

NEIGHBOURHOOD
EQUITY INDEX



INDICE D'ÉQUITÉ ENTRE
LES QUARTIERS

OTTAWA NEIGHBOURHOOD EQUITY INDEX

2024 RENEWAL

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SOCIAL PLANNING COUNCIL OF OTTAWA

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of Ottawa



Le CONSEIL de
PLANIFICATION SOCIALE
d'Ottawa

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We acknowledge that the Ottawa Neighbourhood Equity Index (NEI) area of study is located on the traditional and unceded territory of the Algonquin nation. We honour the Anishinaabe Algonquin Peoples as rightful custodians and inheritors of the land encompassing the NEI communities.

The Social Planning Council of Ottawa is grateful for the support of the City of Ottawa Community and Social Services, Ottawa Police Service, and Ottawa Public Health for providing funding and data which in turn enabled the development of the Ottawa NEI 2024 renewal.

We would like to thank all contributing and consulting partners and the City of Ottawa for their work in fostering healthy and engaged communities by prioritizing an equitable approach to building access to social infrastructure for Ottawa communities.

The NEI team¹ is especially grateful for the expertise, guidance, and assistance of Vinh Nguyen, Cameron McDermaid, Cameron Hopgood, Deborah Lightman and Julia Keast throughout the project's development.

Preface

The Ottawa NEI 2024 renewal project was initiated in 2022 with sponsorship and support from the City of Ottawa.

The main goal of the project is to refresh the NEI tools and resources with current data, using the latest (2021) population census and renewed information from the City.

Additional objectives of the NEI renewal were recommended based on feedback received from multiple users of the NEI. After consulting with the City stakeholders, the following enhancements were added to the project plan:

- Improving the utility of the tool with respect to urban versus rural planning.
- Defining individually the accessibility measures for urban and rural areas.
- Creating new forms of presentation for NEI results.

The NEI neighbourhood names are now available in both official languages. The City of Ottawa Translation Team translated the names into French.

Rural and Urban Ottawa

The separate approach to rural and urban neighbourhoods allows areas with similar settings to be compared using appropriate sets of indicators reflecting in each case the uniqueness of the environment. This results in a more accurate interpretation of Ottawa neighbourhood equity indicators, domains and Indexes to depict the different challenges and opportunities the neighbourhood residents might be experiencing in rural and urban areas of Ottawa.

The City of Ottawa has two distinct areas, an urban area and an extensive rural area. Ottawa's rural area is approximately 222,300 hectares, accounting for close to 80% of the City's total land. About 10% of the City's population resides in rural areas. Nearly 40% of rural residents live in the City's 26 villages. Having a large rural area within its boundaries distinguishes Ottawa from all other major cities in Canada.

¹ The 2024 NEI updates result from the committed work of the data team at the Social Planning Council of Ottawa, with members Abdulahad Mian, Girma Urgeacha Kussa, Shivani Deshmukh, and Stefka Patchova.

Rural communities are smaller and further away from the services and amenities of the urban area, such as health care, social assistance, education, and employment. While services and amenities can be found in villages many differences remain and continue to affect the character of rural places. The unique characteristics of rural communities, the vast distances and widely separated population centres demand distinct tactics for service delivery and community development¹.

The original Ottawa Neighbourhood Equity Index (2019) applies equally to urban and rural parts of the city. During the NEI development, it became apparent that inequalities in urban and rural areas are of a different nature. For instance, in urban areas, income and education emerge as important factors whereas in rural areas, accessibility to services and time spent commuting have greater impact. These tendencies manifested in the divergent results of the 2019 NEI economic and environmental measures from the standpoint of rural versus urban regions. It was evident that rural zones exhibited a lower performance in the domain of the physical environment and accessibility to services. Conversely, urban neighborhoods revealed below average performance in metrics related to socioeconomic status, health, housing turnover, and public safety. Subsequently, creating a composite index characterizing both urban and rural parts of Ottawa proved to be a primary challenge in the original NEI development.

For the reasons described above, members of the working groups² and later users of the NE Index recommended developing distinct frameworks for urban and rural areas in the next iterations of the Ottawa NEI.

These recommendations are considered in the NEI 2024 renewal. The NEI 2024 renewal approach is modified to include individual methods in analyzing the statistics and developing the overall equity index for urban and rural neighbourhoods. Urban and rural areas data are analyzed in separate processes and the results are specific to the respective part of the City. The City of Ottawa [Urban Boundary](#) updated in May 2024 is used to categorize areas as urban or rural. It should be noted that the Urban Boundary does not perfectly align with the shapes of the NEI areas. For areas close to the urban boundary, we used the population count of smaller areas nested in the neighbourhoods (dissemination areas and blocks) to assess which side (urban or rural) the largest portion of the population resides.

Urban and rural areas are most accurately separated for indicators of proximity to amenities and services (Childcare, Meeting spaces, Green areas). These indicators use point location data classified by the GIS analysis as urban or rural based on the point position alongside the urban boundary.

Data and Content Notes

The findings in this project are based on the most recent data available for each NEI indicator. All indicator data is prepared and presented for the NEI neighbourhoods, using the boundaries of the 2021 Statistics Canada census tracts. Data reported at 2016 Census tracks that did not exist in 2021 were associated with 2021 tracts using a spatially generated correspondence file.

Key data sources include The City of Ottawa, Ottawa Public Health, and Ottawa Police Services. The Statistics Canada 2021 Census of Population and T1 family files data were accessed via the Ottawa and Region Data Consortium for Community Data Program. Detailed data source information is provided in Table 1. pg. 8-12 and Appendix A. pg. 28-50.

² The development of the NEI was significantly influenced by the guidance and critical information provided by a Technical Advisory Working Group that included community developers, policy makers, and experts in fields relevant to the five central themes of the NEI.

This report is a continuation of the original [2019 Ottawa Neighbourhood Equity Index Project Report](#). It spotlights the data updates and tool enhancements of the 2024 NEI renewal. For more on the background and development details of the Neighbourhood Equity Index please refer to the [2019 NEI Project Report](#).

Background

The Ottawa Neighbourhood Equity Index (NEI) was introduced in November 2019 at www.neighbourhoodequity.ca. NEI is a product of the expertise and commitment of a number of stakeholders and non-profit organizations. The framework of the Ottawa NEI was adopted following a broad consultation process with multiple community and data oriented agencies and key city stakeholders³. The NEI tools and resources are developed by the Social Planning Council of Ottawa with the support and guidance from the United Way of Eastern Ontario and the City of Ottawa.

In a growing region like Ottawa, incorporating social equity into regional growth planning is critical to ensuring that our region moves forward in an equitable and inclusive manner. The NEI study goal is to identify how social equity factors can better inform regional growth planning.

Geography is at the heart of the growing opportunity gap. Some neighbourhoods are falling behind because they do not offer equitable access to the range of opportunities that enable communities to thrive. In these neighbourhoods, there are significant social, economic and physical barriers that keep people from coming together to address issues of common concern. There are fewer spaces for people to gather, learn, and build their networks. There are fewer services with limited capacity to respond to ever changing community needs.

Social equity manifests itself differently based on our environments. Where we live can have a positive or negative impact on the life prospects of children and youth and the quality of life and health of all residents.

The Neighbourhood Equity Index scores access to the resources and conditions required to live a life free from preventable illness and limited life chances. Social and economic factors that contribute to health are known as the social determinants of health. Health equity is influenced by the interplay between the systematic and unfair socio-economic disadvantages that impact individuals, groups and communities including lack of education and employment opportunities, poverty, and limited access to stable housing and healthy food^{ii iii}.

More information about the NEI is available at www.neighbourhoodequity.ca and in the [NEI Technical Report, 2019](#).

³ Consultations were conducted with: City of Ottawa Community Support Services, Ottawa Public Health, Ottawa Police Services/ Crime Prevention Ottawa, City of Ottawa Economic Development and Planning, Ottawa Public Library, City of Ottawa Recreation/Culture, City of Ottawa Transportation Development, Ottawa Carleton District School Board, Champlain LHIN, Ottawa Child and Youth Initiative, City for all Women Initiative (CAWI), Ottawa Community Foundation, United Way Ottawa, Ottawa Neighbourhood Study, Ottawa Local Immigration Partnership, Somerset West Community Health Centre, Southeast Ottawa Community Health Centre, Nepean, Rideau & Osgoode Community Resource Centre. Input was provided by the Civic Engagement Table of Making Voices Count and the Women's Advisory Committee of Women Reducing Poverty Together facilitated and summarized by CAWI.

How NEI is used.

It should be noted that the enclosed list of NEI applications is compiled to the best of our knowledge. The information provided below comes from various sources. In 2022 we conducted a survey about NEI applications and experiences with a small group of NEI users. In addition, some NEI users have reached out with questions and feedback based on their experience. Others have requested additional data at the neighbourhood level in support of a service or a program. In some cases, our knowledge is based on a publication referring to NEI or on conversations with our partners.

- ✓ United Way uses NEI to make allocation decisions to invest where resources are needed the most. Based on this experience, UWEO is proposing to extend the NEI regionwide to rural Eastern Townships.
- ✓ NEI is used at different City of Ottawa departments to inform planning and decision making. As example:
 - NEI is a tool for the Community Funding Framework Sustainability Fund.
 - Integrated Neighbourhood Services Team with the City of Ottawa - used NEI and a high level profile of each of the priority neighbourhoods to inform priorities based on assets and barriers.
 - Crime Prevention Ottawa – with additional analysis on the assets and barriers in the neighbourhoods with higher crime rates.
 - The updating of the City Official Plan.
 - City Transportation planning.
 - NEI data was used along with GIS to improve bike parking infrastructure in the City.
 - To explore how to use NEI to apply an Equity Diversity and Inclusion lens to asset management planning.
 - To determine what percentage of neighbourhoods are accessible to artists and cultural workers in Ottawa based on average incomes for those occupations.
 - To better understand which neighbourhoods do or do not have access to community meeting spaces to try to determine where to potentially locate in-person collaboration sessions for an upcoming creative industries research project.
 - Designing and running the City's Better Homes Ottawa Loan Program, which provides low/no interest loans to homeowners to take on home energy retrofits.
- ✓ NEI was used to address pressing issues and provide insight into a number of initiatives during COVID-19. To support the response to COVID-19, NEI added new data analysis and visualizations providing information about the most vulnerable populations and neighbourhoods inequitably impacted by the pandemic.
 - Digital Inclusion: a citywide collaborative initiative aiming to improve digital equity with increased connectivity, access to devices, digital literacy, and capacity to provide services digitally. NEI outcome along with other indicators was used to help in the process of identifying the most appropriate Wi-Fi hub locations by recognizing the vulnerable neighbourhoods where residents are in greater need of affordable internet access.
 - Meals on Wheels used NEI outcomes in combination with additional data on populations they serve (seniors, Francophone, with disabilities) provided and analyzed by the SPC data team.

- Helping With Furniture used NEI outcomes in combination with additional data on the new immigrant population residing in NEI neighbourhoods provided and analyzed by the SPC data team.
 - Ottawa’s National Capital Freenet and other partners developed digital equity mapping and an advocacy strategy making a successful case for the development of a free Community Wi-Fi Network.
 - NEI was used by Youth Leadership for Change to create compelling evidence of the divide in income, employment and opportunities for racialized youth in Ottawa neighbourhoods.
- ✓ There has been interest in the Ottawa NEI from other jurisdictions. We shared our experience developing the NEI and knowledge of its application with colleagues from Calgary, Halifax, Montreal, Vancouver and Toronto.

Methodology of the NEI 2024 update⁴

Scope of work and the geographical unit of analysis

The Neighbourhood Equity Index is a small area/place-based analysis designed to be used within the municipal boundaries of the City of Ottawa. At the time the 2021 Census data was collected, the City of Ottawa had a population of 1,017,449 residents and a rural population that is just over 100,000 residents. In 2024 the population of Ottawa reached 1,094,340 people. It is projected that Ottawa will number close to 1,410,000 residents by 2046⁵.

The NEI 2024 renewal project uses Statistics Canada 2021 census tracts as a unit of analysis. Census Tracts (CTs) offer relatively high local granularity in combination with reliable and easily accessible data. As standard Statistics Canada geography for data dissemination, they also provide standardization⁶ of population size. For this reason, and reflecting the differences in population density, the area size of Ottawa CTs decreases in the direction of the downtown and increases towards the rural areas.

218 census tracts are within the municipal boundaries of Ottawa. 202 of them are in the urban parts of the City, comprising the urban core, suburban and green belt areas. 16 of Ottawa CTs cover the rural areas.

NEI 2024 framework of domains and indicators

The Ottawa Neighbourhood Equity Index framework follows the World Health Organization Urban HEART (Health Equity Assessment and Response Tool)^{iv} model. The Urban HEART methodology comes from research on the Social Determinants of Health Equity.

In Ottawa, the framework was adjusted to reflect the uniqueness of the local context^v. The final set of Ottawa NEI domains and indicators was created after consultations with stakeholders, community serving organizations and partners. The framework was carefully developed by the efforts of a steering committee and multiple focus groups. The envisioned role of the Ottawa NEI is to facilitate neighbourhood-driven interventions, planning, and evaluation on the grounds of

⁴ *The NEI renewal 2024 methodology closely follows the original NEI development, described in detail in the [NEI Project Report, 2019](#).*

⁵ City of Ottawa, Statistics and Demographics. Accessed at <https://ottawa.ca/en/living-ottawa/statistics-and-demographics#>

⁶ *Census tracts are standard Statistics Canada geography for data dissemination that have a population of less than 10,000 persons, ranging between 2,500 and 10,000, with a preferred average of 5,000.*

reducing local inequity. The selected indicators contribute to the identification of vulnerable neighbourhoods from an equity perspective.

The Neighbourhood Equity Index (NEI) works in tandem with various data approaches and complements existing social and health initiatives to aid in understanding and addressing inequity in Ottawa.

NEI 2024 Domains (5) & Indicators (27)⁷

Economic Opportunity Domain

- ✓ Employment income
- ✓ Working part time
- ✓ Working poor
- ✓ Housing affordability-Renters
- ✓ Housing affordability-Owners
- ✓ Low income

Physical Environment Domain

- ✓ Community places for meetings
- ✓ Usable green space
- ✓ Walkability score
- ✓ Transit score
- ✓ Bike score
- ✓ Commute time
- ✓ Availability of rental housing

Health Domain

- ✓ Diabetes related health service
- ✓ Mental health
- ✓ Falls among seniors

Social and Human Development Domain

- ✓ Childcare capacity and proximity
- ✓ Early Childhood Development
- ✓ Secondary education
- ✓ Postsecondary completion
- ✓ Non-participation in the labour force

Community and Belonging Domain

- ✓ Seniors living alone
- ✓ Mobility status
- ✓ Crime against the person
- ✓ Hate crime
- ✓ Crime against the property
- ✓ Pedestrian and Cyclist collisions

The NEI 2024 renewal could not update the following indicators from the original, 2019 NEI framework for the following reasons:

- ✓ **Number of Local Jobs:** Number of Jobs per 1,000 people aged 15 and over. We thank the Economic Development and Long Range Planning Department for providing the data from the City of Ottawa 2021 Employment Survey to the project team and for describing in detail the reasons for their strong recommendation to not use the 2021 Employment Survey statistics in the NEI updates, which we followed. We hope to be able to provide NEI users with the 2023 Employment Survey data once released.
- ✓ **Financial Assets:** Percentage of families with calculated gross financial assets. The 'Calculated financial assets for family units' statistical program has been discontinued by Statistics Canada. The latest year the dataset can be requested is 2016.

⁷ A detailed description of all 2024 indicator measures and source of data can be found in Appendix A.

- ✓ Consumer Debt: Average nonmortgage consumer debt. The Community Data Program is not expected to receive updates on these data from TransUnion. The latest year the dataset is available is 2019.

Two new indicators are added to the NEI 2024 renewal added:

- ✓ Bike score indicator is added to the Physical environment domain.
- ✓ Hate crime indicator is added to the Community and belonging domain.

New data sources are used for three of the indicators in the NEI 2024 renewal project:

The new data sources for the Low income and Employment income indicators are selected to reduce the temporary effect of COVID-19 pandemic relief programs on the population's economic status.

- ✓ Low income: data are sourced from the T1FF Table I-13 - Individual data - After-tax low income status of tax filers and dependents (census family low income measure, CFLIM-AT), Statistics Canada, Income Statistics Division, T1 Family Files 2021, and accessed at Community Data Program. The new data source replaces the previously used “Prevalence of low income based on the Low-Income measure After tax” data from the Canadian census profile.
- ✓ Employment income: data are sourced from the T1FF Table I-10 - Individual data - Labour income profile of individuals, Statistics Canada, Income Statistics Division, T1 Family Files 2021, and accessed at Community Data Program. The new data source replaces the previously used “Median employment income among recipients” data from the Canadian census profile.
- ✓ Crime data: data for the three indicators - Crime against Person, Crime against Property and Hate Crime at census tracts (CTs) - are provided by the Ottawa Police Service and the [Ottawa Police Service Open Data Portal](#). In the 2019 NEI, the crime data indicators were using Ottawa Police Service (OPS) statistics for Ottawa Neighbourhood Study (ONS) neighbourhoods, specifically “The number of offence counts in each ONS neighbourhood”. The NEI census tracts were assigned a crime rate based on the best positional match between the CTs and ONS areas. In the 2024 NEI, the OPS data is provided for the census tracts, which improves the accuracy of NEI crime indicators.

Changes to accessibility indicators

Different criteria were used for urban and rural parts of Ottawa in the processing of accessibility indicators:

<i>Indicator</i>	<i>Urban</i>	<i>Rural</i>
<i>Proximity to Childcare</i>	1.5 km	5 km
<i>Community Places for Meetings</i>	1.5 km	5 km
<i>Usable Green Space</i>	Buffer = 1 km	Buffer = 3 km

Table 1. NEI 2024 Indicators and Data source

Indicator	Indicator Measure	Data Source	Data Provider
Economic Opportunity Domain			
Low Income	Percentage of people living below the low income measure after tax (CFLIM-AT), 2021 T1FF	T1FF Table I-13 - Individual data - After-tax low income status of tax filers and dependents (census family low income measure, CFLIM-AT) for couple and lone parent families by family composition, 2021	Statistics Canada, Income Statistics Division, T1 Family Files 2021, accessed at Community Data Program
Working Poor	Percentage of working poor population age 18 to 64	Working Poor is a custom table prepared by Statistics Canada at the request of the Community Data Program (CDP) and available exclusively at CDP.	Statistics Canada, Income Statistics Division, T1 Family Files 2022, accessed at Community Data Program.
Employment Income	Median employment income, 2021 T1FF	T1FF Table I-10 - Individual data - Labour income profile of individuals, 2021	Statistics Canada, Income Statistics Division, T1 Family Files 2021, accessed at Community Data Program.
Working Part-Time	Percentage of working part year and/or part time. Includes persons aged 15 years and over in the labour force who have worked at some point in time between January 1, 2020 and May 8, 2021.	2021 Census of population	Statistics Canada accessed at Community Data Program

Indicator	Indicator Measure	Data Source	Data Provider
Housing Affordability- Renters	Percentage of renter households spending more than 30% of income on housing. Shelter-cost-to-income ratio. Refers to the proportion of average total income of household which is spent on shelter costs. Shelter-cost-to-income ratio is calculated for private households who reported a total household income greater than zero.	2021 Census of population	Statistics Canada accessed at Community Data Program
Housing Affordability- Owners	Percentage of owner households spending more than 30% of income on housing. Shelter-cost-to-income ratio. Refers to the proportion of average total income of household which is spent on shelter costs. Shelter-cost-to-income ratio is calculated for private households who reported a total household income greater than zero.	2021 Census of population	Statistics Canada accessed at Community Data Program

Social and Human Development Domain

Proximity to Childcare	The average capacity of childcare services accessible in 1.5 km (urban) or 5 km (rural) road distance per child (age 0 to 5)	Community and Social Services at the City of Ottawa for the childcare centres data. 2021 Census of population for the population numbers of children aged 0 to 5.	City of Ottawa Statistics Canada
Early Childhood Development (EDI)	Percentage of children vulnerable in one or more areas of their development. EDI cycle 5, 2018, Ottawa.	Community and Social Services at the City of Ottawa. https://edi.offordcentre.com/	City of Ottawa
Secondary Education	Percentage of population aged 20 to 24 with no certificate, diploma or degree. Includes people who don't have a high (secondary) school diploma or equivalency certificate.	2021 Census of population	Statistics Canada accessed at Community Data Program.

Indicator	Indicator Measure	Data Source	Data Provider
Post Secondary Completion	Percentage of population aged 25 to 29 with postsecondary certificate, diploma or degree. All Postsecondary education levels - below bachelor, bachelor's degree, and higher - are included.	2021 Census of population	Statistics Canada accessed at Community Data Program.
Not Participating in the Labour Force	Percentage of the population aged 25 to 54 not participating in the labour force. Refers to whether a person aged 25 to 54 was not in the labour force during the week of Sunday, May 2 to Saturday, May 8, 2021.	2021 Census of population	Statistics Canada accessed at Community Data Program.

Physical Environment Domain

Walkability Score	The Walk Score from WalkScore.com measures the walkability of an area, defined as the walking distance to key amenities including but not limited to grocery stores, schools, parks, restaurants, and retail. Scores range from 0 (least walkable) to 100 (most walkable)	Walkscore.com	Walk Score®
Transit Score	The transit score from WalkScore.com measures transit availability and the “usefulness” of transit routes which captures the distance to the nearest stop, transit frequency, and type of route. Scores range from 0 (no access to transit) to 100 (excellent access to transit)	Walkscore.com	Walk Score®
Bike Score	The Bike score from WalkScore.com measures bike accessibility on a scale from 0 - 100 based on bike infrastructure (lanes, trails), topography (hills), destinations and road connectivity, and the number of bike commuters.	Walkscore.com	Walk Score®

Indicator	Indicator Measure	Data Source	Data Provider
Usable Green Space	Green space (usable green space) is the average amount of green space per 1 square kilometre (urban) or 3 square kilometres (urban).	City of Ottawa (Parks and greenspace), NCC (Paths, Capital park, Capital urban greenspace), OpenStreetMap	Open data (city Ottawa and other)
Community Places for Meetings	Average number of meeting places accessible in 1.5 km (urban) or 5 km (rural) road distance	City of Ottawa Open Data; Open Street Map	Open data (city Ottawa and other)
Commute Time over 45 minutes	Percentage of individuals commuting for 45 minutes and over. Includes the employed labour force aged 15 years and over in private households with a usual place of work or no fixed workplace address.	2021 Census of population	Statistics Canada via Community Data Program
Availability of Rental Housing	Percentage of dwellings that are not owned. The percentage of the renter households out of the total private households by tenure.	2021 Census of population	Statistics Canada via Community Data Program

Health Domain

Diabetes Related Health Service	Percentage of people aged 20 and over with diabetes related health service. Measures the number of individuals per 100 population (percent) with a diabetes related health service in 2020 and 2021 among Ottawa residents aged 20 and older.	OPH, years 2020-2021	Ottawa Public Health
Mental Health	Mental health/addictions conditions visit prevalence. Measures the number of all-ages ED visits of Ottawa residents with mental health or substance use diagnoses per 100,000 population per year from 2017 to 2021.	OPH, years 2017-2021	Ottawa Public Health

Indicator	Indicator Measure	Data Source	Data Provider
Falls among Seniors	Rate of ED visits due to falls among seniors aged 60 and over. Counts are of ED visits of Ottawa residents aged 60 and older with a discharge admission as inpatient for falls per 100,000 population per year from 2014 to 2021.	OPH, years 2014-2021	Ottawa Public Health

Community and Belonging Domain

Mobility Status	Percentage of the population who moved from one residence to another in the last 5 years.	2021 Census of population	Statistics Canada accessed at Community Data Program
Seniors Living Alone	Percentage of seniors, 65 and older who live alone. Includes persons not in census families in private households. in a private household.	2021 Census of population	Statistics Canada accessed at Community Data Program
Crime against the Property	Rate of crimes against the property per 1,000 people. Includes crime incident data from 2019 to March 2024.	OPS, years 2019-2024	Ottawa Police Service Open Data
Hate crime	Hate crime rates per 1,000 people. Includes crime incident data from 2019 to February 2024.	OPS, years 2019-2024	Ottawa Police Service Open Data
Crime against the Person	Rate of crimes against the person per 1,000 people. Includes crime incident data from 2019 to March 2024.	OPS, years 2019-2024	Ottawa Police Service Open Data
Pedestrian and Cyclist Collisions	Number of collisions involving pedestrians and cyclists. Includes collision data from 2019 to March 2024.	City of Ottawa Open Data, years 2019-2024	Open data City of Ottawa

Neighbourhood Equity Index: Urban and Rural Composite Index development

The main steps in the Index development process are as in the original 2019 NEI. The same method to standardize the indicators – the scope-range transformation⁸ - is used to locate each value in relation to the overall range of the variable. Standardizing data to a common range and consistent direction to equity facilitates the process of comparing and aggregating NEI indicators.

The change in the 2024 NEI renewal is separating the data for urban and rural neighbourhoods at the beginning of the project implementation. Urban and rural areas data are processed individually. The same statistical procedures are followed for benchmarking and normalizing data; however, they are performed separately for the urban and rural datasets. The results are specific to the respective part of the city⁹.

The **composite equity index** frameworks for urban and rural neighbourhoods include different indicators. Also different are the methods used to determine the indicator weights.

Urban Neighbourhood Equity Index

The Urban Neighbourhood Equity Index is a weighted composite of 19 (out of all 27) NEI indicators. We analyzed these indicators' data across all 202 Statistics Canada Census Tracts (2021) that NEI categorizes as urban.

Indicator weights for the Urban NEI are derived using the Principal Component Analysis (PCA)¹⁰. The results of the principal components analysis of the nineteen variables, using data from the tracts, are presented in Table 1.

PCA is one of the most used exploratory data reduction procedures used in the social sciences. It is a statistical method that creates optimized linear combinations of variables. In the Urban NEI, Principal Component Analysis with Varimax Rotation is applied as a data extraction method. The goal of rotation is to simplify and clarify the data structure. Varimax is an orthogonal rotation that produces uncorrelated, more easily interpreted components.

More decisions need to be made when conducting a PCA. One is about the sample size – the number of observations (in our case neighbourhoods) concerning the number of variables (indicators). The optimal sample size is discussed by many researchers^{vii viii}. Even though the recommendations about the number of cases per variable vary across studies, the common conclusion is that if a sample is too small, the analysis outcome could be less reliable. In Urban NEI, the ratio of selected indicators number (19) to the number of cases (202) is within the reliability standards for sample size.

Another decision point is the number of extracted components. In Urban NEI, this is based on eigenvalues greater than 1. The five retained components fit the criteria for a sufficient total amount of variance extracted (79.7%).

Additional considerations were applied when choosing the combination of indicators and setting the PCA parameters for the Urban NE Index. We chose indicators based on their variability, assessed by

⁸ A linear transformation on the original data to a range (0, 1). The formulas used are: $(v - min) / (max - min)$, where 'v' is each of the data values. For indicators with an opposite relationship such as Educational Attainment the opposite formula: $(max - v) / (max - min)$ is used.

⁹ A flowchart illustrating the process for Urban and Rural Neighbourhood Equity Index development is available in Appendix B.

¹⁰ PCA and other statistical analysis are performed using Jamovi: *The jamovi project (2024)*. jamovi (Version 2.5) [Computer Software]. Retrieved from <https://www.jamovi.org>

the strength of factor loadings, communality (variance explained by the model), and the indicator's individual MSA (measure of sampling adequacy). The number of cross-loadings and the grouping of indicators from different NEI domains into the PCA loadings were also carefully explored before deciding on the 19-indicator model for the Urban NEI (Table 1).

Table 2. PCA Component Matrix

Indicator	PCA Component loadings and interpreted dimensions				
	Component 1 -Socio-Economic Dimension	Component 2 - Community& Belonging / Crime Dimension	Component 3 - Physical Environment Dimension	Component 4 - Health Dimension	Component 5 - Housing and Mobility
Employment Income	0.889	0.055	-0.075	0.118	0.059
Not Participating in the Labour Force	0.886	0.029	-0.048	-0.014	0.073
Working Poor	0.797	0.178	-0.277	0.070	0.410
Low Income	0.708	0.317	-0.322	0.113	0.398
**Post Secondary Completion	0.704	-0.072	0.208	-0.067	-0.386
Secondary Education	0.649	-0.043	0.015	0.031	0.153
Early Childhood Development (EDI)	0.607	0.065	-0.429	0.190	-0.073
Crime Against the Person	0.148	0.905	-0.149	0.099	0.084
Crime Against the Property	0.022	0.871	-0.221	0.169	0.182
Hate crime	-0.109	0.791	-0.220	0.361	0.211
Pedestrian and Cyclist Collisions	0.078	0.591	-0.392	0.044	0.166
**Bike Score	-0.060	-0.191	0.920	-0.021	-0.065
**Walkability Score	-0.151	-0.232	0.863	-0.012	-0.110
**Transit Score	-0.005	-0.320	0.835	-0.048	-0.248
Falls among Seniors	-0.001	0.215	-0.059	0.940	0.105
Mental Health	0.030	0.238	-0.135	0.921	0.115
Diabetes Related Health Service	0.511	0.016	0.193	0.672	0.100
Mobility Status	0.111	0.215	-0.176	0.091	0.873
Housing Affordability-Owners	0.279	0.338	-0.129	0.270	0.690
Total Variance (SS Loadings)	4.42	3.16	3.08	2.51	1.97
% of Variance	23.2	16.6	16.2	13.2	10.4
Cumulative % of Variance	23.2	39.9	56.1	69.3	79.7

Extraction Method: Principal Component Analysis with Varimax Rotation. The number of extracted Components is based on Eigenvalues greater than 1. Factor loadings >0.4 are preserved.

The cumulative variance in all cases is >79%, considered an acceptable percent of the total variation.

*** Standardized indicator data is reverse-coded to ensure consistent scale directionality (higher values = higher inequity).*

The PCA loadings can be interpreted as correlation measures between the individual indicators within each factor. The 19 indicators model for the Urban NEI shows reasonably high associations of indicators within the five components. The components tend to group indicators of similar NEI domains organizing them around different dimensions of equity.

The **first component** represents the socio-economic dimension of the data. The Economic Opportunity and Social and Human Development domain indicators show noticeably higher factor loadings in this component. This component describes neighbourhoods with a lower employment income, participation in the labour force, educational attainment level, and higher incidence of low-income and working poor. The diabetes indicator is also strongly represented here. It is well known that diabetes prevalence is linked to low socio-economic status and is highest among people in lower income groups living in poor conditions.

The **second component** speaks to community and belonging, particularly the crime and road accident characteristics of the domain. This factor describes neighbourhoods with high rates of personal, property and hate crime, as well as road collisions injuring pedestrians or cyclists.

In the **third component**, the physical environment indicators have the highest loading coefficients. This factor describes areas where walkable access to amenities, employment, and recreation is limited, and the existing infrastructure is more challenging for using active or public transportation.

The **fourth factor** is a measure of population health. The Health domain indicators show higher factor loadings in this component. This factor describes areas with a higher concentration of residents facing health related challenges.

Two indicators show high loadings in the **fifth component** – mobility and housing unaffordability for owners. This factor relates to new development neighbourhoods where a higher number of people move in and out of the community. At the same time larger portion of house owners is faced with elevated shelter costs.

Based on these factor results, weights for each of the 19 indicators are derived using the factor loadings greater than 0.4 (Table. 1) for each indicator and the variance explained by each of the five retained factors. The weight for each indicator is a product of the factor score and the variance explained by the factor: *Indicator Weight = Factor Score x Variance*.

Higher factor loadings result in a heavier weighting of indicators. Lesser factor loadings result in a lighter weighting of indicators.

PCA results show that each of the 19 indicators weighs differently in the Ottawa Urban Neighbourhood Equity Index, Table 2. For example, the Low-Income indicator provides 6.0% of the overall picture of neighbourhood equity, while Crime against the Property adds 5.3% to the overall index.

The domain weights show how the Urban NEI is composed based on the five subject areas represented by each domain. The greatest weight/contribution in the composite index is from the indicators of the Social and Human Development, Economic Opportunity and Community and Belonging domains, followed by the Health and Physical Environment domains.

The contribution of domains and indicators playing part in the composite index are shown in Table 2.

Table 3. Urban NEI Indicator and Domain Weights

Indicator	Weight (%)	Domain	Domain Weight (%)
Employment Income	7.1	Economic Opportunity	23.2
Working Poor	7.9		
Low Income	5.7		
Housing Affordability-Owners	2.5		
Early Childhood Development (EDI)	7.3	Social and Human Development	25.3
Not Participating in the Labour Force	7.1		
Post Secondary Completion	5.7		
Secondary Education	5.2		
Bike Score	5.1	Physical Environment	14.6
Walkability Score	4.8		
Transit Score	4.7		
Diabetes-Related Health Service	7.2	Health	15.7
Falls among Seniors	4.3		
Mental Health	4.2		
Crime Against the Person	5.2	Community and Belonging	21.2
Crime Against the Property	5.0		
Hate crime	4.5		
Pedestrian and Cyclist Collisions	3.4		
Mobility Status	3.1		
Sum of weights	100		100

Rural Neighbourhood Equity Index

Ottawa NEI categorizes sixteen neighbourhoods as rural. Rural areas of Ottawa encompass large territories with low population density and large distances to urban centres. Interpreting the NEI rural data separately respects the unique environment of the rural regions and highlights the distinctive strengths and challenges that rural residents are experiencing.

The Rural NE Index is a weighted composite of 18 (out of all 27) NEI indicators. Several criteria are used to select the indicators for the rural NEI.

- ✓ Less missing values in the dataset, e.g., “The Falls among Seniors” indicator is excluded because 32% of data in the rural areas is suppressed or missing.
- ✓ Indicators with higher loadings in the Exploratory Factor Analysis.
- ✓ Indicators with higher variability in the dataset, that differentiate between rural areas better.
- ✓ Indicators most relevant to the rural environment and way of living, identifying the aspects that best contribute to the interpretation of these areas. Part of these considerations is limiting the number of indicators from the Physical Environment domain.

Indicator weights for the Rural NEI are determined using the **Pairwise Comparison method**. The Principal Component Analysis method could not be used in this case for the following reasons.

- ✓ The minimum sample size recommendations can not be met with only 16 cases (neighbourhoods) for 27 variables (indicators). The suggested ratio is from 3:1 to 20:1 cases

per variable. The general conclusion of researchers is that a small sample could lead to less reliable outcomes of factor analysis.

- ✓ The assumption checks, particularly the KMO measure of sampling adequacy¹¹ outcomes are considered unacceptable (less than 0.5)^{ix}.
- ✓ We ran a PCA for rural areas with various combinations of indicators and found that to fit all assumption checks the number of indicators in the composite index needs to be reduced to 10 or less.

For these reasons, a different method to determine the weights of rural NEI indicators is used – the Pairwise Comparison. Pairwise Comparison comes from the Analytic Hierarchy Process (AHP)¹², a well-known decision-making framework developed by Thomas L. Saaty (1980)^x.

Pairwise Comparison is the process of comparing a set of options measuring them against each other in pairs - two alternatives at a time - deciding which one is higher ranked or if they are equally ranked. Also known as “pairwise ranking”, it is a popular research method used for informing strategic decisions and prioritizing different elements of a project.

The method allows focusing on the comparison of only two criteria at a time. It involves a series of evaluations where a priority is given to one indicator relative to another. For n alternatives, there are: $n(n-1)/2$ evaluations.

The process uses a comparison matrix. Two criteria are evaluated at a time in terms of their relative importance using a scale with values from 1 to 9 (Table 4.). If indicator A is exactly as important as indicator B, this pair receives an index of 1. If A is much more important than B, the index is 9. All gradations are possible in between. For a "less important" relationship, the fractions 1/1 to 1/9 are applied.

Table 4. Pairwise Comparison Indexing Scale

Definition	Index
Equally important	1
Equally or slightly more important	2
Slightly more important	3
Slightly to much more important	4
Much more important	5
Much- to far more important	6
Far more important	7
Far more important to extremely more important	8
Extremely more important	9

For the Rural Equity Index, all possible pairs of the 18 indicators are pairwise compared and pairwise ranked against each other and their overall contribution is prioritized by the NEI team.

¹¹ KMO measures the sampling adequacy of each observed variables in the model as well as the complete model. KMO is calculated based on the correlation between the variables.

¹² The AHP is a basic approach to decision making. It is designed to cope with both the rational and the intuitive to select the best from a number of alternatives evaluated with respect to several criteria. A pairwise comparison judgments are used to develop overall priorities for ranking the alternatives.

To set the relative indicator priorities we followed similar criteria as in selecting the set of 18 indicators for the Rural NEI (pg.16). Even though all efforts are made to use consistent, data-informed weighting criteria, the pairwise comparison method allows subjectivity in appointing priorities. It would be preferable for this process to have the input of a wider group of colleagues and partners from various Ottawa organizations in future iterations of the NE Index.

An 18 x 18 matrix (153 evaluations) is the outcome of the pairwise comparison of 18 NEI indicators, Table 7. Each indicator weight is then calculated using a normalized geometric mean¹³ method.

The domain weights show how the Rural NEI is composed based on the five areas of equity. The greatest weight/contribution in the composite index is from the indicators of the Economic Opportunity, Social and Human Development and Community and Belonging domains, followed by the Health and Physical Environment domains. The contribution of domains and indicators playing part in the composite index are shown in Table 5.

Table 5. Rural NEI Indicator and Domain Weights

Indicator	Weight (%)	Domain	Domain Weight (%)
Low Income	12.8	Economic Opportunity	35.1
Working Poor	10.8		
Housing Affordability-Owners	6.6		
Employment Income	4.8		
Secondary Education	5.5	Social and Human Development	23.7
Early Childhood Development (EDI)	5.4		
Post Secondary Completion	5.1		
Proximity to Childcare	3.8		
Not Participating in the Labour Force	3.8	Physical Environment	6.7
Community Places for Meetings	3.6		
Commute Time	3.1	Health	13.2
Diabetes Related Health Service	7.0		
Mental Health	6.2	Community and Belonging	21.3
Hate crime	4.8		
Crime against the Property	4.8		
Seniors Living Alone	4.2		
Crime against the Person	3.8		
Mobility Status	3.7		
Sum of weights	100		100

¹³ The geometric mean is calculated as the Nth root of the product of all values, where N is the number of values. The method is considered more accurate than arithmetic mean in cases when there is a lot of variation or outliers in the data.

Table 6. Pairwise Comparison Matrix: Relative importance of indicators in the Rural NEI

RURAL NEI	Crime against the Person	Crime against the Property	Hate crime	Mobility Status	Seniors Living Alone	Employment Income	Housing Affordability-Owners	Low Income	Working Poor	Diabetes Related Health Service	Mental Health	Community Places for Meetings	Commute Time	Secondary Education	Post Secondary Completion	Not Participating in the Labour Force	Early Childhood Development (EDI)	Proximity to Childcare
Crime against the Person	1.00	0.50	1.00	2.00	1.00	2.00	0.50	0.33	0.50	0.50	0.50	1.00	1.00	0.50	0.50	2.00	0.50	0.50
Crime against the Property	2.00	1.00	2.00	1.00	1.00	2.00	0.33	0.33	0.33	0.50	0.50	2.00	2.00	1.00	1.00	2.00	0.50	1.00
Hate crime	1.00	0.50	1.00	1.00	2.00	2.00	2.00	0.33	0.50	0.50	0.50	1.00	1.00	1.00	1.00	2.00	1.00	1.00
Mobility Status	0.50	1.00	1.00	1.00	1.00	1.00	0.50	0.33	0.50	0.50	0.50	2.00	2.00	0.50	0.50	1.00	0.50	0.50
Seniors Living Alone	1.00	1.00	0.50	1.00	1.00	1.00	0.50	0.33	1.00	0.50	0.50	1.00	2.00	0.50	0.50	2.00	1.00	1.00
Employment Income	0.50	0.50	0.50	1.00	1.00	1.00	1.00	0.33	0.50	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00
Housing Affordability-Owners	2.00	3.03	0.50	2.00	2.00	1.00	1.00	0.50	0.50	1.00	1.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00
Low Income	3.03	3.03	3.03	3.03	3.03	3.03	2.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Working Poor	2.00	3.03	2.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
Diabetes Related Health Service	2.00	2.00	2.00	2.00	2.00	1.00	1.00	0.50	0.50	1.00	1.00	2.00	2.00	2.00	2.00	1.00	1.00	2.00
Mental Health	2.00	2.00	2.00	2.00	2.00	1.00	1.00	0.50	0.50	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00
Community Places for Meetings	1.00	0.50	1.00	0.50	1.00	1.00	0.50	0.33	0.50	0.50	0.50	1.00	2.00	0.50	0.50	2.00	0.50	0.50
Commute Time	1.00	0.50	1.00	0.50	0.50	0.50	0.50	0.33	0.33	0.50	0.50	0.50	1.00	0.50	0.50	1.00	1.00	1.00
Secondary Education	2.00	1.00	1.00	2.00	2.00	0.50	0.50	0.33	0.33	0.50	1.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00
Post Secondary Completion	2.00	1.00	1.00	2.00	2.00	0.50	0.50	0.33	0.33	0.50	1.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00
Not Participating in the Labour Force	0.50	0.50	0.50	1.00	0.50	1.00	1.00	0.33	0.33	1.00	1.00	0.50	1.00	0.50	1.00	1.00	1.00	2.00
Early Childhood Development (EDI)	2.00	2.00	1.00	2.00	1.00	1.00	1.00	0.33	0.33	1.00	1.00	2.00	1.00	0.50	1.00	1.00	1.00	3.00
Proximity to Childcare	2.00	1.00	1.00	2.00	1.00	0.50	0.50	0.33	0.33	0.50	1.00	2.00	1.00	0.50	0.50	0.50	0.33	1.00

Domain Scores

To provide additional tools for identifying the unique needs of rural and urban communities the Ottawa Neighbourhood Equity Index offers individually analyzed and categorized data of 27 indicators. In addition, the indicators within each of the five NEI domains are aggregated into a **domain score**. All these metrics provide more flexibility for recognizing the unique needs of communities within the city. The domain scores and individual indicators outcome can be also used to explore a particular subject of interest.

The **domain scores** summarize the thematic concepts represented by the five domains of equity. They are based on the average of the standardized indicator rates. All indicators of a domain are used, and no weights are applied to indicators in this process.

The domain scores and the overall NE Index score complement each other by characterizing Ottawa neighbourhoods from various perspectives. It should be noted that the domain scores do not add up to the index score because of the different approaches in index and domain score computations.

NEI uses the quartiles¹⁴ of the overall index score and domain scores to define the four categories of the Ottawa NEI and domains.

Data challenges

One of the challenges during the data processing is that of missing values. The proportion of census tracts with missing data is different for each of the indicators. The approach of substituting the missing data is dictated by the specificity of each data set. Generally, the missing data is substituted with the dataset mean. In some cases, missing data is imputed with data from a higher geography level. It is important to note that data processing at the level of some indicators (e.g., Early Childhood Development) required imputation for reasons of privacy (e.g. low count at a CT level) and/or reporting requirements.

Lastly, the low populated, part of the Greenbelt area forming the CT 5050140.01 is entirely excluded from the data analysis. As a result, the Neighbourhood Equity Index Indicators and Index Score are not available for this census tract.

Detailed considerations and data source for each indicator of the NEI can be found in Appendix A.

¹⁴ To find the quartiles of a data set the data is first ordered from least to greatest. The first (lowest) quartile is the lowest 25% of the data. The second quartile includes the data from the 25 percentile to the median, and so on.

Data Visualization

The Ottawa Neighbourhood Equity Index uses a four-colour scale: Red, Yellow, Light Green, and Green to indicate the level of success across Ottawa neighbourhoods.

The four categories in the Ottawa NEI are as follows:

For Indicators

- ✓ **Red:** Below the benchmark
- ✓ **Yellow:** Meets the benchmark
- ✓ **Light green:** Better than average
- ✓ **Green:** Exceeds the average

For composite Domain and Index Scores

- ✓ **Red:** Strong equity concern
- ✓ **Yellow:** Possible equity concern
- ✓ **Light green:** Nominal equity concern
- ✓ **Green:** No equity concern

To visually differentiate rural from urban area outcomes on maps and charts, four new colours are introduced: Rural red, Rural yellow, Rural light green and Rural green.

The NEI Interactive Online **Mapping Tool** presents the outcomes of NEI in several maps.

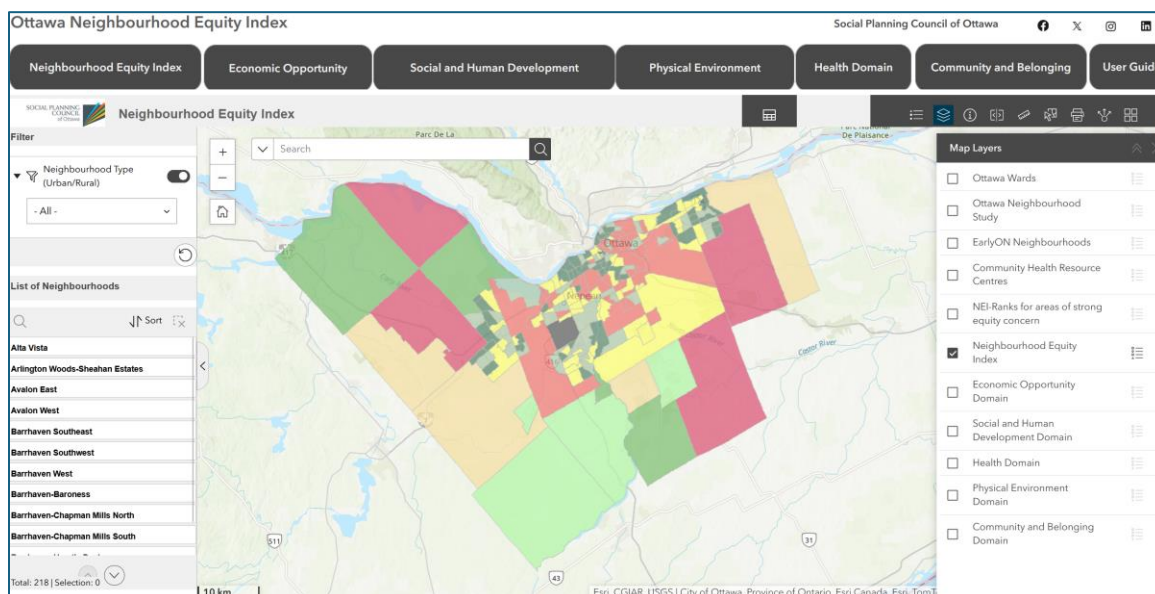
The first map visualizes the NEI composite Index, providing an opportunity to explore contrasting levels of inequity across Ottawa neighbourhoods. Layers of composite domain scores are also part of this map, offering an amplified representation of the domain theme.

The 27 indicators data are organized in five maps according to the NEI domains. Each thematic domain component is a map of Ottawa with individual data layers of all domain indicators and the overall domain score. Data layers represent indicator rate distribution at a neighbourhood level using the boundaries of 2021 Statistics Canada Census Tracts (219 Census Tract areas).

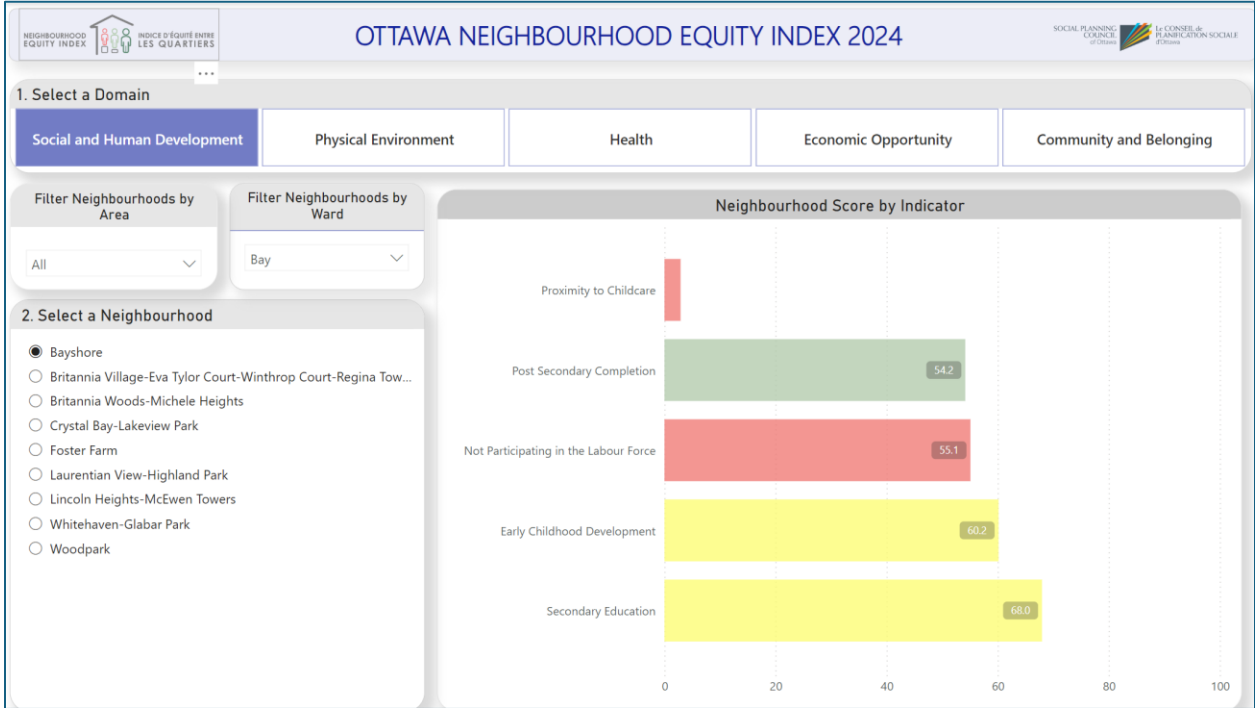
A set of filters allows a user to find and zoom to an area or neighbourhood of interest.

Boundaries of four custom Ottawa geographies (Electoral Wards, Ottawa Neighbourhood Study, Early ON, and Community Health and Resource Centres catchment areas) are available to users for location search or as a boundary outline on the maps.

A User Guide with basic map navigation instructions is provided on a separate tab of the [NEI Mapping Tool](#).



The NEI Interactive Online **Power BI Dashboards** are a new addition to visualization tools. Using an interactive approach the dashboards present multiple views of the data and various ways to explore the NEI outcomes. A User Guide comes with the NEI Power BI Report illustrating key features and providing examples and suggestions for effective use of the dashboards.



Matrix Charts (Appendix C)

The performance of neighbourhoods against their respective NEI indicators is plotted on a colour-coded Matrix.

The Ottawa Index Matrix reports the indicator rate or score for each census tract neighbourhood. The data on the NEI Matrix are sorted by the type of area (Urban or Rural) and the overall Neighbourhood Equity **Index Score**. The Ottawa **Urban** Index Score ranges from 44.2 (greatest number of inequities) to 88.2, while the Ottawa **Rural** Index Score ranges from 38.1 to 64.4.

In addition, the Matrix displays the data range and the Ottawa rate for each indicator. The total count across all indicators of Reds, Yellows, Light Greens, and Greens for each neighbourhood is also presented on the Matrix.

Results

The Ottawa Neighbourhood Equity Index tools provide results for urban and rural Ottawa neighbourhoods separately. Adopting distinct methodologies for rural and urban neighborhoods facilitates the comparison of like environments through tailored indicators that capture the distinct characteristics of each setting. Consequently, this enhances the precision of the Ottawa neighborhood equity indicators, domains, and indexes, providing a clearer representation of the varying challenges and prospects faced by residents in Ottawa's rural and urban communities.

The NEI neighbourhoods are characterized by the outcomes of the 1) overall equity index score, 2) the 27 individual indicator rates and 3) the five equity domain scores. These results add various perspectives to the portrait of Ottawa neighbourhoods.

The overall neighbourhood equity index ranks the urban and rural neighbourhoods from areas with strong equity concern to areas with no equity concern.

In addition, the NEI presents the rate or score of each census tract by the 27 indicators. Neighbourhoods are categorized by each indicator using benchmarks or cut-off points (below or above) at which Ottawa neighbourhoods are likely to experience the greatest or fewest number of inequities.

The domain scores summarize the thematic concepts represented by the five domains of equity.

The Urban NEI score ranges from 44.2 (the worst outcome) to 88.2 (the best outcome). The 202 urban neighbourhoods are ranked starting with the lowest score representing most inequitable areas in the urban parts of Ottawa. The top 10 neighbourhoods with the lowest NEI score are listed in Table 7.

Table 7. Top 20 neighbourhoods with the lowest (most inequitable) NEI score

NEI Name	Nom NEI	Score
University of Ottawa	Université d'Ottawa	44.2
Heron Gate	Heron Gate	45.0
Carlington-Bellevue-Lepage-Caldwell	Carlington-Bellevue-Lepage-Caldwell	52.2
Overbrook-The Four Corners-Queen Mary Court	Overbrook-Quatre Coins-rue Queen Mary	52.4
Vanier-McArthur Ave	Vanier-avenue McArthur	52.9
Heatherington-Fairlea	Heatherington-Fairlea	53.6
Sandy Hill-Strathcona Heights	Côte de Sable-Strathcona Heights	54.4
Emerald Woods-Sawmill Creek	Emerald Woods-ruisseau Sawmill	55.5
Vanier-Parkway-Kingsview Park	Vanier-Parkway-parc Kingsview	56.3
Cummings-Cyrville	Cummings-Cyrville	56.4
Hawthorn Meadows-Confederation Court	Hawthorn Meadows-Confederation Court	56.4
Britannia Woods-Michele Heights	Britannia Woods-Michele Heights	57.6
Hunt Club West-Ashgrove-Shearwater Court	West Hunt Club-Ashgrove-Shearwater Court	57.8
Beacon Hill South	Beacon Hill-Sud	58.0
Lowertown-Beausoleil Dr	Basse Ville-promenade Beausoleil	59.7
Skyline-Fisher Heights	Skyline-Fisher Heights	60.1
Morrison Gardens	Morrison Gardens	60.7
Byward Market	Marché By	61.3
Vanier-Montreal Rd	Vanier-chemin de Montréal	61.5
Forbes	Forbes	61.7

A full list of neighbourhoods and their performance in all indicators, domains and the overall index is available in **Appendix C**.

The Rural Index, based on 18 indicators, differentiates rural areas well. The NEI Score ranges from 38.1 (the worst outcome) to 64.4 (the best outcome). Table 6 lists the 16 rural neighbourhoods, with the lowest score representing the most inequitable areas in the rural parts of Ottawa.

Table 8. Rural Ottawa Neighbourhoods ranked by the NEI.

NEI Name	Nom NEI	NEI Score
Navan-Vars	Navan-Vars	38.1
Carp	Carp	40.2
Metcalfe-Edwards-Vernon	Metcalfe-Edwards-Vernon	40.9
Constance Bay-Dunrobin	Constance Bay-Dunrobin	44.1
Cumberland-Sarsfield	Cumberland-Sarsfield	44.4
Manotick Station	Manotick Station	48.9
Goulbourn	Goulbourn	49.1
Corkery	Corkery	51.4
Greely	Greely	51.5
Marlborough	Marlborough	51.8
Richmond Village	Village de Richmond	54.8
North Gover-Kars	North Gower-Kars	56.8
Manotick-Long Island	Manotick-Long Island	58.6
Kinburn-Galetta-Fitzroy	Kinburn-Galetta-Fitzroy	58.9
Osgoode	Osgoode	59.3
South March	South March	64.4

Findings and considerations for each of the 27 NEI indicators can be found in **Appendix A**.

Verification

The Ottawa Neighbourhood Equity Index (NEI) score is compared to data from social statistics not in the NEI set of indicators. All variables used in the verification were considered key equity markers during consultations and the framework selection process. The overall Index score is expected to have a comparable outcome with multiple social indicators not included in the index. A strong to moderate association is observed between the NEI score and measures of Median after-tax income and Core housing need (Table 8.). Among reviewed population indicators, the correlation between the Index and the population of One-parent families is most pronounced, followed by the correlation with the New Immigrant population (who arrived between 2016 and 2021).

Table 9. Correlation between the Neighbourhood Equity Index and other social indicators

Indicator	Correlation ¹
Median after-tax income in 2020 among recipients (\$)	0.609
Households in Core Housing Need (%)	0.477
One-parent families (%)	0.445
New Immigrant population (%)	0.415
Unemployment Rate (%)	0.404
Visible minority population (%)	0.326

¹ Pearson Correlation coefficient

Table 9. shows the percentage of census tract neighbourhoods with the most inequitable outcome on a range of social indicators and at the same time below the Neighbourhood Equity Index Red Benchmark. The numbers demonstrate a strong special correlation between the Index and these indicators. The closest similarities are with the Material Resources and Households and Dwellings dimensions of the Ontario Marginalization Index 2021¹⁵, Median after-tax income, Core housing need and One-parent family indicators¹⁶.

Table 10. Comparison of the Neighbourhood Equity Index results to the outcome of other social indicators. Percentage of CT neighbourhoods in which NEI indicates strong equity concern.

Indicator	Urban NEI neighbourhoods	All NEI neighbourhoods
CT in the 4 th and 5 th quintiles of ON-MARG Households and Dwellings dimension (highest marginalization), 2021	82%	76%
CT in the 4 th and 5 th quintiles of ON-MARG Material Resources dimension (highest marginalization), 2021	82%	74%
CT in the 4 th 5 th quintiles of ON-MARG Racialized and Newcomer populations (highest marginalization), 2021	52%	46%
50 CTs with the lowest Median after-tax income in 2020	78%	72%
50 CTs with the highest percentage of One-parent families	76%	68%
50 CTs with the highest percentage of Households in Core Housing Need	66%	62%
50 CTs with the highest Unemployment rate , 2020	64%	58%

Limitations

One of the limitations of developing a single index score using a place-based analysis is the necessary simplification of complex realities experienced by different groups residing within the same area that for the purpose of the Index come together in the form of a uniform metric. This can obscure differences within neighbourhoods that will not be captured at the index level. For instance, a neighbourhood can appear ‘Green’ at the level of the NEI score giving the impression that no resident experiences inequities along income, health, education or any other dimension of access and wellbeing. This portrayal can be misleading partly because the majority of residents in the neighbourhood are doing well and the experience of a minority of residents is obscured in the averaging and aggregating process of the index.

This limitations are especially true in the rural and greenbelt parts of Ottawa where census tracts are geographically vast areas and include multiple distinct communities. Rural census tracts encompass people who reside in small population centres as well as people living outside of these villages. The place-based analysis does not distinguish between these populations which subsequently simplifies the complexities of their experiences.

¹⁵ Centre for Urban Solutions at St. Michael’s Hospital and Public Health Ontario.

<https://www.publichealthontario.ca/en/data-and-analysis/health-equity/ontario-marginalization-index>

¹⁶ Statistics Canada, 2021 Census of Population, accessed via the Community Data Consortium

Despite its limitations, and in the absence of individual socioeconomic data on relevant variables, area measures such as the NEI may be extremely useful for monitoring disparities in equity and for identifying communities that could be targeted for programs to improve access to services or infrastructure development and specific interventions to improve the overall quality of life and welfare.

The impact of COVID-19 on public health measures and the benefits of CERB.

In 2020, the outbreak of COVID-19 and the corresponding public health measures and pandemic relief programs brought significant changes to the Canadian labour market and income landscape.

Fewer Canadian adults received employment income in 2020 than in 2019 or earned less than they had earned before. Workers from diverse population groups were disproportionately impacted, most hurt were women, lower-income earners, racialized^{xi} and older workers.

Over two-thirds of Canadian adults received income from one or more of the federal, provincial or territorial emergency response programs. For many, benefits from COVID-19 income support programs offset losses in employment income. The share of Canadians receiving benefits and median amounts differed by gender, age group and income level. Canadians with lower to middle incomes were more likely to receive benefits from pandemic relief programs, compared with those with higher incomes. Women, young workers and seniors received the highest amounts of benefits^{xii}.

Driven mostly by higher government transfers in pandemic-related benefits, the low-income rate recorded its largest decline from 2015 to 2020. This was the biggest reduction of any five-year period since 1976^{xiii}.

The impact of COVID-19 public health measures and the benefits from CERB was significant however temporary. Since 2021 the economic situation has changed. New economic and interrelated social challenges emerge. Housing affordability deteriorates as debt levels rise. Inflation and price increases continue to outpace wage growth and the cost of living pressures, around food and shelter, remain elevated. Financial stress builds as rising prices weigh on family budgets making it difficult to meet basic needs^{xiv}.

The 2021 census data was collected in May 2020 during the first phase of the COVID-19 pandemic, when the federal government was distributing the Canada Emergency Response Benefit (CERB). Therefore, the income, labour and partly housing census statistics reflect the unique and transient circumstances experienced during the COVID-19 pandemic. For instance, the higher median employment income reported in 2020 (2021 census) reflects both the disappearance of lower-earning jobs and the higher government transfers for COVID-19 income support. Similarly, the significant decline in income inequality and low income rates recorded by the 2021 census is mostly driven by the high support levels from the various CERB replacement programs.

To mitigate the effect of COVID-19 on NEI indicators based on income data, alternative sources of data – T1 Family Files 2021 - are used for the Low income and Employment income indicators.

However, housing affordability indicators of the NEI Economic opportunity domain remain based on 2021 census statistics. At the point in time that the census was collected, the incomes of households were drastically improved. Since then, there has been a dramatic increase in housing, food and all basic needs expenses. Thus, when evaluating the NEI housing indicators it should be considered that there could be a significant undercount of housing unaffordability^{xv}.

In addition, a few other indicators - labour force participation, time commuting, and part time work – use the 2021 census data that could have been influenced by the pandemic circumstances and should be interpreted with caution.

Additional considerations

Many NEI indicators play a role in more than one dimension of equity. For example, no access to affordable, local childcare would also limit the ability of both parents to work for pay, thus decreasing their chances to access good employment and affecting the overall economic outlook for the family. In addition to child development and well-being, affordable and accessible childcare can improve women's equality and employment, family-work balance, social integration and equal opportunity, and economic prosperity.

As widely acknowledged, low income has a detrimental effect on all aspects of wellbeing. An example of low income impact on health is the strong correlation between the high numbers of mental health and substance use visits to the emergency department in the poorest (by median after tax income) neighbourhoods. Low income youth, in particular, could have more barriers to higher education, have poorer mental health, and be more vulnerable and at risk of involvement in delinquency.

The effect of the built environment could be felt stronger in rural parts of the city, as compared to urban areas. For example, youths living in car-dependent areas have limited options for accessing jobs. Isolated seniors living in these areas could have fewer public services available to them or must wait longer for needed support. Limited options for high-speed internet connection in rural areas could affect the opportunity for remote employment, online learning, and overall access to essential information.

It is important to point out that inequities are not universal across race, gender, and age. For example, youth from the ages 15 to 24, women, immigrants, people with disabilities, LGBTQ+, Indigenous and racialized people are at greater risk of living and working in undesirable environments, experiencing insecure housing, and poorer mental health than other groups in society.

Appendix A: Indicator Composition and Considerations

For all NEI indicators, data have been analyzed separately for rural and urban neighbourhoods, using the corresponding rural or urban datasets descriptive statistics (mean, range, max, min, standard deviation, etc.).

Indicators of the Economic Opportunity Domain

1. Low income Indicator: Percentage of people living below the low income measure after tax

Data Source: Statistics Canada, Income Statistics Division, T1 Family Files 2021, T1FF Table I-13 - Individual data - After-tax low income status of tax filers and dependents (census family low income measure, CFLIM-AT¹⁷) for couple and lone parent families by family composition. Accessed at [Community Data Program](#).

Data Vintage: The data are taken from tax records and are the current data from tax returns filed for the year noted on the tables. For example, 2021 income records are taken from 2021 tax returns filed in the spring of 2022, with data released during the summer of 2023. Data are released on an annual basis (Statistics Canada, 2023).

Definitions: The Census Family Low Income Measure (CFLIM) is a relative measure of low income. It represents a fixed percentage (50%) of adjusted median census family income, where adjusted indicates a consideration of family needs. The Census Family Low Income Measure (CFLIM-AT) is based on the updated in 2018 methodology for the census family low income measures^{xvi}. Included in table I-13 are number of persons in low-income and the percentage of persons in low income according to CFLIM-AT. When calculating the CFLIM thresholds, the adjustment factor applied to the family after-tax income reflects the precept that family needs increase with census family size. A person is considered to be in low income when their adjusted family income after-tax is below the CFLIM-AT threshold associated with their census family size (Statistics Canada, 2023). The main difference between the Low Income Measure calculated by the Census of Population and the T1 Family File is that the census calculates LIM using household income while the T1 Family File uses census family income^{xvii}.

Indicator Preparation: The low income indicator uses the percentage of persons in low income according to the Census Family Low Income Measure (CFLIM-AT), 2021^{xviii} at census tract level. The reference period is the **2021 calendar year**.

Missing data: CT 5050200.01 (Marlborough) – income data is not available for this rural census tract. It is substituted with the rural dataset mean.

¹⁷ Statistics Canada Technical Reference Guide for the Annual Income Estimates for Census Families, Individuals and Seniors, T1 Family File, Final Estimates, 2021. Pg 52

Overall findings

In Ottawa, 132,570 people making up 13.4% of the total population were living below the CFLIM-AT poverty line. Across Ottawa census tract neighbourhoods, the Low income rate ranged between 4.0% and 44.8%.

- **Urban** overall rate is 14.3% ranging from 4.0% in Chapel Hill North (Orleans Soth-Navan) to 44.8% in Sandy Hill-Strathcona Heights.
- **Rural** overall rate is 6.9% ranging from 5.5% in Kinburn-Galetta-Fitzroy to 10.6% in Carp.

Based on the analysis of the after tax low income distribution, the selected cut-off for this indicator is the Rate Ratio. The Rate Ratio benchmark includes the highest number of disadvantaged neighbourhoods in the 'red' category, in both urban and rural areas if compared to other possible cut-off measures.

2. Employment Income Indicator: Median employment income

Data Source: Statistics Canada, Income Statistics Division, T1 Family Files 2021, T1FF Table I-10 - Individual data - Labour income profile of individuals, 2021. Accessed at [Community Data Program](#).

Data Vintage: The data are taken from tax records and are the current data from tax returns filed for the year noted on the tables. For example, 2021 income records are taken from 2021 tax returns filed in the spring of 2022, with data released during the summer of 2023. Data are released on an annual basis (Statistics Canada, 2023).

Definitions: Employment income - The total reported employment income. Employment income includes wages and salaries, commissions from employment, training allowances, tips and gratuities, net self-employment income (net income from business, profession, farming, fishing and commissions) and Tax Exempted Employment Income for Status Indians¹⁸.

Median income - The median is the middle number in a group of numbers. Where a median income, for example, is given as \$26,000, it means that exactly half of the incomes reported are greater than or equal to \$26,000 and that the other half are less than or equal to the median amount. Median incomes in the data tables are rounded to the nearest hundred dollars and starting with 2007 to the nearest ten dollars¹⁹.

Indicator Preparation: The Median Employment Income indicator uses the median employment income in 2021 among recipients' data at a census tract level.

¹⁸ Statistics Canada Technical Reference Guide for the Annual Income Estimates for Census Families, Individuals and Seniors, T1 Family File, Final Estimates, 2021. Pg 49

¹⁹ Statistics Canada Technical Reference Guide for the Annual Income Estimates for Census Families, Individuals and Seniors, T1 Family File, Final Estimates, 2021. Pg 53

Missing data: CT 5050200.01 (Marlborough) – income data is not available for this rural census tract. It is substituted with the rural dataset mean.

Overall findings: In 2021, 561,760 people received employment income in Ottawa. The median employment income among all recipients was \$ 52,190. Across Ottawa census tract neighbourhoods, the median employment income ranged from \$21,870 to \$84,720.

- **Urban** overall employment income is \$52,887 ranging from \$21,870 in Sandy Hill-Strathcona Heights to \$ 84,720 in LeBreton Flats neighbourhood.
- **Rural** overall employment income is \$58,411 ranging from \$48,310 in Kinburn-Galetta-Fitzroy to \$71,040 in South March neighbourhood.

Population Quintiles were used as a cut-off measure for this indicator. The 20th Percentile with the highest proportion of population having low employment income was at \$43,160 in urban and \$55,040 in rural areas, encompassing respectfully 44 and 4 census tract neighbourhoods into the ‘red’ category.

3. Working Poor Indicator: The percentage of the working population aged 18 to 64 with an after-tax income below the Low Income Measure (LIM AT) and earning an annual individual working income of over \$3,000

Data Source: Statistics Canada, Income Statistics Division, T1 Family Files 2022. Working Poor is a custom table prepared by Statistics Canada at the request of the [Community Data Program \(CDP\)](#) and available exclusively at the CDP.

Definition: Working poverty is defined as individuals with an after-tax income below the Low Income Measure (LIM AT) and earning an annual individual working income of over \$3,000.

Indicator Preparation and Composition: The *Population aged 18-64* does not include individuals in a census family who had post-secondary education (PSE) tuition fees (they could be any age; they could be part-time or full-time PSE); children regardless of age and parents who are less than 18 years of age are excluded. The indicator is the **Percentage of Working Poor aged 18-64** and is comprised of a ratio made up of individuals identified as working poor (count data) as the numerator and the total population count excluding the abovementioned population as the denominator.

Missing data: CT 5050200.01 (Marlborough) – income data is not available for this rural census tract. It is substituted with the rural dataset mean.

Overall findings: Across Ottawa census tract (CT) neighbourhoods, the percentage of working poor individuals ranges from 14.7% to 0%. The average proportion of working poor individuals in Ottawa is 5.2%.

- **Urban** overall rate is 5.4% ranging from 0.0% to 14.7% in Sandy Hill-Strathcona Heights and Heron Gate neighbourhoods.

- **Rural** overall rate is 2.3% ranging from 0.0% in Kinburn-Galetta-Fitzroy to 6.5% in Cumberland-Sarsfield.

The selected cut-off for this indicator is the Population Quintiles. Population Quintiles captures the extremes of the distribution well - that is the neighbourhoods with the lowest and highest proportions of individuals in working poverty.

4. Working Part Time Indicator: Percentage of the working population 15 years or over who worked part year and/or part time

Data Source: Statistics Canada, 2021 Census of population.

Data Vintage and Definition: Percentage of working part year and/or part time. Includes persons aged 15 years and over in the labour force who have worked at some point in time between January 1, 2020, and May 8, 2021.

Indicator Preparation and Composition: The proportion of part-time workers is calculated at a census tract level as the percentage of the total population who worked part year and/or part time out of the total population 15 years or over who worked during the reference year.

Overall findings: It should be noted that the data does not speak to whether part-time work is a matter of choice or inevitability.

In Ottawa, 27.3% of the working population aged 15 and over worked part year and/or part time. Across Ottawa census tract neighbourhoods, the proportion of part-time workers ranged between 18.7% and 43.4%.

- **Urban** overall rate is 27.2% ranging from 18.7% in Riverside Gate to 43.4% in Sandy Hill-King Edward Ave neighbourhood.
- **Rural** overall rate is 26.6% ranging from 24.4% to 29.7%.

Based on the analysis of the distribution of the indicator data, the selected cut-off for this indicator is the Population Quintiles. Population Quintiles as a cut-off measure capture census tracts in which over 30% of the population worked part-time.

5. Housing Affordability – Renters: the percentage of tenant households spending 30% or more of its income on shelter cost

Data Source: Statistics Canada, 2021 Census of Population

Original Data: The data for this indicator is included in the census profile as a percentage of tenant households spending 30% or more of its income on shelter costs inside Total - Tenant households in non-farm, non-reserve private dwellings.

6. Housing Affordability – Owners: the percentage of owner households spending 30% or more of its income on shelter cost

Data Source: Statistics Canada, 2021 Census of Population

Original Data: The data for this indicator is part of the census profile as a percentage of owner households spending 30% or more of its income on shelter costs inside Total - Owner households in non-farm, non-reserve private dwellings.

Definitions:

Tenure - refers to whether the household owns or rents their private dwelling. A household is considered to rent their dwelling if no member of the household owns the dwelling. A household is considered to own their dwelling if some member of the household owns the dwelling even if it is not fully paid for, for example, if there is a mortgage or some other claim on it (Statistics Canada, 2021).

Shelter-cost-to-income ratio - Refers to the proportion of the average total income of a household which is spent on shelter costs. The shelter-cost-to-income ratio is calculated by dividing the average monthly shelter costs by the average monthly total household income and multiplying the result by 100. The shelter-cost-to-income ratio is calculated for private households who reported a total household income greater than zero. (Statistics Canada, 2021).

Overall findings for Housing Affordability Indicators:

According to Statistics Canada’s 2021 Census data, there were 147,030 tenant households and 260,220 owner households (36.1% and 63.9%, respectively) in the City of Ottawa in 2021.

Among tenant households, the share of households spending 30% or more of their income on shelter costs is 35.1% (ranging from zero to 71.4%). Among owner households, the respective value is 11.7% (ranging from zero to 42.9%).

- **Urban** overall rate is 33.9 % for renters and 12.7% for owners. Most unaffordable for renters are the neighbourhoods in Stittsville and for owners - Heron Gate and University of Ottawa neighbourhoods.
- **Rural** overall rate is 29.2% for renters and 9.7% for owners. Most unaffordable for renters are the neighbourhoods in Manotick and for owners – Constance Bay-Dunrobin and Goulbourn neighbourhoods.

At the time 2021 census data was collected, the incomes of many households were considerably improved thanks to the CERB supplements. As mentioned earlier (Pg. 26), there has been a dramatic increase in housing, food and all basic needs expenses since 2021. This should be taken into account when interpreting the unaffordability rate in NEI housing indicators.

Standard deviation is set as a cut-off measure for the Housing Affordability – Tenants indicator. The Standard deviation cut-off marks the lowest number (15) of ‘green’ (aspirational) neighbourhoods in urban areas and captures in the ‘red’ category the where over 44% of renters spend 30% or more on shelter.

In the case of owner households, the distribution is substantially skewed towards a lesser financial burden of shelter costs on household income in urban neighbourhoods. Rate Ratio became a cut-off measure to mark the greatest number (73) of the 'green' (aspirational) neighbourhoods. A higher ownership rate in rural neighbourhoods and lesser availability of properties to rent amplify the value of this indicator. Therefore, only one of the rural neighbourhoods is classified as 'green' for owning affordability.

Indicators of the Social and Human Development Domain

7. Proximity to Childcare Indicator: Average number of childcare spaces per child (age 0 to 5) reachable in 1.5 km for urban and 5 km for rural areas.

Data Source:

Community and Social Services at the City of Ottawa for the childcare centres data. 2021 Census of population for the population numbers of children aged 0 to 5.

Original Data: The original childcare centres and capacity data were available for the following age groups: Infant (under 18 months); Toddler (18 to 29 months); Preschool (30 to 47 months); Kindergarten (4 to 5 years); School Age (6 to 12 years).

Two types of childcare – Centre and Home childcare – are indicated in the original file received from the City.

The location of the childcare is provided in a 6-digit postal code format.

In the NEI childcare indicator, the combined number of spaces for infants, toddlers, preschool and kindergarten children (all within the age of 0 to 5) is used. Both types of childcare (home and centre) are included.

Indicator Preparation: The Indicator is intended as a measure of proximity (accessibility) and capacity of childcare while accounting for the population of children 0 to 5 in the neighbourhood at the same time.

The following steps are used in the process of indicator preparation:

- 1) Create 1.5 km for urban and 5 km for rural service areas. The service areas (road network buffers) originate from the populated dissemination block centroids (2021 census). The service areas were created within ArcGIS Pro using a road network from Open Street Map (OSM).
- 2) Geographically code the locations of childcare services using the postal code conversion file.
- 3) Using Geographic Information Systems (GIS) analysis, identify the number of childcare locations and their capacity within each of the service areas.
- 4) The results of the GIS analysis were then rolled up to a census tract level.
- 5) The average number of spaces per child within each CT is computed using the total number of children aged 0 to 5 in the CT: $\# \text{childcare spaces in CT} / \text{Number of children aged 0 to 5 in CT}$

This indicator should be interpreted with caution for the following reasons:

- 1) The indicator does not measure the actual availability of childcare services.
- 2) For Home childcare the space is not age specific like it is in a Centre childcare. The statistics are for the total number of spaces the Home childcare provides. This means each space is not necessarily available to a child aged 0 to 5.
- 3) Childcare spaces reachable from a certain census tract are also within reach from other, neighbouring census tracts.

Overall findings: Across Ottawa census tracts, the average number of childcare spaces reachable in 1.5 or 5 km ranges from 0 to 269 per child aged 0 to 5.

Rural and some suburban neighbourhoods are characterized by the lowest number of spaces, while the higher numbers were observed in the densely populated urban areas.

- **Urban** overall number of childcare spaces per child aged 0 to 5 is **36** ranging from 0 to 269.
- **Rural** overall number of spaces per child is **13** ranging from 0 to 51.

The selected cut-off for this indicator is the Population Quintiles, which demonstrates best the fact that 1 in 5 children aged 0 to 5 have limited access to childcare services and tells a better story of what the accessibility to childcare services in different parts of Ottawa is.

8. Early childhood development Indicator: Percent of Children Vulnerable on One or More Domains of the EDI

Data Source: Community and Social Services at City of Ottawa. Early Development Instrument (EDI), cycle 5, 2018, Ottawa.

The NEI uses the following fields & values to construct the EDI indicator: “Valid EDI or not” = “Valid (1 or none scale missing)” and “Low on at least 1 scale – Ontario” = “Yes”.

Data sharing agreement: The Offord Centre has approved the use of the EDI data by census tract without any suppressions for the purposes of constructing the neighbourhood equity index and the SHD domain only. The EDI data at the census tract level (children vulnerable in one or more areas of their development) is used only for constructing the Social and Human Development domain and the NE index scores in combination with data for other indicators.

To present the data, the EDI results by 51 Early ON neighbourhoods are used. All census tracts within an Early ON neighbourhood show the same percentage of vulnerable children, equal to the overall Early ON neighbourhood rate. We are using this approach for all internal and external presentations and deliverables.

Definition: The EDI is a 103-item questionnaire to be completed by Senior Kindergarten teachers during the winter months of the school year after children have had a chance to familiarize themselves with their classrooms and teachers. It measures children’s developmental health

across five domains. Each question reflects developmental milestones rather than specific curriculum goals. Although the EDI is completed for children individually, the results are compiled and interpreted based on groups of children (populations) who live in a shared geographic area, such as a neighbourhood or city. As such, the EDI serves as a population-based measure and is neither a diagnostic tool for individual children nor an indicator of a school's performance (Offord Centre, 2024).

Original Data: The Early Childhood Development: Percent of Children Vulnerable on One or More Domains of the EDI indicator uses the “Children Vulnerable on One or More Domains of the EDI (%)” as provided in the original data.

Missing Data: Data are not available for three urban and three rural CTs: 505- 0011.03; 0047; 0120.01; 0151.03; 0200.02; 0302. In the data analysis process, the dataset mean (urban or rural) is used for these census tracts.

Overall findings: Across Ottawa's 51 Early Ontario neighbourhoods, the percentage of children vulnerable on one or more EDI domains ranges from 12.9% to 55.3%. The range in census tract neighbourhoods is from 3.3% to 61.5%. The overall Ottawa EDI rate is 29%.

- **Urban** overall rate of children at risk on at least one of the EDI domains is 30.3%. From the 45 urban Early ON areas, the highest rates are documented in Clementine/Riverside Park, Carlington, and Ottawa East/Sandy Hill.
- **Rural** overall rate of children at risk on at least one of the EDI domains is 21.7%. From the 6 rural Early ON areas, Cumberland/Navan/Vars and Rideau have the highest rates.

Population Quintiles are selected as the cut-off measure, categorizing as ‘red’ urban neighbourhoods with over 40% of children vulnerable on one or more EDI domains.

9. Secondary Education Indicator - Percentage of the population aged 20 to 24 with **no** certificate, diploma, or degree

Data Source: Statistics Canada, 2021 Census of population accessed at the Community Data Program

Indicator Preparation: The indicator is a calculated percentage of the population of age 20-24 who have no certificate, diploma, or degree. This data is calculated based on the share of individuals with no certificate, diploma, or degree in Total - Highest certificate, diploma or degree, Age 20 to 24.

Definition: Highest certificate, diploma or degree refers to the highest level of education that a person has successfully completed and is derived from the educational qualification questions,

which ask for all certificates, diplomas and degrees to be reported. This variable is reported for persons aged 15 years and over in private households²⁰.

Overall findings: The Secondary Education Indicator measures the completion of high school, accounting for the percentage of the population who by the age of 25 do not graduate from high school.

In Ottawa, only 4.4% of the population aged 20 to 24 is without a high school diploma or equivalent degree. The indicator values range from 0% to 17.6% across neighbourhoods.

- **Urban** overall rate is 4.0%. The highest rate of youth aged 20 to 24 without high school is in Heron Gate (17.6%) and Carlington-Belleview-Lepage-Caldwell (14.6%) neighbourhoods.
- **Rural** overall rate is 3.2%. The highest are the rates in Navan-Vars (6.8%) and Manotick-Long Island (6.7%).

Population Quintiles were selected as a cut-off measure, to account for the uneven dataset distribution and to enhance the classification with population weight.

The 20th percentile with the highest proportion of youth with no secondary education was at 7.0% for urban and 5.6% for rural which included 46 census tract neighbourhoods in the 'red'. The 20th percentile of the population with the best rates was 0.0% for both urban and rural areas which included 73 census tract neighbourhoods in the 'green'.

10. Postsecondary Completion Indicator - Percentage of the population aged 25 to 29 with a postsecondary certificate, diploma or degree

Data Source: Statistics Canada, 2021 Census of population, accessed at the Community Data Program

Indicator Preparation: This data is calculated based on the share of the sum of all individuals with postsecondary certificate, diploma or degree (including apprenticeship, college or other non-university diploma or degree) in *Total - Highest certificate, diploma or degree, Age 25 to 29*.

Missing Data: Data are not available for one CT: 5050125.03 (Greenbelt-Mer Bleue). In the data analysis process, the urban dataset mean is used.

Overall findings: The age group of the indicator, 25 to 29, presents a certain limitation as it does not take into consideration the diplomas of those individuals who completed their education later in their lives.

In the City of Ottawa, 77.3% of the population aged 25 to 29 have a postsecondary certificate, degree or diploma. Across Ottawa census tract neighbourhoods this share ranges from 55.9% to 100%.

²⁰ Dictionary, Census of Population, 2021, Statistics Canada – Catalogue no. 98-301-X, issue 2021001, Pg. 32

Overall, the City of Ottawa has a relatively high share of people with a postsecondary degree, certificate, or diploma.

- **Urban** overall rate of young adults with postsecondary education is 76.9% ranging from 55.9% to 100%.
- **Rural** overall rate is 72.1%. ranging from 56.5% to 92.9%.

For this indicator, Standard Deviation is used as a cut-off measure because it reflects well the overall high level of postsecondary attainment in Ottawa.

11. Not Participating in the Labour Force Indicator - Percentage of the population aged 25 to 55 not participating in the labour force

Data Source: Statistics Canada, 2021 Census of population, accessed at the Community Data Program.

Definition: *Not Participating in the Labour Force* category refers to persons who, during the week of Sunday, May 2 to Saturday, May 8, 2021, were neither employed nor unemployed. This includes persons who, during the reference period were either unable to work or unavailable for work. It also includes persons who were without work and who had neither actively looked for work in the past four weeks nor had a job to start within four weeks of the reference period²¹.

Indicator Preparation and Composition: The indicator under study is the *Percentage Not Participating in the Labour Force (25-55 years of age)* and is comprised of a ratio made up of individuals aged 25-55 not in the labour force (numerator) and the total population of individuals aged 25-55 in the labour force (denominator). The 55-65 age group is excluded in recognition of Ottawa's higher rate of early retirement by seniors with government pensions.

Overall findings: The non-participation rate is a measure of the percentage of people aged 25-55 years who are not participating in the labour force. This rate does not include people who have chosen not to work or who are unable to work, including but not limited to students, homemakers, and retirees.

Across Ottawa census tract neighbourhoods, the percentage of working age population not participating in the labour force ranges from 5.6% to 38%. The city rate for individuals not participating in the labour force in Ottawa is 12.7%.

- **Urban** overall rate of non-participation in the labour force is 12.9% ranging from 5.6% to 38.0% (Sandy Hill-Strathcona Heights).

²¹ Statistics Canada, Statistical Classifications, Labour Force Status:
<https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=114258&CVD=114259&CPV=2&CST=21062010&CLV=3&MLV=3>

- **Rural** overall rate is 9.8%. The highest is the non-participation rate in South March (11.9%) and Manotick Station (11.4%).

The Rate Ratio is selected as a cut-off. It captures the highly uneven distribution of the proportions of working age individuals not participating in the labour force across the city.

Indicators of the Physical Environment Domain

12. Community Places for Meetings Indicator - Average Number of Meeting Spaces reachable in 1.5 km (urban) or 5 km (rural) road distance.

This indicator describes the access to meeting spaces in terms of proximity; however, the indicator does not take into consideration any costs that might be associated with using the space for community gatherings.

Data Source: City of Ottawa Open Data; Ontario Ministry of Education, City of Ottawa’s address repositories; Open Steet Map Data

Original Data: The original file contains data for different types of meeting spaces: educational facilities (Open Data Ottawa, 2024 And Ontario Ministry of Education), public libraries (Open Data, 2024), recreational centres, senior centres, community buildings (City of Ottawa, 2024), Ottawa community houses (Ottawa Coalition Community Houses, 2024), community health and resource centres (Coalition of Community Health and Resource Centres, 2024), and places of worship (Open Street Map and various online sources, 2024). This data is merged at the address level to create a point shapefile of potential spaces for community meetings.

Indicator Preparation: All processing is carried out in ArcGIS Pro. Census tract boundary files and dissemination block boundary files were used as the units of geographic analysis. The analysis is done using dissemination block (DB) and census tract population data (Statistics Canada Census Data, 2021).

The Average Number of Meeting Spaces indicator is a count of meeting places reachable in 1.5 km (urban) or 5 km (rural) from dissemination block centroids, weighted by population and aggregated to the census tract level. A process flowchart (Appendix B) presents the steps taken in the preparation of the Meeting Spaces indicator. The population weighting process is as follows: the count of meeting places in each dissemination block is 1) multiplied by the local DB population, 2) summarized within each census tract, and 3) divided by the total population for that census tract.

Overall findings:

Based on our calculations, in the City of Ottawa, the number of meeting spaces that are available within approximately 10-minute drive time ranges from 0 to 36, with an average of 3 spaces within all the City of Ottawa census tracts.

- **Urban** overall number of meeting spaces reachable in 1.5 km is 8 ranging from zero (Riverside Gate and Greenbelt-Mer Bleue) to 36 in Centretown neighbourhoods.
- **Rural** average number of meeting spaces reachable in 5 km is 4.

Population Quintiles is selected as a cut-off measure further connecting the indicator values to the distribution of population.

13. Usable Green Space Indicator – the average amount of green space within 1 square kilometre (urban) or 3 square kilometres (rural).

Data Source: City of Ottawa and Open Street Map

Original Data: Data for the Greenspace layer came from the City of Ottawa, the Ottawa-Gatineau National Capital Commission (NCC) and OpenStreetMap. Data from the City of Ottawa includes:

A polygon shapefile of all parks in Ottawa, maintained by the City of Ottawa (Parks and Greenspace)²².

Data from NCC includes selected polygons from NCC Urban Lands land designations and NCC Recreational Paths and Trails shapefiles²³.

In addition, data from the Open Street Map²⁴ (OSM parks, paths and hiking features) is used.

To create a final, total Greenspace layer the above polygons were merged and then dissolved to remove overlapping areas.

Indicator Preparation: All processing is carried out in ArcGIS Pro. Census tract boundary files and dissemination block boundary files were used as the units of geographic analysis. The analysis is done using dissemination block (DB) and census tract (CT) population data (Statistics Canada Census Data, 2021).

The Access to Greenspace indicator is a count of all the greenspace areas within one (urban) or three (rural) kilometres from Dissemination Block (DB) centroids, weighted by population and aggregated to Census Tract level. A process flowchart (Appendix B) presents the steps taken in the preparation of the Greenspace indicator.

The population weighting process is as follows: the buffered amount of green space in each dissemination block is 1) multiplied by the local DB population, 2) summarized within each census tract, and 3) divided by the total population for that census tract.

²² Open Ottawa, Parks and Greenspace. Accessed at <https://open.ottawa.ca/datasets/ottawa::parks-and-greenspace/about>

²³ National Capital Commission (NCC) open data. Accessed at <https://ncc-hub-ncc-ccn.hub.arcgis.com/>

²⁴ Open Street Map <https://www.openstreetmap.org/copyright>

Overall findings: Access to green space for recreational and social purposes has been a critical element of a modern urban environment. The purpose of the present indicator is to reflect the availability of this space to Ottawa residents.

According to our calculations, in the City of Ottawa, the average amount of green space (in square meters), accessible for public activities, within 1 (urban) or 3 (rural) kilometres distance ranges from 20,673m² (approximately a space 100m by 200m) to 1,420,592m² (over a square kilometer in total). The average for the city census tracts is 508,209m² (approximately, the size of 5 soccer fields).

- **Urban** – the average amount of green space within 1 sq. km is 512,830 sq. m ranging from 177,456 sq. m in Skyline-Fisher Heights to 1,420,592 sq. m in Fallowfield-Greenbelt.
- **Rural** – the average amount of green space within 3 sq. km is 481,980 sq. m. The usable green space ranges from 20,673 sq. m in Corkery to 1,011,890 sq. m in Manotick-Long Island.

A benchmarking measure based on Standard Deviation is selected as the cut-off for this indicator. It gives less weight to the extreme ends of data distribution and places fewer neighbourhoods in the ‘red’ category (31 urban and 4 rural). The reason for the latter is the complexity of social interactions that take place not only in municipal public spaces but also in private green spaces that can be considerable, in some parts of the city.

14. Availability of Rental Housing Indicator - Percentage of dwellings that are not owned

Data Source: Statistics Canada, 2021 Census of population. 2021 Census Profile for census tracts. The variables used are “Renter “under the category “Total - Private households by tenure”.

Indicator Preparation: The proportion of rented dwellings is calculated as the percentage of the renter households out of the total private households by tenure.

Overall findings: The Availability of Rental Housing indicator is introduced as a measure of the accessibility of rental supply; therefore, the large proportion of rental households is taken as a positive outcome.

In Ottawa, 36.1% of households lived in rental properties in 2021. The highest proportion of renters within census tracts (above 85%) is seen in areas like Heron Gate, Strathcona Heights, Vanier, and Centretown. The suburban and rural parts of the city (Stittsville, Barrhaven, Corkery) had the lowest share of renting households (below 4.0% of all properties).

- **Urban** overall rate of rented dwellings is 35.4% ranging from less than 3% in Qualicum-Graham Park and Old Barrhaven West to 90.0% and over in Centretown-Elgin-Gladstone, Heron Gate and Sandy Hill-Strathcona Heights.
- **Rural** average rate is 8.5%. The lowest share of rented housing is in Cookery (2.4%) and South March (4.4%) while the highest is in Carp (13.1%) and Navan-Vars (12.5%).

The cut-off used for this indicator is the Rate Ratio. The ‘red’ benchmark includes 99 urban and 4 rural neighbourhoods with lower proportion of rented households, indicating lower options for people who wanted to rent in these neighbourhoods.

15. Commute Time Indicator - Percentage of people spending over 45 minutes on their commute

Data Source: Statistics Canada, 2021 Census of population. 2021 Census Profile for census tracts. Data used is under the category *Commuting duration for the employed labour force aged 15 years and over in private households with a usual place of work or no fixed workplace address*.

The indicator is the *percentage of individuals commuting for 45 minutes and over*, in the total *Commuting duration for the employed labour force aged 15 years and over in private households with a usual place of work or no fixed workplace address*.

Definition: ‘Commuting duration’ refers to the length of time, in minutes, usually required by a person to travel between their place of residence and place of work²⁵.

Indicator Considerations: The purpose of the indicator is to indicate the challenges in accessibility characteristics for certain Ottawa neighbourhoods. Residents of these areas experience longer commuting times and reduced amount of free time.

Overall findings: This indicator reflects the local share of individuals who spend over 45 minutes on their daily commute. The indicator, however, does not reflect the mode of commuting. Depending on the mode of commuting, these challenges can present to varying extents.

As mentioned earlier (Pg. 26), 2021 census data was collected during COVID-19. Statistics related to labour force commute are affected by the fact that “*the usual place for work*” for many employees changed to working from home. The number of commuters in 2021 compared to 2016

declined by 37%, from 439,845 commuters in 2016 to 275,700 in 2021. Additionally, only certain types of occupations can be performed remotely. The number of commuters in 2021, therefore, could be representing largely the essential or front line workers, those employed in healthcare, public safety, transportation, food sales and distribution, customer and financial services, production, and service delivery. These facts should be considered when evaluating the indicator outcome for Ottawa neighbourhoods.

According to Statistics Canada’s 2021 Census data, in the City of Ottawa, 30,005 individuals (10.9%) spend over 45 minutes on their commute to work trips daily. Across Ottawa census tracts (CT), the share of individuals in this time bracket ranges from 1.4 to 30.5%.

- **Urban** average rate of commuters travelling more than 45 min to work is 10.4% ranging from 1.4% to 22.1% in Summerside (Orleans Soth-Navan).

²⁵ Dictionary, Census of Population, 2021, Statistics Canada – Catalogue no. 98-301-X, issue 2021001, Pg. 20

- **Rural** average rate of commuters travelling more than 45 min to work is 14.8%. The highest rate resides in Kinburn-Galetta-Fitzroy (23.6%), Marlborough (26.7%) and Constance Bay-Dunrobin (30.5%)

For this indicator, Rate Ratio is used as a cut-off measure. This measure, better than the others, captures those census tracts that are distant from the city core. Although this indicator is not a measure of distance, the evidence shows that people living in the areas far from the city have longer commuting times.

Walk, Transit and Bike Score Indicators

Data Source: Walk Score® (<https://www.walkscore.com/>)

Original Data: The original dataset includes calculated Walk, Transit and Bike Scores for 1,000 points across Ottawa measured on a scale from 0 to 100 (the best outcome).

The scores were aggregated to a census tract level by the SPCO team. The indicators are calculated as a ratio of the Sum of the Score (Walk, Transit or Bike) for each geographical point within the census tract (CT) as the numerator and the total number of geographical points per CT used in the analysis as the denominator.

16. Transit Score indicator

The Walk Score® methodology includes an algorithm that “calculates a transit score for a specific point by summing the relative "usefulness" of nearby routes. Walk Score® defines usefulness as “the distance to the nearest stop on the route, the frequency of the route, and type of route.”

The overall Transit score for Ottawa is **43**.

- **Urban** average transit score is **52**, the highest in the most centrally located neighbourhoods, such as Centretown and Downtown neighbourhoods, University of Ottawa and Sussex Dr-Bingham Park.
- **Rural** average transit score is **5**, the highest in Manotick-Long Island.

17. Walk Score Indicator

The Walk Score® methodology “measures the walkability of an area, defined as the walking distance to key amenities including but not limited to grocery stores, schools, parks, restaurants, and retail. Closer amenities receive the highest points, for example, amenities within a 5 minute walk (.25 miles) receive the maximum number of points possible.

The overall Walk score for Ottawa is **56**.

- **Urban** average walkability score is **65**, the highest in the most centrally located neighbourhoods, such as Centretown neighbourhoods, Lowertown-Rideau, and Bayward Market.
- **Rural** average walkability score is **12**, the highest in Manotick-Long Island.

18. Bike Score Indicator

The Walk Score® methodology “measures bike accessibility on a scale from 0 - 100 based on bike infrastructure, topography, destinations and road connectivity, and the number of bike commuters. The overall Bike score for Ottawa is **64**.

- **Urban** average bike score is **72**, the highest in the most centrally located neighbourhoods, such as Centretown and Glebe neighbourhoods.
- **Rural** average bike score is **31**, the highest in Richmond Village, Greely and Manotick-Long Island.

Population Quintiles was selected as a cut-off measure for all three indicators in order to tie ‘green’ and ‘red’ scores to the distribution of the city population.

Indicators of the Population Health Domain

19. Diabetes Related Health Service Indicator - Percentage of people aged 20 and over with diabetes related health service

Data Source: Ottawa Public Health

Original Data: The original data is *age standardized number of individuals per 100 population (Percentage) with a diabetes related health service in 2020 and 2021 among Ottawa residents aged 20 and older.*

Data includes

- The data includes Hospitalization for diabetes related visits (ICD10CA E10 E11 E13 E14)
- Emergency department visit for diabetes related condition (ICD10CA E10 E11 E13 E14)
- Medical services for diabetes (E250)

The results do not include

- Any medical services 180 days prior or 120 days following a hospitalization for childbirth (Z37), Note that this exclusion does not include home deliveries
- Any visit where a health card was not used.

Diabetes counts do not discriminate between Type 1 and Type 2 diabetes.

Ottawa estimates may be somewhat lower than estimates generated elsewhere. Other estimates may use the Registered Persons database rather than the Census which would tend to a smaller denominator by Census tract or older age groups.

Population estimates are based on 2021 Ottawa population. All the data is presented at census tract (CT) level.

Missing data: Data for CT 505- **0125.03** and **0200.01** is suppressed for reasons of confidentiality. In the data analysis process, the dataset mean (urban or rural) is used for these census tracts.

Overall findings: In the city of Ottawa, the overall percentage of people with diabetes related health services is 5.1%. Across census tract neighbourhoods, the indicator values range from 0.5% to 29.4% of the population aged 20 and older who needed health services related to diabetes.

- **Urban** overall rate is 8.8% ranging from 2.6 to 29.4% persons requesting a diabetes health service.
- **Rural** overall rate is 5.5% ranging from 0.5 to 8.6% of persons requesting a diabetes health service.

For this indicator, Rate Ratio is used as a cut-off measure. This measure captures the highest number of disadvantaged neighbourhoods in the 'red' category, if compared to other possible cut-off measures, thus stressing the importance of diabetes awareness and prevention.

20. Mental Health Indicator - The number of all-ages Emergency Department (ED) visits with Mental Health or Substance use diagnoses per 100,000 population per year

Data Source: Ottawa Public Health

Original Data: The original data is *the number of Emergency Department (ED) visits with Mental Health or Substance use diagnoses per 100,000 population per year*. Estimates are based on the National Ambulatory Care Records System (NACRS) 2017-2021 calendar years. Population estimates are based on 2021 Ottawa population by 10 year age group by CT.

Primary diagnosis field equals F06–F99 (which excludes dementia), or secondary diagnoses fields equal X60–X84, Y870 when primary diagnosis is not F06–F99.

Data worksheet reflects **5 year** totals for both event counts and population.

All the data is presented at census tract (CT) level.

Missing data: Data for CT 505- **0011.3**, **0151.03**, from **0171.11** to **0171.15**, **191.02**, and **0200.01** is suppressed for reasons of confidentiality or data unreliability. In the data analysis process, the dataset mean (urban or rural) is used for this census tract.

Overall findings: The average number of Emergency Department Mental Health and Substance Use Visits in Ottawa is 1,518. Across census tract neighbourhoods, the number of ED visits for mental health and substance use ranges from 551 to 57,155 visits.

- **Urban** overall number is 2,056 ranging from 551 to 57,155 ED visits.
- **Rural** overall number is 1,162 ranging from 686 to 1,764 ED visits.

For this indicator, Rate Ratio is used as a cut-off measure. This measure takes into account the uneven distribution of the indicator values and places the four data categories around the overall urban or rural rate.

21. Senior Falls Indicator – Rate of ED visits due to falls among seniors aged 60 and over

Data Source: Ottawa Public Health

Original Data: The indicator is defined as the *age standardized number of hospital discharges in Ottawa with a diagnosis of fall per 100,000 people per year*. Age includes ages 60 and older. Estimates are based on the Discharge Abstract Database (DAD) 2014-2021 calendar years. Population estimates are based on 2021 Ottawa population. All the data is shared for census tracts.

Missing data: Data for 37 census tracts listed below have been removed due to data unreliability or a high coefficient of variation (30 and over) – reducing the dataset sample by 17% from a total of 218 to 181.

Missing CT 505- 0002.06; 0014; 0039; 0051; 0125.03; 0126.07; 0126.08; 0126.09; 0137.04; 0140.04; 0140.06; 0140.07; 0141.13; 0141.16; 0141.17; 0141.19; 41.21; 0141.23; 0141.24; 0141.25; 0141.26; 0151.03; 0160.12; 0160.13; 0160.14; 0161.06; 0170.08; 0170.11; 0171.11; 0171.14; 0171.15; 0191.02

In the data analysis process, the dataset mean (urban or rural) is used for these census tracts.

Overall findings: The average Ottawa rate of falls for the population 60 years and older is 640. The indicator values across census tract neighbourhoods range from 502 to 9,975 falls per 100,000 people per year.

- **Urban** overall rate is 778 ranging from 280 to 10,942 ED visits due to falls among those aged 60+.
- **Rural** overall rate is 521 ranging from 341 to 765 ED visits due to falls among those aged 60+.

Population Quintiles is selected as a cut-off measure in order to connect the indicator values to the distribution of the senior population.

Indicators of the Community and Belonging Domain

22. Mobility Status Indicator - Percentage of the population who moved from one residence to another in the last 5 years

Data Source: Statistics Canada, 2021 Census

Definition: ‘**Mobility status, five years**’ refers to the status of a person with regard to the place of residence on the reference day in relation to the place of residence on the same date five years earlier (Statistics Canada, 2021).

Indicator Preparation: The indicator is the *Percentage of Movers*, in the census profile category *Total - Mobility status 5 years ago*.

Overall findings:

The *Movers* sub-category of the data unites a broad variety of residents: that is, *Non-migrants* and *Migrants* (including *Internal* [intra- and interprovincial] *migrants* and *External migrants*). The indicator does not differentiate between these types, although different types of migrants can contribute differently to the composition of local communities and the sense of belonging.

According to Statistics Canada's 2021 Census data, the City of Ottawa had 41% of recent movers vs. 37.4% across Ontario and 39.0% in Canada overall. Across Ottawa census tract (CT) neighbourhoods, this value ranges from 15.2% to 83.7%.

- **Urban** overall rate is 40.7% ranging from 15.2 to 83.7% of residents new to the neighbourhood.
- **Rural** overall rate is 30.2% ranging from 21.6 to 39% of residents new to the neighbourhood.

For this indicator, Rate Ratio is set as a cut-off measure. While the distribution of the indicator values is substantially skewed towards lower residential mobility across Ottawa census tracts, Rate Ratios mark well CTs with the shares of recent movers getting close to or exceeding a half of the local population.

23. Seniors Living Alone Indicator - Percentage of seniors, 65 and older who live alone

Data Source: Statistics Canada, 2021 Census, accessed at Community Data Program

Original Data: The original dataset included the total number of seniors aged 65 years and over regardless of household arrangement, and the number of seniors 65 years and over living alone for each census tract (CT) in Ottawa.

Indicator Preparation and Composition: The indicator of interest is the percentage of *Seniors Living Alone*, made up of a ratio of the number of seniors living alone 65 years and over (numerator) and the total number of seniors 65 years and over (denominator) for each CT in Ottawa.

Overall findings:

The share of the Senior (65 and up) population in Ottawa is on a steady rise. By 2031, seniors will represent 22% of the Ottawa population (City of Ottawa, 2014). The main reason for this rapid growth, which is also part of a national demographic change, is the large number of baby boomers who in 2011 started turning 65 years old.

At the same time, the number of seniors 65 and older who reported living alone also increased. Between 2016 and 2021 the number of seniors living alone in Ottawa was up by 21% from 33,210 to 40,090 people.

In 2021, 34.5% of seniors were living alone in Ottawa. Across census tract neighbourhoods, the proportion of living alone 65 years and over population ranged between 5.6% and 64.4%.

- **Urban** overall rate is 25.3% ranging from 5.6 to 64.4% seniors living alone.
- **Rural** overall rate is 14.3% ranging from 6.3 to 23.5% seniors living alone.

Based on the analysis of the distribution of the indicator data, the selected cut-off for this indicator is the Population Quintiles.

Crime indicators

Data Source: Ottawa Police Service Open Data²⁶

Definitions:

Crimes **against property (UCR code 2000)** involve unlawful acts to gain property but do not involve the use or threat of violence against the person. They include offences such as break and enter, theft, fraud, and mischief.

Crimes **against person (UCR code 1000)** involve the use or threat of force to harm another person. This includes homicide, attempted murder, assault, sexual assault, harassment, and robbery. Robbery is considered a crime against the person because, unlike other theft offences, it involves the use, threat or force.

Hate crime is a criminal violation motivated by hate, based on race, national or ethnic origin, language, colour, religion, sex, age, mental or physical disability, sexual orientation or gender identity or expression, or any other similar factor²⁷.

Crime Data includes all founded Criminal Code of Canada offences reported to the Ottawa Police. Offences have been categorized according to the Uniform Crime Reporting (UCR) Survey 2023^{28,29}.

24. Crime against Property Indicator: All Crimes against the property (total number) per 1,000 people. Includes crime data from 2019 to March 2024 at census tract level of geography.

The original file “Crime Offences_Open Data” is downloaded from the OPS Open Data Portal. The indicator dataset is based on selected records using a filter on the data field “Offence Summary” = “Crime against Property (2000)”. Data is selected from 2019 to March 2024. The original data file contains several location fields for each incident, including census tracts.

25. Crime against Person Indicator: All Crimes against the person (total number) per 1,000 people. Includes crime data from 2019 to March 2024. Includes crime data from 2019 to March 2024 at census tract level of geography.

The original file “Crime Offences_Open Data” is downloaded from the OPS Open Data Portal. The indicator dataset is based on selected records using a filter on the data field “Offence Summary” = “Crime against Person (1000)”. Data is selected from 2019 to March 2024. The original data file contains several location fields for each incident, including census tracts.

²⁶ Ottawa Police Service Open Data. Accessed at

https://data.ottawapolice.ca/datasets/0356deb79cfd4488956116fda366df38_0/about

²⁷ Ottawa Police Service Open Data, Glossary. Accessed at <https://data.ottawapolice.ca/pages/glossary>

²⁸ Statistics Canada, Uniform Crime Reporting Survey (UCR) 2023, Classification of Criminal Code Violations. Accessed at <https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3302>

²⁹ Ottawa Police Service Open Data, Hate crime. Accessed at:

https://data.ottawapolice.ca/datasets/51835c5404674036ac03a119c2e590cd_0/about

26. Hate Crime Indicator - Hate crime rates per 1,000 people. Includes crime incident data from 2019 to February 2024.

The original file “Hate Crime_Open Data” is downloaded from the OPS Open Data Portal. The indicator dataset is based on all hate crime types and motivations and includes both hate crime statuses (happened and suspected). Data is selected from 2019 to Feb 2024. The original data file contains several location fields for each incident, including census tracts.

Crime Indicators, overall findings:

Detailed analysis and data about crime trends in Ottawa is available on the [Ottawa Police Service Open Data Portal](#)³⁰.

NEI Crime indicators draw attention to the areas with the highest crime rate that occurred from 2019 to early 2024.

A total number of **143,465 Crimes Against Property** are recorded by Ottawa Police from 2019 to early 2024. The rates per 1,000 people across Ottawa census tracts range from 34.6 to 2,122.6 incidents with a city average of 153.7 property crimes. The neighbourhoods with the lowest property crime rates are in suburban and rural parts of Ottawa (Kanata Lakes, South March, Bridlewood, Marlborough, Constance Bay-Dunrobin). The highest property crime rates are documented within the urban core (University of Ottawa, Lowertown-Beausoleil Dr, Byward Market).

The number of **Crimes Against Persons** occurring in Ottawa from 2019 to early 2024 is **38,859**. The rates per 1,000 people across Ottawa census tracts range from 7.6 to 739.1 incidents with a city average of 42.2. The neighbourhoods with the lowest crime against person rates are in suburban parts of Ottawa (Barrhaven-Stonebridge, South March, Emerald Meadows). The highest crime rates are recorded in neighbourhoods from the urban core (University of Ottawa, Lowertown-Rideau St, Byward Market).

Hate Crime rates in Ottawa are on the rise. The number of recorded incidents grew from 102 in 2018 to 482 in 2023. The Hate Crime Indicator dataset analyzes 1,587 crimes reported from Jan 2019 to Feb 2024. The average rate per 1,000 people for Ottawa is 1.7 ranging from 0.2 to 20.8 across Ottawa census tracts.

A substantial share of hate crimes occurred in the urban core of the city, the downtown area that is densely populated and attracts many visitors from all over the city, as well as tourists. The highest number of incidents occurred in Centretown-Downtown, University of Ottawa, Byward Market, Glebe-Lansdowne, Lowertown-Rideau St, and Centretown-Bank St.

For both Crime against Property and Person Indicators, Population Quintiles are selected as a cut-off measure. This measure captures well the areas with higher hate crime rates. At the same time, Population Quintiles minimize the number of ‘green’ areas, where the crime rates are smaller but present, nevertheless.

³⁰ OPS Open Data: <https://data.ottawapolice.ca/pages/data-analytics>

For Hate Crime the benchmarks were selected using Standard Deviation statistics. Note that there is no green category in this indicator. While rates of hate crime are significantly smaller than average in many neighbourhoods, our standpoint is that only 0 number of hate crimes should be considered acceptable.

27. Pedestrian and Cyclist Collisions Indicator - Number of total Collisions involving a Pedestrian or a Cyclist. Includes collision data from Jan 2018 to Dec 2022.

Data Source: City of Ottawa Open Data³¹

Original Data: The original file includes the data for the period of Jan 2018 to Dec 2022 and is available through the City of Ottawa Open Data at the collision location (geographic coordinates) level. The original data file contains separate data fields for total collisions, pedestrian collisions and cyclist collisions, all three in absolute numbers.

Indicator Preparation: The indicator is based on the merged Jan 2018 to Dec 2022 *Total Pedestrian and Cyclist Collisions* data. Using a geoprocessing function in ArcGIS software, the collision locations within Ottawa were grouped into census tracts. Some locations (either on city limits or on bridges) were manually matched. Some locations with coordinates way outside the Ottawa area were excluded.

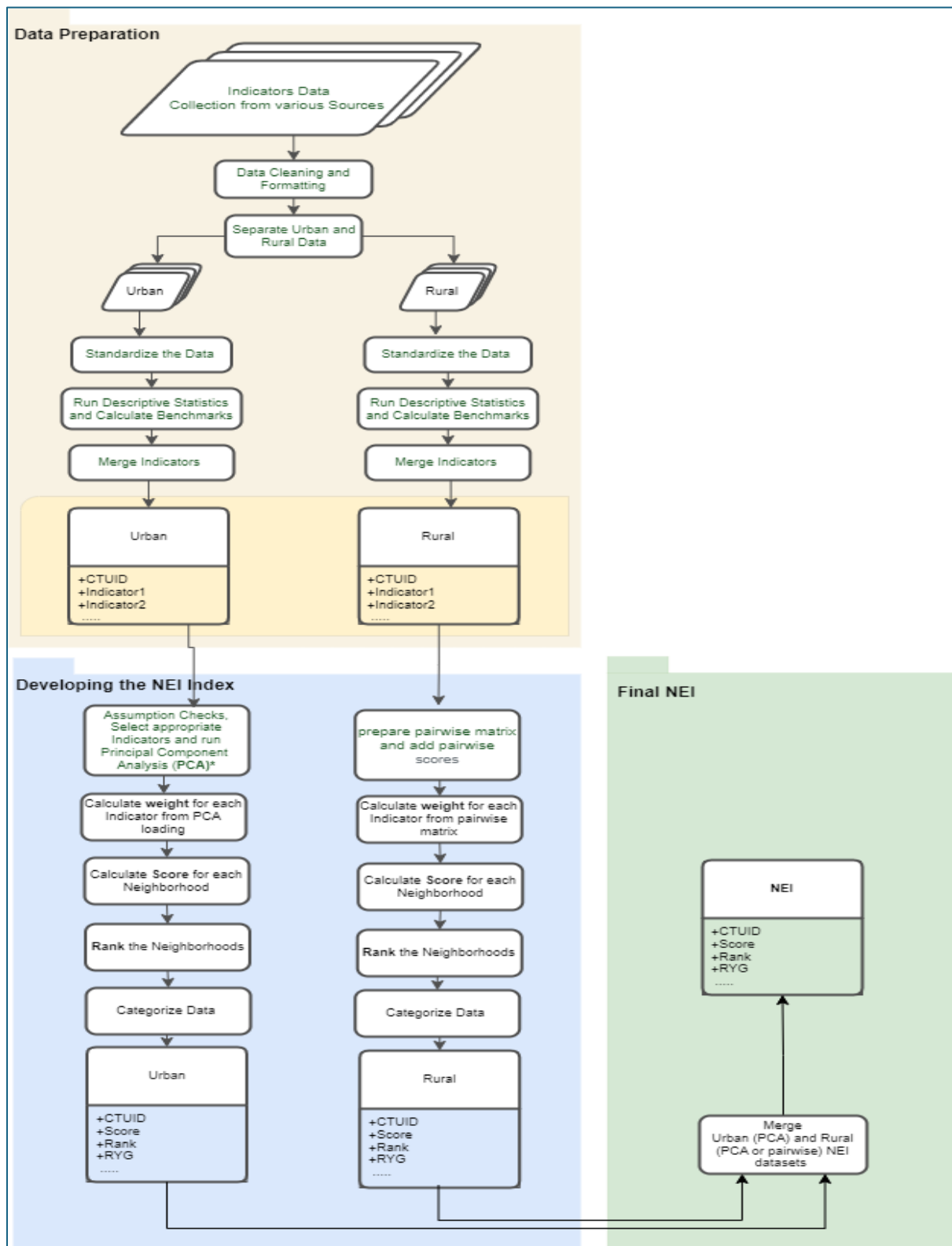
Overall findings: According to the City of Ottawa, Open Ottawa Initiative data, from Jan 2018 to Dec 2022 the City of Ottawa experienced 2,279 motor vehicle accidents that involved pedestrians and cyclists. Across Ottawa census tract (CT) neighbourhoods, the number of these accidents varied from zero to 79 in Centretown-Downtown and 92 in Centretown-Bank St neighbourhoods. Notably above the Ottawa average of 11 accidents is the number of incidents reported in Overbrook-The Four Corners-Queen Mary Court (46), University of Ottawa (49), and Byward Market (49).

For this indicator, Population Quintiles in urban and Standard Deviation in rural areas are selected as cut-off measures. More than the others, these measures draw attention to the greatest number of areas with accidents. Note that in the case of this indicator, the aspirational part of the cut-off is not a suggested target. While by comparison, the number of accidents is smaller in the 'green' neighbourhoods, we would not consider any number of accidents aspirational.

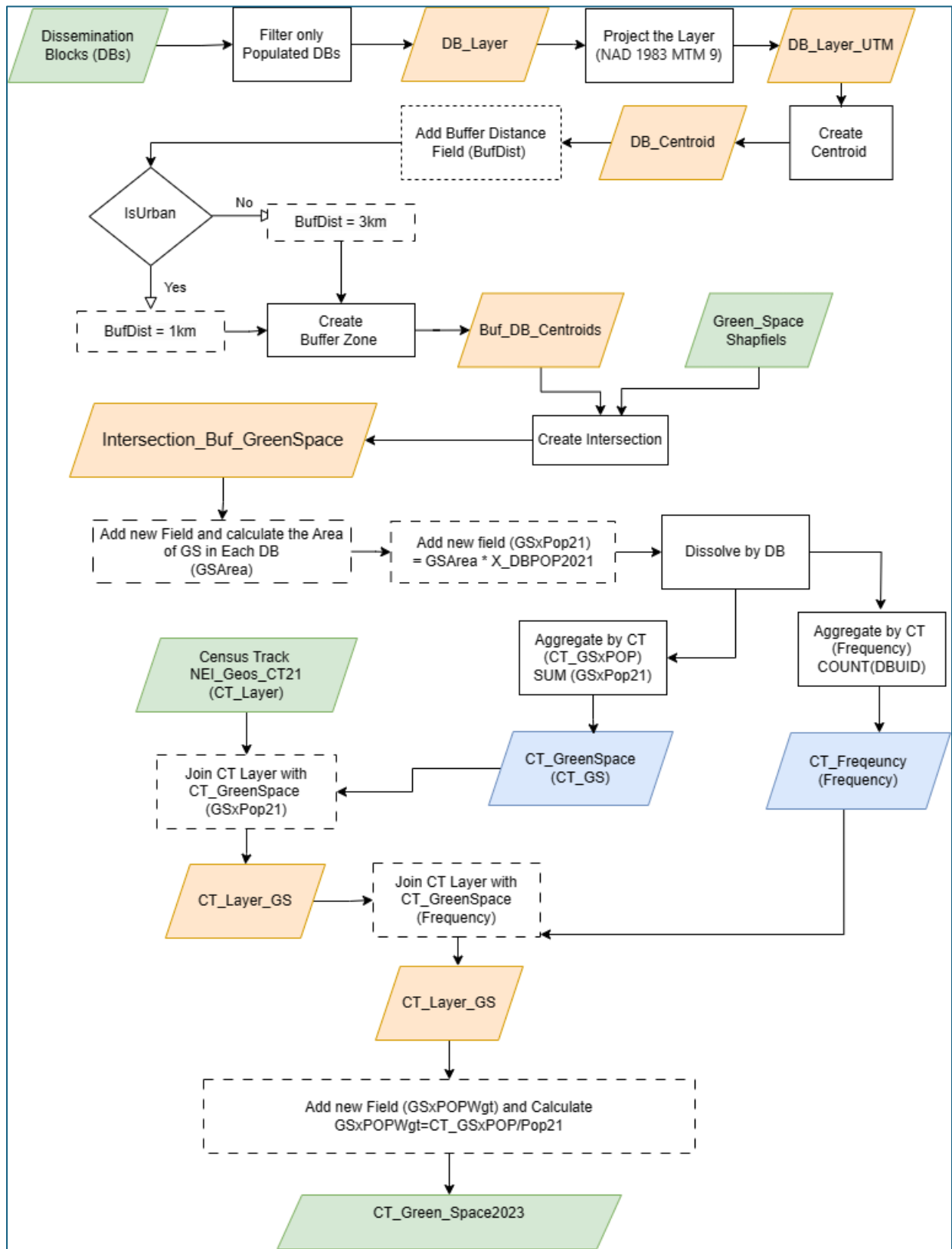
³¹ City of Ottawa Open Data. Accessed at: <https://open.ottawa.ca/search?q=collisions>

Appendix B: Process Flowcharts

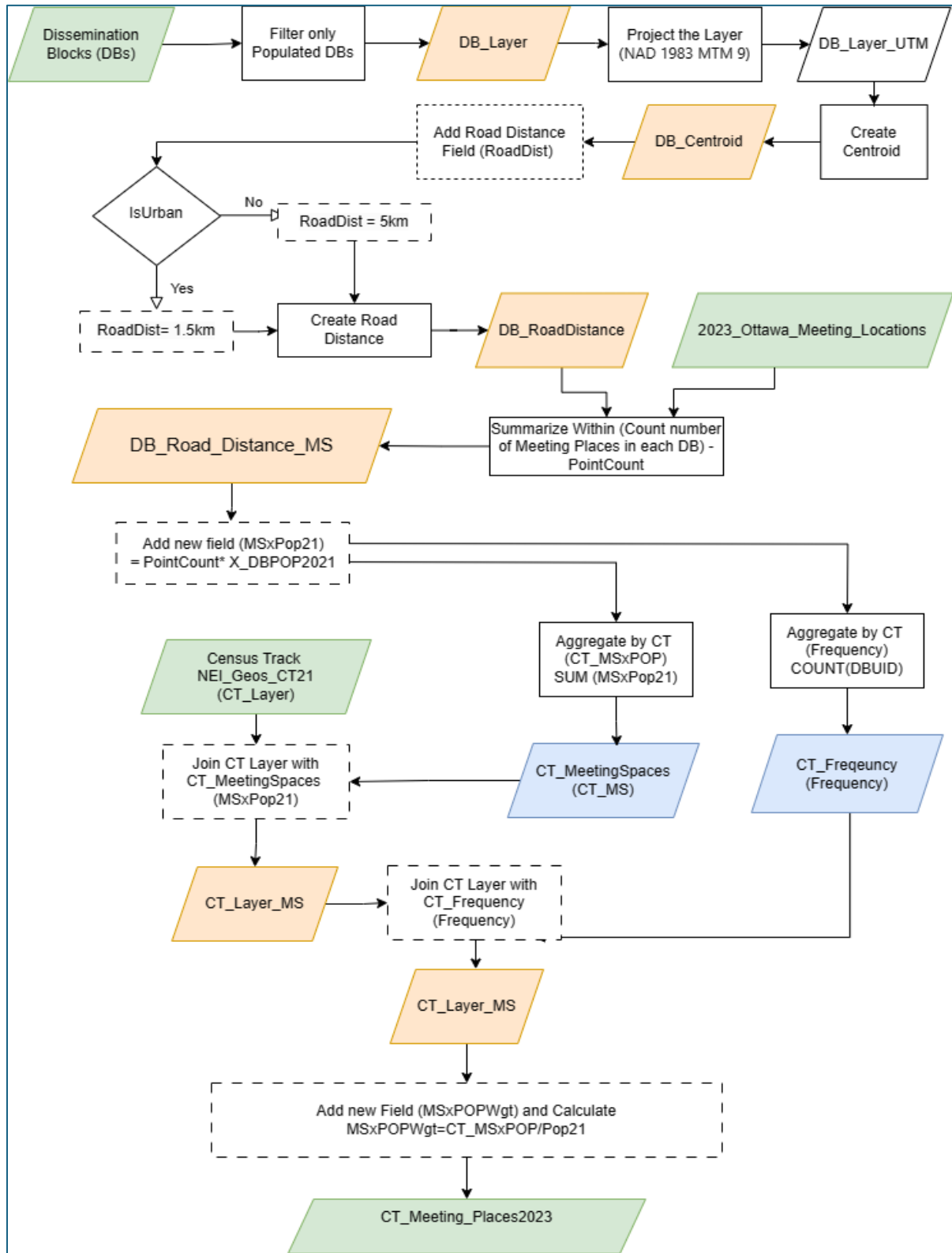
1. Urban and Rural Neighbourhood Equity Index Flowchart



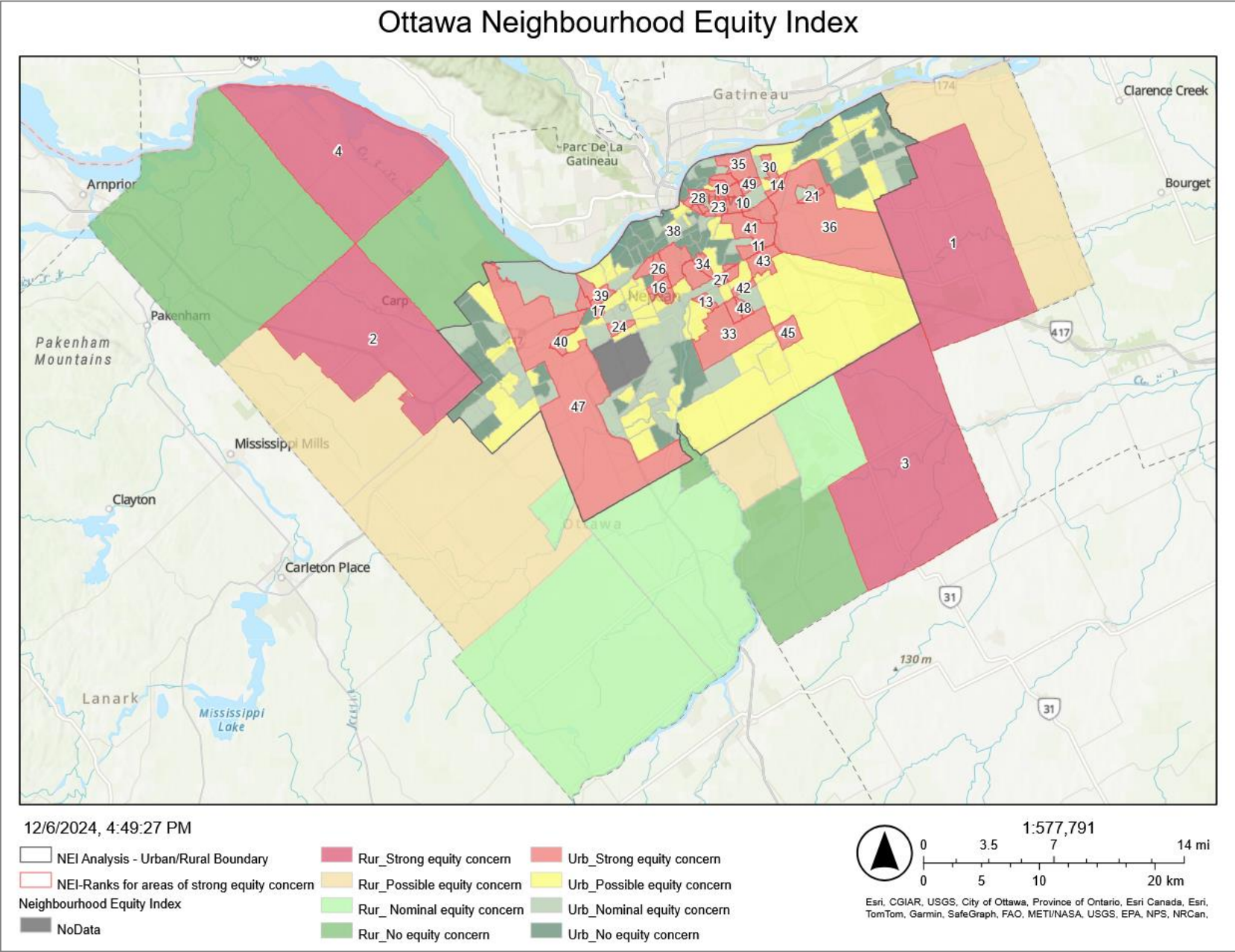
2. Usable Greenspace Indicator Process Flowchart



3. Community Places for Meetings Indicator Process Flowchart



Appendix D: NEI Map



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