

Coding and Population Estimates for the NS Health Atlas Geographies

A TECHNICAL PRIMER ON POPULATION DATA AND HOW TO USE POPULATION WEIGHTING FOR SPLIT DAs

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The Nova Scotia Health Atlas contains four main levels of geography, where each geography is nested in higher-level geographies. The smallest is the Census Dissemination Areas (DAs), which serve as the building block for the subsequent, higher-level geographies: Community Clusters, Community Health Network, and Management Zones (Figure 1). The three new geographic areas were developed for health service planning purposes through a series of consultation process with local health service providers by a team of researchers and officials from the Department of Health and Wellness (DHW), the Nova Scotia Health Authority (NSHA), and the Maritime SPOR SUPPORT Unit (MSSU). This technical report describes the background of weighting some DAs, and how to read the population table accompanying this report, which shows the population of each level of geography based on the 2011 Census.

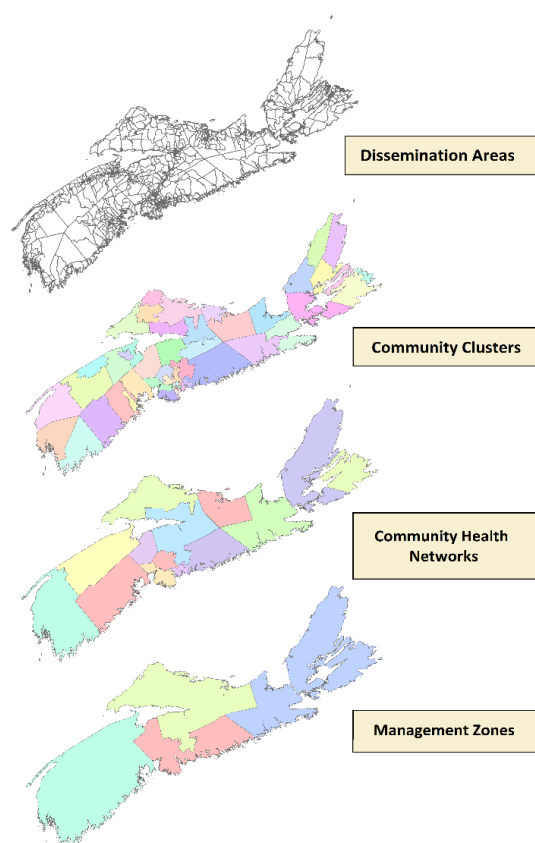
Background

While these three geographies generally honour the original DA boundaries, 13 DAs of 1,645 total DAs in Nova Scotia needed to be divided, as the boundaries of the DAs did not align well with the ‘natural’ communities. Once the 13 DAs were divided geographically to better represent the communities, weighing values were assigned based on the estimates of the population falling into the divided areas.

Creating Population Weight values for the 13 DAs

To estimate the populations (weights) of the 13 DAs, the Nova Scotia Civic Address File (NSCAF) was used. NSCAF is a dataset maintained by the Nova Scotia government containing point locations of all buildings in the Province. To approximate the proportion of people that fall into each of the split DA areas, the ratio of the counts of all buildings in each split area was calculated. It was not possible to distinguish types of buildings from the NSCAF dataset, therefore, the ratios assigned cannot be verified as to how close they are to the actual ratios of the number of residents. However, given the lack of data showing the population counts in more granular-level geographical areas, this is the best available means to approximate the proportion of DAs population. The participating officials

Figure 1 - Hierarchy of geographic areas



knowledgeable about the communities containing these DAs verified that the approximation of the weights unlikely bias the weighting.

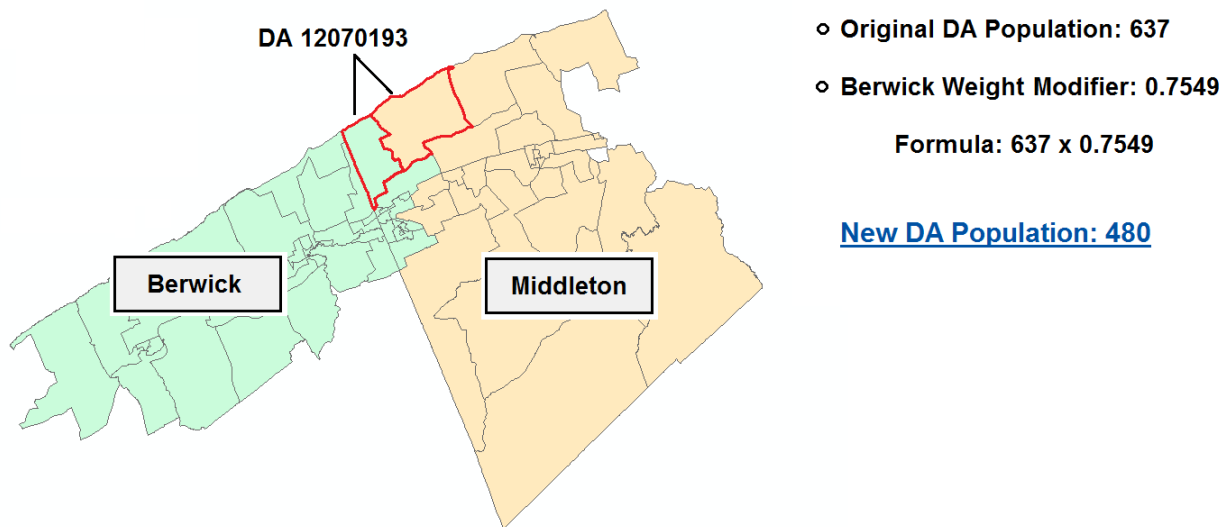
Population Spreadsheet

The Excel sheet showing the population of each geography based on 2011 Census is available on the [NS Health Atlas website](#).

Using the Population Weights

When performing population based analysis on these split DAs, the population weight should be applied to the numbers for each split DA portion. Figure 2 below shows the Berwick and Middleton clusters, and DA 12070193 that is split between the two clusters. The details of the splitting process is also shown in the figure, where DA12070193 (shown in red) was split between the Berwick cluster and the Middleton cluster. The figure also shows how a population weighting modifier is applied to population numbers. The result of the weighting process allocated 75.5% of the population to the Berwick DA, and 24.5% allocated to the Middleton DA.

Figure 2. Splitting and Weighting to Determining the population of the Berwick Portion of DA 12070193



A detailed list of split DAs and the weight modifier that should be used is shown in Table 1.

Table 1. Population Weighting by DA

| Dissemination Area (DA) | ClusterID | Community Cluster | Population Weight Modifier | 2011 Population |
|-------------------------|-----------|---|----------------------------|-----------------|
| 12070193 | 010309 | Berwick | 0.7549 | 480 |
| 12070193 | 010311 | Middleton | 0.2451 | 156 |
| 12080056 | 020415 | Hants North | 0.8915 | 741 |
| 12080056 | 020416 | South Colchester | 0.1085 | 90 |
| 12100161 | 020417 | Truro and Area | 0.1078 | 63 |
| 12100161 | 020416 | South Colchester | 0.8922 | 529 |
| 12100152 | 020417 | Truro and Area | 0.4164 | 295 |
| 12100152 | 20416 | South Colchester | 0.5836 | 413 |
| 12100153 | 020417 | Truro and Area | 0.1038 | 85 |
| 12100153 | 020416 | South Colchester | 0.8962 | 733 |
| 12110089 | 020521 | Springhill | 0.5468 | 277 |
| 12110089 | 020520 | South Cumberland | 0.4532 | 229 |
| 12110118 | 020521 | Springhill | 0.9009 | 313 |
| 12110118 | 020520 | South Cumberland | 0.0991 | 34 |
| 12180026 | 030828 | Baddeck / Whycocomagh | 0.3455 | 228 |
| 12180026 | 030935 | Florence / Sydney Mines / North Sydney | 0.6545 | 431 |
| 12180027 | 030828 | Baddeck / Whycocomagh | 0.2847 | 153 |
| 12180027 | 030935 | Florence / Sydney Mines / North Sydney | 0.7153 | 386 |
| 12090793 | 041252 | Fall River and Area | 0.6383 | 697 |
| 12090793 | 041039 | Cole Harbour/Eastern Passage | 0.3617 | 394 |
| 12090357 | 041144 | Halifax Needham | 0.4746 | 382 |
| 12090357 | 041148 | Halifax Citadel | 0.5254 | 424 |
| 12090715 | 041251 | Sackville North and Area | 0.7268 | 669 |
| 12090715 | 041252 | Fall River and Area | 0.2732 | 251 |
| 12090598 | 020413 | East Hants Corridor | 1.0000 | 524 |
| 12090598 | 041353 | Eastern Shore | 0.0000 | 0 |

Cluster IDs

In order to easily identify areas of interest, each cluster has been assigned a unique identifier value in the form of a ClusterID, comprised of a six-digit number. The makeup of the ClusterID is based on three sets of two-digit ID numbers. These two digit numbers correspond to the Zone, Network, and Cluster respectively. An example cluster ID is shown in Figure 3 below, which corresponds to the East Hants Corridor cluster (Cluster ID 020412). As the figure also shows there is a value of 02 for the Management Zone (Northern Zone), and a value of 04 for the Community Health Network (Colchester/East Hants), and a value of 12 for the Cluster. Zones are assigned values from 01 to 04, networks from 01 to 14, and clusters from 01 to 54.

Figure 3 - An Example Cluster ID for East Hants Corridor Cluster



Quick lookup tables

The following three tables (Tables 2-4) present the list of every unique Cluster ID (Table 2), every unique Network ID (Table 3), and every two-digit ID value for each segment of the Cluster ID (Zone, Community Health Network, and Cluster) for easy reference.

Table 2 - Unique Cluster ID values for each Community Cluster

| Community Cluster | Cluster ID | Community Cluster | Cluster ID |
|--------------------------|-------------------|---|-------------------|
| Bridgewater | 010101 | Baddeck / Whycocomagh | 030828 |
| Chester and Area | 010102 | Cheticamp | 030829 |
| Liverpool | 010103 | Dingwall | 030830 |
| Lunenburg / Mahone Bay | 010104 | Inverness | 030831 |
| Digby / Clare / Weymouth | 010205 | New Waterford | 030932 |
| Shelburne/Lockeport | 010206 | Sydney and Area | 030933 |
| Yarmouth | 010207 | Dominion / Glace Bay | 030934 |
| Annapolis Royal | 010308 | Florence / Sydney Mines / North Sydney | 030935 |
| Berwick | 010309 | Dartmouth North | 041036 |
| Kentville | 010310 | Dartmouth South | 041037 |
| Middleton | 010311 | Dartmouth East | 041038 |
| Wolfville | 010312 | Cole Harbour/Eastern Passage | 041039 |

| | | | |
|---|--------|----------------------------------|--------|
| East Hants Corridor | 020413 | Preston/Lawrencetown/Lake Echo | 041040 |
| Economy / Glenholme | 020414 | Tantallon/ Timberlea/ SMB | 041141 |
| Hants North | 020415 | Sambro Rural Loop | 041142 |
| South Colchester | 020416 | Armdale/ Spryfield/ Herring Cove | 041143 |
| Truro and Area | 020417 | Halifax Needham | 041144 |
| Amherst | 020518 | Halifax Chebucto | 041145 |
| Cumberland North/ North Shore | 020519 | Fairview | 041146 |
| South Cumberland | 020520 | Clayton Park | 041147 |
| Springhill | 020521 | Halifax Citadel | 041148 |
| New Glasgow / Westville / Stellarton | 020622 | Bedford / Hammonds Plains | 041249 |
| Pictou West | 020623 | Sackville South | 041250 |
| Antigonish | 030724 | Sackville North and Area | 041251 |
| Guysborough / Canso | 030725 | Fall River and Area | 041252 |
| Sherbrooke | 030726 | Eastern Shore/ Musquodoboit | 041353 |
| Port Hawkesbury / L'Ardoise / Isle Madame | 030827 | West Hants | 041454 |

Table 3 - Unique NetworkID values for each Community Health Network

| Community Health Network | Network ID | Community Health Network | Network ID |
|---|-------------------|--|-------------------|
| Lunenburg & Queens Community Health Network | 0101 | Inverness, Victoria, & Richmond Community Health Network | 0308 |
| Yarmouth, Shelburne, & Digby Community Health Network | 0102 | Cape Breton Community Health Network | 0309 |
| Annapolis and Kings Community Health Network | 0103 | Dartmouth / Southeastern Community Health Network | 0410 |
| Colchester and East Hants Community Health Network | 0204 | Halifax Peninsula / Chebucto Community Health Network | 0411 |
| Cumberland Community Health Network | 0205 | Bedford Sackville Community Health Network | 0412 |
| Pictou Community Health Network | 0206 | Eastern Shore Musquodoboit Community Health Network | 0413 |
| Antigonish & Guysborough Community Health Network | 0307 | West Hants Community Health Network | 0414 |

Table 4 - Two Digit Place ID codes for Zones, Networks, and Clusters (used in Cluster, Network and Zone IDs)

| Geography | Name | Place ID |
|--------------------------|--|----------|
| Management Zone | Western | 01 |
| | Northern | 02 |
| | Eastern | 03 |
| | Central | 04 |
| Community Health Network | Lunenburg & Queens Community Health Network | 01 |
| | Yarmouth, Shelburne, & Digby Community Health Network | 02 |
| | Annapolis and Kings Community Health Network | 03 |
| | Colchester East Hants Community Health Network | 04 |
| | Cumberland Community Health Network | 05 |
| | Pictou Community Health Network | 06 |
| | Antigonish & Guysborough Community Health Network | 07 |
| | Inverness, Victoria, & Richmond Community Health Network | 08 |
| | Cape Breton Community Health Network | 09 |
| | Dartmouth / Southeastern Community Health Network | 10 |
| | Halifax Peninsula / Chebucto Community Health Network | 11 |
| | Bedford Sackville Community Health Network | 12 |
| | Eastern Shore Musquodoboit Community Health Network | 13 |
| | West Hants Community Health Network | 14 |
| Cluster | Bridgewater | 01 |
| | Chester and Area | 02 |
| | Liverpool | 03 |
| | Lunenburg / Mahone Bay | 04 |
| | Digby / Clare / Weymouth | 05 |
| | Shelburne/Lockeport | 06 |
| | Yarmouth | 07 |
| | Annapolis Royal | 08 |
| | Berwick | 09 |
| | Kentville | 10 |
| | Middleton | 11 |
| | Wolfville | 12 |
| | East Hants Corridor | 13 |
| | Economy / Glenholme | 14 |
| | Hants North | 15 |
| | South Colchester | 16 |
| | Truro and Area | 17 |
| | Amherst | 18 |
| | Cumberland North/ North Shore | 19 |
| | South Cumberland | 20 |
| | Springhill | 21 |
| | New Glasgow / Westville / Stellarton | 22 |
| | Pictou West | 23 |
| | Antigonish | 24 |
| | Guysborough / Canso | 25 |
| | Sherbrooke | 26 |
| | Port Hawkesbury / L'Ardoise / Isle Madame | 27 |
| | Baddeck / Whycomomagh | 28 |

| | |
|--|----|
| Cheticamp | 29 |
| Dingwall | 30 |
| Inverness | 31 |
| New Waterford | 32 |
| Sydney and Area | 33 |
| Dominion / Glace Bay | 34 |
| Florence / Sydney Mines / North Sydney | 35 |
| Dartmouth North | 36 |
| Dartmouth South | 37 |
| Dartmouth East | 38 |
| Cole Harbour/Eastern Passage | 39 |
| Preston/Lawrencetown/Lake Echo | 40 |
| Tantallon/ Timberlea/ SMB | 41 |
| Sambro Rural Loop | 42 |
| Armdale/ Spryfield/ Herring Cove | 43 |
| Halifax Needham | 44 |
| Halifax Chebucto | 45 |
| Fairview | 46 |
| Clayton Park | 47 |
| Halifax Citadel | 48 |
| Bedford / Hammonds Plains | 49 |
| Sackville South | 50 |
| Sackville North and Area | 51 |
| Fall River and Area | 52 |
| Eastern Shore/ Musquodoboit | 53 |
| West Hants | 54 |

Census 2011 Population Table: How it is organized

Accompanying the [Community Cluster shape file](#) is the Excel sheet (Figure 4 below) showing the population for each Management Zone, Community Health Network and Community Cluster.

Figure 4 – Population table/Excel sheet image

| ZONE 1: WESTERN (ZoneID 01) | | | | | |
|--|--------------------------------|-------------------------|--------------------------|-------------------|---|
| Community Health Network | Community Cluster | Dissemination Area (DA) | Population (2011 Census) | Population Weight | Population After Weighing (2011 Census) |
| Lunenburg & Queens Community Health Network (NetworkID 0101) | Bridgewater (ClusterID 010101) | 12060086 | 554 | 1 | 554 |
| | | 12060087 | 536 | 1 | 536 |
| | | 12060079 | 468 | 1 | 468 |
| | | 12060076 | 604 | 1 | 604 |
| | | 12060081 | 522 | 1 | 522 |
| | | 12060126 | 792 | 1 | 792 |
| | | 12060129 | 504 | 1 | 504 |
| | | 12060078 | 485 | 1 | 485 |
| | | 12060093 | 477 | 1 | 477 |
| | | 12060133 | 348 | 1 | 348 |
| | | 12060127 | 418 | 1 | 418 |
| | | 12060099 | 374 | 1 | 374 |
| | | 12060102 | 399 | 1 | 399 |
| | | 12060097 | 569 | 1 | 569 |
| | | 12060123 | 305 | 1 | 305 |
| | | 12060119 | 618 | 1 | 618 |
| | | 12060163 | 520 | 1 | 520 |
| | | 12060125 | 532 | 1 | 532 |
| | | 12060118 | 485 | 1 | 485 |
| | | 12060131 | 484 | 1 | 484 |
| | | 12060121 | 493 | 1 | 493 |
| | | 12060101 | 444 | 1 | 444 |
| | | 12060077 | 491 | 1 | 491 |
| | | 12060095 | 508 | 1 | 508 |
| | | 12060089 | 714 | 1 | 714 |
| | | 12060094 | 473 | 1 | 473 |
| | | 12060104 | 506 | 1 | 506 |
| | | 12060091 | 952 | 1 | 952 |
| | | 12060120 | 458 | 1 | 458 |

The table lists the DAs nested in each of the higher level geography, population for each DA based on the 2011 Census data, population weight, and post weighting population. This table also demonstrates how you may recalibrate other variables in the Census using the DA-level values and weighting. For example, if you wish to summarize the number of persons living alone at the Community Cluster-level, you can replace the ‘Population (2011 census)’ column with ‘the number of persons living alone’ from the DA-level data, and apply the weight, then aggregate the post weighing values within the Cluster (Figure 5).

Figure 5. Columns to use for data recalibration

| | Replace with your data | Apply the weight | Sum up the values |
|-------------------------------------|-------------------------|------------------|-------------------|
| | 12080056 | 832 | 741 |
| | <i>cluster subtotal</i> | | <i>7,054</i> |
| South Colchester (ClusterID 020416) | 12080056 | 832 | 90 |
| | 12100158 | 409 | 409 |
| | 12100160 | 514 | 514 |
| | 12080058 | 500 | 500 |
| | 12100168 | 548 | 548 |
| | 12100162 | 444 | 444 |
| | 12100167 | 370 | 370 |
| | 12080057 | 531 | 531 |
| | 12080061 | 0 | 0 |
| | 12100166 | 437 | 437 |
| | 12100169 | 385 | 385 |
| | 12080060 | 434 | 434 |
| | 12100159 | 478 | 478 |
| | 12100163 | 506 | 506 |
| | 12080062 | 1375 | 1375 |
| | 12100154 | 460 | 460 |
| | 12100164 | 421 | 421 |
| | 12080059 | 584 | 584 |
| | 12100170 | 388 | 388 |
| | 12100165 | 511 | 511 |
| | 12100161 | 593 | 529 |
| | 12100152 | 709 | 413 |
| | 12100153 | 819 | 733 |
| | <i>cluster subtotal</i> | | <i>11,060</i> |
| Truro and Area (ClusterID 020417) | 12100161 | 593 | 529 |

Upcoming updates for Census 2016 geography

We are currently assessing the changes in geographic boundary and the population estimates associated with the 2016 Census. The set of updated geographic boundary and population table will be made available as soon as they are completed. In the meantime, we recommend that the users of the current (2011) geographic boundary use the 2011 Census data.

If there is any question about how the Community Clusters were made and how to recalibrate your data using the population table, please contact [Beau Ahrens](#).