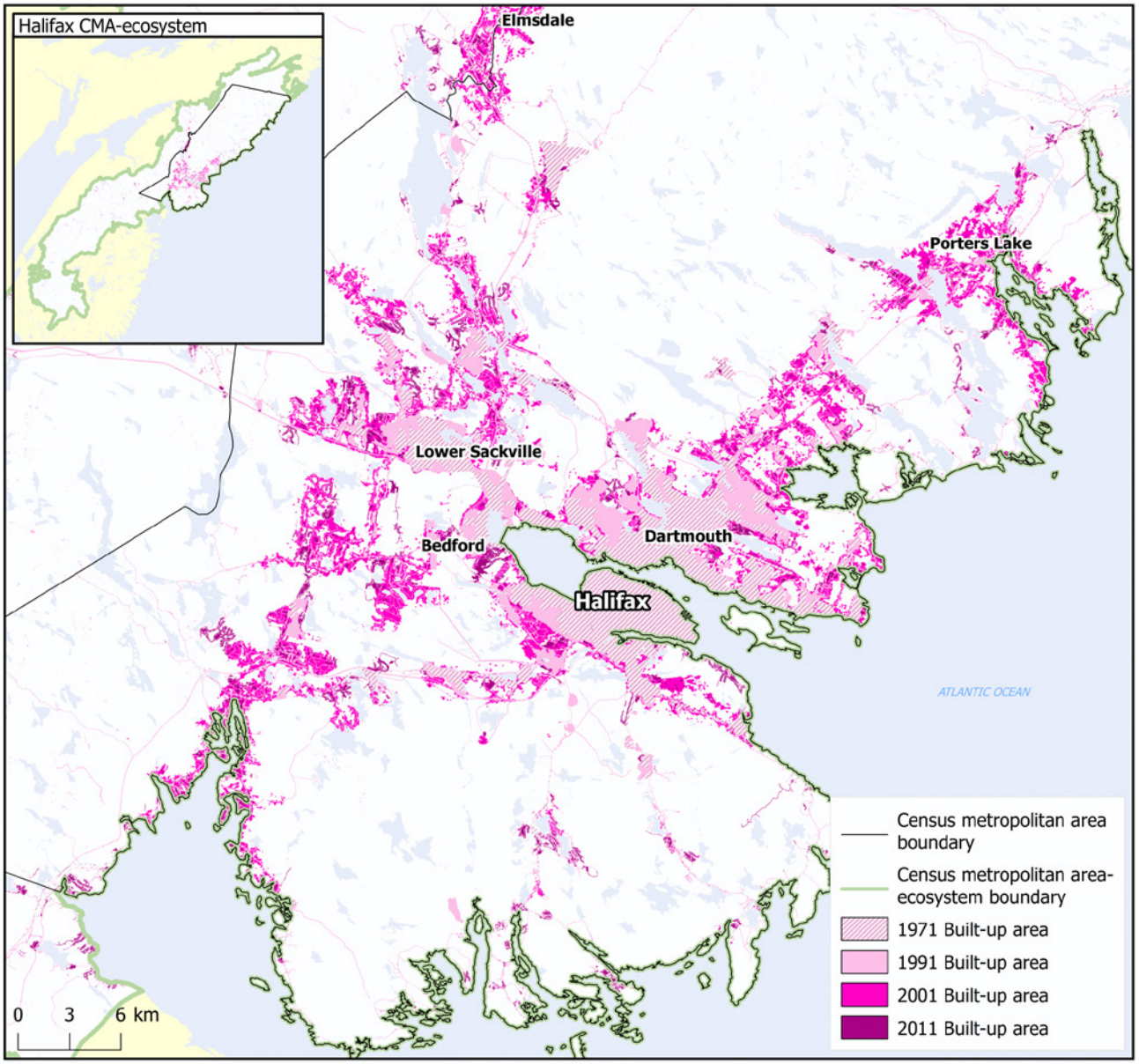
Halifax, Nova Scotia

Highlights

- At the CMA level, built-up area increased from 148 km^2 in 1971 to 467 km^2 in 2011, an increase of 217%.
- At the CMA-E level, built-up area increased from 168 km^2 in 1971 to 636 km^2 in 2011, an increase of 279%.
- In 2011, the natural and semi-natural land class was divided into forest (78%), water (7%) and other (15%).
- From 1971 to 2011, 50 km^2 of arable land and 297 km^2 of natural and semi-natural land were lost to settled area.
- Of the natural and semi-natural land converted to settled area from 1971 to 2011, 95.1% was forest, 0.6% was natural land for pasture and 4.3% was classed as other.
- Population in the CMA increased by 50% from 260,672 to 390,328 between 1971 and 2011.
- The number of dwellings in the CMA increased by 156% from 69,192 to 177,295 between 1971 and 2011.

Map 3.8
Built-up area, Halifax census metropolitan area (CMA) and census metropolitan area-ecosystem (CMA-E), 1971, 1991, 2001 and 2011

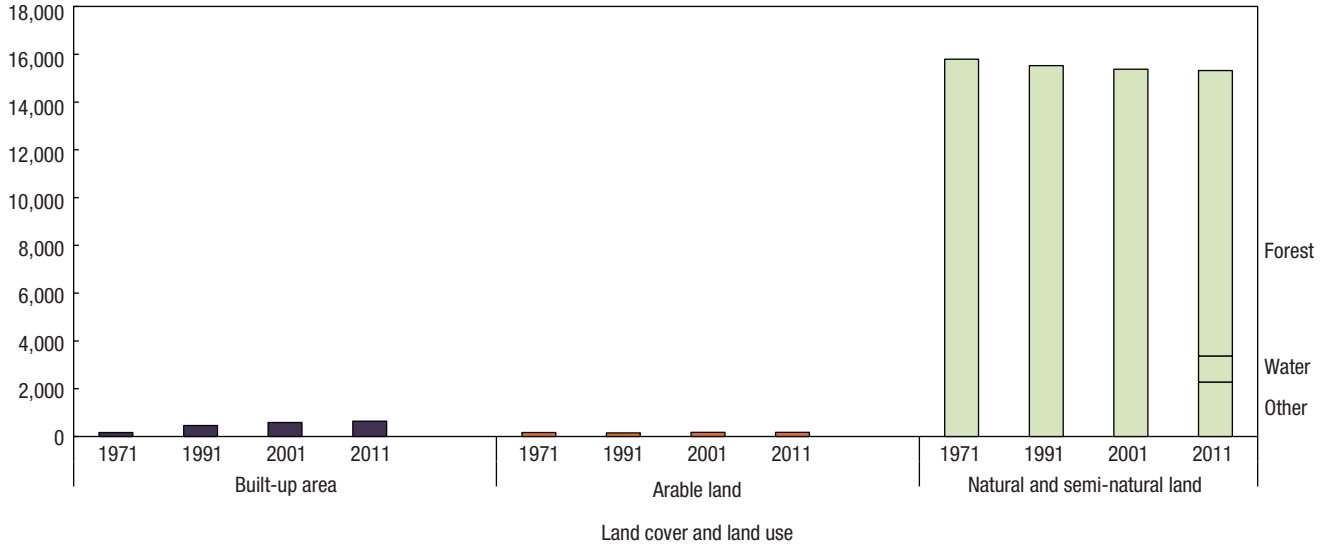


Note: Sources for 1971 built-up area do not contain the same level of detail as the more recent years.

Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): Land Use (1971),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada, 2015, *Land Use 1990, 2000 and 2010,* http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015); NRCan, Canada Centre for Mapping and Earth Observation, 2014, *CanVec+* , ftp://ftp2.cits.rncan.gc.ca/pub/canvec+/shp/ (accessed August 10, 2015).

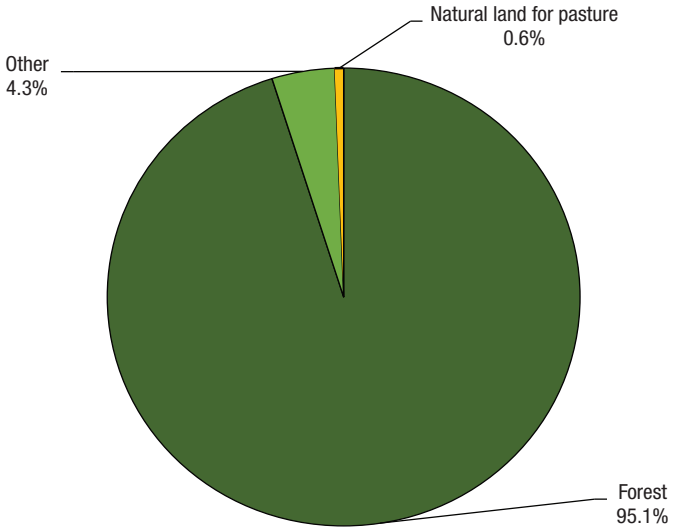
Chart 3.15
Land cover and land use, Halifax census metropolitan area-ecosystem (CMA-E), 1971, 1991, 2001 and 2011

square kilometres



Notes: Built-up area for 1971 is based on *Canada Land Inventory: Land Use* (CLI: LU) and *Canada Land Use Monitoring Program* (CLUMP), with modeling of roads. CLI: LU and CLUMP built-up areas that were not built-up in the *AAFC Land Use, 1990* dataset were removed from the 1971 built-up data and reclassified according to their 1990 cover. Built-up areas for other years are taken from *Land Use, 1990, 2000 and 2010*. Arable land is composed of the cropland, tame or seeded pasture and summerfallow land from the Interpolated Census of Agriculture. Natural and semi-natural land is the residual area remaining after subtracting built-up and arable land from the total area. Because it was calculated residually, the class also includes some homes and other buildings, particularly those located on large lots and in rural areas, since these may not be captured by satellite imagery as built-up, due in part to the resolution of the data, but also overlying tree canopy. For 2011, forest and water are broken out separately based on data from *AAFC Crop Inventory, 2011* and *CanVec+* respectively. Other natural and semi-natural land is a residual class calculated by subtracting all other classes from the total area.
Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): CLUMP Land Use (1971)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada (AAFC), 2015, *Land Use 1990, 2000 and 2010*, http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015); AAFC and Statistics Canada, special tabulation, *Census of Agriculture*, Census Geographic Component Base 2011 and Census of Agriculture Regular Base 1971; AAFC, 2013, *AAFC Crop Inventory, 2011*, http://open.canada.ca/data/en/dataset/58ca7629-4f6d-465a-88eb-ad7fd3a847e3 (accessed August 10, 2015); NRCan, Canada Centre for Mapping and Earth Observation, 2014, *CanVec+*, ftp://ftp2.cits.rncan.gc.ca/pub/canvec+/shp/ (accessed August 10, 2015).

Chart 3.16
Natural and semi-natural land lost to settled area, by selected land class, Halifax census metropolitan area-ecosystem (CMA-E), 1971 to 2011



Notes : Natural and semi-natural land lost to settled area is calculated by overlaying the growth in settled area from 1971 to 2011 on natural and semi-natural land from the *Canada Land Inventory: Land Use (CLI: LU)* base layer and, for areas where the 1971 settled area was trimmed, on the area reclassified using AAFC's *Land Use, 1990*. Natural and semi-natural land lost to roads is not included. Other could include rock and unvegetated surfaces; wetland; mines, quarries, sand and gravel pits; outdoor recreation; other natural and semi-natural land and unmapped areas.
Sources : Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): CLUMP Land Use (1971),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada, 2015, *Land Use 1990, 2000 and 2010,* http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015).

Table 3.22
Population and dwellings, total and settled area, Halifax census metropolitan area (CMA) and census metropolitan area-ecosystem (CMA-E), 1971, 1991, 2001 and 2011

	CMA[1]		CMA-ecosystem[2]	
	Total area	Settled area[3]	Total area	Settled area[3]
	number			
1971				
Population	260,672	225,552	281,850	229,782
Dwellings	69,192	60,605	74,856	61,668
1991				
Population	323,542	296,797	358,033	318,848
Dwellings	118,732	109,585	130,661	117,195
2001				
Population	347,902	323,744	383,893	342,956
Dwellings	147,779	137,950	164,867	146,513
2011				
Population	390,328	370,811	428,380	391,336
Dwellings	177,295	168,351	196,350	178,585
	percent			
Population and dwelling change, 1971 to 2011				
Population	50	64	52	70
Dwellings	156	178	162	190

1. 2011 census metropolitan area (CMA) boundaries are used for all years.
2. The CMA-Ecosystem (CMA-E) combines any Soil Landscapes of Canada (SLC) polygon that is contained within or that intersects with the CMA boundary, as well as SLC polygons that are fully contained within this newly formed boundary of the CMA-E.
3. Settled area is defined as the built-up area excluding roads. Settled area population and dwelling counts include 1971 and 1991 enumeration area points and 2001 and 2011 dissemination block points located within 400 m of the settled area. Population and dwelling data for 2001 and 2011 is finer in scale than data for 1971 and 1991 and can therefore be better attributed to the settled areas, which may limit comparability of the data over time.

Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from the 1971, 1991, 2001 and 2011 Censuses of Population; Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): CLUMP Land Use (1971)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada, 2015, *Land Use 1990, 2000 and 2010*, http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015).

Table 3.23
Land cover and land use, Halifax census metropolitan area (CMA) and census metropolitan area-ecosystem (CMA-E), 1971, 1991, 2001 and 2011

	CMA[1]	CMA-ecosystem[2]	CMA as a proportion of CMA-ecosystem
	square kilometres		percent
Total land area	5,496	16,127	34
1971			
Total built-up[3]	148	168	88
Settled	96	100	96
Roads	52	68	76
Arable[4]	..	166	..
Natural and semi-natural[5]	..	15,793	..
1991			
Total built-up[6]	313	455	69
Settled	204	271	75
Roads	110	184	59
Arable[4]	..	149	..
Natural and semi-natural[5]	..	15,522	..
2001			
Total built-up[6]	428	581	74
Settled	318	397	80
Roads	110	185	60
Arable[4]	..	170	..
Natural and semi-natural[5]	..	15,375	..
2011			
Total built-up[6]	467	636	73
Settled	354	446	79
Roads	113	189	60
Arable[4]	..	168	..
Natural and semi-natural[7]	..	15,322	..
Forest	..	11,952	..
Water	..	1,096	..
Other	..	2,275	..
		percent	
Land cover and land use change, 1971 to 2011			
Total built-up area[3,6]	217	279	...
Arable[4]	...	2	...
Natural and semi-natural[5]	...	-3	...

1. 2011 census metropolitan area (CMA) boundaries are used for all years. Total area excludes water.
2. The CMA-Ecosystem (CMA-E) combines any Soil Landscapes of Canada (SLC) polygon that is contained within or that intersects with the CMA boundary, as well as SLC polygons that are fully contained within this newly formed boundary of the CMA-E. Includes all terrestrial and water surfaces.
3. Built-up area for 1971 is based on *Canada Land Inventory Land Use* (CLI: LU) and *Canada Land Use Monitoring Program* (CLUMP), code B – Urban Built-up. CLI: LU and CLUMP built-up areas that were not built-up in the AAFC *Land Use, 1990* dataset were removed from the 1971 built-up data and reclassified according to their 1990 cover. To improve comparability with the other years, roads included in the core built-up area were identified and removed to produce the 1971 settled area. The 1971 dataset did not include roads outside the core built-up area. Roads were modeled by applying the ratio of roads to settled area from 1990 to the 1971 settled area.
4. Arable land area is composed of the cropland, tame or seeded pasture and summerfallow land from the Interpolated Census of Agriculture.
5. Natural and semi-natural land is the residual area remaining after subtracting built-up and arable land from the total area. Because it was calculated residually, the class also includes some homes and other buildings, particularly those located on large lots and in rural areas, since these may not be captured by satellite imagery as built-up, due in part to the resolution of the data and overlying tree canopy.
6. Built-up area estimates for 1991, 2001 and 2011 are based on *Land Use, 1990, 2000 and 2010,* codes 21 (Settlement–Built-up and urban) and 25 (Roads–primary, secondary and tertiary).
7. For 2011, forest and water are broken out separately based on data from *AAFC Crop Inventory, 2011* and *CanVec+* respectively. Other natural and semi-natural land is a residual class calculated by subtracting all other classes from the total area. The change over time for these categories requires further validation.

Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): CLUMP Land Use (1971),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada (AAFC), 2015, *Land Use 1990, 2000 and 2010,* http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015); AAFC and Statistics Canada, special tabulation, *Census of Agriculture*, Census Geographic Component Base 2011 and 2001 and *Census of Agriculture*, Regular Base 1991 and 1971; AAFC, 2013, *AAFC Crop Inventory, 2011*, http://open.canada.ca/data/en/dataset/58ca7629-4f6d-465a-88eb-ad7fd3a847e3 (accessed August 10, 2015); NRCan, Canada Centre for Mapping and Earth Observation, 2014, *CanVec+,* ftp://ftp2.cits.rncan.gc.ca/pub/canvec+/shp/ (accessed August 10, 2015).

Table 3.24
Ecosystem asset account, Halifax census metropolitan area-ecosystem (CMA-E), 1971 to 2011

	Total built-up area[1]			
	Settled	Roads	Arable[2]	Natural and semi-natural[3]
	square kilometres			
Opening stock 1971	100	68	166	15,793
Land lost to settled area	…	…	-50	-297
Balance of change[4]	346	121	53	-174
Closing stock 2011	446	189	168	15,322

1. Built-up area data are taken from multiple sources. The 1971 built-up area is based on *Canada Land Inventory: Land Use* (CLI: LU) and *Canada Land Use Monitoring Program* (CLUMP). CLI: LU and CLUMP built-up areas that were not built-up in the AAFC *Land Use, 1990* dataset were removed from the 1971 built-up data and reclassified according to their 1990 cover. To improve comparability with the other years, roads included in the 1971 core built-up area were identified and removed to produce the 1971 settled area. As the 1971 dataset did not include roads outside the core built-up area, roads were modeled by applying the ratio of roads to settled area from 1990 to the 1971 settled area. Built-up area estimates for 2011 are based on *Land Use, 1990, 2000 and 2010,* codes 21 (Settlement–Built-up and urban) and 25 (Roads–primary, secondary and tertiary).
2. Arable land lost to settled area is calculated by overlaying the growth in settled areas from 1971 to 2011 on the CLI: LU base layer and, for areas where the 1971 settled area was trimmed, on the area reclassified using AAFC *Land Use, 1990*. The following CLI: LU classes were included: cropland, improved pasture and forage crops, orchards and vineyards and horticulture.
3. Natural and semi-natural land lost to settled area is calculated by overlaying the growth in settled area from 1971 to 2011 on the CLI: LU base layer and, for areas where the 1971 settled area was trimmed, on the area reclassified using AAFC *Land Use, 1990*. The following CLI: LU classes were included: forest, natural pasture and rangeland, outdoor recreation areas, rock and unvegetated surfaces, open wetland and unmapped areas.
4. The balance of change row reports the change, other than arable and natural and semi-natural land lost to settled area, that occurred from 1971 to 2011. These values are determined using an accounting procedure and represent the remaining difference between the opening and closing stock. Some rounding may occur.

Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2016, special tabulation of data from Natural Resources Canada (NRCan), Canada Centre for Remote Sensing (CCRS), 1999, *Canada Land Inventory: CLI Land Use (circa 1966)*, ftp://ftp2.cits.rncan.gc.ca/pub/geott/cli_250k/landuse/ (accessed September 15, 2015); NRCan, CCRS, 1999, *Canada Land Use Monitoring Program (CLUMP): CLUMP Land Use (1971),* ftp://ftp2.cits.rncan.gc.ca/pub/geott/clump/clump_1971/ (accessed September 15, 2015); Agriculture and Agri-Food Canada (AAFC), 2015, *Land Use 1990, 2000 and 2010*, http://open.canada.ca/data/en/dataset/18e3ef1a-497c-40c6-8326-aac1a34a0dec (accessed September 16, 2015); AAFC and Statistics Canada, special tabulation, *Census of Agriculture*, Census Geographic Component Base 2011 and 2001 and *Census of Agriculture*, Regular Base 1971 and 1991; NRCan, Canada Centre for Mapping and Earth Observation, 2014, *CanVec+,* ftp://ftp2.cits.rncan.gc.ca/pub/canvec+/shp/ (accessed August 10, 2015).

Links to more information

Tables by metropolitan area, Halifax
www.StatCan.gc.ca/tables-tableaux/sum-som/l01/met01/met108-eng.htm

Halifax CMA, population change, 2006 to 2011, by 2011 census tract
www12.StatCan.gc.ca/census-recensement/2011/geo/map-carte/pdf/thematic/2011-98310-001-205-013-01-00-eng.pdf

Metropolitan gross domestic product, experimental estimates, CANSIM TABLE 381-5000
www5.StatCan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3815000&paSer=&pattern=&stByVal=1&p1=1&p2=31&tabMode=dataTable&csid

Halifax CMA, Census Profile, 2011
www12.StatCan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMA&Code1=205&Geo2=PR&Code2=12&Data=Count&SearchText=halifax&SearchType=Begins&SearchPR=01&B1=All&Custom=&TABID=1

Halifax CMA, National Household Survey (NHS) Profile, 2011
www12.StatCan.gc.ca/nhs-enm/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMA&Code1=205&Data=Count&SearchText=halifax&SearchType=Begins&SearchPR=01&A1=All&B1=All&Custom=&TABID=1