

Environmental Statistics: Boundary Files

Restoration of the 1971 enumeration area polygons for Canada's largest cities



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The following symbols are used in Statistics Canada publications:

- | | |
|----------------|--|
| . | not available for any reference period |
| .. | not available for a specific reference period |
| ... | not applicable |
| 0 | true zero or a value rounded to zero |
| 0 ^s | value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded |
| ^p | preliminary |
| ^r | revised |
| x | suppressed to meet the confidentiality requirements of the <i>Statistics Act</i> |
| ^E | use with caution |
| F | too unreliable to be published |
| * | significantly different from reference category ($p < 0.05$) |

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Summary

This product contains restored 1971 census enumeration area (EA) boundaries for Canada's largest cities. It provides the public with a historical spatial data set to be used for reference, mapping, spatial and time series analysis.

Digitized 1971 EA boundaries are available for all 33 census metropolitan areas (CMAs) defined by the 2011 Census of Population. EAs are the smallest geographical unit for the release of 1971 census statistics.

The restored EA boundaries also include 1971 population and dwelling statistics.

Click [here](http://www.statcan.gc.ca/access_acces/alternative_alteratif.action?l=eng&loc=/pub/16-510-x/zip/EA_SD_1971-eng.zip) (www.statcan.gc.ca/access_acces/alternative_alteratif.action?l=eng&loc=/pub/16-510-x/zip/EA_SD_1971-eng.zip) to download a ZIP folder containing the boundary files and census statistics (ArcGIS®, file extension: .shp) and user documentation (PDF).

The data set can also be accessed as a web service on the Government of Canada website Open Maps.

User documentation

Background

This product contains 23,887 digitally restored 1971 census enumeration area (EA) boundaries for the 33 census metropolitan areas (CMA) defined by the 2011 census. EAs are the smallest geographical unit for the release of 1971 census statistics. These EA boundaries can be aggregated to the census agglomeration (CA) or the CMA level.

The restored EA boundaries also include 1971 population and dwelling statistics. The areas covered by the restored EA polygons account for 61.8% Canada's total population in 1971.

The purpose of the data set is to provide a historical geography in a digital format. It is intended to be used for reference, mapping and for spatial and time series analyses.

These boundaries were produced by Statistics Canada, Environment, Energy and Transportation Statistic Division in 2017.

The restored 1971 EA boundaries are provided as a single spatial layer. The ArcGIS® shapefile (file extension .shp) and a PDF version of this user documentation are available for download as a ZIP folder (www.statcan.gc.ca/access_acces/alternative_alteratif.action?l=eng&loc=/pub/16-510-x/zip/EA_SD_1971-eng.zip).

Methods and technical specifications

The restored 1971 census EA boundaries are primarily based on scanned EA maps provided by the Statistical Registry and Geography Division of Statistics Canada, as well as original paper and microform 1971 census maps consulted at Library and Archives Canada.

Restored polygons have been completed to cover all areas within the 2011 CMA boundaries in order to allow time series analysis. Either 1971 or 2011 boundaries may be used to delimit the geographic areas. The CMA of Abbotsford, British Columbia was not a CMA or CA in 1971. The 1971 EA polygons are available, but 1971 CMA and CA boundaries do not exist.

The restored 1971 EAs were aligned with the Statistics Canada 2011 Census - Road Network files and the 2011 Census - Boundary files for Lakes and rivers (polygons) and Rivers (lines). These 2011 files were used due to limitations with the spatial accuracy and coverage of the 1971 road network.

As a result of changes in census geography over time, there are 54 restored 1971 EAs that cross the 2011 CMA boundaries: 10 EAs that are split between 2 CMAs and 44 EAs that extend beyond a CMA boundary. In each of these cases, the EA was partitioned at the 2011 CMA boundary and is represented as two polygon records in the boundary file. The population and dwelling statistics for these EAs have been divided and area-weighted for each resulting polygon. As a result, 1971 population estimates may differ slightly from other published sources.¹

The delineation of small EA polygons representing buildings in densely populated areas is only an approximation of the building footprint and location. The buildings are depicted in the same way as they appear in either the scanned EA maps or the original paper or microform maps.

Reference maps were not available for a small number of geographic areas, all of which contained less than 10 EAs. In these cases, the geographic area was divided by the number of EA points falling within that area, into roughly equal parts, using straight lines.

For further information on terminology and census geography see the 2011 Census Dictionary.

Field descriptions

A full list of variables and descriptions is available in Table 1.

Table 1
Record Layout

Variables	Description
FED	Federal electoral district code, 1971
EA	Enumeration area code 1971
EAUID	Full enumeration area code, 1971
POP_71	Total population, 1971
DWL_71	Total dwellings, 1971
CMAUID_71	Census metropolitan area code, 1971
CMAUID_11	Census metropolitan area code, 2011
CMANAME_11	Census metropolitan area name, 2011
PRUID	Province code, 2011
CMA_PM_11	Primary census metropolitan area code, 2011
CMA_SC_11	Secondary census metropolitan area code, 2011
CMA_PMN_11	Primary census metropolitan area name, 2011
CMA_SCN_11	Secondary census metropolitan area name, 2011
CMA_71	Census metropolitan area indicator, 1971
CMA_11	Census metropolitan area indicator, 2011
CMAPART_71	Census metropolitan area code descriptor, 1971
PRNAME	Province name, 2011
CMACANM_71	Census metropolitan or agglomeration area name, 1971
Source: Statistics Canada, Environment, Energy and Transportation Statistics Division	

The shapefile includes 1971 and 2011 CMA or CA boundaries, which can be produced using the CMA_1971 and CMA_2011 variables.

EA polygons that are split between two 2011 CMA boundaries can be identified using the primary and secondary CMA variables.

The census metropolitan area code descriptor identifies if the EA belongs to:

- the largest city within the 1971 boundary
- the remainder of the urbanized core
- the urban fringe
- the rural fringe of a 1971 CMA or CA.

Note: for EAs that do not fall within the 1971 CMA or CA boundaries, the CMA descriptor code is labeled “Outside CMA/CA.”

Spatial reference system

The projection information is as follows:

Type

Projected

Geographic Coordinate Reference

NAD_1983_Canada_Atlas_Lambert

WKID: 3978 Authority: EPSG

Coordinate Reference Details

Projection: Lambert_Conformal_Conic

False_Easting: 0.0

False_Northing: 0.0

Central_Meridian: -95.0

Standard_Parallel_1: 49.0

Standard_Parallel_2: 77.0

Latitude_Of_Origin: 49.0

Linear Unit: Meter (1.0)

Geographic Coordinate System: GCS_North_American_1983

Angular Unit: Degree (0.0174532925199433)

Prime Meridian: Greenwich (0.0)

Datum: D_North_American_1983

Spheroid: GRS_1980

Semimajor Axis: 6378137.0

Semiminor Axis: 6356752.314140356

Inverse Flattening: 298.257222101

Additional information

Spatial representation type: Vector

Character set: UTF8

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- Mike Comeau (SpatialAnalysis), Shannon Davis, Chris Dillon, Wilfreda Edward-Dolcy, Giuseppe Filoso, Gabriel Gagnon, Shreya Nemani, Lukasz Quinn, François Soulard and Jennie Wang.

Notes

- ¹ For example, the 1971 population and dwelling estimates produced using the restored EA boundaries will differ from the totals published in Statistics Canada, 2016, "The changing landscape of Canadian metropolitan areas (www.statcan.gc.ca/pub/16-201-x/16-201-x2016000-eng.htm) , " *Human Activity and the Environment*, Catalogue no 16-201-X. The values published in *Human Activity and the Environment* are a tabulation of the 1971 EA points. They do not include population or dwellings for any EA points falling outside the 2011 CMA boundaries even if part of the EA polygon falls within the boundary.