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Reference Maps and Thematic Maps, Reference Guide, 2021 Census



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Reference Maps and Thematic Maps, Reference Guide, 2021 Census

This reference guide is intended for users of the *2021 Reference Maps and Thematic Maps*. This guide describes the content, general methodology used to create them and data quality.

What's new?

- As of 2020, all the boundaries maintained by Statistics Canada have been adjusted to the more current, accurate and consistent CanVec hydrographic features ([Topographic Data of Canada – Natural Resources Canada](#)), which comply with international geomatics standards seamlessly across Canada.
- *Aggregate Dissemination Area Reference Maps* will not be disseminated for the 2021 Census.

1. About this guide

This reference guide provides an overview of the maps, describes specific map content, explains the general methodology used to create the maps, details information about data quality and, contains information related to the 2021 Census standard geographic areas. It was prepared to accompany the *2021 Reference Maps and Thematic Maps*.

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2. Overview

The maps are designed to provide spatial reference for census statistical data, enabling users to locate boundaries and relate data to physical locations.

Reference maps illustrate the location of the census standard geographic areas for which census statistical data are tabulated and disseminated. (See [Figure 1.1, “Hierarchy of standard geographic areas for dissemination, 2021 Census”](#) from the *Dictionary, Census of Population, 2021*.)

The maps display the boundaries, names and unique identifiers (UIDs) of census standard geographic areas, as well as selected roads, railroads, rivers and lakes. Reference maps include the following series:

- [National, Census Division and Census Subdivision Reference Maps](#) (*Standard Geographical Classification [SGC]. “Volume II. Reference Maps”*)
- [Census Tract Reference Maps, by Census Metropolitan Areas or Census Agglomerations](#)
- [Federal Electoral District Reference Maps](#)

Thematic maps show the spatial distribution of one or more specific data themes for standard geographic areas. The maps may be qualitative in nature (e.g., predominant mother tongue) or quantitative (e.g., percentage population change).

3. About this product

Purpose of the product

The purpose of reference maps is to provide spatial reference for census statistical data, enabling users to locate boundaries and relate data in a spatial context.

A thematic map focuses on the spatial variability of a specific distribution or theme (such as population density or average annual income). Thematic maps normally include some location or reference information to help users familiarize themselves with the geographic area covered on the map.

Definitions and concepts

Geographic terms and concepts are briefly defined in the [Dictionary, Census of Population, 2021](#).

Content

National, Census Division and Census Subdivision Reference Maps (Standard Geographical Classification [SGC]. “Volume II. Reference Maps”)

Census Divisions

This national map shows census division (CD) boundaries and UIDs within each province and territory, on a background of selected lakes and rivers. The map also lists CD names alphabetically and in order of CD code, by province and territory in the legend.

Census Metropolitan Areas and Census Agglomerations

This national map shows the general location of census metropolitan areas (CMAs) and census agglomerations (CAs) within each province and territory, with larger dots designating CMAs and smaller dots designating CAs. The map also lists CMA/CA names alphabetically and in order of UIDs, by province and territory in the legend.

Census metropolitan influenced zones (MIZs), census metropolitan areas (CMAs) and census agglomerations (CAs) Statistical Area Classification

This national map shows census subdivisions (CSDs) classified by colour according to the category of the Statistical Area Classification (SAC) to which they are assigned. The categories include: component of a CMA/CA, component of a MIZ (strongly influenced, moderately influenced, weakly influenced or not influenced), or component of the territories (Yukon, Northwest Territories and Nunavut).

Economic Regions and Census Divisions

This national map shows economic region (ER) and CD boundaries and UIDs within each province and territory. The map also lists ER names and component CDs by order of economic region unique identifier (ERUID), by province and territory in the legend.

Index of Census Division and Census Subdivision Reference Maps

An index to the series of 23 CD and CSD maps shows the areas covered by each map. The index may be used as a reference to identify individual maps of interest within the series of 23 maps described below.

Census Division and Census Subdivision Reference Maps

The series of 23 CD and CSD reference maps covers all of Canada, by province and territory. The maps show the boundaries, names and UIDs of CDs and CSDs. The maps also show the boundaries of CMA/CAs and list the CD, CMA/CA names and UIDs by province and territory in the legend.

Census Tract Reference Maps, by Census Metropolitan Areas or Census Agglomerations

This map series covers all CMA/CAs in the census tract (CT) program. The maps show the boundaries and names of CTs, and CSDs. As well population centres (POPCTRs) and rural areas (RAs) within the CMA or CA are shown. Inset maps show detail for congested areas. The maps also display street network and other features such as railroads, rivers and lakes.

There are 140 maps in this series. The maps vary in scale and size. The maximum map dimensions are approximately 86 cm by 61 cm.

Federal Electoral District Reference Maps

The *Federal Electoral District Reference Maps* cover all of Canada. The maps show the boundaries, names and codes of federal electoral districts (FEDs) on a background of major lakes and rivers. Insets show more detail for congested areas on the map. The *Federal Electoral District Reference Maps* were produced by Elections Canada.

Thematic Maps

The *2021 Thematic Maps* are available to provide a visual overview of census statistical data. They are available to accompany the following 2021 Census releases:

Table 3.1
2021 Census themes and release dates

2021 Census theme	Release date
Population and dwelling counts	February 9, 2022
Age	April 27, 2022
Income	July 13, 2022
Language at work	November 30, 2022
Instruction in the official minority language	November 30, 2022

General methodology

The National Geographic Database (NGD) is a joint Statistics Canada-Elections Canada initiative to develop and maintain a spatial database which serves the needs of both organizations. The focus of the NGD is the continual improvement of quality and currency of spatial coverage using updates from provinces, territories and local sources. The source files used for the creation of maps resides on Statistics Canada's Spatial Data Infrastructure (SDI) and are derived directly from data stored in the NGD.

The maps were created by retrieving geographic boundaries, selected roads and railways from Statistics Canada's SDI. River and lake features were taken from the CanVec Series (Topographic Data of Canada – Natural Resources Canada). Names of geographic entities having 'pan-Canadian' significance, established by the Geographical Names Board of Canada (GNBC) (i.e., names of provinces, territories, major islands and major bodies of water) are shown in both official languages.

Method of derivation

The *2021 SGC National, CD and CSD Reference Maps* were generated from digital geographic files using ArcGIS® Version 10.6.1.

The *2021 CT Reference Maps, by CMA/CA* series was generated from digital geographic files using a generalized mapping system. This generalized mapping system utilized ArcGIS® Version 10.5.

For the *2021 SGC National, CD and CSD Reference Maps* as well as the *2021 CT Reference Maps, by CMA/CA*, initial text placement of labels was automated. Interactive editing was then performed to improve label placement.

The *2021 Thematic Maps* were generated from digital geographic files using ArcGIS® Pro Version 2.8.1.

Limitations

Maps permit users to identify the location and boundaries of census standard geographic areas. They should not be used for digitizing purposes or to determine the precise location of boundaries. They are not intended to serve as a detailed legal or cadastral representation of census standard geographic areas.

The positional accuracy of information displayed on the map does not support cadastral, surveying, digitizing or engineering applications.

To be compliant with Common Look and Feel guidelines 2.0, accessible data is available as an alternative to viewing PDF maps.

Comparison to other products or versions

The reference maps contain geographic boundaries, UIDs and names applicable to the census and are consistent with those used in other standard geographic products.

Use with other products

Information displayed on census reference maps such as boundaries, names and UIDs of standard geographic areas, roads, rivers and lakes are similar to those found in other census geography products.

Reference date

Population counts

The population count data used to create some of the *2021 Thematic Maps* refer to the 2021 Census of Population which was conducted on May 11, 2021.

Standard geographic areas

The geographic reference date is a date determined by Statistics Canada to finalize the geographic framework for which statistical data are collected, tabulated and reported. The reference date for 2021 Census standard geographic areas is January 1, 2021.

4. Technical specifications

Record layout and data descriptions

Not applicable

File specifications

The maps are available as portable document format (PDF) files.

Software formats

Not applicable

File extension and accented character information

Not applicable

Geographic representation

The map projection is Lambert Conformal Conic utilizing specific provincial parameters. CMA/CAs cross provincial boundaries use the projection parameters associated with the provincial part which is larger in terms of land area.

File naming convention

The reference maps follow a standard naming convention.

National Reference Maps (*Standard Geographical Classification [SGC]. "Volume II. Reference Maps"*)

The file names for the *2021 SGC National Reference Maps* include: geographic reference date, catalogue number, map type, and geography level, separated by a hyphen. All maps have the extension .pdf.

First four numbers: geographic reference date

- 2021 - geographic reference date is 2021

Next five numbers: catalogue number

- 92572 - SGC Volume II. Reference Maps

Next two numbers: map type

- 01 - national
- 02 - provincial

Final character: geography level

- A - CD
- B - CMA/CA
- C - SAC
- D - ER
- E - Index

For example the national reference map of CDs for the 2021 Census is: 2021-12572-01-A.pdf.

Census Division and Census Subdivision Reference Maps (*Standard Geographical Classification [SGC]. "Volume II. Reference Maps"*)

The file names for the *2021 SGC CD and CSD Reference Maps* include: geographic reference date, catalogue number, map type and map number, separated by a hyphen. All maps have the extension .pdf.

First four numbers: geographic reference date

- 2021 - geographic reference date is 2021

Next five numbers: catalogue number

- 92572 - SGC Volume II. Reference Maps

Next two numbers: map type

- 01 - national
- 02 - provincial

Final two numbers: map numbers range from 01 to 23

For example, the Newfoundland and Labrador CD and CSD reference map for the 2021 Census is: 2021-12572-02-01.pdf.

Census Tract Reference Maps, by Census Metropolitan Areas or Census Agglomerations

The file names for the *2021 CT Reference Maps, by CMA/CA* include: geographic reference date, catalogue number, CMA/CA UID and map number, separated by a hyphen. All maps have the extension .pdf.

First four numbers: geographic reference date

- 2021 - geographic reference date is 2021

Next five numbers: catalogue number

- 92572 - SGC Volume II. Reference Maps

Next three numbers: CMA/CA UIDs

Final two numbers: map number

- 00 - main map
- 01 - first inset
- 02 - second inset
- Etc.

For example the CT reference map, by CMA/CA showing Abbotsford – Mission for the 2021 Census is: 2021-92146-932-00.pdf.

Thematic maps

The file names for the *2021 Thematic Maps* include: census year, catalogue number, issue, geographic coverage, geographic level, sequence number, map number and language, separated by a hyphen. Map numbers are only used for inset maps. All maps have the extension .pdf.

First four numbers: geographic reference date

- 2021 - geographic reference date is 2021

Next five numbers: catalogue number

- 92173 - thematic maps

Next three numbers: issue number

- 001 - population and dwelling counts
- 002 - age
- 003 - income
- 007 - language of work and instruction in the official minority language

Next three numbers: geographic coverage or CMAUID (used for thematic maps by CT for a CMA)

- 000 - World
- 001 - Canada
- 002 - Inuit Nunangat
- 100 - Atlantic region
- 200 - Quebec region
- 300 - Ontario region
- 400 - Prairies region
- 500 - British Columbia region
- 600 - Territories region
- 123 - Prince Edward Island, Nova Scotia and New Brunswick
- 010 - Newfoundland and Labrador
- 011 - Prince Edward Island
- 012 - Nova Scotia
- 013 - New Brunswick
- 024 - Quebec
- 035 - Ontario
- 046 - Manitoba
- 047 - Saskatchewan
- 048 - Alberta
- 059 - British Columbia
- 060 - Yukon
- 061 - Northwest Territories
- 062 - Nunavut
- 461 - Prairies and the Northwest Territories

Next three numbers: geographic level

- 001 - Canada
- 002 - province/territory
- 003 - census division
- 004 - economic region
- 005 - federal electoral district
- 006 - census agricultural region
- 007 - census consolidated subdivision
- 008 - census subdivision
- 009 - dissemination area
- 010 - dissemination block
- 011 - Statistical Area Classification
- 012 - census metropolitan area/census agglomeration
- 013 - census tract
- 014 - designated place
- 015 - population centre
- 016 - large urban population centre
- 017 - medium population centre
- 018 - small population centre
- 020 - forward sortation area©
- 021 - health region
- 022 - First Nations/Indian bands and Tribal Councils
- 023 - Inuit regions
- 024 - Métis settlements
- 025 - Aboriginal communities
- 026 - ecumene
- 027 - agricultural ecumene

Next two numbers: sequence numbers range from 01 to 07

Next two numbers: map number

- 00 - first inset
- 01 - second inset

Final three characters: language

- eng - English
- fra - French

For example the English national thematic map showing population change at the census division level for the 2021 Census is: 2021-92173-001-001-003-01-eng.pdf

5. Data quality

Data quality elements provide information on the fitness-for-use of data by describing why, when and how the data are created, and how accurate the data are. The quality elements include information on lineage, positional accuracy, attribute accuracy, logical consistency, consistency with other products and completeness. This information is provided to users for all data products disseminated for the census.

Lineage

Lineage describes the history of the data, including descriptions of the source material from which the data were derived. It also contains the dates of the source material, and all transformations involved in producing the final map products.

All spatial data in the *2021 Reference Maps and Thematic Maps* were originally extracted from Statistics Canada's SDI.

The sources of the official names of the PRs are the statutes of the respective provinces and territories.

The source of the geographic names of FEDs is the 2013 Representation Order, Elections Canada.

For the CDs and CSDs, the sources of the names and types are the provincial and territorial governments.

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 being true. Relative accuracy is the closeness of the relative positions of features to their respective relative positions accepted as being true. Descriptions of positional accuracy include the quality of the final file or product after all transformations.

The NGD is not fully Global Positioning Systems (GPS)-compliant. However, every possible attempt is made to ensure that the standard geographic area boundaries maintained in the NGD respect the limits of the administrative entities that they represent (e.g., CD and CSD) or on which they are based (e.g., CMA or CA). The positional accuracy of these limits is dependent upon source materials used by Statistics Canada to identify the location of limits. In addition, due to the importance placed on relative positional accuracy, the positional accuracy of other geographic data (e.g., road network data) that are stored within the NGD is considered when positioning the limits of the standard geographic areas.

The national map showing the location of the CMA/CAs was produced using point symbols that were positioned to portray the areas' proximity to major hydrographic features and the Trans-Canada Highway.

Attribute accuracy

Attribute accuracy refers to the accuracy of the quantitative and qualitative information attached to each feature (e.g., CSD name, UID).

As noted under the Lineage section, the attributes (names, types and UIDs) for all census standard geographic areas are sourced from Statistics Canada's SDI. The names and types of standard geographic areas have been updated using source materials from provincial, territorial and federal authorities.

Logical consistency

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

On each map, all census standard geographic areas have been verified to have a UID that is valid for the 2021 Census.

Consistency with other products

The information displayed on maps such as boundaries, names and UIDs of census standard geographic areas, roads, rivers and lakes are consistent with those disseminated within other census products.

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.

The *2021 SGC National, CD and CSD Reference Maps* cover all of Canada.

The base map features selected for display on the national maps include only selected rivers and lakes and the Trans-Canada Highway.

The *2021 CT Reference Maps, by CMA/CA* contain all 41 CMAs and 9 CAs that are part of the CT program. For each CMA/CA, all CTs are named.

Appendices

See [Table 1.1, “Geographic areas by province and territory, 2021 Census,”](#) from the *Dictionary, Census of Population, 2021*.

See [Table 1.5, “Census subdivision types by province and territory, 2021 Census,”](#) from the *Dictionary, Census of Population, 2021*.