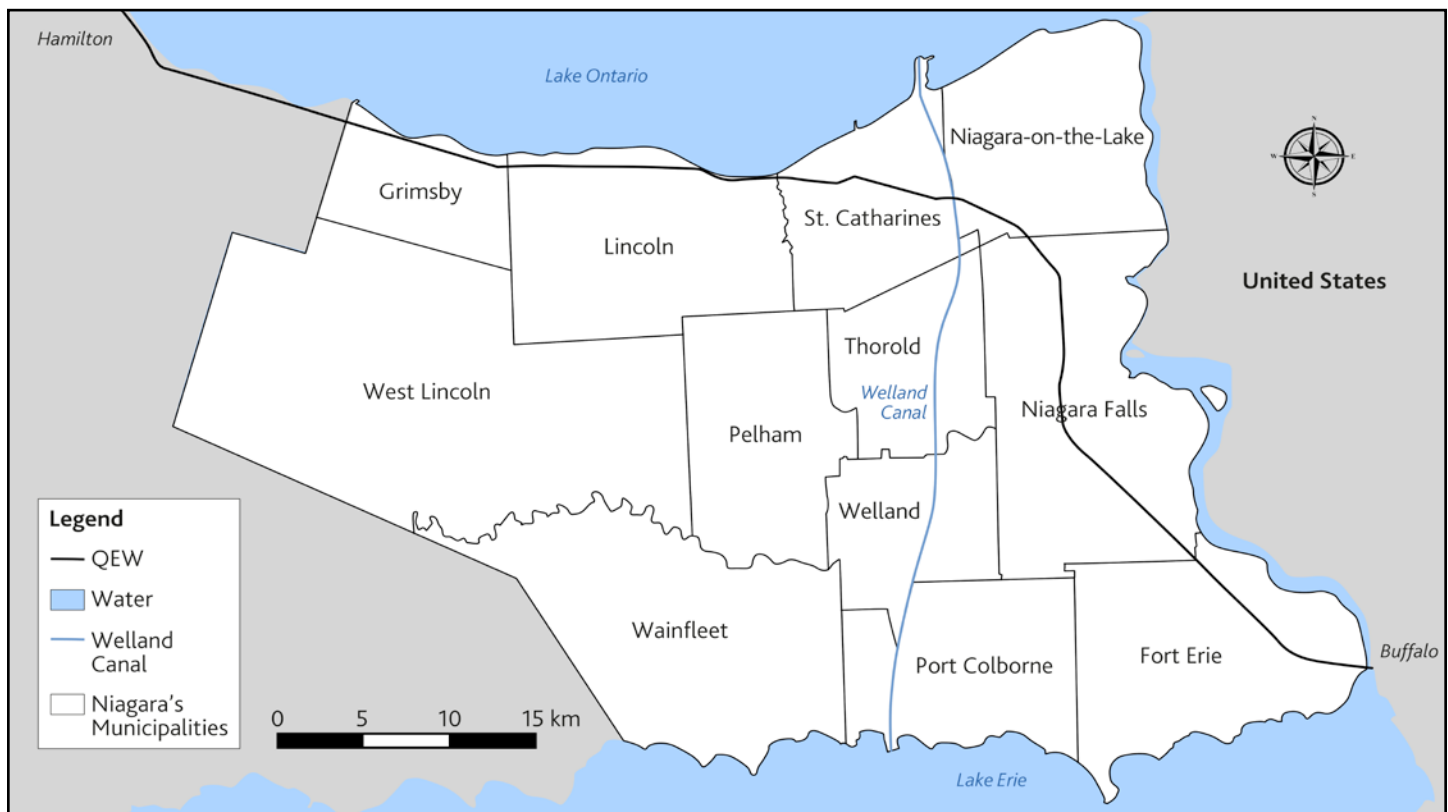


## Population Change in Niagara, 1971–2021: Population patterns interpreted

As a result of the *Regional Municipality Act of Niagara*<sup>1</sup>, Lincoln County and Welland County were merged on Jan. 1, 1970, into the Regional Municipality of Niagara. This Act also merged their 26 subsidiary units into 12 local municipalities: **Fort Erie, Grimsby, Lincoln, Niagara Falls, Niagara-on-the-Lake, Pelham, Port Colborne, St. Catharines, Thorold, Wainfleet, Welland, and West Lincoln.** These 12 local municipalities are mapped in Figure 1.

These brand-new municipal boundaries were incorporated into Statistics Canada’s enumeration for the 1971 *Census of Canada*. For the previous 45 years, The Dominion Bureau of Statistics<sup>2</sup> had been responsible for enumerating Canadians on a five-year basis. Those censuses incorporated the older county and municipal boundaries. As a result, reconfiguring those boundaries to the existing 12 municipalities created in 1970 is challenging and complicated.

**Figure 1:** Niagara’s 12 municipalities and nearby landmarks



<sup>1</sup> Available here: <https://bit.ly/3P8ABnr>, scanned from the original document in the Revised Statutes of Ontario and cited as Regional Municipality of Niagara Act, RSO (Revised Statutes of Ontario) 1970, c 406

<sup>2</sup> The Statistics Act of 1918 authorized the formation of a Dominion Bureau of Statistics, per the timeline at <https://bit.ly/46JnkaS>

Thus, we leave that work for a later day and instead focus our geodemographic analysis on the 11 census years between 1971 and 2021<sup>3</sup>. Note that we use the acronym CSD (census subdivision) interchangeably with municipality. In Niagara and most of Ontario, CSDs correspond identically to municipal boundaries.

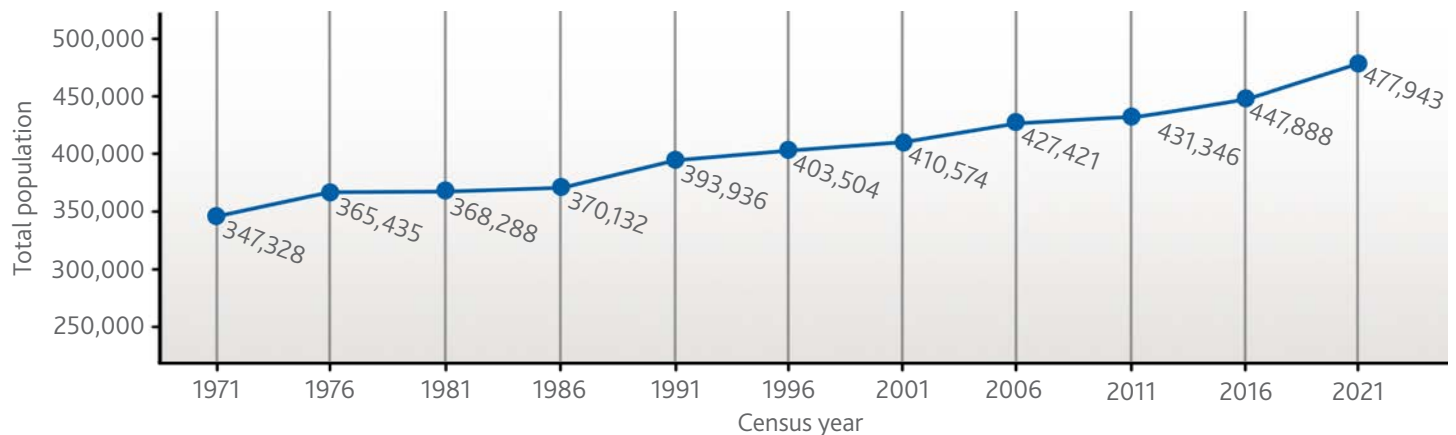
In Figure 2a, Niagara’s population increased from more than 347,000 in 1971 to nearly 478,000 in 2021. This was an increase of ca. 131,000 people. This was not a constant increase over time. The steepness (or slope) of the line segment between any two years is directly proportional to the size of the population’s increase. Using this steepness to identify the largest increases, the two most notable are between [a] 1986 and 1991 (ca. 23,000), and [b] 2016 and 2021 (ca. 30,000). Likewise, the smallest

increases were between 1976 and 1981 (ca. 3,000) and 1981 and 1986 (ca. 2,000).

This translated into an overall increase of 38 per cent over this 50-year period, as shown in Figure 2b. By indexing the population to its 1971 level, Figure 2b shows us what is essentially a growth rate, though always measured against 1971, and not the most recent year. Bearing that in mind, we see that Niagara’s largest growth rate was between 2016 and 2021, when Niagara’s population grew by ca. nine per cent of its 1971 population.

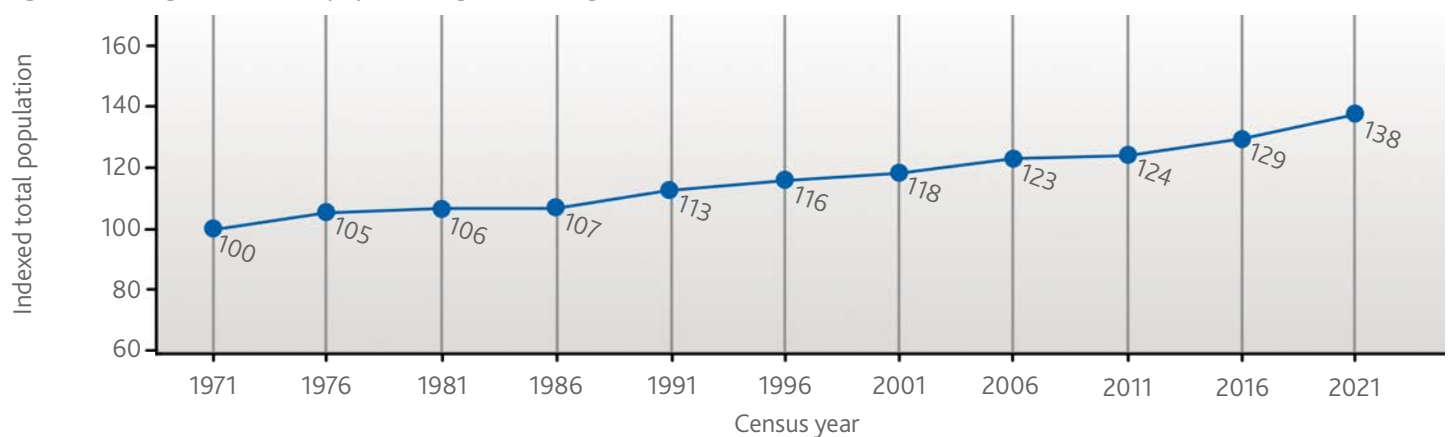
Having established Niagara’s actual overall population, we now examine which groups of municipalities grew fastest and slowest. As we do so, we will investigate the possible impact of particular locational characteristics.

**Figure 2a:** Niagara’s actual population, 1971–2021—Sum of 12 CSDs’ total population in census year



Source: Statistics Canada, Census of Population, various years

**Figure 2b:** Niagara’s indexed population growth using 1971 as base, 1971–2021



Source: Statistics Canada, Census of Population, various years and author calculations

<sup>3</sup> Unless otherwise noted, all the following data originate in the publicly-available paper and digital publications from the 1971, 1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011, 2016 and 2021 Census of Canada and focus on the aforementioned 12 municipalities.

## WHAT ACCOUNTS FOR THE CHANGES IN TOTAL POPULATION OF NIAGARA MUNICIPALITIES?

Let's first consider the larger structural factors that could shape total population trends. First, Canada is a country with no internal passports. Generally speaking, citizens are free to move where they may. In other words, most Canadians have the right to move, even if they don't have the opportunity, means or motivation to do so. While we take this for granted, it is an important condition to bear in mind.

Second, like most countries in the Western hemisphere, the dominant culture is one that views migration as normal, be it domestic or international. Most Canadians have one or more ancestors who immigrated to Canada within the last few centuries. Some, like the authors, have moved here within the last two decades. This is all to underscore the fact that migration is a normal part of our lives. We contend this means that Canadians are more prone to act on the opportunity to migrate, assuming they also have the means and motivation to do so.

Third, most decisions to migrate can be simplified to the interplay of three factors: the attractiveness of their current residence; the attractiveness<sup>4</sup> of competing destinations; and their knowledge of these competing destinations. We can call this the origin-destination-information field conceptual model, though several variants exist. In this model, a residence is not just

the physical domicile (be it apartment, detached single dwelling, yurt, trailer home or some other fixed structure)<sup>5</sup>, but also the larger context in which one's home is located.

Individuals, households and even communities evaluate their own circumstances: if these circumstances could be improved by moving, and if moving is feasible. Complicating this origin-destination-information field model are life-cycle migration theories, which consider one's age, gender, and family circumstances to explain who is likely to move at what age or stage in their life. However, we don't need to review that literature to make the main point: attractive locations attract and retain people, all other things being equal.

All of this is to say that a location's relative attractiveness will influence how much and how quickly its total population grows or declines. Ever since Ravenstein (1885, 1889), two variables—total population and change in total population over time—have been used as crude proxies for a location's attractiveness. When we examine these two variables for a group of neighboring locations, like Niagara's 12 CSDs, we gain insights on the relative attractiveness of each of the locations. With this in mind, let's assess three influences for why some parts of Niagara grew faster or slower than others.

## THREE POSSIBLE INFLUENCES

In particular, we consider the possible influence of three locational factors, not because they are exclusive, but because they are interesting in the context of Niagara's geography:

- proximity to Great Lakes,
- proximity to the Welland Canal; and
- proximity to the Queen Elizabeth Way (QEW).

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<sup>4</sup> The term "attractiveness" is relative to the individual and could be measured by various indicators, including economic, cultural, geographic, urban amenities such as public transportation, etc.

<sup>5</sup> In deference to my colleagues in Mobility Studies, I recognize that I am assuming most Canadians in the early 21st century are sedentary as opposed to nomadic or semi-nomadic, and that the discourse around normalizing his behavior is deep-seated, powerful and far-reaching.

Historically, waterways were a valuable resource in Niagara well before European settlement (Schull 1978). While European permanent settlement predates the 1780s, the American Revolution prompted the large-scale resettling of Loyalist forces around the Niagara River. After the cessation of those hostilities, Loyalist settlement shifted from the New York west bank to the Upper Canada east bank of the Niagara River, installing a centre of gravity along the Niagara River. The various creeks, especially on the Lake Ontario shoreline, functioned as transport routes that tied the interior to other locations.

Whether or not these waterways remain crucial factors in shaping settlement trends in Niagara is another question. While the Lake Ontario shoreline experiences a milder climate than elsewhere in Niagara<sup>6</sup>, in an age of air conditioning and gas heating, this is likely not important, except in terms of agriculture and specifically tender fruit crops. Likewise, the profusion of paved streets and highways coupled with the relatively low cost of automobiles even in 1971 had already made most of Niagara relatively accessible by automobile.

Figure 3a allocates Niagara's population to one of three regions: **those along Lake Ontario (Grimsby, Lincoln, St. Catharines, Niagara-on-the-Lake); those along Lake Erie (Fort Erie, Port Colborne, Wainfleet); and those inland CSDs that border neither of those lakes (Niagara Falls, Pelham, Thorold, Welland, West Lincoln).** Three trends stand out.

First, the population in CSDs bordering Lake Ontario has remained the largest over these past 50 years. Second, Niagara's interior population has been nearly as large. Furthermore, in recent years, the already narrow gap between these two regions has narrowed further, with the

interior threatening to take over in terms of population if current trends continue. Third, the total population bordering Lake Erie has fluctuated around 50,000 over these 50 years. Unlike the rest of Niagara, it has added relatively few residents.

Recalling that Figure 3a showed us changes in actual population for Niagara's three lakeshore-based regions, Figure 3b illuminates their growth rates over the same 50 years.<sup>7</sup>

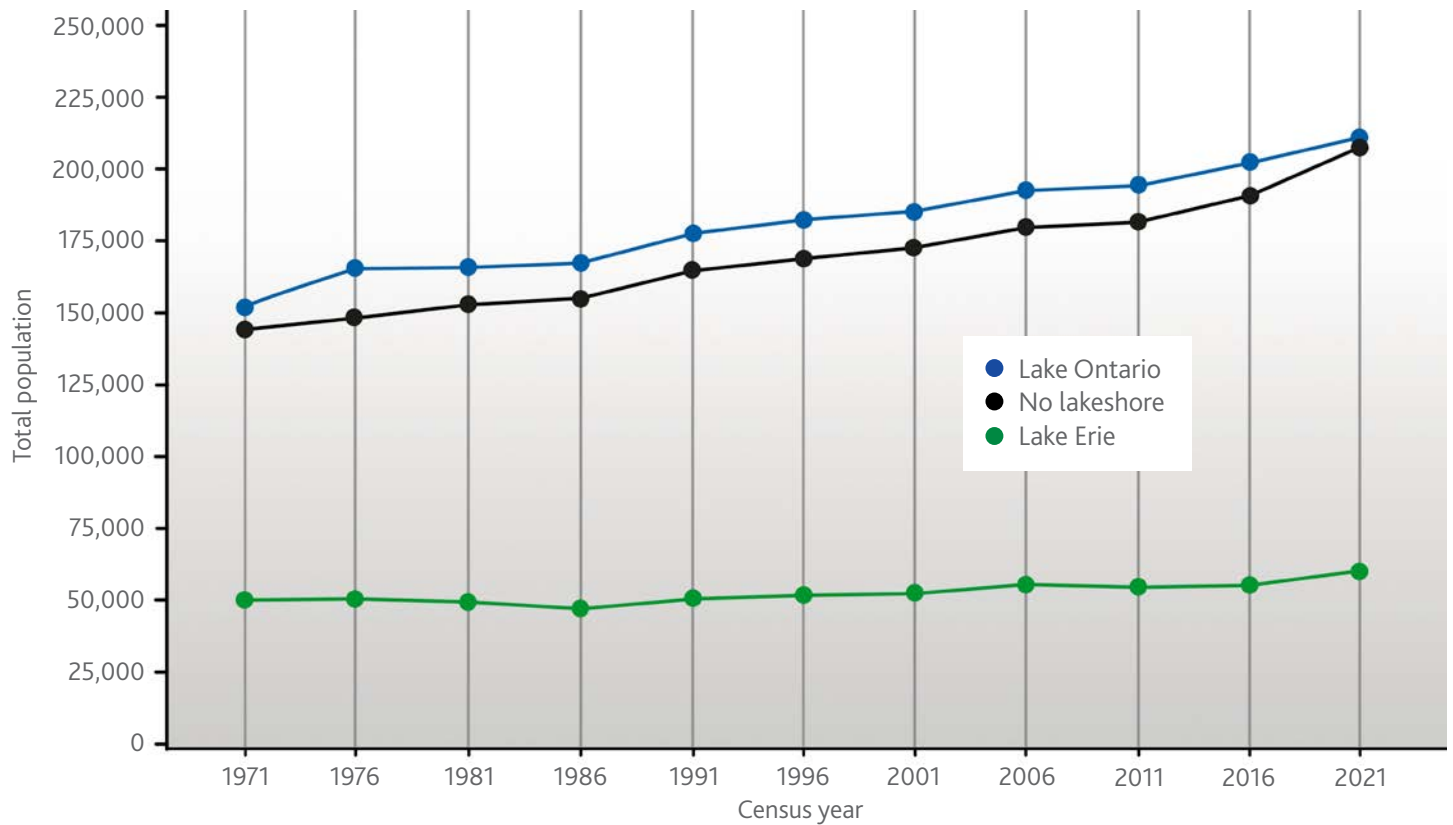
Two patterns stand out. First, over the 50 years, the interior of Niagara (i.e., "No lakeshore") grew the fastest, with its 2021 population about 40-per-cent larger than its 1971 population. In comparison, the population of the Lake Ontario region only grew by about 35 per cent. Recall that growth rates are affected by the size of the initial population. If two locations add the same number of people, but the first location had twice as many people as the second, the second location will always have a higher growth rate. Because both the Lake Ontario and the "No lakeshore" regions had roughly similar population over the entire period, the fact that the interior location grew faster over those 50 years is suggestive that interior Niagara is somehow marginally more competitive at attracting or retaining population.

Second, the Lake Erie region experienced slower growth over these 50 years. As a result, in 2021 its population was only about 20-per-cent larger than it was in 1971. This would suggest that while it did grow, it lacks one or more features that drove growth elsewhere in Niagara. This all begs for further research on what might have driven the rate of population change in the various communities and made some more attractive than others.

<sup>6</sup> Shaw, Tony (2013) "The Niagara Peninsula appellation: A climatic analysis of Canada's largest wine region," pages 143-164 in Ripmeester, Mackintosh and Fullerton (eds). *The world of Niagara wine*. Wilfried Laurier Press: Waterloo, Ontario, Canada. [book chapter]

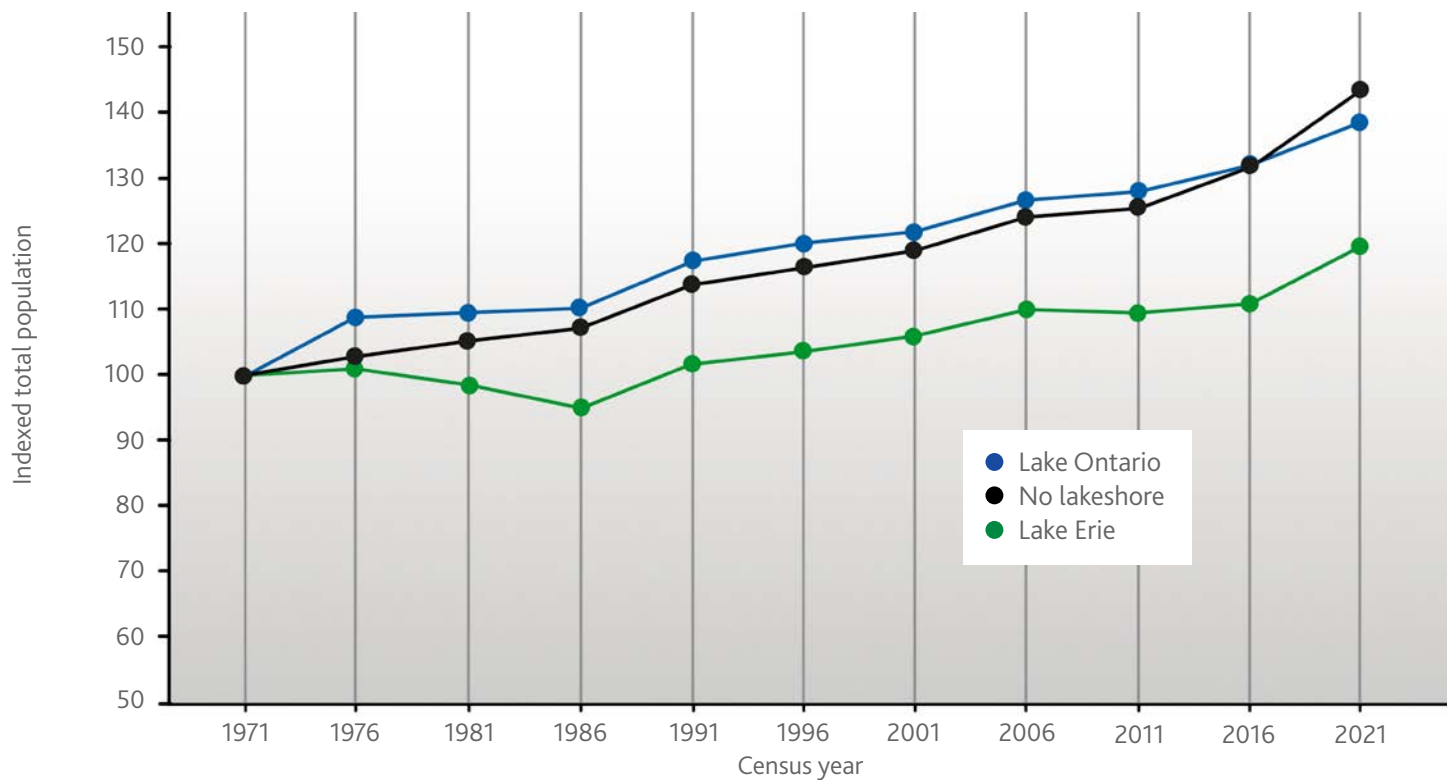
<sup>7</sup> We set the 1971 total population to 100. If the population increases over the 1971 level, this is reflected in a point above 100. Likewise, if the population decreases below the 1971 level, this is reflected in a point below 100. An increase in total population from one census year to the next will be shown by an upward slope in the line connecting the two points. Likewise, a decrease in total population from the one year to the next will be shown by a downward slope.

**Figure 3a:** Niagara’s actual population grouped by three lakeshore-based regions, 1971–2021



Source: Statistics Canada, Census of Population, various years

**Figure 3b:** Indexed growth for Niagara’s three lakeshore-based regions, 1971–2021



Source: Statistics Canada, Census of Population, various years

The Welland Canal continues to play a role in shaping Niagara's internal geography and where the region attracts population growth, though not to the degree it did in the 1800s. Its first iteration opened in the late 1820s. With the building of the second and third canals, the first canal system was used to supply a steady flow of water to power the mill-based economies and settlements that grew along its banks. The population of these canal-centred settlements grew rapidly throughout the 1800s, in turn drawing growth away from the initial Loyalist settlements on the west bank of the Niagara River. From south to north, the modern-day CSDs corresponding to these canal-adjacent communities are **Port Colborne, Welland, Thorold and St. Catharines**<sup>8</sup>.

While today we often imagine shipping canals as aquatic roads, in the past they were often just as important as a source of reliable water supply. Part of their water would be shunted into mill races and mill (or holding) ponds situated alongside the canal's main trunk. In turn, this water would power water wheels that drove machinery used to manufacture goods such as flour, sawn lumber and textiles. While innovations in electricity and fossil fuels diffused throughout the 1800s, only in the early 1900s were the Welland Canal's mill races closed. Thus, by the time the fourth Welland Canal opened in the early 1930s, Niagara's manufacturing economy had moved on to other power sources, though for reasons of industrial inertia remained centred along the Welland Canal. At the same time, the number of persons employed directly or indirectly by Canal-related industries, declined and is now much lower than a century or more ago.

While the Welland Canal nowadays shapes Niagara's internal geography primarily by complicating east-west travel (through a series of lift bridges necessary to move local vehicle traffic), it also left a legacy of relatively high

populations along its length. Whether or not the Welland Canal continues to influence Niagara's settlement patterns is still an interesting question.

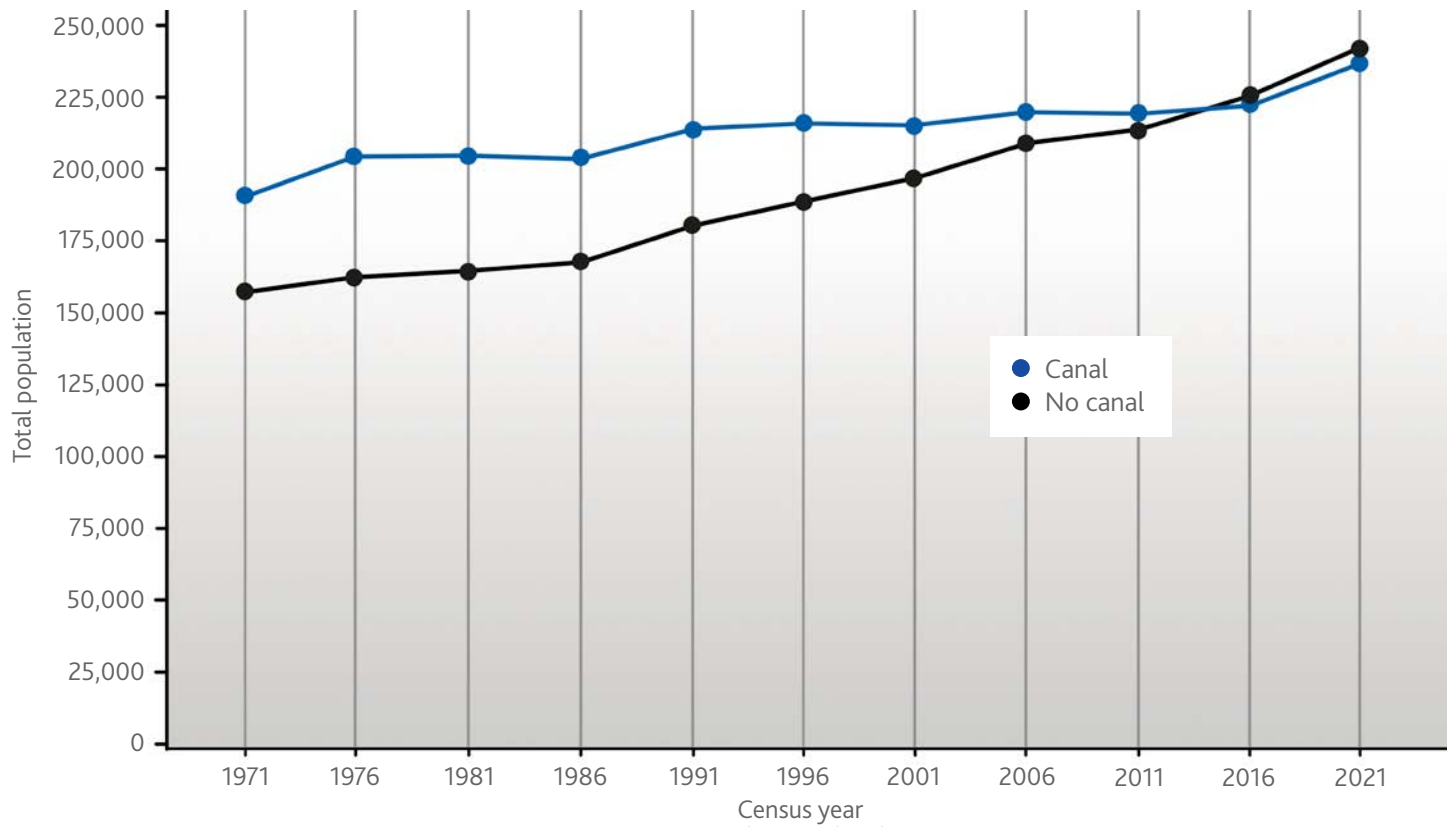
Figure 4a shows one main trend. While a clear majority of Niagara's 1971 population lived in the four CSDs along the Welland Canal, this gap gradually narrowed over the next 40 years before the rest of Niagara (i.e., "No canal" communities) eventually surpassed them by 2016. Both areas grew. However, CSDs that did not have the Welland Canal added so many more people that they not only caught up with the canal-side communities but surpassed them.

Figure 4b shows that while the population in the four canal-side CSDs (Port Colborne, Welland, Thorold and St. Catharines) was larger by about 25 per cent in 2021 compared to 1971, the remainder of Niagara grew 50 per cent during the same span.

Why might this be? These patterns probably reflect a combination of the effects of deindustrialization, suburbanization and proximity to the Greater Toronto Area (GTA). Deindustrialization generally results in manufacturing job loss, with its effects percolating through the communities where those workers live. Suburbanization generally requires favorable zoning regulations and available agricultural land. To the degree that the four canal-side communities were less conducive to suburban sprawl, this could explain the observed pattern. Finally, proximity to the GTA likely drives some of these patterns. To the degree that the GTA provides greater opportunities for job seekers, we might expect that CSDs within Niagara but closer to the GTA will be seen as more attractive locations to live. While the canal-side CSDs are in the middle of Niagara, the majority of the remaining eight CSDs are to the west. Only Niagara-on-the-Lake, Niagara Falls and Fort Erie lie to the east of the Welland Canal.

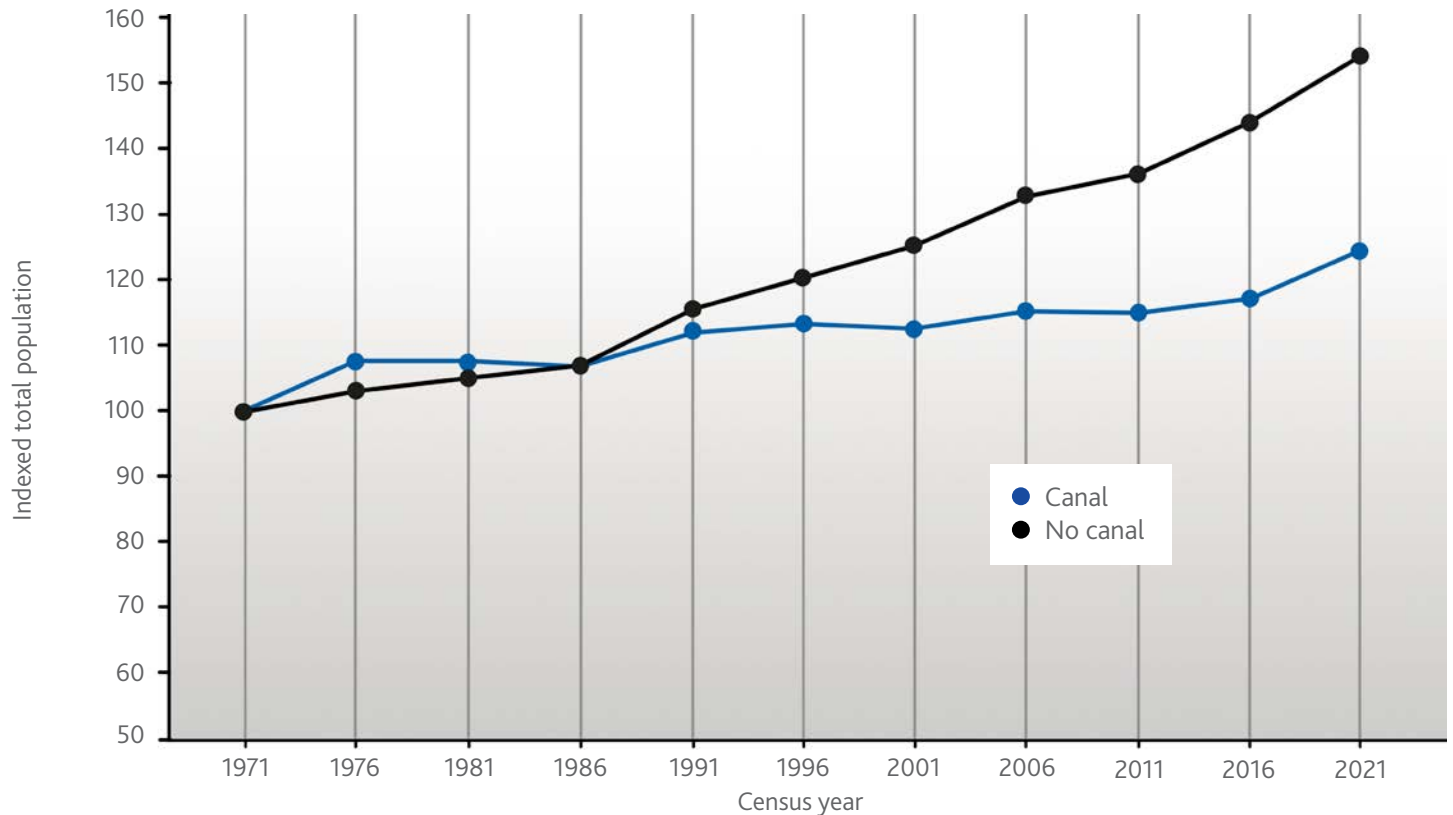
<sup>8</sup> Earlier iterations of the Welland Canal did pass through other locations, though. The first Welland Canal drew water through a series of canals in what is now Wainfleet while also relying on the Welland River to access the Niagara River and thus Lake Erie. These connections were phased out by the completion of the Welland Canal's third iteration.

**Figure 4a:** Niagara's actual population grouped by proximity to Welland Canal, 1971–2021



Source: Statistics Canada, Census of Population, various years

**Figure 4b:** Indexed growth along the Welland Canal, 1971–2021



Source: Statistics Canada, Census of Population, various years

## THE QUEEN ELIZABETH WAY (QEW)

The third transportation feature we consider is the Queen Elizabeth Way (QEW). The QEW is a limited access highway that opened in 1939, connecting Toronto to Niagara Falls and the US border (Gayler 1994: 6). The stretch between Niagara Falls and Fort Erie was completed in 1945 (Ibid: 250; see also, Campbell 1958). In addition to it being widened beyond two lanes, the drawbridges spanning the Welland Canal were replaced by the Garden City Skyway bridge in 1963. Since its opening, it has channeled and reinforced growth along its length. To what degree has this improved-accessibility translated into population growth?

For the 50 years from 1971 to 2021, the length of the QEW is situated in six CSDs. Starting at the region’s western border with Hamilton and ending at the Peace Bridge leading to Buffalo, these are: **Grimsby, Lincoln, St. Catharines, Niagara-on-the-Lake, Niagara Falls and Fort Erie**. In the next two graphs, these are shown as “QEW”. The “No QEW” line corresponds to Niagara’s remaining six CSDs (from west to east) **West Lincoln, Wainfleet, Pelham, Thorold, Welland and Port Colborne**.

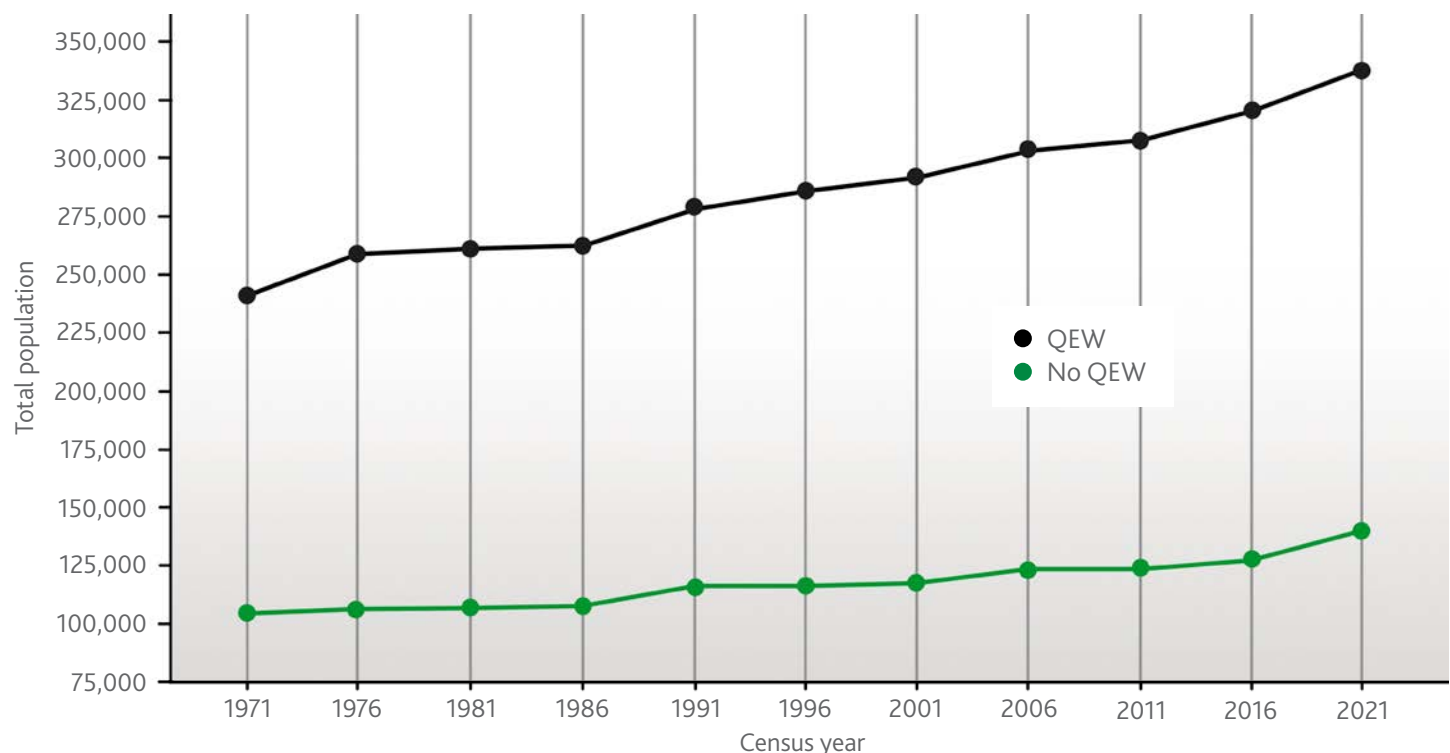
Figure 5a shows two trends. The population in CSDs located along the QEW is larger to begin with and remains larger.

It begins at 250,000 in 1971 and increases to roughly 340,000 in 2021 for a net increase of about 90,000. The CSDs without QEW access start at ca. 100,000 in 1971 and increase to roughly 130,000 in 2021, an increase of 30,000. Before we make too much of this, we should remember that the QEW had already been in operation for three decades when the Niagara Region was created. Thus, if the QEW contributes to population increase, this was already in effect for three decades.

Figure 5b, showing the population levels indexed to its 1971 level, has two notable trends. First, CSDs along the QEW grew more than the CSDs without the QEW. The QEW CSDs were about 45-per-cent larger in 2021 than in 1971. The “No QEW” CSDs, meanwhile, were only about 30-per-cent larger. However, the second trend shows the “No QEW” CSDs registered the steepest growth between 2016 and 2021.

What do these trends mean? At least in Niagara, CSDs having a limited access highway grew faster than those without a limited access highway, at least over the 50 years of this study. However, trends in the final five years of our graph require further research to account for the steep growth in “No QEW” CSDs.

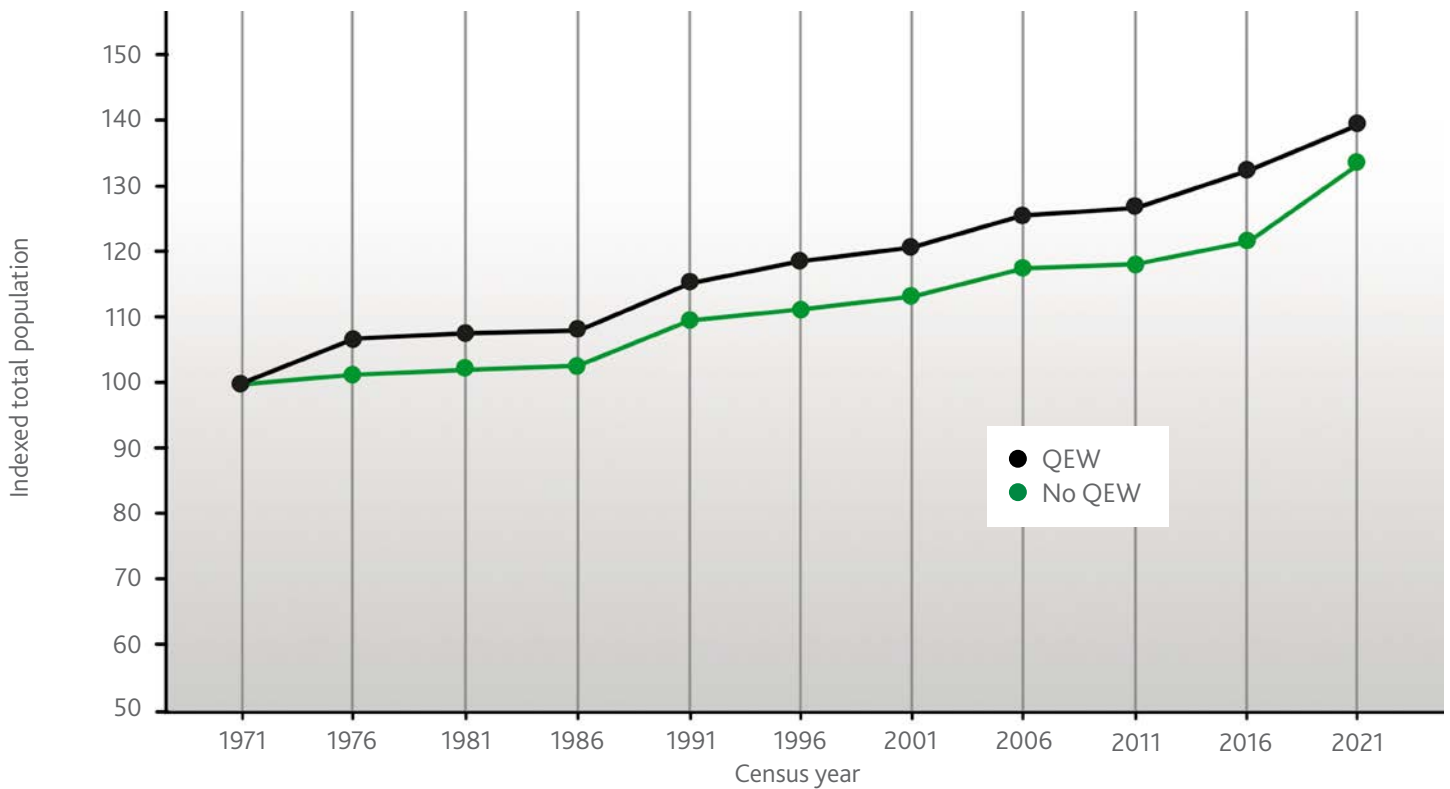
**Figure 5a:** Niagara’s actual population grouped by proximity to QEW, 1971–2021



Source: Statistics Canada, Census of Population, various years



Figure 5b: Indexed growth along the QEW, 1971–2021



Source: Statistics Canada, Census of Population, various years

## CONCLUSION

After examining Niagara’s population patterns in the 50 years since the Niagara Region was created by provincial fiat, this working paper posited three locational influences related to transportation infrastructure: proximity to shoreline; proximity to the Welland Canal; and proximity to the QEW.

The reader should be aware that in this and Working Paper #1, we examine Niagara’s population growth relative to its 12 CSDs. Later research should compare Niagara’s growth to that of Canada, Ontario and other comparator regions.