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Census Forward Sortation Area Boundary File, Reference Guide, Census year 2021



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Census Forward Sortation Area Boundary File, Reference Guide, Census year 2021

This reference guide is intended for users of the *2021 Census Forward Sortation Area Boundary File*. The guide provides an overview of the file, the general methodology used to create it, and important technical information.

What's new?

- The *2021 Census Forward Sortation Area Boundary File* now includes the Dissemination Geography Unique Identifier (DGUID) for geographic areas.
- 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.
- The *2021 Census Forward Sortation Area Boundary File* is now available in File Geodatabase (.gdb), Esri® REST and Web Mapping Service (WMS) formats.
- The *2021 Census Forward Sortation Area Boundary File* is no longer available in MapInfo (.tab) format.

1. About this guide

This reference guide does not provide details on specific software packages that are available for use with the *2021 Census Forward Sortation Area Boundary File*. Users are advised to contact the appropriate software vendor for information.

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2. Overview

The *2021 Census Forward Sortation Area Boundary File* depicts the boundaries of 1,643 census forward sortation areas (CFSAs) (identified by the first three characters of the postal code^{OM}) derived from postal codes^{OM} captured from the 2021 Census of Population questionnaires.

It contains information such as unique identifier (UID), as well as land area and province or territory unique identifier (PRUID).

It is available for download or viewing in two types: cartographic and digital. Both cartographic and digital boundary files are portrayed in Lambert conformal conic projection (North American Datum of 1983 [NAD83]).

Acknowledgements

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OM Postal code is an official mark of Canada Post.

3. About this product

Purpose of the product

The purpose of the *2021 Census Forward Sortation Area Boundary File* is to provide a spatial representation of forward sortation areas[®] (FSAs[®]) as reported by census respondents and to facilitate the linkage of 2021 Census data.

This product is based upon reported postal codes^{OM} rather than the postal code^{OM} assigned to the address by Canada Post. As a result, they should be interpreted as places where respondents reported a postal code^{OM} other than the one assigned by Canada Post.

Other differences may arise from the methodology used to delineate the CFSA boundaries. As described in [Data quality](#), the method used for this product relies on the 2021 Census responses, while Canada Post's FSAs[®] are a result of the assignment of postal codes^{OM} for use as a delivery mechanism.

The *2021 Census Forward Sortation Area Boundary File* is positionally consistent with the suite of *2021 Census Boundary Files* and the *2021 Road Network File*, which provide additional reference for mapping.

Definitions and concepts

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

Content

The *2021 Census Forward Sortation Area Boundary File* contains boundaries as well as the UID, DGUID, land area and PRUID for 1,643 CFSA. In total, census respondents reported 1,646 FSAs[®], 3 of which are not represented given the methodology described in [Data quality](#) under Completeness. The 1,643 CFSA portrayed in the boundary file cover the entire country.

A breakdown of the number of CFSA by province and territory is provided below.

Table 3.1
Number of census forward sortation areas by province and territory

Province or territory	Census forward sortation areas
Newfoundland and Labrador	35
Prince Edward Island	7
Nova Scotia	77
New Brunswick	110
Quebec	414
Ontario	520
Manitoba	74
Saskatchewan	52
Alberta	154
British Columbia	191
Yukon	3
Northwest Territories	3
Nunavut	3
Canada	1,643

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 *2021 Census Forward Sortation Area Boundary File* reside on Statistics Canada’s Spatial Data Infrastructure (SDI), which was derived directly from data stored in the NGD.

The *2021 Census Forward Sortation Area Boundary File* contains the boundaries of 1,643 CFSA derived from postal codes^{OM} captured from 2021 Census questionnaires and a subsequent imputation process. By analysing the postal codes^{OM} reported by census households, a single CFSA was assigned to each dissemination area (DA) (most often the FSA[®] reported by the largest number of census households). CFSA polygons were formed by a single DA and or groupings of DAs.

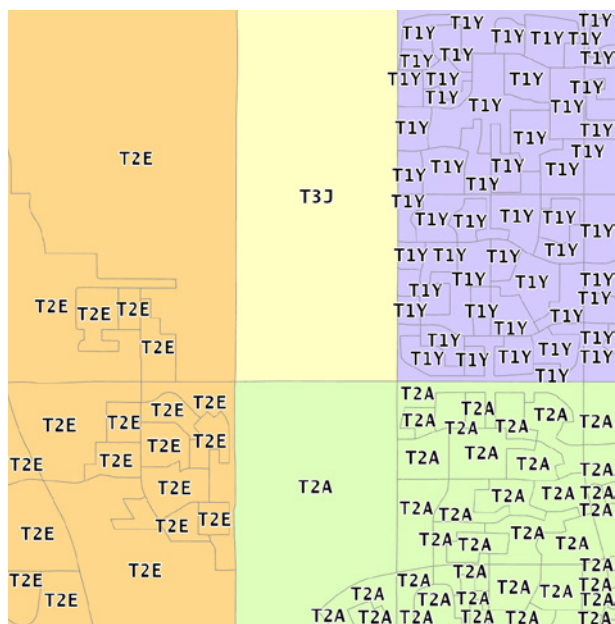
For the census, the postal code^{OM} is captured for all households from the address provided by respondent or confirmed by information on the front page of the 2021 Census questionnaire.

Creation of the 2021 Census Forward Sortation Area Boundary File

Initial assignment of FSAs[®] to DAs

FSA[®] data was extracted from the 2021 Census respondent information for each household. These households were associated to the DA geographic code in which they are located. Counts of FSAs[®] reported by households were tabulated for each DA. These FSA[®] counts were then ranked within the individual DA establishing a dominant or most frequently reported FSA[®] within the DA.

Figure 3.1
Assignment of FSAs[®] to DA



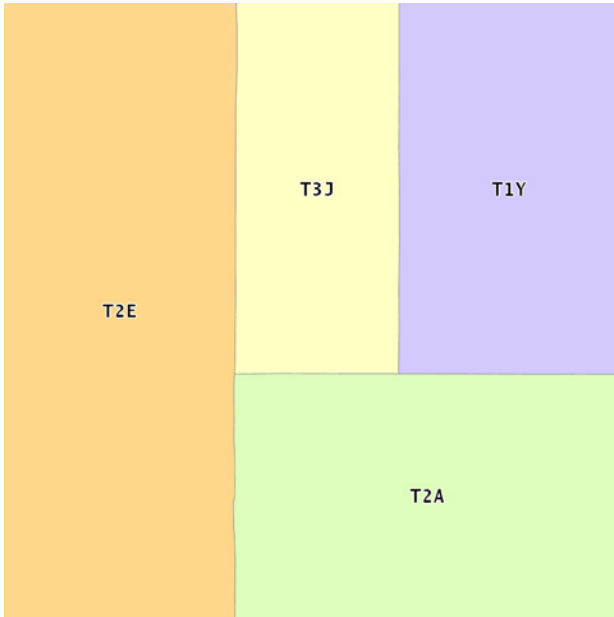
Creation of the initial FSA[®] polygon layer

FSA[®] to DA data was then joined to the basic block native file used to create the *2021 Census Boundary Files* (digital and cartographic) using the unique identifier for each DA.

Creation of CFSA

Based on the relationship between DA and FSA®, DAs were aggregated and dissolved (using basic blocks) in order to create CFSA polygons.

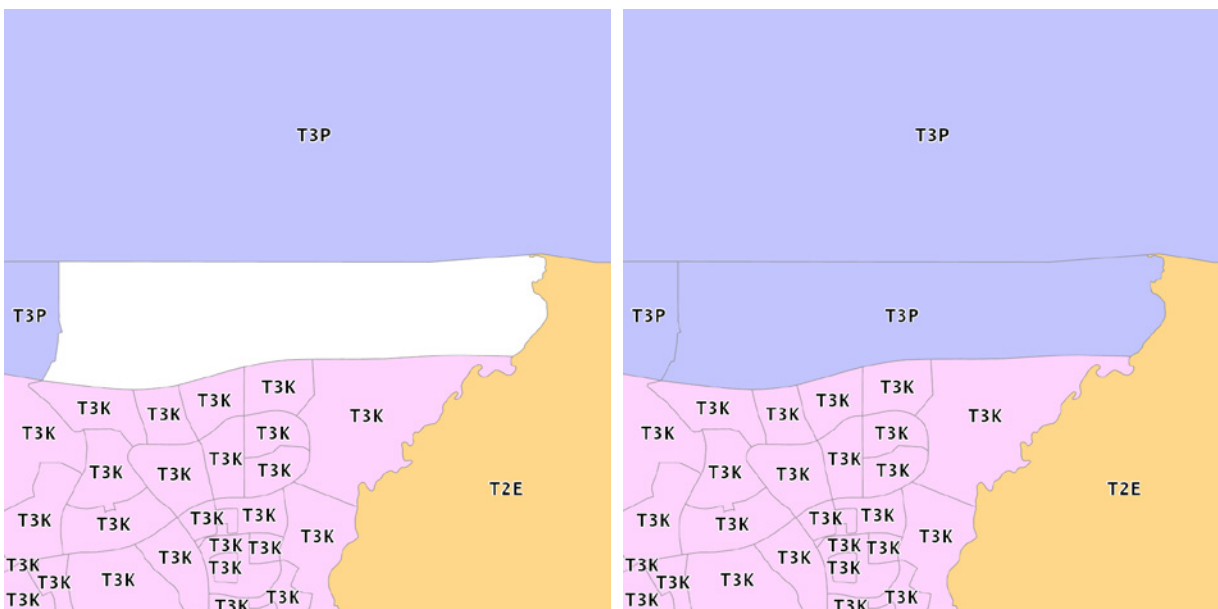
Figure 3.2
Creation of CFSA



Unassigned DAs

Unassigned DAs that did not have an FSA® reported from the 2021 Census due to zero population, were assigned a CFSA based on their nearest neighbouring DAs CFSA within the appropriate province or territory. That is, unassigned DAs were assigned a CFSA based for the most part on the longest arc shared between the unassigned DA and its neighbouring DAs.

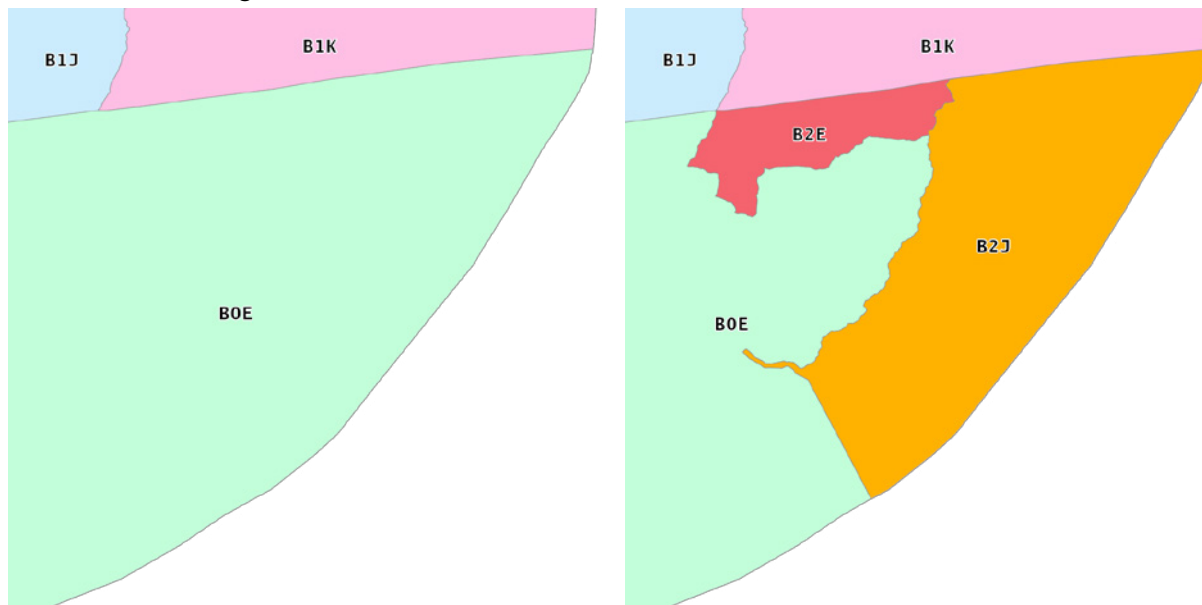
Figure 3.3
Assignment of CFSA to unassigned DA



Addition of missing CFSA reported by households in the Census

There were 16 CFSA that were formed by the aggregation of dissemination blocks (DBs) and added to the boundary file.

Figure 3.4
Addition of missing CFSA



Post-processing

The final digital and cartographic boundary files were created by associating the CFSA information calculated in the previous steps to existing 2021 DB digital and cartographic boundary files, and then dissolved to create the CFSA geographic layers.

Both the digital and cartographic files were verified for their 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 SDE feature dataset feature class format, using FME® (Safe Software), into the following file formats supported by Geographic Information System (GIS) software: Shapefile (.shp), Geography Markup Language (.gml), and File Geodatabase (.gdb).

The Shapefile, Geography Markup Language and File Geodatabase files were compressed into WinZip® files (file extension .zip) and made available for download from the Internet.

Limitations

The CFSA contained within this product are those reported by census respondents. The postal code^{OM} provided by respondents may not be the same as the postal code^{OM} of their dwelling. For example, they may denote the postal code^{OM} of their mailing address, such as a post office location (as in the case of general delivery) or a business location. Consequently, some respondents' postal codes^{OM} may fall outside the FSA® in which their dwelling is located. Therefore, calculating a provincial population and dwelling count by grouping CFSA will not necessarily yield the same count as the one provided in the provincial or territorial population and dwelling counts table.

The product was created to support the analysis of data from the 2021 Census of Population. It may not be adequate for other purposes, especially if users are interested in business postal codes^{OM} or linking information from other administrative sources.

The geographic input data used to create the file were obtained from several sources having a wide range of scales. The file will not be precise if plotted at a larger scale than the scale of the source material used in its creation. Maps created from the *2021 Census Forward Sortation Area Boundary File* should not be used to determine the precise location of boundaries.

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

Comparison to other products or versions

The *2021 Census Forward Sortation Area Boundary File* is compatible with other Statistics Canada spatial data products such as the *2021 Road Network File* and the *2021 Census Boundary Files*.

The *2021 Census Forward Sortation Area Boundary File* is similar but not necessarily consistent with the boundary files released prior to the 2021 Census.

Use with other products

When considering using the *2021 Census Forward Sortation Area Boundary 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 dates

Postal codes^{OM}

Postal codes^{OM} were determined to be applicable for the 2021 Census if they appeared as active records as per Canada Post in May 2021, the month of the Census. However, postal codes^{OM} provided by the respondents were considered acceptable if they were found in the file from Canada Post within the six months leading up to the Census. This is consistent with the effort to represent the postal codes^{OM} whenever they could be considered as being active and in use at the time of the Census.

Standard geographic areas

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 reference date for the geographic area boundaries in cartographic and digital boundary files is January 1, 2021.

4. Technical specifications

Record layouts and data descriptions

The following table identifies and briefly describes the selected attributes comprising the content of the *2021 Census Forward Sortation Area Boundary File*.

Table 4.1
Record layout - 2021 Census Forward Sortation Area Boundary File

Attribute name	Data type	Description
CFSAUID	Character (3)	Uniquely identifies a census forward sortation area (composed of three alphanumeric characters).
DGUID	Character (21)	Dissemination Geography Unique Identifier. ¹
PRUID	Character (2)	Uniquely identifies a province or territory.
PRNAME	Character (55)	Province or territory name.
LANDAREA	Number (12.4)	Land area of geographic area, in square kilometres (km ²).

1. For further information please refer to the "Dissemination Geography Unique Identifier (DGUID)" definition from the *Dictionary, Census of Population, 2021*.

Attribute domain values

Province and territory unique identifier (PRUID)

For information on province or territory unique identifiers, refer to the “[Provinces and territories \(PRUID\), 2021 Census](#)” table.

Census Forward Sortation Area unique identifier (CFSAUID)

For information on census forward sortation area unique identifiers, refer to the “[Census Forward Sortation Area unique identifier \(CFSAUID\), 2021 Census](#)” table.

File specifications

Not applicable

Software formats

The *2021 Census Forward Sortation Area Boundary File* is available in the following formats.

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

The *2021 Census Forward Sortation Area Boundary File* are also available as map services from the Statistics Canada website in the following formats:

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

This reference guide does not provide details on specific software packages available for use with the *2021 Census Forward Sortation Area Boundary File*. Users should contact the appropriate software vendor for such information.

File extension and accented character information

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

The *2021 Census Forward Sortation Area Boundary File* does not contain attributes with accented characters.

Metadata

The downloadable compressed packages (.zip) include a metadata file (.xml) that describes and validates the structure and content of the *2021 Census Forward Sortation Area Boundary File*.

The same metadata are applied to the Esri® REST service and Web Map Service.

Geographic representation

The *2021 Census Forward Sortation Area Boundary File* is available on 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

The North American Datum of 1983 (NAD83) is an adjustment of the 1927 datum (NAD27) that reflects the higher accuracy of geodetic surveying.

Users of *2021 Census Forward Sortation Area Boundary 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 the names of the files facilitates the storage of compressed files, all having the extension .zip.

Each file name is 13 characters in length. All alphabetic characters are in lower case to maintain consistency.

First character: projection of file

- l - projection in Lambert conformal conic

Next three characters: primary geographic level of file

- fsa – census forward sortation area

Next three numbers: geographic code of coverage

- 000 - Canada

Next character: file type

- a - digital boundary file
- b - cartographic boundary 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 2021 Census products, the geographic reference date is January 1, 2021.

- 21 - geographic reference date is 2021

Next character: file format

- a - Shapefile (.shp)
- f - File Geodatabase (.gdb)
- g - Geography Markup Language (.gml)
- 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 quality elements include information 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.

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.

This product was derived from the 2021 Census postal code^{OM} variable and the *2021 Census Boundary Files* which were derived from Statistics Canada's NGD. The postal code^{OM} is captured for all households from the address information provided or confirmed by the respondent on the 2021 Census questionnaire. The same postal code^{OM} was assigned to all members of a given household to enable the compilation of various census data. In cases where a postal code^{OM} was not provided or was invalid, an imputation process assigned a valid postal code^{OM}. At the end of this process, a postal code^{OM} is associated with each census household.

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. 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., CFSAs) or on which they are based (e.g., DAs). 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 and hydrographic data) that are stored within the NGD is considered when positioning the limits of the standard geographic areas.

Attribute accuracy

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

The attribute data associated with the polygons in the *2021 Census Forward Sortation Area Boundary File* are derived from postal codes^{OM} captured from the 2021 Census of Population questionnaires. Edit procedures verify that a reported postal code^{OM} was valid and consistent with neighbouring postal codes^{OM}. In cases where a postal code^{OM} was not provided or was invalid, an imputation process assigned a valid postal code^{OM}. At the end of this process, a postal code^{OM} is associated with each census household.

It is important to note that postal codes^{OM} were not verified against Canada Post's address information, merely that the postal code^{OM} was considered valid by Canada Post.

Logical consistency

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

The *2021 Census Forward Sortation Area Boundary File* is derived from the 2021 Census responses and not from address-based data from Canada Post. Whole DAs are assigned only one CFSA in the *2021 Census Forward Sortation Area Boundary File*. Furthermore, since whole DAs are assigned one and only one CFSA, the population

and dwelling counts derived by aggregating DAs assigned to a CFSA will not match the aggregations based on each household's reported CFSA.

In each boundary file, all geographic areas have been verified to have a UID and DGUID that is valid for the 2021 Census.

Consistency with other products

Boundaries found in this product are compatible with those found in other spatial products produced as part of the suite of 2021 Census Geography products. CFSA boundaries are derived for the most part from the DA geography of the 2021 DA boundaries and as such are inherently consistent with those features.

Topology checks were performed with the the previously disseminated 2021 Census products and the *2021 Census Forward Sortation Area Boundary File* to measure the degree of integration amongst these products. The results indicated 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.

The product contains boundaries for 1,643 CSAs. In total, 1,646 FSAs[®] were reported by at least one household in the 2021 Census.

A reported FSA[®] may not be represented in the *2021 Census Forward Sortation Area Boundary File*, includes cases where the FSA[®] may not be the most frequently reported on any DA, or an FSA[®] may not have appeared in the Census respondent information.

In both the digital boundary file and cartographic boundary file, a 2021 CFSA may be depicted by more than one polygon. In the digital boundary file, there are some 2021 CSAs that have two or more parts. In the cartographic boundary file, this is also due to having removed the coastal water area from the digital boundary file, thus creating several polygons for one 2021 CFSA.

Below is a list of the three FSAs[®] which are not included in the boundary file because they were not the dominant FSA[®] in any DA.

E2R
J5N
M7A

Appendix

See [Figure 1.1, "Hierarchy of standard geographic areas for dissemination, 2021 Census,"](#) from the *Dictionary, Census of Population, 2021*.