



**Federal Electoral Districts
Data Product Specifications**

Edition 1.0

2010-04-27

**Elections Canada
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Electoral Geography**

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GeoBase®

RELEASES HISTORY

Date	Version	Description
2010-04-27	1.0	Initial version

These specifications are produced in accordance with *International Standard ISO/TC 211, 19131: 2007 Geographic Information / Geomatics – Data Product Specification*, which refers in particular to standard *ISO 19115: 2003 Geographic information – Metadata*.

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1 OVERVIEW

1.1 Title

Federal Electoral Districts (FED)

1.2 Reference date

Data product specifications creation date:

2009-05-15

1.3 Responsible party

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1.4 Language

Languages in which the data product specifications are available according to ISO 639-2 standard:

eng – English

fra – French

1.5 Terms and definitions

Attribute

Characteristics of a feature, the name of a federal electoral district in English

Class

Description of a set of objects that share the same attributes, operations, methods, relationships and semantics

Feature

Digital representation of a real-world geographic entity

1.6 Abbreviations and acronyms

CRSID Coordinate Reference System Identifier

EC Elections Canada

EGD	Electoral Geography Database
FED	Federal Electoral District
GML	Geography Markup Language
ISO	International Organization for Standardization
KML	Keyhole Markup Language
NAD83 (CSRS)	North American Datum 1983 (Canadian Spatial Reference System)
NGD	National Geographic Database
OGC	Open Geospatial Consortium
RO	Representation Order
TC	Technical Committee

1.7 Informal description of the data product

A federal electoral district is an area represented by a member of the House of Commons. The Federal Electoral Districts (FED) dataset is a digital representation of the 308 electoral districts proclaimed by the Representation Order of 2003, as amended.

Representation in the House of Commons is readjusted after each decennial (10-year) census in accordance with the *Constitution Act, 1867* and the *Electoral Boundaries Readjustment Act* (1985 as amended). The readjustment of electoral boundaries is also referred to as redistribution.

On March 13, 2002, following the release of the population figures from the 2001 Census, the Chief Electoral Officer of Canada published in the *Canada Gazette* the results of the calculations required by the *Constitution Act, 1867*. The result was an increase in the number of seats in the House of Commons from 301 to 308. Federal electoral district boundaries were subsequently revised to reflect changes and movements in Canada's population.

A representation order takes effect on the first dissolution of Parliament that occurs at least one year after its proclamation. (Bill C-5 [S.C. 2004, c. 1]) changed the one-year period for the 2003 Representation Order to the first dissolution after April 1, 2004.) The most recent representation order was proclaimed on August 25, 2003, and took effect at the dissolution of Parliament on May 23, 2004.

Additional information on this topic can be found at the main Elections Canada Web site: www.elections.ca/scripts/fedrep/main_e.htm.

The FED dataset is generally static for a period of 10 years. Although rare, boundaries may change between redistributions due to an Act of Parliament. Update and release of the FED dataset could occur occasionally when improvements are made to the accuracy of the base data, which would not affect the electoral district boundary.

2 SPECIFICATION SCOPE

2.1 Scope identification

Global

2.2 Level

005 – dataset

2.3 Level name

FED

2.4 Extent

This section describes spatial and temporal extents of the scope.

2.4.1 Description

Canadian landmass

2.4.2 Vertical extent

The FED data are two-dimensional. There is no elevation (z) associated with the data.

2.4.3 Horizontal extent

The horizontal extent includes in their entirety the national boundaries for Canada.

2.4.3.1 West-bound longitude

141.0

2.4.3.2 East-bound longitude

-53.7

2.4.3.3 South-bound latitude

42.4

2.4.3.4 North-bound latitude

83.3

2.4.4 Temporal extent

The current version of the FED dataset is based on the electoral districts proclaimed by the last Representation Order of 2003, as amended by *An Act to change the boundaries of the Acadie–Bathurst and Miramichi electoral districts* (S.C. 2005, c. 6). Any changes to the number of electoral districts represented in this dataset will occur following the next decennial census and the proclamation of the next representation order.

2.4.4.1 Beginning date

2004-05-23

2.4.4.2 Ending date

Today

2.5 Coverage

Full extent for Canada

3 DATA PRODUCT IDENTIFICATION

3.1 Title

Federal Electoral Districts

3.2 Alternate title

FED

3.3 Abstract

Canada is divided into 308 electoral districts. A representative or member of Parliament is elected for each electoral district.

Following the release of population counts from each decennial census, the Chief Electoral Officer determines the number of seats in the House of Commons and publishes the information in the *Canada Gazette*. Electoral boundaries commissions then determine the adjustments to the constituency boundaries. The federal electoral boundaries commissions are independent bodies that make all decisions regarding the proposed and final federal electoral boundaries.

Elections Canada provides support services to the boundaries commission in each province.

Based on reports from these commissions, the Chief Electoral Officer prepares a representation order that describes the boundaries and specifies the name and the population of each FED. The representation order is in force on the first dissolution of Parliament that occurs at least one year after its proclamation. The 2003 Representation Order (proclaimed on August 25, 2003) was based on 2001 Census population counts, and increased the number of FEDs to 308, up from 301 from the previous 1996 Representation Order. Ontario received three additional seats, while Alberta and British Columbia each gained two seats. The names of FEDs may change at any time through an Act of Parliament.

3.4 Purpose

To provide the public with a digital representation of the 308 electoral district boundaries.

This dataset is not to be used for defining or delineating boundaries that would normally be described by legal documents and/or legal survey plans.

3.5 Topic category

Main topics for the product, as defined by the ISO 19115 standard:

003 – Boundaries

3.6 Spatial representation type

Type of spatial representation for the product as defined by the ISO 19115 standard:

001 – Vector

3.7 Spatial resolution

Spatial resolution denominators of the data:

10 000–1 000 000

The spatial resolution for the dataset varies widely, as the source data were derived from both paper maps and digital datasets with scales ranging anywhere from 1:10 000 to 1:1 000 000.

3.8 Geographic description

3.8.1 Authority

International Organization for Standardization (ISO)

3.8.1.1 Title

Standard of the code of geographical regions:

ISO 3166-1:1997 Codes for the representation of names of countries and their subdivisions – Part 1: Country codes.

3.8.1.2 Date

Reference date of the ISO 3166-1 standard:

1997-10-01

3.8.1.3 Date type code

Type of date according to ISO 19115 standard:

002 – publication

3.8.2 Code

Code of the geographical region covered by the product according to the ISO 3166-1 standard:

CA – Canada

3.8.3 Extent type code

Type of code of the delimitation polygon of the extent according to the ISO 19115 standard:

1 – inclusion

3.9 Reference to specification scope

Global

4 DATA CONTENT AND STRUCTURE

4.1 Description

The FED product distributed by Elections Canada is a national dataset consisting of 308 multi-polygonal entities representing the 308 federal electoral districts in Canada. For each of the 308 polygon features, there is an associated series of descriptive attributes.

4.2 Feature information

4.2.1 Application schema

The model follows UML (Unified Modelling Language) constructs. It is described through a single component: the FED feature as a geographic feature with a multi-surface representation. The details of attributes types, code list and format are described in greater detail in the feature catalogue document presented in the following section.

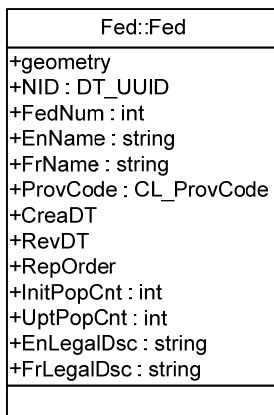


Figure 1: FED UML Model

4.2.2 Feature catalogue

The feature catalogue entitled *GeoBase_FED_LEF_FeatureCatalogue_edition_1_0* can be found on the GeoBase portal (www.geobase.ca).

4.3 Reference to specification scope

Global

5 REFERENCE SYSTEMS

5.1 Spatial reference system

Spatial data is expressed according to the Canada Lambert Conformal Conic (CANLAMB) projection, in reference to the North American Datum 1983 Canadian Spatial Reference System (NAD83CSRS).

5.1.1 Authority

5.1.1.1 Title

Coordinate reference system registry:

EPSG Geodetic Parameter Dataset

5.1.1.2 Date

Reference date:

2009-06-07

5.1.1.3 Date type code

002 – Publication

5.1.1.4 Responsible party

OGP Surveying & Positioning Committee (International Association of Oil & Gas Producers)

URL: www.epsg.org

5.1.2 Code

Coordinate Reference System Identifier (CSRID):

4617 (NAD83 Geographic)

5.1.3 Code space

EPSG – European Petroleum Survey Group

5.1.4 Version

7.1.1

5.2 Reference to specification scope

Global

6 DATA QUALITY

6.1 Completeness

The FED dataset provides complete national coverage for the whole of Canada; this includes the 10 provinces and three northern territories. All polygon features are linked to a corresponding attribute record.

6.1.1 Commission

A manual verification of the FED dataset has not identified any errors of commission.

6.1.2 Omission

A manual verification of the FED dataset has not identified any errors of omission.

6.2 Logical consistency

6.2.1 Conceptual consistency

The delineation of the FED boundaries was created in reference to the National Geographic Database (NGD) road network and the NGD reference base layers. The representation of the digital electoral districts abides by the official boundary definition as established by the 2003 federal electoral boundaries commissions, as amended.

The FED dataset provides for complete national coverage of the entire country. There are no gaps or overlays between any of the FED polygon features present in any of the datasets.

The conceptual model of the FED data is presented in the document *Federal Electoral Districts: Conceptual Data Model* accessible on the GeoBase portal (www.geobase.ca).

6.2.2 Domain consistency

The domain values assigned to the item fields of the FED dataset are validated against those domain values described in the *Federal Electoral Districts Feature Catalogue*.

6.2.3 Format consistency

The FED data formats conform to the distribution formats described in the document *Federal Electoral Districts: Product Distribution Formats* accessible on the GeoBase portal (www.geobase.ca).

6.2.4 Topological consistency

The topological consistency of the FED data is validated as part of the maintenance update process by means of spatial integrity constraints on the FED data to detect and correct overlaps, gaps and intersections within a polygon feature.

6.3 Positional accuracy

Positional accuracy refers to the absolute and relative accuracy of the positions of geographic features. Absolute accuracy is the closeness of the coordinate values in a dataset to values accepted as or being true. Relative accuracy is the closeness of the relative positions of features to their respective relative positions accepted as or being true.

6.3.1 Absolute external positional accuracy

The absolute external positional accuracy describes the degree to which the position of features in a geographic database reflects their true position on the ground. It is the difference in the distances measured between two known points on a map and the true distances between the same two points, as established by conventional surveying methods.

The absolute positional accuracy of the spatial entities comprising the FED dataset is dependent on the absolute accuracy of the different feature sets used in the creation of the FED boundaries. Federal electoral districts are derived by performing a spatial dissolve of the electoral polling divisions within each electoral district. The spatial elements that are used to represent a polling division boundary include both human-made features such as roads, railways, power lines and other natural features such as lakes, shorelines and rivers. In addition, many boundary elements follow survey lines, such as those defining the limits for a town, county or township.

Additional information on the positional accuracy of the FED digital dataset and the data features used in the creation of the electoral district boundaries can be found at http://dsp-psd.pwgsc.gc.ca/collection_2009/statcan/92-500-G/92-500-g2009001-eng.pdf.

The base features that define a poll division are derived from multiple data sources, including both digital and paper maps based on 1:10 000 to 1:1 000 000 scale source data. Some of these data sources have known levels of positional accuracy while others do not. Ongoing maintenance and update processes have introduced additional levels of spatial inaccuracies into the datasets.

In this context, it is impossible to accurately ascribe a level of positional accuracy to the dataset. All that can be stated about the data is that for most urban and built-up areas, data were sourced from 1:50 000 data (accuracy ± 10 metres); rural areas in southern parts of Canada were sourced using data from 1:250 000 data (accuracy ± 300 metres); and the northern areas of Canada used data from 1:1 000 000 (accuracy ± 2100 to ± 4300 metres).

There are also digital elements sourced from the NGD road network whose positional accuracy cannot be described. These arc elements were digitized on screen from paper maps, and although accurate in their attribute information and their relative position in relation to other map features, the absolute positional accuracy of these FED road network-derived elements cannot be accurately quantified.

6.3.2 Relative internal positional accuracy

Relative positional accuracy describes the degree to which the position of features in a geographic database reflects their true ground relationships. For the Electoral Geographic Database, relative positional accuracy is important. An electoral FED boundary or polling division must appear in the proper position relative to a road feature or other physical features like lakes and shorelines.

During the build phase of the NGD, the dataset was thoroughly tested for relative positional accuracy of all federal electoral districts and any underlying base-layer features.

6.4 Temporal accuracy

6.4.1 Accuracy of a time measurement

Not applicable

6.4.2 Temporal consistency

Not applicable

6.4.3 Temporal validity

Not applicable

6.5 Thematic accuracy

6.5.1 Thematic classification correctness

The classification of features in the FED dataset is verified manually by Elections Canada and through established quality assurance (QA) processes. Database rules of integrity are used to ensure the accuracy and correctness of the data.

6.5.2 Non-quantitative attribute accuracy

The accuracy of non-quantitative attributes attached to features in the FED dataset is verified manually by Elections Canada and through established QA processes. Database rules of integrity ensure the accuracy and correctness of the data.

6.5.3 Quantitative attribute accuracy

The accuracy of quantitative attributes attached to features in the FED dataset is verified manually by Elections Canada and through established QA processes. Database rules of integrity ensure the accuracy and correctness of the data.

6.6 Reference to specification scope

Global

7 DATA CAPTURE

7.1 Description

The FED dataset is created by performing a spatial dissolve on the polling division boundaries associated with each main electoral district. The underlying boundary elements that make up a polling division are derived from various base-layer features, including the road network, hydrographic features and other human-made features such as railways, power transmission lines and municipal limits. The accuracy of individual boundary features found in the electoral district dataset is therefore associated with the accuracy of the base-layer elements from which they were derived.

7.2 Reference to the specification scope

Global

8 DATA MAINTENANCE

8.1 Description

Federal electoral districts are created through a process of dissolving out the FED limits from the underlying polling divisions associated with each electoral district. The polling division boundaries are maintained by Elections Canada under their ongoing maintenance process. Similarly, the base data and road network that constitute the poll division boundaries are updated as part of their own maintenance process.

Note: Any update to the FED dataset outside of an electoral boundary readjustment following a new representation order represents updates only to the digital base data associated with the electoral boundaries. These changes do not affect the delineation of the electoral district boundaries as defined by the Representation Order of 2003.

Release of updated versions of the FED dataset is required under the following circumstances:

- New versions of the FED dataset are released on a yearly basis or as mandated by the call of a general election.
- Changes have been made to the FED boundaries or to the electoral district names as mandated by an Act of Parliament.
- Representation in the House of Commons is readjusted after each decennial (10-year) census in accordance with the *Constitution Act, 1867* and the *Electoral Boundaries Readjustment Act*. Based on the census redistribution, new electoral districts are created and published.

Link to Elections Canada Web site for details on:

- Representation in the House of Commons
- *Electoral Boundaries Readjustment Act*

Elections Canada | Representation in the House of Commons of Canada

8.2 Reference to specification scope

Global

9 DATA PRODUCT DELIVERY

9.1 Delivery format information: GML

9.1.1 Format name

GML – Geography Markup Language

9.1.2 Version

2.1

9.1.3 Specification

Geography Markup Language – GML – 2.1.2, OpenGIS® Implementation Specifications, 17 September 2002, OGC Document Number 02-069 (http://portal.opengeospatial.org/files/?artifact_id=11339).

The character encoding may be either ISO 8859-1 (ISO Latin 1) or UTF-8 (8-bit Universal Character Set / Unicode Transformation Format). The use of UTF-8 with GML is governed by the character-encoding rules in XML (www.w3.org/TR/REC-xml/#charsets). The encoding will be in the header of the file.

9.1.4 Language

Languages used in the dataset according to ISO 639-2 standard:

eng – English

fra – French

9.1.5 Character set

The character set is a subset of the set of characters specified in ISO 10646-1:2000, also known as Unicode 3.0.1. The encoding of the characters is as specified in 9.1.3 above.

9.2 Delivery format information: KML

9.2.1 Format name

KML – Keyhole Markup Language

9.2.2 Version

2.1

9.2.3 Specification

Open Geospatial Consortium Inc., KML 2.1 Reference – An OGC Best Practice, Version 0.0.9, 2007-05-02, Reference number of this OGC® project document: OGC 07-039r1 (www.opengeospatial.org/standards/bp).

The character encoding may be either ISO 8859-1 (ISO Latin 1) or UTF-8 (8-bit Universal Character Set / Unicode Transformation Format). The use of UTF-8 with GML is governed by the character-encoding rules in XML (www.w3.org/TR/REC-xml/#charsets). The encoding will be in the header of the file.

9.2.4 Language

Languages used in the dataset according to ISO 639-2 standard:

eng – English

fra – French

9.2.5 Character set

The character set is a subset of the set of characters specified in ISO 10646-1:2000, also known as Unicode 3.0.1. The encoding of the characters is as specified in 9.1.3 above.

9.3 Delivery format information: Shapefile

9.3.1 Format name

Shapefile – ESRI™

9.3.2 Version

01

9.3.3 Specification

ESRI Shapefile Technical Description, an ESRI White Paper, July 1998 (www.esri.com/library/whitepapers/pdfs/shapefile.pdf)

The character encoding may be either ISO 8859-1 (ISO Latin 1) or UTF-8 (8-bit Universal Character Set / Unicode Transformation Format). The encoding is not included in the Shapefile, but is in the metadata file (e.g. *AL_TA_CA_1_0_FGDC_eng.xml*) that is available with the Shapefile. UTF-8 is necessary to encode some of the Aboriginal languages used in Canada.

If UTF-8 encoding is used, certain restrictions may exist when the file is read. ESRI provides guidance on reading Shapefile with UTF-8 encoding in ArcSDE 9.2 (<http://support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=31834>).

9.3.4 Language

Languages used in the dataset according to ISO 639-2 standard:

eng – English

fra – French

9.3.5 Character set

The character set is a subset of the set of characters specified in ISO 10646-1:2000, also known as Unicode 3.0.1. The encoding of the characters is as specified in 9.1.3 above.

9.4 Delivery medium information

9.4.1 Units of delivery

National dataset or dataset for individual province and territory

9.4.2 Medium name

Data are available for ftp or http download on the GeoBase portal (www.geobase.ca).

9.4.3 Other delivery information

The name of the files, entities and attributes are described in the document *Federal Electoral Districts: Product Distribution Formats* (www.geobase.ca).

Data are subject to the GeoBase Unrestricted Use License Agreement (www.geobase.ca).

9.5 Reference to specification scope

Global

10 METADATA

Not applicable

10.1 Reference to specification scope

Global