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Road Network File, Reference Guide, Census year 2026

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Table of contents

What's new? **5**

1 About this guide **6**

2 Overview **7**

3 About this product **8**

Purpose of the product 8
Definitions and concepts 8
Content 8
General methodology 8
Creation of the *2026 Road Network File* 8
Limitations 8
Comparison to other products or versions 9
Use with other products 9
Reference date 9

4 Technical specifications **10**

Record layout and data descriptions 10
Attribute domain values 11
Representation of unknown or no value 11
Street type (TYPE) 11
Street direction (DIR) 11
Left and right census subdivision type (CSDTYPE_L and CSDTYPE_R) 11
Left and right province or territory unique identifier (PRUID_L and PRUID_R) 11
Street rank (RANK) 11
Street class (CLASS) 11
File specifications 11
Software formats 11
File extension and accented character information 12
Metadata 12
Geographic representation 12
File naming convention 13

5 Data quality **14**
Lineage 14
Positional accuracy 14
Absolute positional accuracy 14
Relative positional accuracy 14
Attribute accuracy 14
Logical consistency 14
Consistency with other products 15
Completeness 15
Appendices **16**

Road Network File, Reference Guide, Census year 2026

This reference guide is intended for users of the *2026 Road Network File.* The guide provides an overview of the file, the general methodology used to create it, and important technical information.

What's new?

- Since 2025, the *Road Network File* is available in GeoPackage (.gpkg) format.
- The *2026 Road Network File* is now available in both detailed and generalized versions.
- The *2026 Road Network File* includes the address parity on the left and right sides of the street arcs to facilitate geocoding.

1 About this guide

This reference guide does not provide details on specific software packages that are available for use with the *2026 Road Network File.* Users are advised to contact the appropriate software vendor for information.

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2 Overview

The *2026 Road Network File* depicts the digital road line coverage for Canada. It contains information such as street arc unique identifier (UID), name, type, direction and address range, as well as rank and class. It also includes province or territory (PR) and census subdivision (CSD) information for each side of a street arc (where applicable).

A new generalized version of the road network is also available to support efficient mapping and analysis at smaller scales while maintaining the shape and spatial relationships with geographic areas.

The files are portrayed in Lambert conformal conic projection (North American Datum of 1983 [NAD83]) and are available for downloading or viewing as national files.

3 About this product

Purpose of the product

The purpose of the *2026 Road Network File* is to provide a framework for mapping and spatial analysis, and to support Geographic Information System (GIS) applications used for land use and demographic studies, as well as social, economic and market research.

The *2026 Road Network File* is positionally consistent with the *2026 Census Boundary Files,* which provides additional geographic context for mapping applications.

Definitions and concepts

Geographic terms and concepts are briefly defined in the *Dictionary, Census of Population, 2026*.

Content

The *2026 Road Network File* contains street arcs depicting the national road network and includes attribute information such as street arc UID, name, type and direction, address ranges, address parity, rank and class. Address ranges are dwelling-based. It also includes the UID, dissemination geography unique identifier (DGUID), name and type for each side of a street arc (where applicable) for the following geographic levels:

- Province and territory
- Census subdivision (CSD)

General methodology

The National Geographic Database (NGD) is a joint Statistics Canada-Elections Canada initiative to develop and maintain a spatial database that 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 the *2026 Road Network File* reside on Statistics Canada's Spatial Data Infrastructure (SDI), which was derived directly from data stored in the NGD.

Creation of the *2026 Road Network File*

The **detailed** version of the *2026 Road Network File* was created from a source file consisting of all streets, highways and other road segments as well as street attributes (name, type, direction, address ranges, address parity, rank and class) maintained in the NGD. The file was copied into a File Geodatabase to facilitate geoprocessing (e.g., joins, modifications and verification operations).

Additional attribute information (i.e., PR and CSD attributes) was then joined to the spatial component at the road segment level.

The **generalized** version was created in tandem with the boundary files simplification process to ensure alignment of final products. See *Boundary Files, Reference Guide, Census year 2026*.

Both files were verified for spatial and attribute content, translated into French and English, and appropriately named according to the file naming convention. Final data processing consisted of the conversion from the File Geodatabase format, using FME® (Safe Software), into the following file formats supported by Geographic Information System (GIS) software: Shapefile (.shp), Geography Markup Language (.gml), and GeoPackage (.gpkg).

The Esri® REST service and Web Map Service (WMS) were created and published using ArcGIS® Enterprise.

The Shapefile, Geography Markup Language, File Geodatabase and GeoPackage files were compressed (file extension .zip) and made available for download from the Statistics Canada website.

Limitations

Statistics Canada maintains *Road Network File* information to support the census and other Statistics Canada activities. The relative position of road network features is important in maps created for reference purposes; therefore, relative positional accuracy takes precedence over absolute positional accuracy. The *2026 Road Network File* does not contain street information required for route optimization such as one-way streets, dead ends and other street obstacles. Consequently, this file is not recommended for emergency dispatching services.

The *2026 Road Network File* contains road arcs with address ranges sourced from field observation or administrative data sources, road arcs with imputed address ranges, as well as road arcs without address ranges.

The positional accuracy of the file does not support cadastral, legal, surveying, digitizing or engineering applications.

Comparison to other products or versions

Differences between the *2026 Road Network File* and previous versions of the *Road Network File* include the following:

- The *2026 Road Network File* contains more up to date roads, street names, address ranges, address parity, ranks and classes.
- The *2026 Road Network File* is compatible with the suite of 2026 Census geography products.
- The *2026 Road Network File* does not necessarily follow the boundary files made available as a part of the 2021 Census geographic product line.

Use with other products

When considering using the *2026 Road Network File,* users should be aware of the compatibility of this file with those that are available from other sources. They may not be consistent with Statistics Canada files.

Reference date

The geographic reference date is a date determined by Statistics Canada to finalize the geographic framework for which census data are collected, tabulated and reported. The geographic reference date for the *2026 Road Network File* is January 1, 2026.

4 Technical specifications

Record layout and data descriptions

The following table identifies and briefly describes the selected attributes comprising the content of the *2026 Road Network File*.

Table 4.1
Record layout - 2026 Road Network File

Attribute name	Data type	Description
NGD_UID	Character (10)	Unique identifier of the arc.
NAME	Character (50)	Street name associated with the arc.
TYPE	Character (6)	Street type associated with the arc.
DIR	Character (2)	Street direction associated with the arc.
AFL_VAL	Character (9)	Civic address found on the left-hand side of the arc at the FROM node.
ATL_VAL	Character (9)	Civic address found on the left-hand side of the arc at the TO node.
AFR_VAL	Character (9)	Civic address found on the right-hand side of the arc at the FROM node.
ATR_VAL	Character (9)	Civic address found on the right-hand side of the arc at the TO node.
PARITY_L	Character (1)	Civic address parity on the left side of the arc.
PARITY_R	Character (1)	Civic address parity on the right side of the arc.
CSDDGUID_L	Character (21)	Census subdivision dissemination geography unique identifier, left-hand side of arc.[1]
CSDUID_L	Character (7)	Uniquely identifies the census subdivision (composed of the 2-digit province or territory unique identifier followed by the 2-digit census division code and the 3-digit census subdivision code), left-hand side of arc.
CSDNAME_L	Character (100)	Census subdivision name, left-hand side of arc.
CSDTYPE_L	Character (3)	Census subdivision type, according to designations adopted by provincial/territorial or federal authorities, left-hand side of arc.
CSDDGUID_R	Character (21)	Census subdivision dissemination geography unique identifier, right-hand side of arc.[1]
CSDUID_R	Character (7)	Uniquely identifies a census subdivision (composed of the 2-digit province or territory unique identifier followed by the 2-digit census division code and the 3-digit census subdivision code), right-hand side of arc.
CSDNAME_R	Character (100)	Census subdivision name, right-hand side of arc.
CSDTYPE_R	Character (3)	Census subdivision type, according to designations adopted by provincial/territorial or federal authorities, right-hand side of arc.
PRDGUID_L	Character (21)	Province or territory dissemination geography unique identifier, left-hand side of arc.[1]
PRUID_L	Character (2)	Uniquely identifies a province or territory, left-hand side of arc.
PRNAME_L	Character (100)	Province or territory name, left-hand side of arc.
PRDGUID_R	Character (21)	Province or territory dissemination geography unique identifier, right-hand side of arc.[1]
PRUID_R	Character (2)	Uniquely identifies a province or territory, right-hand side of arc.
PRNAME_R	Character (100)	Province or territory name, right-hand side of arc.
RANK	Character (1)	Street rank associated with the arc.
CLASS	Character (2)	Street class associated with the arc.

1. For further information please refer to the "Dissemination geography unique identifier (DGUID)" definition from the Dictionary, Census of Population, 2026.

Attribute domain values

Representation of unknown or no value

The null value (empty string) is used to represent missing or non-existent values for a street's name, type, direction, address range, address parity, rank and class.

The null value is also used for geographic area UIDs, DGUIDs, names and types to indicate that a geographic area is outside Canada.

Street type (TYPE)

This value indicates the street type associated with the arc.

For information on street types refer to the "Street type (TYPE), 2026 Census" table.

Street direction (DIR)

Street direction can be used in conjunction with street name and type to identify common street elements (e.g., Elm ST S, versus Elm ST W or Elm ST). Street direction has no relation to the direction in which the street arc was digitized.

For information on street directions refer to the "Street direction (DIR), 2026 Census" table.

Left and right census subdivision type (CSDTYPE_L and CSDTYPE_R)

CSDs are classified according to designations adopted by provincial, territorial or federal authorities.

For information on census subdivision types, refer to the "Census subdivision (CSD)" definition from the *Dictionary, Census of Population, 2026* and the "Census subdivision type (CSDTYPE), 2026 Census" table.

Left and right province or territory unique identifier (PRUID_L and PRUID_R)

These values uniquely identify a province or territory.

For information on province or territory unique identifiers, refer to the "Province and territory" definition from the *Dictionary, Census of Population, 2026* and the "Provinces and territories (PRUID), 2026 Census" table.

Street rank (RANK)

Rank is a value assigned to a street arc to facilitate the selection of streets.

For information on street arc ranks refer to the "Street rank (RANK), 2026 Census" table.

Street class (CLASS)

The street class code identifies the different types of street features within the *2026 Road Network File.*

For information on street classes refer to the "Street class (CLASS), 2026 Census" table.

File specifications

Not applicable

Software formats

The *2026 Road Network File* is available for download from the Statistics Canada website in the following formats:

- Shapefile
  File extension: .shp
- Geography Markup Language (GML) 3.1.1
  File extension: .gml

- File Geodatabase
  File extension: .gdb
- GeoPackage
  File extension: .gpkg

The *2026 Road Network File* is also available as map services from the Statistics Canada website in the following formats:

- Esri® REST service
- Web Map Service (WMS)

File extension and accented character information

The Shapefile, Geography Markup Language, File Geodatabase and GeoPackage files are compressed (file extension .zip).

The *2026 Road Network File* contains accented characters. They were successfully tested in ArcGIS® desktop applications version 10.8.2, ArcGIS® Pro 3.3 and FME Data Inspector 2024.1.3®.

Metadata

The downloadable compressed packages (.zip) include a metadata file (.xml) that describes and validates the structure and content of the *2026 Road Network File.* The metadata file complies with the Harmonized North American Profile (HNAP) requirements for Government of Canada datasets.

The same metadata elements are used to describe the Esri® REST services and the Web Map Services (WMS).

Geographic representation

The *2026 Road Network File* is available from the Statistics Canada website in the following geographic representation:

- Projection: Lambert conformal conic
- False easting: 6200000.000000
- False northing: 3000000.000000
- Central meridian: -91.866667
- Standard parallel 1: 49.000000
- Standard parallel 2: 77.000000
- Latitude of origin: 63.390675
- Linear unit: metre (1.000000)
- Datum: North American 1983 (NAD83)
- Prime meridian: Greenwich
- Angular unit: degree
- Spheroid: GRS 1980

Users of the *2026 Road Network File* can transform the file into the representation that best satisfies their needs, knowing of the effects these representations have on angles, areas, distances and direction. Users have the option to choose the best projection in concert with display objectives.

File naming convention

Spatial product file names follow a file naming convention. The file projection, geographic level, geographic coverage, file type, geographic reference date, file format and language are embedded within the file name. Standardizing file names facilitates storage of compressed files, which will all have the .zip extension.

Each file name has 13 characters. All alphabetic characters are lowercase to maintain consistency.

First character: projection of file

- l - projection in Lambert conformal conic

Next three characters: primary geographic level of file

- rnf - Road Network File

Next three numbers: geographic code of coverage

- 000 - Canada

Next character: file type

- r - detailed Road Network File
- s - generalized Road Network File

Next two numbers: 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 are collected, tabulated and reported. For 2026 Census products, the geographic reference date is January 1, 2026.

- 26 - geographic reference date is 2026

Next character: file format

- a - Shapefile (.shp)
- f - File Geodatabase (.gdb)
- g - Geography Markup Language (.gml)
- p - GeoPackage (.gpkg)
- s - services (Esri® REST and Web Map Service [WMS])

Final two characters: language

- _e - English
- _f - French

5 Data quality

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 lineage, positional accuracy, attribute accuracy, logical consistency and completeness. This information is provided to users for all spatial data products disseminated for the census.

Lineage

Lineage describes the history of the spatial 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.

Road information was incorporated from a variety of sources, including provincially sourced data, municipal maps and field observation. The timeliness of the National Geographic Database (NGD) varies from region to region depending on the source data.

For more *2026 Road Network File* lineage information, please refer to the General methodology section.

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

Absolute positional accuracy

The information present in the NGD road layer was developed for the purposes of statistical analysis and census operations. The absolute position of roads in the NGD varies with the source files and documents used to build and maintain the database. Therefore, the road layer is not suitable for high-precision measurement applications such as engineering or property transfers, nor for other uses that might require highly accurate measurements of the Earth's surface.

Absolute positional accuracy is not a requirement for census processes.

Relative positional accuracy

For the NGD, relative positional accuracy is important. A road must appear in its proper position relative to other roads and physical features.

Attribute accuracy

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

No explicit testing for attribute accuracy is done; however, results from internal operations suggest a high degree of accuracy.

Data entry during maintenance operations includes a data control process to ensure that attributes are properly associated to a specific geometric feature. This includes the association, as well as its accuracy.

Logical consistency

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

The *2026 Road Network File* was verified against data in the SDI and found to be logically consistent.

Consistency with other products

The position of the arcs in the *2026 Road Network File* is not necessarily consistent with previous editions of boundary files or road network files as a result of updates made using provincially, territorially and locally sourced data.

Topology checks were performed with the *2026 Road Network File* and the *2026 Census Boundary Files* to measure the degree of integration amongst these products. The results indicated that the degree of integration was within the default tolerance parameters, as defined below.

- Tolerance: 0.00001 metres
- Resolution: 0.000005 metres

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.

New road features have been added to the NGD to create a more complete road layer and are present in this edition of the *2026 Road Network File.*

Table 5.1
Number of road features in the *2026 Road Network File*

		Arc length (kilometres)	
National level	**Number of arcs**	**Detailed**	**Generalized**
With street name	2,014,574	962,318	961,045
Without street name	230,551	213,951	213,665
Named street with full address range on at least one side	1,467,372	653,164	652,159
Canada	2,245,125	1,176,269	1,174,710

Note: Arc length was calculated in Lambert conformal conic projection.

Appendices

See the *2026 Road Network File*.

See the *2026 Census Boundary Files*.

See Figure 1.1, "Hierarchy of geographic areas for dissemination, 2026 Census", from the *Dictionary, Census of Population, 2026.*