	14	0.43
59032	Vancouver Kingsway	3,199	33	1.03
59033	Vancouver Quadra	4,119	42	1.02
59034	Vancouver South	3,069	24	0.78
59035	Victoria	4,650	18	0.39
59036	West Vancouver - Sunshine Coast - Sea to Sky Country	3,210	27	0.84
60001	Yukon	954	0	0.00
61001	Western Arctic	515	0	0.00
62001	Nunavut	29	0	0.00
Total		**837,058**		

Appendix C Hierarchy of standard geographic units for dissemination, 2006 Census

Figure C.1 Hierarchy of standard geographic units for dissemination, 2006 Census
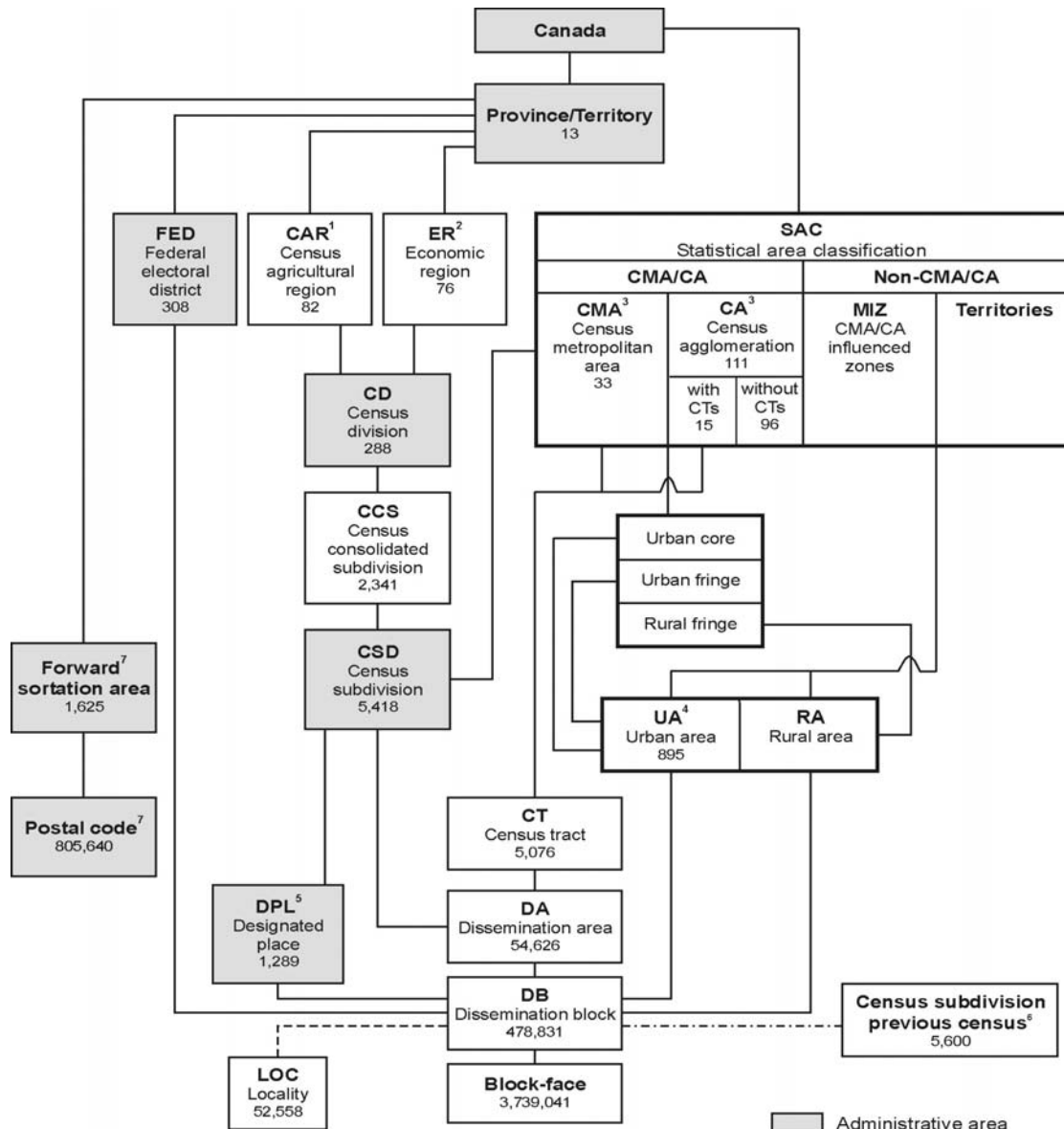
1. Census agricultural regions in Saskatchewan are composed of census consolidated subdivisions.
2. Economic regions are composed of complete census divisions except for one CD in Ontario.
3. One CMA and three CAs cross provincial boundaries.
4. Five UAs cross provincial boundaries.
5. Designated places respect CSD boundaries, but do not cover the total area of CSDs.
6. For the 2006 Census, a best fit linkage is created between the 2001 CSDs and 2006 DBs to facilitate historical data retrieval.
7. Postal codes and forward sortation areas valid as of May 2006 (Canada Post Corporation).

Sources: Statistics Canada, 2006 Census of Population; Canada Post Corporation, May 2006.

Appendix D Geographic units by province and territory, 2006 Census

Table D.1 Geographic units by province and territory, 2006 Census

Geographic unit	Canada 2001	Canada 2006	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Federal electoral district (2003 Representation Order)	301[1]	308	7	4	11	10	75	106	14	14	28	36	1	1	1
Economic region	76	76	4	1	5	5	17	11	8	6	8	8	1	1	1
Census agricultural region	82	82	3	3	5	4	14	5	12	20	8	8	0	0	0
Census division	288	288	11	3	18	15	98	49	23	18	19	28	1	2	3
Census consolidated subdivision	2,446	2,341	89	68	43	151	1,008	316	127	300	77	156	1	2	3
Census subdivision (CSD)	5,600	5,418	377	113	100	276	1,294	585	297	984	453	836	35	37	31
CSD dissolutions (January 2, 2001 to January 1, 2006)	340	...	9	0	0	0	282	5	7	29	4	4	0	0	0
CSD incorporations (January 2, 2001 to January 1, 2006)	...	158	5	0	2	1	100	4	6	11	5	24	0	0	0
Designated place	1,261	1,289	182	0	49	167	83	88	58	159	262	240	1	0	0
Census metropolitan area	27	33	1	0	1	2	6[2]	15[2]	1	2	2	4	0	0	0
Census agglomeration (CA)	113	111	3	2	4	5[2]	26[2]	28[2]	3	7[2]	12[2]	22	1	1	0
CA with census tracts	16	15	0	0	0	1	3	4	0	0	3	4	0	0	0
CA without census tracts	94	96	3	2	4	4[2]	23[2]	24[2]	3	7[2]	9[2]	18	1	1	0
Census tract	4,798	5,076	46	0	88	99	1,289	2,136	168	105	491	654	0	0	0
Urban area	913	895	32	7	36	32[2]	226[2]	260[2]	38[2]	58[2]	107[2]	95	1	3	5
Locality	52,291	52,558	2,445	964	3,924	3,450	12,617	10,905	2,349	3,898	3,472	7,708	363	173	290
Dissemination area	52,993	54,626	1,062	292	1,633	1,439	13,408	19,177	2,152	2,431	5,357	7,471	78	84	42
Dissemination block	478,707	478,831	8,199	3,251	14,656	14,864	108,751	126,244	30,421	51,729	65,071	52,808	1,261	967	609
Block-face	3,764,232	3,739,041	78,376	26,190	154,564	132,873	835,458	942,567	198,063	361,069	507,859	473,418	11,888	11,620	5,096
Forward sortation area	1,595	1,625	35	7	76	110	415	522	64	48	150	189	3	3	3
Postal code	758,658	805,640	10,378	3,157	25,313	57,355	202,972	269,676	23,943	21,541	76,924	112,904	942	506	29

… not applicable
1. Federal electoral districts (1996 Representation Order).
2. Census metropolitan areas, census agglomerations and urban areas crossing provincial boundaries are counted in both provinces, and, therefore, do not add up to the national total.
Sources: Statistics Canada, 2006 Census of Population; Canada Post Corporation, May 2006.

Appendix E Data quality, sampling and weighting, confidentiality and random rounding

General

The 2006 Census was a large and complex undertaking and, while considerable effort was taken to ensure high standards throughout all collection and processing operations, the resulting estimates are inevitably subject to a certain degree of error. Users of census data should be aware that such error exists, and should have some appreciation of its main components, so that they can assess the usefulness of census data for their purposes and the risks involved in basing conclusions or decisions on these data.

Errors can arise at virtually every stage of the census process, from the preparation of materials through data processing, including the listing of dwellings and the collection of data. Some errors occur at random, and when the individual responses are aggregated for a sufficiently large group, such errors tend to cancel out. For errors of this nature, the larger the group, the more accurate the corresponding estimate. It is for this reason that users are advised to be cautious when using small area estimates. There are some errors, however, which might occur more systematically, and which result in 'biased' estimates. Because the bias from such errors is persistent no matter how large the group for which responses are aggregated, and because bias is particularly difficult to measure, systematic errors are a more serious problem for most data users than the random errors referred to previously.

For census data in general, the principal types of error are as follows:

- coverage errors, which occur when dwellings or individuals are missed, incorrectly enumerated or counted more than once

- non-response errors, which result when responses cannot be obtained from a certain number of households and/or individuals, because of extended absence or some other reason or when responses cannot be obtained from a certain number of questions in a complete questionnaire

- response errors, which occur when the respondent, or sometimes the census representative, misunderstands a census question, and records an incorrect response or simply uses the wrong response box

- processing errors, which can occur at various steps including coding, when 'write-in' responses are transformed into numerical codes; data capture, when responses are transferred from the census questionnaire in an electronic format, by optical character recognition methods or key-entry operators; and imputation, when a 'valid', but not necessarily correct, response is inserted into a record by the computer to replace missing or 'invalid' data ('valid' and 'invalid' referring to whether or not the response is consistent with other information on the record)

- sampling errors, which apply only to the supplementary questions on the 'long form' asked of a one-fifth sample of households, and which arise from the fact that the responses to these questions, when weighted up to represent the whole population, inevitably differ somewhat from the responses which would have been obtained if these questions had been asked of all households.

The above types of error each have both random and systematic components. Usually, however, the systematic component of sampling error is very small in relation to its random component. For the other non-sampling errors, both random and systematic components may be significant.

Coverage errors

Coverage errors affect the accuracy of the census counts, that is, the sizes of the various census universes: population, families, households and dwellings. While steps have been taken to correct certain identifiable errors, the final counts are still subject to some degree of error because persons or dwellings have been missed, incorrectly enumerated in the census or counted more than once.

Missed dwellings or persons result in undercoverage. Dwellings can be missed because of the misunderstanding of collection unit (CU) boundaries, or because either they do not look like dwellings or they appear uninhabitable. Persons can be missed when their dwelling is missed or is classified as vacant, or because the respondent misinterprets the instructions on whom to include on the questionnaire. Some individuals may be missed because they have no usual residence and did not spend census night in a dwelling.

Dwellings or persons incorrectly enumerated or double-counted result in overcoverage. Overcoverage of dwellings can occur when structures unfit for habitation are listed as dwellings (incorrectly enumerated), when there is a certain ambiguity regarding the collection unit (CU) boundaries or when units (for example, rooms) are listed separately instead of being treated as part of one dwelling (double-counted). Persons can be counted more than once because their dwelling is double counted or because the guidelines on whom to include on the questionnaire have been misunderstood. Occasionally, someone who is not in the census population universe, such as a foreign resident or a fictitious person, may, incorrectly, be enumerated in the census. On average, overcoverage is less likely to occur than undercoverage and, as a result, counts of dwellings and persons are likely to be slightly underestimated.

For the 2006 Census, three studies are used to measure coverage error. In the Dwelling Classification Study, dwellings listed as vacant were revisited to verify that they were vacant on Census Day, and dwellings whose households were listed as non-respondent were revisited to determine the number of usual residents and their characteristics. Adjustments have been made to the final census counts to account for households and persons missed because their dwelling was incorrectly classified as vacant. The census counts may also have been adjusted for dwellings whose households were classified as non-respondent. Despite these adjustments, the final counts still may be subject to some undercoverage. Undercoverage tends to be higher for certain segments of the population, such as young adults (especially young adult males) and recent immigrants. The Reverse Record Check Study is used to measure the residual undercoverage for Canada, and each province and territory. The Overcoverage Study is designed to investigate overcoverage errors. The results of the Reverse Record Check and the Overcoverage Study, when taken together, furnish an estimate of net undercoverage.

Other non-sampling errors

While coverage errors affect the number of units in the various census universes, other errors affect the characteristics of those units.

Sometimes it is not possible to obtain a complete response from a household, even though the dwelling was identified as occupied and a questionnaire was mailed out or dropped off. The household members may have been away throughout the census period or, in rare instances, the householder may have refused to complete the form. More frequently, the questionnaire is returned but no response is provided to certain questions. Effort is devoted to ensure as complete a questionnaire as possible. Once the questionnaires are captured, edit analysis are performed to detect significant cases of partial non-response and follow-up interviews are attempted to get the missing information. Despite this, at the end of the collection stage, a small number of responses are still missing, i.e., non-response errors. Although missing responses are eliminated during processing by replacing each one of them by the corresponding response for a 'similar' record, there remain some potential imputation errors. This is particularly serious if the non-respondents differ in some respects from the respondents; this procedure will then introduce a non-response bias.

Even when a response is obtained, it may not be entirely accurate. The respondent may have misinterpreted the question or may have guessed the answer, especially when answering on behalf of another, possibly absent, household member. The respondent may also have entered the answer in the wrong place on the questionnaire. Such errors are referred to as response errors. While response errors usually arise from inaccurate information provided by respondents, they can also result from mistakes by the census representative who completed certain parts of the questionnaire, such as the structural type of dwelling, or who followed up to obtain a missing response.

Some of the census questions require a written response. During processing, these 'write-in' entries are given a numeric code. Coding errors can occur when the written response is ambiguous, incomplete, and difficult to read or when the code list is extensive (e.g., major field of study, place of work). A formal quality control (QC) operation is used to detect, rectify and reduce coding errors. Within each work unit, a sample of responses is independently coded a second time. The resolution of discrepancies between the first and second codings determines whether recoding of the work unit is necessary. Census coding is now entirely automated, resulting in a reduction of coding errors.

The information on the questionnaires is scanned and captured into a computer file. To monitor and to ensure that the number of data capture errors are within tolerable limits, a sample of fields are sampled and reprocessed. Analysis of the two captures is done. Unsatisfactory work is identified, corrected and appropriate feedback is done to the system in order to minimize their occurrence.

Once captured, the data are edited where they undergo a series of computer checks to identify missing or inconsistent responses. These are replaced during the imputation stage of processing where either a response consistent with the other respondents' data is inferred or a response from a similar donor is substituted. Imputation ensures a complete database where the data correspond to the census counts and facilitate multivariate analyses. Although errors may have been introduced during imputation, the methods used have been rigorously tested to minimize systematic errors.

Various studies are being carried out to evaluate the quality of the responses obtained in the 2006 Census. For each question, non-response rates and edit failure rates have been calculated. These can be useful in identifying the potential for non-response errors and other types of errors. Also, tabulations from the 2006 Census have been or will be compared with corresponding estimates from previous censuses, from sample surveys (such as the Labour Force Survey) and from various administrative records (such as birth registrations and municipal assessment records). Such comparisons can indicate potential quality problems or at least discrepancies between the sources.

In addition to these aggregate-level comparisons, there are some micro-match studies in progress, in which census responses are compared with another source of information at the individual record level. For certain 'stable' characteristics (such as age, sex, mother tongue and place of birth), the responses obtained in the 2006 Census, for a sample of individuals, are being compared with those for the same individuals in the 2001 Census.

Sampling errors

Estimates obtained by weighting up responses collected on a sample basis are subject to error due to the fact that the distribution of characteristics within the sample will not usually be identical to the distribution of characteristics within the population from which the sample has been selected.

The potential error introduced by sampling will vary according to the relative scarcity of the characteristics in the population. For large cell values, the potential error due to sampling, as a proportion of the cell value, will be relatively small. For small cell values, this potential error, as a proportion of the cell value, will be relatively large.

The potential error due to sampling is usually expressed in terms of the so-called 'standard error'. This is the square root of the average, taken over all possible samples of the same size and design, of the squared deviation of the sample estimate from the value for the total population.

The following table provides approximate measures of the standard error due to sampling for census long form (2B) data. These measures are intended as a general guide only.

Table E.1 Approximate standard error due to sampling for 2006 Census sample data

Cell value	Approximate standard error
50 or less	15
100	20
200	30
500	45
1,000	65
2,000	90
5,000	140
10,000	200
20,000	280
50,000	450
100,000	630
500,000	1,400

Users wishing to determine the approximate error due to sampling for any given cell of data, based upon the 20% sample, should choose the standard error value corresponding to the cell value that is closest to the value of the given cell in the census tabulation. When using the obtained standard error value, the user, in general, can be reasonably certain that, for the enumerated population, the true value (discounting all forms of error other than sampling) lies within plus or minus three times the standard error (e.g., for a cell value of 1,000, the range would be 1,000 ± [3 x 65] or 1,000 ± 195).

The standard errors given in the table above will not apply to population, household, dwelling or family counts for the geographic area under consideration (see Sampling and weighting below). The effect of sampling for these cells can be determined by a comparison with a corresponding 100% data product.

The effect of the particular sample design and weighting procedure used in the 2006 Census will vary, however, from one characteristic to another and from one geographic area to another. The standard error values in the table may, therefore, understate or overstate the error due to sampling.

Sampling and weighting

The 2006 Census data were collected either from 100% of the households or on a sample basis with the data weighted to provide estimates for the entire population. The long form questionnaire (2B) information was collected on a 20% random sample basis of the households and weighted to compensate for sampling. All table headings are noted accordingly. Note that on Indian reserves and in remote areas all data were collected on a 100% basis.

For any given geographic area, the weighted population, household, dwelling or family total or subtotal may differ from that shown in reports containing data collected on a 100% basis. Such variations are due to sampling and to the fact that, unlike sample data, 100% data do not exclude institutional residents.

Confidentiality and random rounding

The figures shown in the tables have been subjected to a confidentiality procedure known as random rounding to prevent the possibility of associating statistical data with any identifiable individual. Under this method, all figures, including totals and margins, are randomly rounded either up or down to a multiple of '5', and in some cases '10'. While providing strong protection against disclosure, this technique does not add significant error to the census data. The user should be aware that totals and margins are rounded independently of the cell data so that some differences between these and the

sum of rounded cell data may exist. Also, minor differences can be expected in corresponding totals and cell values among various census tabulations. Similarly, percentages, which are calculated on rounded figures, do not necessarily add up to 100%. Order statistics (median, quartiles, percentiles, etc.) and measures of dispersion such as the standard error are computed in the usual manner. When a statistic is defined as the quotient of two numbers (which is the case for averages, percentages, and proportions), the two numbers are rounded before the division is performed. For income, owner's payments, value of dwelling, hours worked, weeks worked and age, the sum is defined as the product of the average and the rounded weighted frequency. Otherwise, it is the weighted sum that is rounded. It should also be noted that small cell counts may suffer a significant distortion as a result of random rounding. Individual data cells containing small numbers may lose their precision as a result. Also, a statistic is suppressed if the number of actual records used in the calculation is less than 4 or if the sum of the weight of these records is less than 10. In addition, for values expressed in dollar units, the statistic is suppressed if the range of the values is too narrow or if all values are less than, in absolute value, a specified threshold. Finally, again for values expressed in dollar units, the statistic is suppressed if there is a dollar value too large compared to all the others.

Users should be aware of possible data distortions when they are aggregating these rounded data. Imprecisions as a result of rounding tend to cancel each other out when data cells are re-aggregated. However, users can minimize these distortions by using, whenever possible, the appropriate subtotals when aggregating.

For those requiring maximum precision, the option exists to use custom tabulations. With custom products, aggregation is done using individual census database records. Random rounding occurs only after the data cells have been aggregated, thus minimizing any distortion.

In addition to random rounding, area suppression has been adopted to further protect the confidentiality of individual responses.

Area suppression is the deletion of all characteristic data for geographic areas with populations below a specified size. The extent to which data are suppressed depends upon the following factors:

- if the data are tabulated from the 100% database, they are suppressed if the total population in the area is less than 40

- if the data are tabulated from the 20% sample database, they are suppressed if the total non-institutional population in the area from either the 100% or 20% database is less than 40.

There are some exceptions to these rules:

- income distributions and related statistics are suppressed if the population in the area, excluding institutional residents, is less than 250 from either the 100% or the 20% database, or if the number of private households is less than 40 from the 20% database

- place-of-work distributions and related statistics are suppressed if the total number of employed persons in the area is less than 40, according to the sample database. If the data also include an income distribution, the threshold is raised to 250, again according to the sample database

- tabulations covering both place of work and place of residence along with related statistics are suppressed, if the total number of employed persons in the area is less than 40 according to the sample database, or if the area's total population, excluding institutional residents, according to either the 100% or the sample database, is less than 40. If the tabulations also include an income distribution, the threshold is raised to 250 in all cases and the tabulations are suppressed if the number of private dwellings in the place of residence area is less than 40

- if the data are tabulated from the 100% database and refer to six-character postal codes or to groups of either dissemination blocks or block-faces, they are suppressed if the total population in the area is less than 100

- if the data are tabulated from the 20% sample database and refer to six-character postal codes or to groups of either dissemination blocks or block-faces, they are suppressed if the total non-institutional population in the area from either the 100% or 20% database is less than 100

- if the data refer to groups of either dissemination blocks or block-faces, and cover place of work, they are suppressed if the total number of employed persons in the area is less than 100, according to the sample database

- if the data refer to groups of either dissemination blocks or block-faces, and cover both place of work and place of residence, they are suppressed if the total number of employed persons in the area is less than 100, according to the sample database, or if the area's total population, excluding institutional residents, according to either 100% or the sample database, is less than 100.

In all cases, suppressed data are included in the appropriate higher aggregate subtotals and totals.

The suppression technique is being implemented for all products involving subprovincial data (i.e., Profile series, basic cross-tabulations, semi-custom and custom data products) collected on a 100% or 20% sample basis.

For further information on the quality of census data, contact the Social Survey Methods Division at Statistics Canada, Ottawa, Ontario, Canada K1A 0T6, or by calling 613-951-4783.

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