

The Story of Manufacturing in Niagara, 1969 to Present Day

“ The availability of power for industrial processes, combined with other assets like the Welland Canal, road and rail access, the availability of large amounts of water and proximity to the US market, were the catalyst for Niagara Falls and the surrounding region developing into an industrial powerhouse. ”

—City of Niagara Falls, 2014

Introduction

Niagara’s manufacturing sector dates back to the 1800s when the Niagara River made the region a hotbed for the development of hydro power and early industry (MacFarlane 2020; Hill 1969). A century later, the advent of hydroelectric power generation accelerated this industrialization, as energy-intensive manufacturers moved to Niagara to capitalize on the cheap electricity offered by local generating companies (MacFarlane 2020; Swift and Stewart 2004). These early technical advances were bolstered by other locational strengths, such as proximity to the Canada-United States border and access to international markets via the Welland Canal (Bost et al. 2018; Hill 1969).

The importance of manufacturing to Niagara’s regional economy has also created vulnerabilities, however. Economic downturns, offshoring, the liberalization of trade, and technological change within the sector have all impacted local manufacturers. These changes have created secondary challenges around talent development and retention, affordability and inequality, land development, and more. Though these challenges are not unique to Niagara, their impact in the region has been particularly acute, and the path forward is uncertain.

Nevertheless, there is cause for optimism. Niagara continues to be home to several innovative companies.

Strong connections to agriculture have helped the growth of food and beverage manufacturing in Niagara, while traditional associations with automotive manufacturing have made Niagara an intuitive site for emerging electric vehicle supply chains. This economic activity is being facilitated by a broad range of institutional supports and incentives that help to keep Niagara manufacturers competitive on the global stage.

This paper explores the history of manufacturing in Niagara. It focuses on the evolution of the sector post-1969 which is the year that the Regional Municipality of Niagara (Niagara Region) was incorporated. This paper pays particular attention to the last 20 years of manufacturing in the region, and the opportunities and barriers facing Niagara’s manufacturing sector today.

Contextualizing Niagara Manufacturing: 1950–1970

By 1969, the Niagara region was a vibrant manufacturing hub within Ontario. In addition to the early technical advances outlined above, proximity to the United States made Niagara a critical node in international supply chains (Niagara Falls 2014; Hill 1969). It also made Niagara an attractive destination for American-owned businesses hoping to avoid high tariffs on their exports to Canada by creating Canadian subsidiaries (Deslauriers, Gagné, and Paré 2022; Lostracco 1973). This was evident in the growth of the automotive industry in Niagara, as American automotive companies

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This research is funded by the Wilson Foundation, a multi-year partnership with Brock University and facilitated by the Niagara Community Observatory to map Niagara’s economic history and deepen the understanding of the region’s economic and social development. Principal Investigator: Dr. Charles Conteh.

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flocked to the region to access Canadian markets. By 1968, transportation equipment manufacturing accounted for 27.4 per cent of total employment within the region (Equitable Securities Canada Ltd. 1970). In turn, foreign-owned businesses accounted for over 93 per cent of employment within transportation equipment manufacturing (Lostracco 1973). Perhaps most famous of these was General Motors, whose two plants in Niagara employed 7,300 people, or 47 per cent of all manufacturing sector jobs within the region in 1969 (Hill 1969).¹

In general, Niagara manufacturers at this time were working in an industry-friendly policy environment. Many local manufacturers continued to benefit from the millions of dollars in federal investment provided to Canadian manufacturers during the Second World War (Valbruna ASW, n.d.). In 1961, the Ontario Government also passed the *Industrial Expansion Act*, which provided financial incentives and tax breaks designed to encourage industrial development within the province.

Niagara's locational strengths and institutional supports were bolstered by the expansion of the Queen Elizabeth Way (QEW) highway in the 1950s, and the opening of the Welland Canal Bypass in 1972. The latter reduced a round trip on the Welland Canal by one hour, solidifying Niagara's place as a vital trade corridor for Ontario manufacturing (St. Catharines Business Development Department 1974). Around this same time, the opening of Brock University in 1963, and Niagara College in 1967, helped to strengthen Niagara's workforce, supplying skilled labour to expanding local industry (Hill 1969).

Niagara manufacturers continued to benefit from access to cheap electricity during this period, as well. Though the Hydroelectric Power Commission of Ontario (HEPCO) had levelled rates across the province by offering a "public power" alternative to private distribution, the Commission's promise to supply power "at cost" had kept rates in Ontario low compared to private electricity markets in the United States (Swift and Stewart 2004). Investments in generating and transmission capacity also continued to encourage the industrialization of Ontario's economy, not just in Niagara but in other parts of the province, as well. During this time, Niagara Falls itself was carefully crafted to maximize generating capacity without hurting the tourist draw of the Falls themselves (MacFarlane 2020).

The incorporation of Niagara Region thus corresponded with a relative boom in local manufacturing, helped by everything

from cheap electricity and infrastructure investment to industry-friendly incentives. In 1961, 45 per cent of the 34,128 people employed in St. Catharines and Thorold were employed in manufacturing, compared to a national average of 23 per cent and an Ontario average of 29 per cent (Hill 1969). In 1970, the proportion of manufacturing employment was slightly lower across the region (37.9 per cent) but still much higher than the rest of Ontario (26.9 per cent) (Equitable Securities Canada Ltd. 1970). These jobs were concentrated in a handful of large manufacturers specializing in everything from paper and steel to chemical manufacturing, all of whom continued to rely on the Welland Canal for both shipping and cooling water (Hill 1969). The significance of manufacturing to Niagara's regional economy created vulnerabilities, however—vulnerabilities that would be exposed as the Canadian manufacturing landscape began to change in the 1980s and 1990s.

The Energy Crisis, Free Trade & Global Change: 1980s–1990s

Towards the end of the 1970s, the position of manufacturing within Niagara's economy began to change. A global energy crisis, combined with HEPCO's ongoing investment in nuclear generating capacity (a more expensive alternative to hydroelectric power), began producing drastic increases in the price of electricity in Ontario (Swift and Stewart 2004). Between 1976 and 1980, for example, rates increased by approximately 80 per cent (Swift and Stewart 2004).

Increasing electricity rates had an adverse effect on energy-intensive manufacturers in Niagara. Industry stakeholders formed the Niagara Basic Power Users Association (later renamed the Association of Major Power Consumers in Ontario), speaking out against rising energy costs within the province. Whereas cheap electricity had once drawn manufacturers to Niagara, the group argued that rising electricity prices were now driving manufacturing out of Ontario and into the United States (Swift and Stewart 2004). Local economic development officials took notice, seeing the impact that the "energy situation" was beginning to have on Niagara's regional economy (Niagara Economic Development Corporation 1985; St. Catharines Business Development Department 1974).

In response to the energy crisis and other shocks to the global economy, American policymakers were also becoming more protectionist. This created unique challenges for Niagara manufacturers, who relied heavily on the United States for both imports and exports (Niagara Economic Development Corporation 1985).

¹ *The predominance of American firms in Niagara was reinforced by the Canada-US Automotive Products Agreement (1965), which removed trade barriers within the automotive industry and helped to entrench the supply chains flowing through the region (Deslauriers, Gagné, and Paré 2022).*

The relative strength of Niagara's economy in the first half of the 20th century thus gave way to a period of extended decline. By 1985, unemployment in the region was 10.8 per cent, between four and five per cent higher than provincial and national averages (Niagara Economic Development Corporation 1985). Use of social services in Niagara also increased drastically during this time (Niagara Economic Development Corporation 1985).

As Canada and the United States worked to recover from the economic shockwaves of the early 1980s, retrenchment was replaced by the aggressive liberalization of trade. The Canada-United States Free Trade Agreement (1988) and the North American Free Trade Agreement (1994) reduced tariffs and other trade barriers between Canada and the United States, supplementing ongoing restructuring and offshoring among North American manufacturers (Cleave et al. 2019). While this made it easier for companies in Niagara to conduct business south of the border, it also increased competition and nullified Niagara's longstanding status as a satellite hub for American companies (Cleave et al. 2019).

Free trade also created new challenges for Canadian manufacturers, many of which were unprepared for the competition brought about by these changing policies (Deslauriers, Gagné, and Paré 2022; Niagara Falls Bridge Commission 1990). A report by the Canadian Labour Congress claims that as many as 72,000 jobs were lost to the Canada-US Free Trade Agreement by the mid-1990s, though secondary research suggests additional factors contributed to these losses as well (Gaston and Trefler 1997). The effects of this decline were particularly acute in industrial hubs like Niagara. Between 1988 and 1994, employment in Niagara decreased by 31 per cent (Niagara Region Development Corporation 1996). During this time, Niagara experienced unemployment rates much higher than provincial averages (Drewes 1988).

The decline of manufacturing in Niagara continued through the 1990s and by the end of the 20th century was a grave concern. This period saw the creation of the Niagara Region Development Corporation, as well as the proposed creation of an "Industrial Development Committee" intended to promote manufacturing in Niagara. Though the proposal was eventually abandoned, the Niagara Region Development Corporation survived and was eventually absorbed into Niagara's growing regional government (Conteh and Panter 2017). These initiatives reflected a shift towards more entrepreneurial policymaking, as officials in Niagara (like many other municipalities) worked to save and/or replace the economic activity that manufacturing had once provided (Cleave et al. 2019).

Automation & Advanced Manufacturing: 2000–Today

The new millennium thus corresponded with a concerted policy effort to bolster manufacturing in Niagara. This included the creation of the Ontario Research Fund in 2000, intended to support research and innovation in Ontario's manufacturing sector. In 2004, an Ontario Automotive Investment Strategy provided additional financial incentives to encourage investment in automotive manufacturing in Ontario. Attention within Niagara likewise shifted towards "[building] and [diversifying] the automotive industry cluster" within the region (Niagara Region 2005).

Local efforts received an added boost in 2006, when the Ontario Government published *Places to Grow: Growth Plan for the Greater Golden Horseshoe*. The province identified portions of Niagara as having "unique economic importance," including a "Niagara Gateway Economic Zone" along the Niagara River and a "Niagara Gateway Economic Centre" comprising Welland and Port Colborne (Niagara Region 2012). In 2008, the Region was provided with a Gateway Economic Zone designation and *Gateway Action Plan*, followed by an *Implementation Work Plan* in 2009 (Niagara Region 2012).

The eventual result of these efforts was a collection of infrastructure improvements, grant programs, and other incentives designed "to make employment lands in the Gateway Economic Zone and Centre more attractive and accelerate the process of bringing these employment lands to market" (Niagara Region 2012). By helping with things like remediation, and the provision of more shovel-ready land in Niagara, the plan promised to revitalize and bolster industry—including manufacturing—within the region (Niagara Region 2012; Niagara Region 2022).

A decade after publishing *Places to Grow*, the provincial government also declared Niagara as Ontario's first Foreign Trade Zone, reflecting continued interest in the region as a site for industry growth. The designation means that local companies can receive goods tax and duty free and then use the goods to manufacture products for export (Niagara Falls 2020). This exemption from tariffs and taxes "helps bolster new and existing export-oriented businesses and improve employment in the industry" (Niagara Falls 2020). Given the predominance of manufacturing among Niagara exporters (outlined below), these programs can be considered as further efforts to bolster the region's manufacturing sector.

Despite some initial success, however, the local manufacturing sector has continued to decline. Improvements in efficiency and automation, especially, have meant that investments in manufacturing production have become increasingly disconnected from job growth. As a result, between 2003 and 2009, employment in manufacturing in Canada declined by 500,000 jobs, with over 300,000 of these lost *before* the 2008 financial crisis (Moffatt 2021). Again, the impact of these losses within Niagara was particularly acute. Between 1996 and 2004, the number of manufacturing jobs in Niagara declined by 30 per cent (Welland 2004).

Niagara’s energy advantage has continued to fade, as well. Despite hosting some of the largest renewable energy generators in the province, existing regulations intended to stabilize rates have allowed Ontario’s energy market to be undercut by incentive programs south of the border. The state-level Recharge New York Program, for example, allows the New York Power Authority to offer discounted electricity to manufacturers in New York State, incentivizing Niagara industry to migrate southward (Niagara Falls 2014).

In 2013, the Industrial Power Users of Niagara began lobbying for more competitive electricity rates and incentives within the region (Niagara Region 2013). The organization’s goal was to establish a “made-in-Niagara” power rate that would capitalize on cheaper distribution costs and make local energy prices more competitive, particularly in relation to neighboring jurisdictions in the United States (Niagara Region 2013; Industrial Power Users of Niagara 2013). The idea gained some traction with local economic development officials, particularly in Niagara Falls (Niagara Falls 2014). Despite getting traction at the municipal and regional level, however, the effort was eventually shelved, and energy costs have remained a challenge. As a recent report by the Canadian Manufacturers and Exporters (2020) explains: “Energy costs are not a universal challenge across the country, but in several of the larger manufacturing provinces they have become massive impediments to production and investment. In Ontario, an average manufacturer faces an electricity bill that can be as much as 75 per cent higher than those of its competitors in many US states.”

In short, despite aggressive policy intervention in the early 2000s, Niagara’s manufacturing sector has continued to decline. Table 1 shows changes in the number of manufacturing jobs between 2001 and 2022, comparing Niagara with provincial and national trends. As the table indicates, Niagara has seen an overall decline of 53 per cent in manufacturing sector jobs over the past two decades, worse than the provincial average decline of 27 per cent and national average decline of 22 per cent. This suggests that while Canadian manufacturing declined overall, the impact of this decline was more severe in places like Niagara.

Figure 1 makes this relationship clear, highlighting the general pattern of job decline in Niagara manufacturing. As the graph illustrates, job decline in Niagara’s manufacturing sector reflects trends in Ontario and Canada though at a much greater intensity. This pattern is indicative of broad structural shifts in manufacturing towards both greater automation (described below) and the globalization of production, trends that precede the financial crises of the early 2000s.

The job declines seen in Niagara’s manufacturing sector outpace declines seen in other industrial hubs like Hamilton, Windsor, London, and Greater Sudbury (Table 2). Though it is beyond the scope of this working paper to draw comparisons between all these cases, economic development materials from the time mention the predominance of foreign firms, the centrality of automotive manufacturing, and the concentration of employment in a handful of large employers as reasons for the disproportionate declines seen in Niagara’s manufacturing sector (Welland 2004; Niagara Region 2005; Bank of Montreal 2000).

In short, Niagara’s manufacturing sector has experienced significant decline over the past 50 years. The consequences of this decline have been felt in high unemployment rates, public health challenges, and an ongoing housing crisis that has been worsened by the rising cost of living (Moffatt 2021). Though community wealth programs (such as the United Way’s Living Wage Program) have shown some success in mitigating these challenges, their scope is limited compared to the problems facing Niagara’s workforce today.

Table 1: Change in manufacturing job numbers, 2001–2022: Niagara,² Ontario, and Canada compared

Region	2001 Jobs	2022 Jobs	Change	Percentage change
Niagara	28,787	13,539	(15,248)	(53%)
Ontario	956,241	700,451	(255,790)	(27%)
Canada	2,072,447	1,615,213	(457,234)	(22%)

² It is important to note that for this study, we used the geographical area of the St. Catharines-Niagara CMA, which does not include Grimsby and West Lincoln. This was necessary to be able to compare the local sector to other CMAs (the geographic unit of economic analysis) in Ontario. You can read that analysis in working papers by Charles Conteh.

Figure 1: Industry job growth in manufacturing, 2001–2022: Niagara, Ontario, and Canada compared

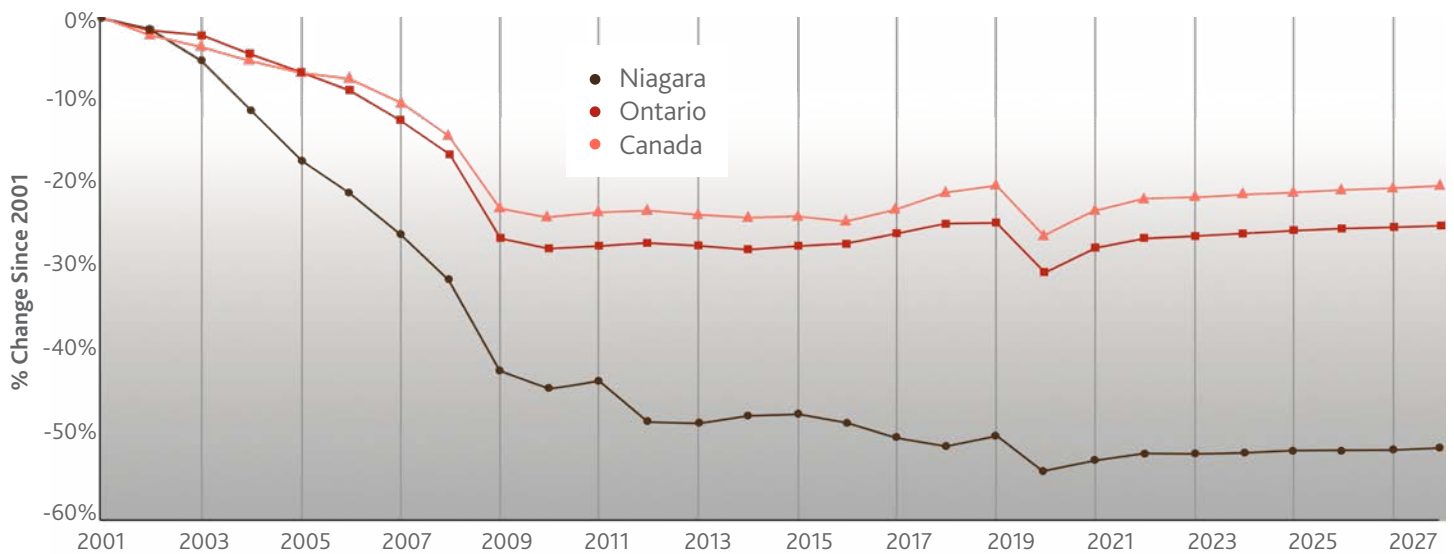


Table 2: Change in manufacturing job numbers, 2001–2022: Niagara and other Ontario regions compared

Region	2001 Jobs	2022 Jobs	Change	Percentage change
Niagara	28,787	13,539	(15,248)	(53%)
Hamilton	57,060	42,799	(14,261)	(25%)
Windsor	46,361	33,326	(13,034)	(28%)
London	36,185	26,758	(9,427)	(26%)
Greater Sudbury	5,277	4,635	(642)	(12%)

None of this is to suggest that manufacturing has disappeared from Niagara. Local manufacturers continue to produce billions of dollars’ worth of products annually, exporting these products both across Canada and around the world (Niagara Region 2022). In 2020, Niagara manufacturing exports were valued at \$3.7 billion, approximately 90 per cent of the \$4.1 billion in total exports from the region (Niagara Falls 2020). Niagara region’s manufacturing sector also remains incredibly diverse, offering products and expertise not commonly available. Atlas Specialty Steels in Welland, for instance, remains the largest producer of stainless steel in Canada (Valbruna ASW, n.d.).

Traditional strengths in manufacturing have also made Niagara a hotbed for growth in advanced manufacturing. This includes emerging industry clusters in bio-product manufacturing, environmental energy, and other green technologies (Niagara Region 2008). Companies like Hamill Agriculture Processing Solutions have capitalized on Niagara’s strengths in agriculture, as well, manufacturing

new harvesting technologies in collaboration with Niagara College’s Walker Advanced Manufacturing Innovation Centre (Hamill APS, n.d.).

As the last example suggests, the growth of advanced manufacturing in Niagara has been supported by institutions such as Niagara College, Brock University, Vineland Research and Innovation Centre, Innovate Niagara, and more, as well as organizations like the Niagara Industrial Association. In 2013, local stakeholders also created the Niagara Manufacturing Innovation Network, providing support to local manufacturers and engineers to develop and commercialize their innovative products (Niagara Region 2013). Together, these community partners have strengthened Niagara’s manufacturing ecosystem, encouraging a diversity of manufacturing start-ups within the region.

Niagara has also seen growth in food and beverage manufacturing. Though interest in food and beverage manufacturing can be seen in the 1980s (Niagara

Region Development Corporation 1985), investment grew significantly in the mid-2000s as economic development officials began to pursue growth outside of traditional manufacturing subsectors. In 2014, for instance, an Economic Development Action Plan developed by the Region identified agri-food and food processing as a target sector for investment attraction (Niagara Region 2014). In part, this was informed by global and national trends. Between 2010 and 2015, foreign direct investment (FDI) in food manufacturing in Canada doubled (Niagara Region 2013).

Table 3 provides an overview of the job growth associated with these emerging trends. While there have been declines in historically strong manufacturing industries like textiles and pulp and paper mills, Niagara has seen increases in dairy product manufacturing, beverage manufacturing, and food manufacturing. The region has also seen increases in computer and

peripheral equipment manufacturing as well as various industries related to chemical manufacturing. In all cases, these increases have outpaced growth in Ontario and across Canada, reflecting emergent and specialized clusters in Niagara's regional economy (Niagara Falls 2018).

Despite significant declines, manufacturing remains critical to Niagara's regional economy. Historical strengths in manufacturing have led to growth in advanced manufacturing, while connections to agriculture have supported the evolution of food and beverage manufacturing within the region. Niagara has also become a destination for electric vehicle manufacturing and battery production. Recent investments in a giga casting facility in Welland, for example, signal what Welland Mayor Frank Campion calls "the next wave of investment in our local economy" (Johnson 2023b).

Table 3: Manufacturing sector job growth by industry (%), 2001–2022: Niagara, Ontario and Canada compared

Industry	Description	St. Catharines —Niagara	Windsor	Sudbury
3253	Pesticide, fertilizer and other agricultural chemical manufacturing	865%	11%	45%
3339	Other general-purpose machinery manufacturing	448%	(16%)	(4%)
3259	Other chemical product manufacturing	277%	(46%)	(20%)
3332	Industrial machinery manufacturing	260%	8%	2%
3272	Glass and glass product manufacturing	219%	(53%)	(42%)
3341	Computer and peripheral equipment manufacturing	201%	(75%)	(72%)
3222	Converted paper product manufacturing	144%	(40%)	(33%)
3119	Other food manufacturing	107%	52%	81%
3121	Beverage manufacturing	95%	66%	69%
3115	Dairy product manufacturing	92%	43%	32%
3252	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	83%	(33%)	(27%)
3351	Electric lighting equipment manufacturing	75%	(54%)	(25%)
3362	Motor vehicle body and trailer manufacturing	(72%)	(28%)	(8%)
3231	Printing and related support activities	(75%)	(40%)	(46%)
3132	Fabric mills	(77%)	(58%)	(77%)
3113	Sugar and confectionery product manufacturing	(83%)	(31%)	(6%)
3111	Animal food manufacturing	(84%)	(14%)	(5%)
3353	Electrical equipment manufacturing	(88%)	(24%)	(12%)
3114	Fruit and vegetable preserving and specialty food manufacturing	(89%)	(48%)	(11%)
3221	Pulp, paper and paperboard mills	(90%)	(80%)	(66%)
3114	Forging and stamping	(91%)	(66%)	(59%)
3221	Other textile product mills	(91%)	(40%)	(35%)

Contemporary Challenges

Niagara's manufacturing sector now faces new challenges. For starters, the growth of advanced manufacturing has not necessarily replaced the jobs lost in the early 2000s. Advanced manufacturing typically requires fewer and more highly skilled jobs, meaning that production and employment growth have become increasingly disconnected. Despite increased production between 2009 and 2018, for instance, Canadian manufacturing has seen relatively little job growth (Moffatt 2021).

A secondary consequence of this transition towards advanced manufacturing is a disconnect between available jobs and the existing strengths of Niagara's workforce. Indeed, concerns surrounding talent development and retention in Niagara have been noted as early as the 1970s (Equitable Securities Canada Ltd. 1970). Niagara's workforce has not kept pace with the types of highly skilled jobs that are characteristic of advanced manufacturing. Only 20.7 per cent of Niagara's existing workforce reports having attained a university certificate, diploma, or degree at the bachelor level or higher (Niagara Region 2022). Though the Region has a slightly higher percentage of workers who report having college, CEGEP, or non-university certificates or diplomas (29.1 per cent compared to 24.7 per cent for Ontario), this discrepancy contributes to an ongoing mismatch between Niagara's workforce and available manufacturing jobs.

While Niagara's workforce is falling behind, many of the region's locational advantages are also beginning to erode. Urbanization pressures and a lack of serviced employment lands are chipping away at Niagara's affordability advantage, making it more difficult to attract manufacturers from the Greater Toronto Hamilton Area. To that end, the Region has identified improved servicing to current and future employment lands as a key priority moving forward. Between 2021 and 2051, for example, Niagara is projected to need 210 hectares of new employment land (Niagara Region 2022).

Worsening congestion along the QEW is creating further challenges for the manufacturing sector. In a survey of Niagara manufacturers, Ferguson (2020) finds that highway congestion is the top source of delay for local supply chains, with nearly half of those surveyed noting that they expect to spend more than 30 minutes getting goods across the border. The Canadian Manufacturers and Exporters (2020) find similarly that rising transportation costs are a significant supply bottleneck facing Canadian manufacturers.

Niagara Region's most recent economic development strategy mentions the potential for technological innovation to improve transportation through Niagara (Niagara Economic Development 2022). Specific attention is given to the development of an Integrated Truck Corridor Management System, for example, which would help coordinate traffic, improve travel times, and improve supply chain efficiency using advanced modelling technologies (Niagara Region 2022). The Region has also mentioned the potential for connected and autonomous freight vehicles to improve transportation corridors through Niagara (Niagara Region 2022). The viability of these technologies is uncertain, however, and it is also unclear how quickly they can be incorporated into existing supply chains. Ferguson (2020) finds that most Niagara manufacturers are not following autonomous vehicle projects closely, with nearly half of surveyed firms stating that it will never be commonplace for their goods to be transported via autonomous vehicles.

The Future of Manufacturing in Niagara

Addressing these emerging challenges is critical to ensuring the sustainability of Niagara's manufacturing sector. Doing so will require a more concerted and coordinated approach to land development in the region. There is potential, in this regard, to use Niagara's existing "Open Data" infrastructure so that information about available employment lands can be shared more easily and expeditiously between municipalities.

The Region must also continue to improve the quality of employment lands currently available. This includes expanding and improving broadband access, which is critical to the types of communications, data sharing, and computing that are central to advanced manufacturing (Canadian Manufacturers and Exporters 2020). The role that the Niagara Region Broadband Network is playing in these efforts is notable, and the long-term viability of public broadband infrastructure should be the topic of further research.

Regarding transportation challenges, recent investments in the Welland Canal hint at the viability of marine transportation as an alternative to trucking and freight (Johnson 2023; Niagara Independent 2023). The value of marine transportation has become especially clear following the supply chain disruptions experienced during the COVID-19 pandemic, and the transition away from just-in-time deliveries towards increased inventories along critical supply chains (Canadian Manufacturers and

Exporters 2020). The construction of multimodal logistics hubs in Thorold also hints at the opportunity to capitalize on increased proximity between local manufacturers, as well as Niagara's existing strengths in shipping and logistics (Niagara Economic Development 2022). There has been longstanding interest in further developing the Niagara District Airport, as well, increasing capacity for trade and further supporting economic development in the region (Niagara District Airport Commission 1966).

Regarding talent development and retention, Niagara Region should continue to invest in expanding educational opportunities within Niagara, with a particular emphasis on programs related to advanced manufacturing. This includes dedicated programming like Brock University's new Department of Engineering, which introduces undergraduate students to topics like big data, artificial intelligence, robotics, manufacturing, and more (Heslop 2021). It also includes expanding co-op programs at Niagara College and Brock University, which help students build connections with local businesses. A recent partnership between the Welland Economic Development Department and the Niagara Catholic District School Board also highlights the potential for apprenticeship programs at the high school level (Redmond 2023). Niagara is also home to innovative education initiatives like the District School Board of Niagara Academy, which provides extra support to several first-generation students interested in post-secondary education (Cheevers 2017).

There are emerging opportunities to align these talent development initiatives with provincial and federal programming. The Ontario government has recently changed the requirements for foreign-trained professionals immigrating to the province, who will no longer need to acquire Canadian work experience to become accredited (Gurney 2023). The first professional college to adapt its rules to enable this streamlining is the Professional Engineers Ontario (Gurney 2023). The Region can also work to capitalize on the federal government's new Tech Talent Strategy, which outlines a new, dedicated pathway for permanent residents pursuing employment related to science, technology, engineering, and mathematics (Deschamps 2023).

Aligning talent development and retention policies with these provincial and federal initiatives can help to assert Niagara as the place to be for prospective students interested in manufacturing (like Northern Ontario's identifiable strengths in mining, or Kitchener-Waterloo's

prowess in ICT development). Already, Niagara has the institutional supports in place to support this type of growth. From the Walker Advanced Manufacturing Innovation Centre and the Brock-Niagara Validation, Prototyping, and Manufacturing Institute (VPMI) to the Vineland Research and Innovation Centre, Niagara's manufacturing ecosystem is saturated with the types of solution-oriented groups that provide talent and advice to burgeoning start-ups and entrepreneurs. Marketing this vibrant ecosystem can help to re-assert Niagara as a leader in contemporary manufacturing.

Conclusion

Today, Niagara is home to several abandoned industrial buildings. These buildings—including the 'Old GM Lands' in St. Catharines—reflect the thriving manufacturing sector that once existed across Niagara. They also highlight the decline of Ontario manufacturing over the last 50 years, and the consequences of this decline on life within Niagara.

It would be a mistake, however, to treat manufacturing as a thing of the past. Today, Niagara is home to several innovative companies working at the forefront of advanced manufacturing. Historic strengths in agriculture have also led to the growth of food and beverage manufacturing in the region, while associations with automotive manufacturing have made Niagara an intuitive node for emerging electric vehicle supply chains. This growth has been encouraged by a vibrant ecosystem of institutional supports, mediatory actors, and industry-friendly policy.

Nevertheless, today's manufacturers are facing new challenges. Most notably, there is a disconnect between contemporary manufacturing jobs and Niagara's existing workforce. Traditional locational advantages have also been eroded by traffic congestion, uncompetitive energy prices, and the rising cost of development within Niagara.

Moving forward, there is a need to better understand talent development and retention policy within Niagara. Economic development officials must also pursue innovative solutions to land development and transportation. These challenges also hint at the relationship between manufacturing and other policy fields, including transportation policy, climate policy, and urban planning. Though navigating these relationships is not easy, doing so promises to help solidify Niagara's status as the place to be for those interested in the future of Canadian manufacturing.

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