

Catalogue no. 17-20-0003
ISBN 978-0-660-97990-8

Population Projections for Census Divisions and Subdivisions, 2025 to 2050: Technical Report

Release date: February 18, 2026

 Statistics Canada
Statistique Canada

 Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

Email at infostats@statcan.gc.ca

Telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following numbers:

- Statistical Information Service 1-800-263-1136
- National telecommunications device for the hearing impaired 1-800-363-7629
- Fax line 1-514-283-9350

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, the Agency has developed standards of service which its employees observe in serving its clients. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under “Contact us” > “[Standards of service to the public](#).”

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Published by authority of the Minister responsible for Statistics Canada

© His Majesty the King in Right of Canada, as represented by the Minister of Industry, 2026

Use of this publication is governed by the Statistics Canada [Open Licence Agreement](#).

An [HTML version](#) is also available.

Cette publication est aussi disponible en français.

Population Projections for Census Divisions and Subdivisions, 2025 to 2050: Technical Report

Projections of census subdivisions with a population of 800 or more are available for the period 2025–2050 in [Table 17-10-0162-01](#). These projections are based on the results of the [Projections for Canada \(2025-2075\), Provinces and Territories \(2025-2050\)](#), which were released on January 27, 2026.

Introduction

The Canadian Infrastructure Council has commissioned Statistics Canada's Centre for Demography to develop a set of population projections for communities, as defined by the statistical concepts of census divisions (CDs) and census subdivisions (CSDs). These projections provide impartial, evidence-based insights to all levels of government, infrastructure owners, operators and investors to improve infrastructure planning and decision-making across Canada. The data is also expected to inform land use and urban planning, housing needs, transportation and communications.

At the municipal level, contextual factors such as housing availability, zoning changes, or economic conditions can have a significant influence on future population growth. Although it is not possible to take into account changes in these factors in projections made for every municipality across the country, it is possible to project population based on past demographic trends. The results can serve as a reference point and be adjusted as needed by experts based on contextual information.

It is with this in mind that the *cohort change* model was developed, well adapted to projections for sparsely populated regions. This model makes it possible to project the population by age and gender without having to make assumptions about each component of population growth (e.g., births, deaths, immigration)¹ This is a significant advantage because data on these components may not be available or may be uninformative due to the large temporal fluctuations they may contain (a consequence of small population sizes). In fact, the less populated a region is, the more difficult it generally is to extract reliable trends from the observed data needed to establish plausible projection assumptions, and the more changes in trends can have a rapid impact on its demographic evolution. These two factors partly explain why the gap between projections and reality tends to increase inversely to population sizes (Tayman & Swanson, 1996; Wilson & Rowe, 2011). Other advantages of the cohort change model include its simplicity, the transparency of its assumptions, the ability to calibrate results against existing projections, and the capacity to frequently update results in response to rapid demographic change.

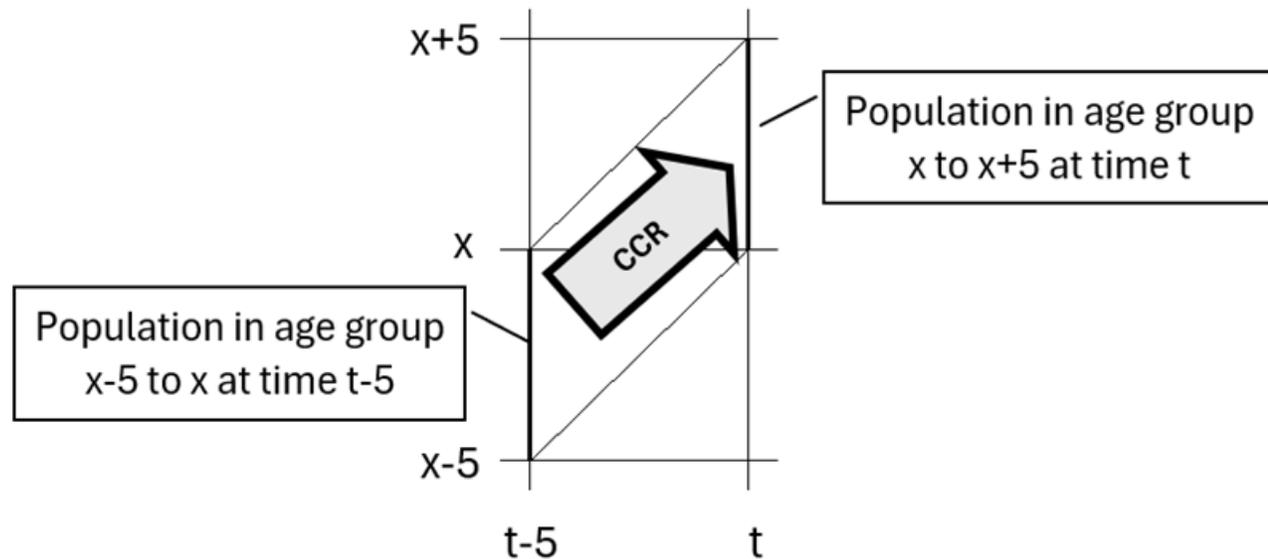
The following sections describe the details of the cohort change method and its application to the development of a set of demographic projections for communities in Canada.

The Cohort Change Method

Hamilton and Perry (1962) propose a method of population projection that requires only a measurement of the population by age group at two distinct points in time. By comparing the two measurements, we can calculate cohort change ratios (CCR), which are then assumed to be constant in the future. For example, the size of the population aged 30 to 34 at time $t+5$ can be projected by applying to the population aged 25 to 29 at time t the CCR measured between the population aged 25 to 29 at $t-5$ and that aged 30 to 34 at time t . Figure 1 illustrates the CCR calculation using only population sizes by five-year age group at two periods five years apart.

1. It should be noted that Statistics Canada regularly publishes several series of population projections for Canada, the provinces, and the territories using the cohort-component model (Statistics Canada, 2026a; Dion & Galbraith, 2015), as well as projections containing a wide range of demographic characteristics using the Demosim microsimulation model (Morency, Vézina, & Dion, 2025). However, these models require reliable and detailed data for all components of population growth.

Figure 1
Calculating CCR for an age group



Source: Statistics Canada, Centre for Demography.

Within a given region, the cohort aged 30 to 34 at time t is largely made up of people who were 25 to 29 at time $t-5$, but it is also made up of immigrants and people from elsewhere in Canada who have settled there between times $t-5$ and t . Similarly, people aged 25 to 29 at time $t-5$ who died or left the region in the following five years are not included in the population aged 30 to 34 at time t . The CCR encapsulates all the demographic events that can influence population size, but without specifically describing its contours. This has several advantages. Firstly, it is not necessary to obtain data for all these components, data which are sometimes unavailable or of poor quality for sparsely populated regions. Secondly, developing projection assumptions for each of the components of population growth can be a time-consuming task, often proving difficult when low counts tend to cause a great deal of volatility in time series.

The same procedure cannot be used to project the population born during a projection interval. Taking the parameters of the previous example, according to the original methodology proposed by Hamilton and Perry, the population aged 0 to 4 at time $t+5$ is projected by applying to the population aged 0 to 4 at time t a factor of increase based on the number of past births. Other methods have subsequently been proposed, mainly based on a child/woman or child/adult ratio calculated within the population at time t .

The cohort change method also has certain disadvantages. Firstly, it only serves to project the population, and not the demographic events (births, deaths, immigration, etc.) that may be of interest to some users. Secondly, it assumes that past cohort growth rates will also apply in the future, an assumption whose plausibility diminishes as the projection horizon stretches. For this reason, its use is often recommended for relatively short temporal horizons. In addition, the method can produce outliers in regions where population growth has been particularly low or particularly high (Swanson, Schlottmann, & Schmidt, 2010; Baker, Swanson, & Tayman, 2021). Finally, as with any projection exercise, regardless of the method used, the presence of unusual upheavals that may have influenced the course of demographic events, such as a pandemic or natural disaster, can increase the uncertainty of projections (Hamilton & Perry, 1962).

Method Specifications

Various modifications of the original method have been proposed over time, notably with the aim of producing plausible projections over a longer time horizon exceeding ten years and minimizing the limitations described above. A convincing example is the approach developed by Hauer (2019) for projecting counties in the United States up to 2100, which we adopt in part, and to which we otherwise make certain modifications.² Compared with the Hamilton-Perry model, Hauer's model includes the following modifications:

- Projection is either multiplicative, using a cohort change ratio (as in the original Hamilton-Perry method), or additive, using a *cohort change difference (CCD)*, depending on whether the total population projected with the CCD is growing or shrinking over the course of the projection. This change minimizes explosions or implosions during the projection, since a positive rate of increase applied repeatedly can give rise to exponential growth, and conversely, a difference applied continuously can give rise to negative population numbers.
- Cohorts are projected based on a weighted average of values observed over a long historical period, rather than on the basis of a measurement taken over a single period. This approach reduces the risk of obtaining outliers that cannot be applied over the long term. To this end, the CCRs, CCDs and child/woman ratios used in the projection are the result of extrapolations obtained using a simple exponential smoothing model³ fitted to the observed data. The exponential smoothing model gives greater weight to recent trends by giving exponentially increasing weight over time to the values in the time series.
- Projection results are calibrated so that the projected total for all geographical units corresponds to the population projected independently for the United States using Shared Socioeconomic Pathways (climatedata.ca, 2024). On the one hand, this approach prevents growth from getting out of hand (Hauer, 2019), but it also improves the predictive strength of the models (Wilson, 2016; Wilson & Grossman, 2022).

However, we are making a number of changes to our application of Hauer's method:

- The choice of projection method (CCR or CCD) is made independently by age group, gender and years (and not uniformly for the total population over the entire projection period). CCR is selected if it is less than or equal to 1. CCD is selected otherwise. This approach entirely avoids explosive growth and negative population projections in all age groups. It also allows for a more plausible evolution of the age structure over time.
- Regions with a population of less than 800 at the start (2001 for CSD) or end (2025) of the time series were excluded. The validation process has shown that below this threshold, the plausibility of the results decreases significantly.
- Projection results are calibrated using a two-stage calibration process. Projections by CDs are initially produced using the cohort change method, after which they are calibrated to age, gender and province/territory projections derived from multiple scenarios based on the most recent population projections for Canada, its provinces and its territories.⁴ CSD projections are then produced using the same method and calibrated to the projections by CDs.⁵ Regions whose population size is below the minimum threshold are combined into a single region within their respective CD.
- Like Hauer's model, projections are initially produced by 5-year age groups and 5-year time intervals but are subsequently transformed into projections by year of age and annual intervals. The transformation by year of age is carried out using the Beers method (Beers, 1945), which ensures that the sum of the projections by year of age equals the initial projections by 5-year age groups. The transformation into annual intervals is then performed using linear interpolation.

2. We also build on the R code developed by Hauer (2018).

3. This model corresponds to an autoregressive moving average model ARIMA (0, 1, 1).

4. Projections by province and territory are first produced by sex. They are then transformed into gender projections using ratios calculated from 2021 Census data. See Statistics Canada (2026b) for more details.

5. Territorial-level population estimates for Yukon and the Northwest Territories are produced by Statistics Canada, while census subdivision population estimates are respectively supplied by the Yukon Bureau of Statistics and the Northwest Territories Bureau of Statistics. Variations in total population estimates between both sources are due to methodological differences. CSD population projections for Yukon and the Northwest Territories are calibrated to the projections by CDs and subsequently adjusted for the methodological differences observed in the base year of the projections. This adjustment keeps the methodological differences by age and gender constant throughout the projection horizon.

Data Description

The use of an exponential smoothing model to estimate CCRs and CCDs is an improvement on the original Hamilton-Perry method. However, the method requires time series of CD and CSD population counts by gender and five-year age groups that are reliable and consistent over time. As CSD boundaries may change with each new census, it is necessary to reconstruct the boundaries of geographical entities according to a single classification. Here, CSD data have been reconstructed according to the 2021 Standard Geographical Classification (SGC) (Statistics Canada, 2022) in order to obtain historical series from 2001 to 2025.⁶ This process is sometimes imperfect, and historical breaks may remain in some cases. Moreover, it represents a relatively short reference period for the application of time-series models, which can result in less trend smoothing and more emphasis on recent trends.

The CSDs correspond to municipalities as defined by the laws in force in Canada's provinces and territories, and to areas considered equivalent for statistical purposes, such as Indian reserves, Indian settlements and unorganized territories. Postcensal population estimates for CSDs are derived from census counts, adjusted for net undercoverage, and from estimates of population growth that have occurred, as calculated using tax data (Statistics Canada, 2023). Intercensal estimates are based on postcensal estimates and adjusted census counts.

Validation

The Hamilton-Perry method generally gives results that are highly plausible within a short time horizon, and comparable to those obtained with the component method (Smith & Tayman, 2003). Applying the method to the projection of census tracts in the USA, Baker, Swanson, & Tayman (2021) note that the results are surprisingly good, and that most of the discrepancies between observed and projected values are due to a small number of outlier regions. They note that the many refinements made to the original method enable plausible projections to be made over a longer horizon, although the uncertainty of the projections increases greatly with time. Wilson & Grossman (2022) and Wilson et al. (2022) have shown that the combined use of CCR and CCD and calibration to independent projection results generally improves projection performance.

To further validate the method, we divided the historical data at provincial and territorial level into two distinct parts, one used to specify the model parameters and the other to validate the projection results. The choice of projecting provinces and territories was made to obtain fairly long historical series, and to be able to compare with previous projections made using the cohort-component model. The results of the cohort change model developed by Statistics Canada proved to be the best in comparison with other models such as the Hauer model and the original Hamilton-Perry model, demonstrating the added value of the modifications made. In particular, allowing the use of CCRs or CCDs independently by age group, gender and year results in more realistic age structures, which in turn improves the performance of the calibration process.

At the provincial and territorial level, the pre-calibration CSD projections yield results that may differ (sometimes significantly) from the short-term M1 medium-growth scenario of the projections produced using the cohort-component model (Statistics Canada, 2026a). However, these differences are to be expected, since the two models reflect projection assumptions that can differ greatly. While the component models incorporate assumptions specifically formulated for each component of population growth, the cohort change model underpins the simpler assumption of historical continuity of observed population growth.

The most recent Immigration Levels Plan released in November 2025 maintained the targets for the 2026–2028 period at levels very close to the previous plan (IRCC, 2025). Those immigration targets represent a break with recent trends, when record numbers of immigrants and non-permanent residents entered the country. The results of the cohort-component model projections reflect this downward revision of short-term immigration targets, while the results of the CSD projections reflect some continuity of recent immigration trends. As a desired consequence of the calibration process, the expected decline in immigration levels to the country, projected at the provincial and territorial level in the cohort-component projection model, is incorporated into the projections of the CSDs made with the cohort change model. Table 1 shows the differences between the aggregate CSD projections at the provincial/territorial level before calibration and the M1 scenario projections obtained using the cohort-component model published on January 27, 2026. Once the calibration has been carried out, the deviations are zero.

6. For the purposes of the projection, the years heavily affected by the immediate effects of the COVID-19 pandemic (2020, 2021 and 2022) have been imputed using linear interpolation. This minimizes the immediate effects of the pandemic over the entire projection period.

Table 1
Percentage deviations from projection scenario M1 results

Province and territory	2030	2035	2040	2045	2050
	percent				
Newfoundland and Labrador	2.5	4.2	5.9	7.3	8.6
Prince Edward Island	4.6	9.2	13.9	18.0	21.5
Nova Scotia	4.6	8.9	13.4	17.5	21.2
New Brunswick	3.6	6.5	9.4	11.9	14.0
Quebec	5.6	9.4	13.2	16.6	19.9
Ontario	6.4	10.0	13.1	15.6	17.6
Manitoba	4.8	7.5	9.7	11.5	13.0
Saskatchewan	2.7	4.1	4.9	5.4	5.8
Alberta	3.4	5.5	7.3	8.5	9.3
British Columbia	6.5	9.9	12.6	14.8	16.5
Yukon	3.1	6.8	10.0	12.7	15.0
Northwest Territories	-0.1	0.2	0.6	0.8	1.1
Nunavut	1.6	2.4	2.5	2.7	3.3

Note: These deviations are measured before the results are calibrated to those of scenario M1. Once this calibration has been carried out, the deviations are zero.

Source: Statistics Canada, Centre for Demography.

A total of 2,867 CSDs (representing 2.2% of the total population in 2025) were excluded due to small population sizes (Table 2). Outliers were initially identified in the CSD of Wabamun 133A. For this reason, the population projections for this CSD were calculated using the average CCRs and CCDs observed in the CSD over the period 2001-2025 (instead of an extrapolation obtained using a simple exponential smoothing model). Users are advised to use the population projections for the CSD of Wabamun 133A with caution. Moreover, it is important to note that despite an intensive validation process, it was not possible to analyze the results for each of the projected regions individually. A systematic and optimal evaluation of the results would require the involvement of local experts (Swanson, Schlottmann, & Schmidt, 2010), which is obviously not possible here.

Table 2
Number of projected census subdivisions by province and territory

Province and territory	Initial number	Excluded (less than 800 people)	Total projected number
	number		
Newfoundland and Labrador	372	280	92
Prince Edward Island	98	63	35
Nova Scotia	95	27	68
New Brunswick	266	84	182
Quebec	1,282	556	726
Ontario	577	204	373
Manitoba	239	87	152
Saskatchewan	951	800	151
Alberta	423	211	212
British Columbia	751	472	279
Yukon	35	30	5
Northwest Territories	41	34	7
Nunavut	31	19	12
Total	5,161	2,867	2,294

Source: Statistics Canada, Centre for Demography.

Data Limitations

All projection data is subject to considerable uncertainty, and their accuracy depends on a number of factors. Certain events—economic crises, wars, pandemics or natural disasters, for example—are difficult (if not impossible) to predict and may influence the growth and composition of the Canadian population. Population projections should never be interpreted as predictions of what the future holds. Rather, they should be understood as an exercise in examining what the Canadian population could become in the coming years, based on certain plausible scenarios.

These considerations are even more important in the context of the present projections, as uncertainty tends to grow inversely proportional to population size. While the various components of population growth are often characterized by a degree of inertia within large population groups, this is often not the case in sparsely populated areas such as CSDs. At this scale, factors such as the availability of land for new housing development, modifications in land zoning, local development objectives and the ability to adapt to demographic change can induce rapid fluctuations. In fact, the method largely assumes that future growth should be similar to that observed in the past, but this assumption does not hold in all circumstances. Furthermore, the quality of the observed data can also, in some cases, be a major limitation of the projections. This is particularly the case where regions have been split up or merged, and it has been necessary to reconcile the data in order to create a geography that is constant over time. Finally, the length of the available time series is another limiting factor. A longer series could enable a more robust forecasting of CCRs and CCDs.

Conclusion

The cohort change model projections meet important needs for planners at the community level. An important feature of this model is the possibility to produce new projections quickly as new provincial and territorial projections become available or following the annual update of the CSD population estimates. Frequent and timely updates are particularly relevant in a context of rapid demographic change. Another strength of the model is its broad coverage, since the projections cover almost 98% of the Canadian population. Moreover, for CSDs with populations too small to be projected independently, aggregations can be produced upon request to user specifications.

Although the results produced by the cohort change model do not incorporate assumptions specific to each CSD, they are useful benchmarks illustrating demographic trends. Users are free to alter the results as needed based on their own assumptions about factors that may constrain or promote future population growth in their community, particularly regarding land and housing supply.

References

- Baker, J., Swanson, D., & Tayman, J. (2021). [The Accuracy of Hamilton–Perry Population Projections for Census Tracts in the United States](#). *Population Research and Policy Review*, 40, 1341–1354. doi: <https://doi.org/10.1007/s11113-020-09601-y>
- Beers, H. (1945). Six-term formulas for routine actuarial interpolation. *The record of the American Institute of Actuaries*, 34(1), pp. 59-60.
- climatedata.ca. (2024) [Understanding Shared Socio-economic Pathways \(SSPs\)](#). Retrieved from Climate data for a resilient Canada : <https://climatedata.ca/resource/understanding-shared-socio-economic-pathways-ssps/>
- Dion, P., & Galbraith, N. (2015). [Back to the future: A review of forty years of population projections at Statistics Canada](#). *Canadian Studies in Population*, 42(1-2), 102-116. doi:<https://doi.org/10.25336/P69K6X>
- Hamilton, C. H., & Perry, J. (1962). [A Short Method for Projecting Population By Age from One Decennial Census to Another](#). *Social Forces*, 41(2), 163-170. doi:<https://doi.org/10.2307/2573607>
- Hauer, M. (2018). [Open Science Framework](#). doi:<https://doi.org/10.17605/osf.io/9ynfc>
- Hauer, M. (2019). [Population projections for U.S. counties by age, sex, and race controlled to shared socioeconomic pathway](#). *Scientific Data*, 6(190005). doi:<https://doi.org/10.1038/sdata.2019.5>
- Immigration, Refugees and Citizenship Canada. (2025). [Canada's immigration levels](#). Retrieved from <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/mandate/corporate-initiatives/levels.html>
- Morency, J.-D., Vézina, S., & Dion, P. (2025). [The Demosim microsimulation model at Statistics Canada: A tool for policy planning and evaluation](#). Statistics Canada. Retrieved from <https://www150.statcan.gc.ca/n1/pub/17-20-0001/172000012025001-eng.htm>
- Smith, S. K., & Tayman, J. (2003). An evaluation of population projections by age. *Demography*, 40, 741–757.
- Statistics Canada. (2022). [Standard Geographical Classification \(SGC\) 2021 - Volume I, The Classification](#). Retrieved from <https://www.statcan.gc.ca/en/subjects/standard/sgc/2021/index>
- Statistics Canada. (2023). [Annual Demographic Estimates: Subprovincial Areas, July 1, 2021 - Methodology](#). Retrieved from <https://www150.statcan.gc.ca/n1/pub/91-214-x/2022001/section03-eng.htm>
- Statistics Canada. (2026a). [Population Projections for Canada \(2025 to 2075\), Provinces and Territories \(2025 to 2050\)](#). Retrieved from <https://www150.statcan.gc.ca/n1/pub/17-20-0003/172000032026001-eng.htm>
- Statistics Canada. (2026b). [Population Projections for Canada \(2025 to 2075\), Provinces and Territories \(2025 to 2050\): Technical Report on Methodology and Assumptions](#). Retrieved from <https://www150.statcan.gc.ca/n1/pub/17-20-0003/172000032026002-eng.htm>
- Swanson, D. A., Schlottmann, A., & Schmidt, B. (2010). [Forecasting the Population of Census Tracts by Age and Sex: An Example of the Hamilton–Perry Method in Action](#). *Population Research and Policy Review*, 29, 47–63. doi:<https://doi.org/10.1007/s11113-009-9144-7>
- Tayman, J., & Swanson, D. A. (1996). [On the utility of population forecasts](#). *Demography*, 33(4), 523–528. doi: <https://doi.org/10.2307/2061785>
- Wilson, T. (2016). [Evaluation of Alternative Cohort-Component Models for Local Area Population Forecasts](#). *Population Research and Policy Review*, 35, 241–261. doi:<https://doi.org/10.1007/s11113-015-9380-y>

Wilson, T., & Grossman, I. (2022). [Evaluating Alternative Implementations of the Hamilton-Perry Model for Small Area Population Forecasts: the Case of Australia](https://doi.org/10.1007/s40980-021-00103-9). *Spatial Demography*, 10, 1–31. doi:https://doi.org/10.1007/s40980-021-00103-9

Wilson, T., & Rowe, F. (2011). The forecast accuracy of local government area population. *Australasian Journal of Regional Studies*, 17(2).

Wilson, T., Grossman, I., Alexander, M., Rees, P., & Temple, J. (2022). [Methods for Small Area Population Forecasts: State-of-the-Art and Research Needs](https://doi.org/10.1007/s11113-021-09671-6). *Population Research and Policy Review*, 41, 865-898. doi:https://doi.org/10.1007/s11113-021-09671-6