

North Caledonia Employment Land Feasibility and Servicing Study

Haldimand County

Phase 3 Final Report

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In association with:

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Executive Summary

Executive Summary

Introduction

The Consultant Team of Watson & Associates Economists Ltd. (Watson), WSP Canada Group Limited (WSP) and GM BluePlan Engineering (GM BluePlan) was retained in the summer of 2022 to prepare an Employment Lands Feasibility and Servicing Study.

The key objectives of the North Caledonia Employment Lands Feasibility and Servicing Study are to continue to promote economic development within Haldimand by ensuring there is an adequate supply of employment land to attract target employment sectors and businesses. This study will provide direction on the type of employment which should be attracted to the North Caledonia employment lands, the competitiveness of employment lands in Haldimand compared to the surrounding regional area, a plan for how these lands should be serviced and financed, a high-level marketing plan, and implementation policies. In accordance with this review, the following report represents the full North Caledonia Employment Land Feasibility and Servicing Study. The study is broken into three distinct phases:

Phase 1: Site Evaluation and Servicing Strategy (completed May 2023)

- This phase focuses on understanding development potential by evaluating physical constraints, infrastructure capacity, and market positioning. It includes a detailed location analysis, assessment of labour force and economic base, identification of target employment sectors, a cost-competitive analysis, the development of a functional servicing design to support future employment uses, and an infrastructure costing analysis (see Appendix B).

Phase 2: Financial Analysis and Business Planning (completed August 2024)

- Building on the findings from Phase 1, this phase involves creating a detailed financial model to assess the costs, revenues, and long-term financial implications of developing the site. It includes scenario testing based on the cost estimates for servicing and infrastructure, and the preparation of a business plan outlining feasible development approaches. Appendix C provides the detailed results from this Phase 2 analysis.

Phase 3: Implementation and Land Management (completed June 2025)

- The final phase translates the strategy into action, offering recommendations for land administration, marketing, partnerships, and Official Plan (O.P.) policy direction. It culminates in a clear implementation plan to support the successful long-term development strategy for the employment lands. Building on prior phases, the study refines the employment land vision in light of evolving provincial policy, particularly the 2024 Provincial Planning Statement (P.P.S.), as well as the findings of phase 2, which recommends interim servicing (water only) as a viable means of development while mitigating municipal fiscal risk.

Regional Industrial Growth Trends and Economic Drivers

Haldimand's industrial growth prospects must be understood in the context of broader provincial and regional trends. Ontario's manufacturing sector continues to evolve, marked by automation, re-shoring, and decarbonization. Despite global uncertainty, industrial real estate markets in the Greater Golden Horseshoe (G.G.H.) have remained active, with growing demand for logistics, light manufacturing, and clean technologies.

Labour force shifts are also influencing growth potential. Many G.G.H. regions face aging workforces and housing pressures. However, Haldimand's relatively affordable housing and proximity to Hamilton, Brantford, and the U.S. border create competitive advantages, particularly for operations that value lower land costs and flexible development options.

Cost Competitiveness and Market Readiness

Section 4.2 of this report provides a comparative cost analysis of industrial development in Haldimand relative to surrounding municipalities. Two prototypical facilities were assessed – a 30,000 sq.ft. factory and a 60,000 sq.ft. warehouse – with metrics including land, construction, development charges, property taxes, and utility costs.

The findings of the analysis show that Haldimand offers competitive total development and operating costs, positioning it favorably against regional peers. This affordability is a key asset when marketing the area to industrial users, especially those seeking alternatives to high-cost locations like Hamilton and Niagara. However, to preserve

competitiveness, Haldimand may consider financial incentives such as reduced development charges or site-readiness programs to accelerate absorption while managing long-term fiscal impacts.

Vision for the North Caledonia Employment Area: Guiding Context

Since the completion of the Phase 1 Report in May 2023, significant changes to the provincial land use policy framework have occurred. Most notably, the release of the Provincial Planning Statement (P.P.S.), 2024, introduces a redefined "Employment Area" that now exclusively pertains to industrial-type uses such as manufacturing, warehousing, and related employment functions. Several of the sectors identified in the Phase 1 vision – such as business services, professional and technical services, and employment-supportive uses – are no longer permitted as primary uses within designated Employment Areas under the P.P.S., 2024. As a result, it is necessary to revisit and revise the employment land visioning work to ensure conformity with the updated definition and policy direction. This chapter provides an updated target sector and land use framework aligned with the industrial-only permissions of the P.P.S., 2024.

In addition to changes brought forward through the P.P.S., 2024, the findings of Phase 2 of this study also impact long-term vision and target sectors for the North Caledonia Employment Area. Phase 2 builds on the capital and operating infrastructure costs identified in Phase 1 by evaluating lifecycle replacement costs and testing different development delivery models to determine whether Haldimand could support servicing these lands in a fiscally sustainable manner.

Initial analysis tested four scenarios, ranging from private developer-led subdivision development to full County-led acquisition and servicing. All scenarios, even under accelerated buildout assumptions, resulted in sustained negative cashflows over a 30-year period. These findings raised significant concerns about Haldimand's debt capacity and its ability to responsibly invest in employment land development under a traditional servicing model.

In response, staff directed the Consultant Team to explore refinements to Scenario 1 that might improve financial outcomes. The resulting analysis explored three alternative developer-led models that reduce County obligations while maintaining the goal of facilitating employment growth. Three alternative models were tested:

- Scenario 1A: Water-only municipal servicing, with private wastewater management, reached positive cashflow by Year 23.
- Scenario 1B: Single large-user developments per phase yielded positive cashflow in Year 5 (excluding DCs).
- Scenario 1C: Industrial condominium model, with privately owned internal infrastructure, also improved financial outcomes.

Scenario 1A was deemed most feasible, balancing cost containment and implementation practicality.

Vision for the North Caledonia Employment Area: Interim Focus

While full municipal servicing remains the long-term objective, it is not a prerequisite for all types of industrial development. Many industrial uses can operate effectively in "dry" conditions – that is, with municipal water and private or limited wastewater solutions, particularly in sectors such as logistics, warehousing, construction and light manufacturing. These uses often have low water and wastewater demands and can be accommodated through phased or alternative servicing models without compromising functionality. Interim servicing solutions can be both financially viable and attractive to the right industries, provided that there is adequate transportation access, land readiness, and clarity on future servicing plans.

In all cases, Haldimand should aim to preserve flexibility in how Employment Areas are brought to market by the private sector, recognizing that financial feasibility, servicing constraints, and market conditions may require non-traditional approaches. However, these must remain consistent with the functional role, infrastructure expectations, and land use compatibility objectives set out in the P.P.S., 2024.

Vision for the North Caledonia Employment Area: Target Sectors

The new North Caledonia Employment Area should be planned as a general Employment Area, initially serviced with water and designed to transition to full municipal servicing over time. Its location along Highway 6 offers strategic advantages for attracting diverse employment uses.

Key target sectors include:

- **Manufacturing / Light Industrial** – Water-dependent operations with low wastewater needs, such as clean technologies, electrical components, and light assembly, are well-suited to interim servicing.
- **Distribution and Logistics** – Warehousing and logistics require minimal servicing and align with early-phase development goals.
- **Agri-business** – Uses like grain storage and equipment sales have low water demands and can operate on partial servicing.
- **Construction and Trade Services** – Modular manufacturing, contractor facilities, and trades-based industrial uses support employment with limited infrastructure.

These sectors are viable under interim servicing due to low water and wastewater needs and offer meaningful job creation at lower densities. Over time, the Employment Area can accommodate more intensive uses as full servicing becomes available. Early planning should support future growth by protecting servicing corridors, coordinating infrastructure, and enabling lot intensification.

Property Administration and Marketing Recommendations

Chapter 6 outlines strategies to guide the administration and promotion of the North Caledonia Employment Area while ensuring long-term municipal control over servicing and development outcomes. Recognizing the high costs of delivering fully serviced employment lands, the plan supports a phased, water-only servicing approach that reflects financial realities and market conditions.

Marketing efforts should focus on the area's location along Highway 6, proximity to Hamilton Airport, and availability of large, affordable parcels. Target sectors include light industrial and water-dependent uses with low wastewater output. A strengths, weaknesses, opportunities, and challenges (SWOC) assessment identifies market advantages such as regional access, as well as limitations like minimal transit options and regional competition.

A key emphasis is placed on balancing short-term marketability with long-term municipal control. Section 6.3 recommends practical planning tools to manage this balance, including holding symbols, servicing agreements registered on title, and clearly defined servicing triggers tied to infrastructure investment. These mechanisms provide flexibility to respond to development interest without committing to premature servicing, supporting Council's ability to manage growth in alignment with fiscal and infrastructure planning objectives.

Implementation Plan

Chapter 7 outlines a comprehensive strategy to implement the vision for the North Caledonia Employment Area, with a focus on managing growth in a phased and serviceable manner. The plan supports an interim water-only servicing model in the near term, transitioning to full municipal servicing as demand and infrastructure investment align. The framework ensures development readiness while maintaining municipal control over timing and infrastructure commitments.

The strategy includes a recommended redesignation of the subject lands to Employment Area through amendments to the O.P., along with a new site-specific policy framework. These policies are intended to clarify permitted uses, development phasing, and servicing expectations, while setting out urban design principles to guide build-out. A holding symbol is proposed to regulate the pace of development and ensure that key servicing and compatibility conditions are met before development can proceed.

The chapter further details expectations related to employment density targets, built form, and functional design, covering aspects such as parking, loading, outdoor storage, and buffering. Compatibility with adjacent non-employment uses is emphasized, along with sustainability principles such as stormwater management and energy efficiency. The plan also addresses the municipal approvals process, including zoning, site plan control, permitting, and public consultation requirements. Incentive tools are suggested to support desired investment outcomes. Altogether, the implementation strategy offers a clear path forward to enable orderly development while protecting municipal interests and infrastructure investments.

Conclusions

This study sets out a balanced and responsive approach to employment land development in Haldimand County. By addressing the realities of infrastructure financing and aligning with the new P.P.S., Haldimand can move forward with confidence, supporting job creation, leveraging regional economic advantages, and maintaining control over long-term servicing investments. The recommended strategy positions North Caledonia for success as a phased, market-ready Employment Area that evolves with municipal capacity and regional demand. It offers the flexibility to respond to changing market conditions while preserving key infrastructure corridors and phasing tools that ensure future servicing is delivered efficiently and sustainably. Through this approach, Haldimand can enable near-term development without compromising long-term objectives, ensuring that infrastructure investment, land use policy, and economic development efforts remain aligned over time. As growth pressures intensify across the region, North Caledonia stands as a strategic and adaptable asset within Haldimand's broader employment land portfolio. Ongoing monitoring of development activity and employment yields will be a critical next step to inform infrastructure planning, policy updates, long-term Employment Area land needs, and the timing of full municipal servicing.



Report

Chapter 1
Introduction

1. Introduction

1.1 Terms of Reference

The Consultant Team of Watson & Associates Economists Ltd. (Watson), WSP Canada Group Limited (WSP) and GM BluePlan Engineering (GM BluePlan) was retained in the summer of 2022 to prepare an Employment Lands Feasibility and Servicing Study, which ensures that Haldimand County (the "County") is well-positioned to accommodate a diverse range of employment growth over the coming decades. Haldimand has identified a need for designated employment land to remain competitive in growing and changing markets and to accommodate forecast employment growth within Haldimand. Haldimand has identified approximately 183 hectares of land in North Caledonia (the "Subject Lands") as a candidate for future employment land uses.

To ensure continued growth and diversity of Haldimand's Employment Areas, planning and marketing efforts must be geared toward both the broader strengths of its Employment Areas, as well as specific target sector investment attraction efforts. Haldimand is forecast to experience significant population and employment growth to the year 2051. According to Watson's 2024 Growth Study Update, Haldimand's reported 2021 population of 51,200 is expected to increase to 82,700 in 2051.[1] For employment, Haldimand is forecast to increase from 21,000 in 2024 to 31,300 by 2051. The Growth Study also demonstrates that approximately 50% of employment growth in Haldimand is forecast to occur in Caledonia.

The key objectives of the North Caledonia Employment Lands Feasibility and Servicing Study are to continue to promote economic development within Haldimand by ensuring there is an adequate supply of employment land to attract target employment sectors and businesses. This study will provide direction on the type of employment which should be attracted to the North Caledonia employment lands, the competitiveness of employment lands in Haldimand compared to the surrounding regional area, a plan for how these lands should be serviced and financed, a high-level marketing plan, and implementation policies. In accordance with this review, the following report represents

[1] Population figures include the net Census undercount, which is estimated at approximately 2.6%.

the full North Caledonia Employment Land Feasibility and Servicing Study. The study is broken into three distinct phases:

Phase 1: Site Evaluation and Servicing Strategy (completed May 2023)

- This phase focuses on understanding development potential by evaluating physical constraints, infrastructure capacity, and market positioning. It includes a detailed location analysis, assessment of labour force and economic base, identification of target employment sectors, a cost-competitive analysis, the development of a functional servicing design to support future employment uses, and an infrastructure costing analysis (see Appendix B).

Phase 2: Financial Analysis and Business Planning (completed August 2024)

- Building on the findings from Phase 1, this phase involves creating a detailed financial model to assess the costs, revenues, and long-term financial implications of developing the site. It includes scenario testing based on the cost estimates for servicing and infrastructure, and the preparation of a business plan outlining feasible development approaches. Appendix C provides the detailed results from this Phase 2 analysis.

Phase 3: Implementation and Land Management (completed June 2025)

- The final phase translates the strategy into action, offering recommendations for land administration, marketing, partnerships, and Official Plan (O.P.) policy direction. It culminates in a clear implementation plan to support the successful long-term development strategy for the employment lands. Building on prior phases, the study refines the employment land vision in light of evolving provincial policy, particularly the 2024 Provincial Planning Statement (P.P.S.), as well as the findings of phase 2, which recommends interim servicing (water only) as a viable means of development while mitigating municipal fiscal risk.

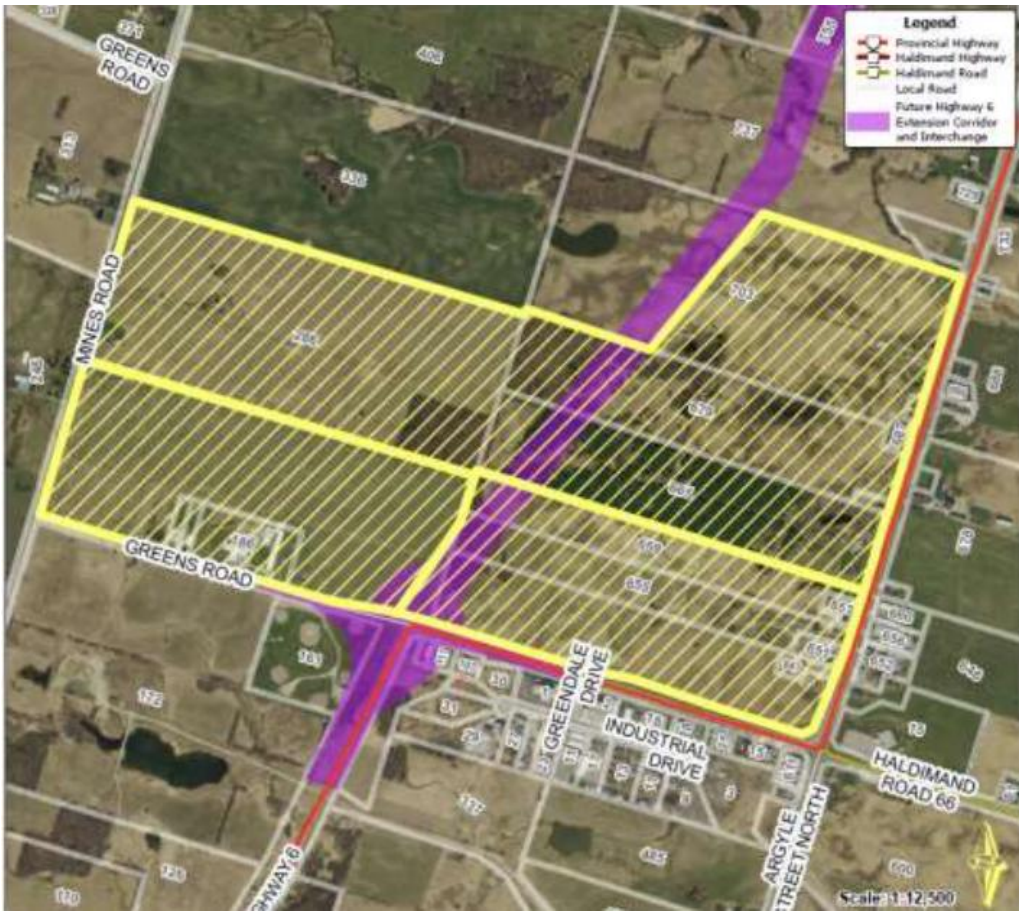
1.2 Study Context

The Subject Lands are located in north Caledonia, bounded by Greens Road to the south, Mines Road to the west, and Highway 6 to the east (see Figure 1-1). The predominant use of the Subject Lands is agriculture, with some light industrial and

agriculture-related employment uses to the south and east, fronting onto and with access from Greens Road and Highway 6. South of Greens Road is an existing unserviced industrial area that is designated by Haldimand's O.P. as Urban Business Park, with businesses that appear targeted to logistics and construction. The Ministry of Transportation Ontario (M.T.O.) has identified a protected corridor to facilitate a long-term plan to construct a Highway 6 bypass that transects the Subject Lands, as shown on Figure 1-1.

The Subject Lands are strategically located in proximity to major transportation corridors, including Highway 6, Highway 403, and the John C. Munro Hamilton International Airport. The Hamilton International Airport is the third-largest cargo airport in Canada and the largest overnight express cargo airport, giving any future employment uses within the Subject Lands direct access to a much broader market. This strategic location gives it access to the regional markets of Hamilton, Brantford, Toronto, and Niagara, and international markets via the John C. Munro Airport and the land border with the United States of America via Niagara.

Figure 1-1
Haldimand County
North Caledonia Subject Lands



1.3 Provincial Planning Context: Provincial Policy Statement, 2024

Since the release of the Phase 1 Report in May 2023, the Province released the Provincial Planning Statement (P.P.S.), 2024, which replaced the P.P.S., 2020 and a Place to Grow: Growth Plan for the Greater Golden Horseshoe (G.G.H.), 2019, as a single, integrated document. It is important to note that the P.P.S., 2024, came into effect on October 20, 2024. A key focus of the P.P.S., 2024 is that it recognizes that the approach to delivering housing and accommodating non-residential development will vary by municipality and, as such, moves away from a prescriptive guideline-based approach. The following summarizes key highlights of the P.P.S., 2024.

Planning for Growth

Compared to the P.P.S., 2020, the P.P.S., 2024 provides a more flexible horizon for planning for growth by providing a planning horizon with a minimum of 20 years and a maximum of 30 years. Policy 2.1.3 states, "Planning for infrastructure, public service facilities, strategic growth areas and Employment Areas may extend beyond this time horizon."[1] As such, this suggests that municipalities are to designate land to accommodate growth for at least 20 years, but not more than 30 years, with the opportunity to designate additional land beyond the 30-year time horizon when planning for Employment Areas, strategic growth areas and infrastructure.[2]

Planning for Employment

The P.P.S., 2024 includes an updated definition of Employment Area based on the amendment of the *Planning Act* on June 8, 2023. The *Planning Act* was amended under subsection 1 (1) to include a new definition of "area of employment." This definition of Employment Area has been scoped to include only industrial-type employment, such as manufacturing or warehousing, as a primary use. The amendment to the *Planning Act* received Royal Assent as part of Bill 97 on June 8, 2023. The definition change in the *Planning Act* came into effect on October 20, 2024, in concert with the P.P.S., 2024.

According to the P.P.S., 2024, municipalities are to assess and update Employment Areas identified in O.P.s to ensure that this designation is appropriate to the planned function of Employment Areas.[3] The P.P.S., 2024 requires that municipalities designate, protect, and plan for all Employment Areas in Settlement Areas by:

- Planning for the long-term needs of Employment Area uses;
- Prohibiting residential uses, commercial uses, public service facilities, other institutional uses, and retail and office uses not associated with the primary employment use; and

[1] Provincial Planning Statement, 2024, policy 2.1.3, p. 6.
[2] Ibid.
[3] Ibid., policy 2.8.2.4, p. 14.

- Providing an appropriate transition to adjacent non-Employment Areas to ensure land use compatibility and economic viability.[1]

Given the above changes from the P.P.S., alterations to the Phase 1 findings from the May 2023 report are required. Accordingly, Chapter 5 of this report provides an updated target sector and Employment Area visioning analysis, ensuring consistency with the P.P.S., 2024. Further to this, and discussed later in this report, the findings of the Phase 2 feasibility analysis have resulted in further changes to the long-term vision for the North Caledonia employment lands compared to the initial findings of the Phase 1 report.

1.4 Engagement and Consultation Program

The Study work plan included a range of public engagement and consultation activities throughout all three phases. A range of participants were engaged and consulted with to inform the recommendations, including:

- Elected representatives from Haldimand;
- County staff;
- Two committees of Council, including the Agricultural Advisory Committee and the Business Development and Planning Advisory Committee;
- Grand River Conservation Authority (G.R.C.A.);
- M.T.O.;
- Six Nations of the Grand River First Nation; and
- Mississaugas of the Credit First Nation.

Through preliminary feedback from some participants in the Study, the Project Team determined that a more comprehensive public engagement and consultation program was appropriate. In September 2022, the Program was updated to reflect a more robust process based on the three phases of the work plan, as follows:

Phase 1: This Phase initiated with the preparation and finalization of the Engagement and Consultation Program. Following finalization of the Engagement and Consultation Program, the Project Team held one-on-one meetings with a range of stakeholders

[1] Ibid., policy 2.8.2.3, p. 14.

during Summer 2022, including elected representatives, County staff, the Agriculture Advisory Committee and Business and Planning Development Advisory Committee, and the G.R.C.A. The Project Team also held an introductory meeting with the Six Nations of the Grand River First Nation and the Mississaugas of the Credit First Nation. Prior to the conclusion of Phase 1, staff presented a report to Council for information purposes and a meeting with landowners within the subject lands will subsequently be held. Lastly, a dedicated webpage was developed for the Study.

Phase 2: Phase 2 included additional meetings with County staff, the Agriculture Advisory Committee, the Business and Planning Development Advisory Committee, and the Six Nations of the Grand River First Nation and the Mississaugas of the Credit First Nation. It also included a presentation to Council. The principal focus of the Phase 2 consultation was to present the findings and confirm next steps in the Study.

Phase 3: The engagement and consultation activity that is planned for Phase 3 is largely consistent with Phase 2, except that a Public Information Centre will also be held. Similar to Phase 2, the consultation activity undertaken in Phase 3 will focus on presenting the final findings of the Study, including the Implementation Plan.

Chapter 2
Overview of Macro-Economic and Demographic Trends

2. Overview of Macro-Economic and Demographic Trends

The following chapter provides a summary of the macroeconomic trends influencing the regional labour force and employment trends within Ontario, Haldimand, and the surrounding economic region over the past two decades. In examining Haldimand's employment lands, it is essential to understand the broader influences and factors that affect the regional economy. This section briefly examines recent macroeconomic trends influencing labour force and employment trends at all levels, including internationally, nationally, provincially, sub-provincial area (Greater Golden Horseshoe (G.G.H.)), and regionally.

2.1 Navigating Increased Uncertainty in a Changing Global Economy

After several years of resilient global economic growth following the 2020 and 2021 lockdowns during the COVID-19 pandemic, the global economy is now facing a mounting number of near-term economic challenges and geopolitical conflicts. These global economic challenges largely relate to unresolved conflicts associated with the ongoing war between Ukraine and Russia; the Israel / Gaza conflict; rising global trade tensions, particularly with the United States (U.S.); increasing government, corporate and consumer debt; and ongoing concerns regarding persistent inflation.

Collectively, these factors have resulted in heightened global economic uncertainty and volatility, which has raised the likelihood of an economic recession in the U.S. and Canada in 2025. In its latest report, the Organization for Economic Co-operation (OECD) is predicting a softening in their global economic forecast for 2025 and 2026. For Canada, gross domestic product (G.D.P.) is forecast to decline from 1.5% in 2024 to 0.7% in 2025 and 2026, a notable reduction from 2.0% in the December 2024 Economic Outlook.[1]

For manufacturing-focused regions such as Southern Ontario, goods-producing sectors – especially the automotive industry – are being impacted by global disruptions while also undergoing a shift toward advanced technologies focused on electric vehicle

[1] OECD Economic Outlook, Interim Report, Steering through Uncertainty, March 2025.

production. While not a new trend, globalization and technological advancements continue to shift the economic composition of developed economies from goods production toward a service-based economy. Since the onset of the pandemic, this economic shift has increasingly raised fundamental concerns in certain cases regarding national security, economic trade balances and prosperity, which has further prompted countries to adopt protectionist measures when setting out their near- and longer-term national economic strategies.

These structural shifts and external pressures reflect the need for governments at all levels to remain adaptive and responsive to evolving industry needs and global disruptions. While near-term growth forecasts have been revised downward, these changes reflect a broader period of economic transformation. Despite these short-term challenges, the long-term growth and economic outlook for Canada, Ontario, and Haldimand County remain positive, underpinned by ongoing innovation, demographic growth, and continued investment in strategic sectors.

2.2 Evolving Macro-Economic Trends Following COVID-19

Since the outbreak of coronavirus disease (COVID-19) was declared a pandemic on March 12, 2020, its economic effects have been substantial. Employment sectors, including travel, tourism, hospitality, manufacturing, and energy were hit relatively hard by social distancing measures. In contrast, knowledge-based sectors adapted well to remote and hybrid work, often thriving. Changes in social behaviour, including physical distancing, and increased remote work have led to ongoing economic disruptions, particularly in how work is done. Additionally, rising trade tensions and geopolitical unrest continue to highlight vulnerabilities in globalization and supply chains, which were severely disrupted during the peak of the pandemic.

Following a sharp national economic recovery in 2020 due to COVID-19 policy measures, federal economic support, fiscal stimulus, and vaccine rollouts, the Canadian economy experienced significant economic growth in 2021 and 2022. Despite this recovery, growing macroeconomic headwinds, market volatility, increased uncertainty, and reduced confidence are placing downward pressure on the near-term economic growth outlook at the national, provincial, and regional levels.

Persistently high global and national inflation levels following COVID-19 required an aggressive response by central banks, leading to sharp increases in interest rates and quantitative tightening measures.[1] As of mid-2024, both the Bank of Canada and the U.S. Federal Reserve began reducing interest rates in response to declining inflation rates and slowing economic growth. The Bank of Canada has now cut its overnight lending rate multiple times since 2024, reducing the policy rate to 2.75% as of March 2025. Similarly, the U.S. Federal Reserve has also implemented interest rate cuts to support economic growth. As of February 2025, Canada's inflation rate was at 2.6%, a notable increase from 1.9% during the previous month but down from its peak of 8.1% in June 2022.[2]

While most recent trends in inflation and interest rates are more favourable to Canadian residents, businesses, and investors (relative to the previous two years), their effects often lag and vary considerably at the regional level. Furthermore, despite these more favourable conditions regarding inflation and interest rates, wage and earnings growth have not kept pace with the rise in costs for goods and services over the past several years, with housing and food costs representing key stressors for most Canadian families. It is also important to recognize that ongoing geopolitical conflicts and U.S. protectionist policies (i.e. tariffs) will likely limit the effectiveness of the Bank of Canada's monetary policy in controlling inflationary pressures even under conditions of slowing global and national economic growth.

As of 2025, rising public sector and household debt in Canada remains a key economic concern, largely due to pandemic response measures, alongside increasing household debt levels, largely driven by significant housing price appreciation in Canada's major urban centres. Since peaking in February 2022, the national housing market has shown signs of cooling, with notable declines in both sales and price growth in recent years driven by higher mortgage rates relative to pandemic conditions. It is noted, however, that trends vary widely by region, and housing affordability (both ownership and rental) has been steadily eroded for the past decade across most Canadian economic regions. As such, recent trends towards lower interest rates are likely to have a limited impact on

[1] Quantitative tightening is a process whereby a central bank reduces the supply of money circulating in the economy by selling financial assets, mainly government bonds.

[2] Consumer Price Index February 2025, March 28, 2025, Statistics Canada

improving housing affordability, unless lower borrowing fees are met with a sustained decline in average housing prices and rents.

While these immediate concerns highlight potential setbacks to the country's economic recovery, the longer-term outlook for Canada's economy and housing market remains positive. Continued investments in infrastructure and technology, along with a resilient and growing labour market, will be required to drive national economic growth and competitiveness. Strong leadership and coordination across all levels of government will be needed to navigate these complexities carefully in the coming months and years ahead.

2.3 Provincial Economic Outlook within the Broader Canadian and Global Context

2.3.1 Ontario Population Growth Outlook within the Canadian Context

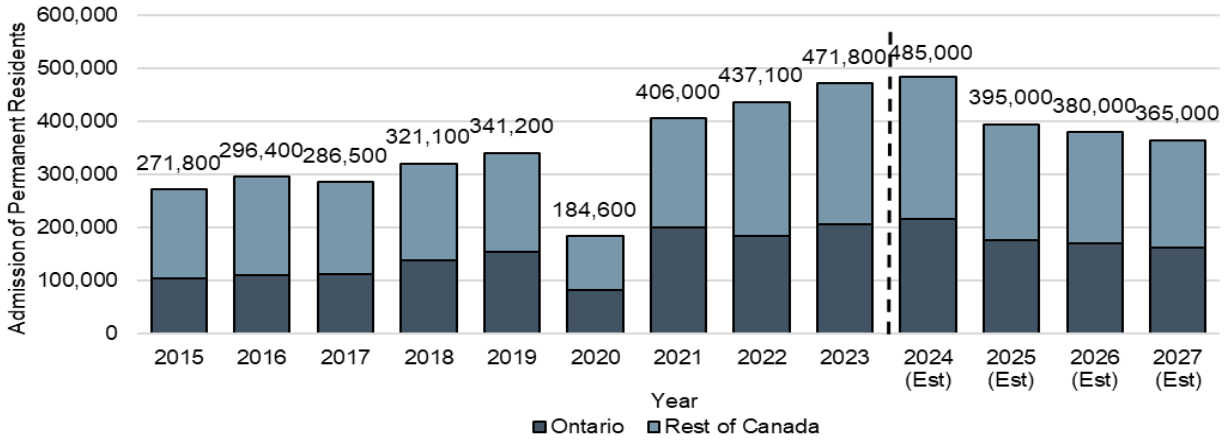
Canada's population has experienced significant growth in recent years. During the recovery period from COVID-19, immigration targets were raised in Canada primarily in response to labour force demands faced by the country. Immigration accounts for almost 100% of Canada's labour force growth and nearly 80% of its population growth. As a result of these increased immigration targets, Canada welcomed 471,800 and 485,000 new permanent residents in 2023 and 2024, respectively. With population growth outpacing G.D.P. growth, the G.D.P. per capita has trended lower and has been recently trending well below pre-pandemic levels.[1] The key challenges to growth in Canadian G.D.P. per capita include declining labour productivity and a rising unemployment rate for recent immigrants, which has increased from 9.5% to 12.6% over the past five years.[2] In response to these challenges, the federal government reduced its immigration targets by 21% in 2024 compared to the previous targets in 2023. More specifically, the federal government has lowered the previous near-term immigration target of 500,000 people per year to 395,000 in 2025, 380,000 in 2026, and

[1] Statistics Canada, Economic and Social Reports, *Canada's Gross Domestic Product Per Capita Perspectives on the Return to the Trend* report by Carter McCormack and Weimin Wang, April 24, 2024.
[2] TD Economic Reports, Canadian Employment (July 2024), *Canada's job market softens further in July*, published August 9, 2024.

365,000 in 2027 (refer to Figure 2-1). The federal government has also announced that it will reduce the percentage of non-permanent residents (N.P.R.) from 7.3% of the national population to 5.0% by the end of 2026.[1],[2],[3] These modifications address the changing needs of the country by easing pressures on housing, infrastructure, and social services. These changes are anticipated to have a further downward impact on future population growth in Canada, including Ontario, over the next few years.[4] Based on 2024 data and looking forward through 2025 and beyond, despite the target cuts, immigration levels to Canada and Ontario are anticipated to remain strong, exceeding pre-pandemic averages between 2015 and 2019.

[1] Non-permanent residents are defined by Statistics Canada as persons from another country who have been legally granted the right to live in Canada on a temporary resident permit, along with members of their family living with them. These residents include foreign workers, foreign students, the humanitarian population such as refugees, and other temporary residents.
[2] N.P.R. share as of Q3 2024 derived from Statistics Canada Tables 17-10-0009-01 and 17-10-0121-01. There are 3,002,090 N.P.R. out of 41,288,599 residents in Canada.
[3] N.P.R. national population target of 5% from the Government of Canada 2025-2027 Immigration Levels Plan.
[4] Government of Canada News Release, October 24, 2024. https://www.canada.ca/en/immigration-refugees-citizenship/news/2024/10/government-of-canada-reduces-immigration.html

Figure 2-1
Admission of Permanent Residents in Ontario and Canada
Historical (2015 to 2023) and Forecast (2024 to 2027)



Note: Figures have been rounded and may not add precisely.
Source: 2015 to 2023 derived from Immigration, Refugees and Citizenship Canada (I.R.C.C.) September 9, 2024 data; 2024 to 2027 federal targets from the Government of Canada's Immigration Levels Plan for 2024-2026; and Ontario target estimated based on the historical share of about 45% of the Canadian Permanent Residents Admissions from 2018 to 2023, by Watson & Associates Economists Ltd.

With respect to the provincial growth outlook, the most recent 2024 Ministry of Finance (M.O.F.) population projections show a decrease in the growth outlook for Ontario to 22.1 million by 2051. This reduction is largely attributed to the federal government's announcement to reduce the national percentage of N.P.R. over the coming years. When examining the immigration levels required over the long term to achieve the 2024 M.O.F. projections for Ontario, these revised projections appear ambitious. The 2024 M.O.F. population forecast continues to project a higher long-term population growth rate for the province compared to historical trends experienced over the past 20 years, with an annual growth rate of 1.3% between 2021 and 2051. This translates into an annual population increase of 242,600 people. Comparatively, the level of annual population growth forecast for Ontario under the 2024 M.O.F. forecast is 65% higher than the level of population growth achieved between 2001 and 2021.

2.3.2 Provincial Gross Domestic Product Trends and Near-Term Forecast

Similar to the broader Canadian economy, the economic base of Ontario, as measured by G.D.P. output, has shifted from goods-producing sectors (i.e., manufacturing and

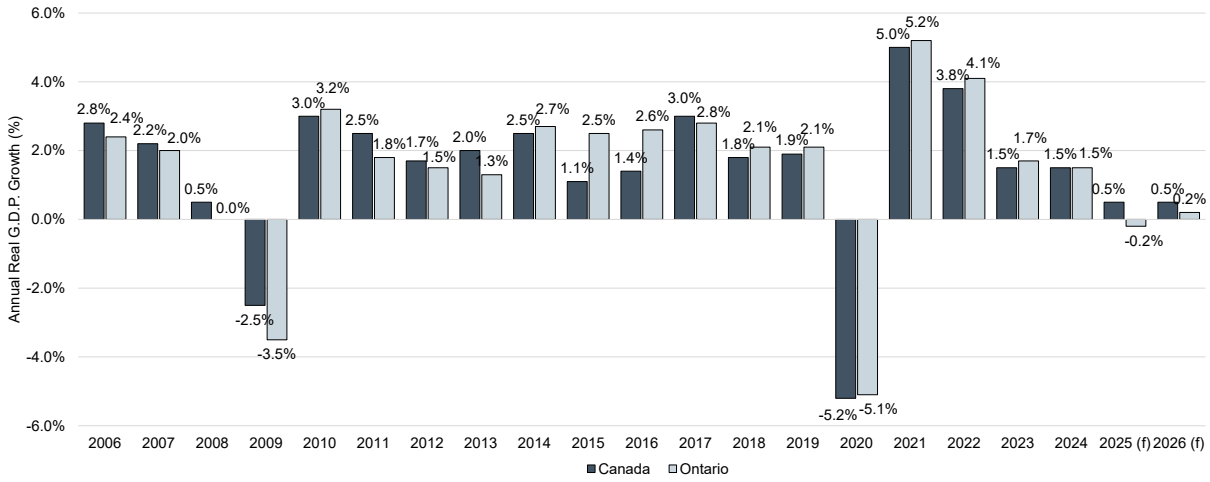
primary resources) to services-producing sectors over the past several decades. This shift has largely been driven by G.D.P. declines in the manufacturing sector, which were accelerated as a result of the 2008/2009 global economic downturn. It is noted, however, that these G.D.P. declines in the manufacturing sector have started to show signs of stabilization over the past few years, both prior to the COVID-19 pandemic and through the more recent economic recovery.

Over the past decade, the Ontario export-based economy experienced a rebound in economic activity following the 2008/2009 economic downturn; however, this recovery was relatively slow to materialize, with levels sharply rebounding by 2014, as illustrated in Figure 2-2. This economic rebound was partially driven by a gradual recovery in the manufacturing sector, fueled by a lower-valued Canadian dollar combined with the gradual strengthening of the U.S. and Canadian economy.[1]

The Canadian and Ontario economy deeply contracted by 5.1% in 2020 during the onset of the COVID-19 pandemic, before sharply rebounding by 5.2% in 2021. Throughout 2022, the Ontario economy continued to expand and grew by 3.9%, while the overall Canadian economy grew by 3.8%. BMO Capital Markets has forecast that G.D.P. growth will decline to -0.2% in Ontario and 0.5% overall for Canada in 2025. For 2026, an annualized G.D.P. growth rate of 0.2% is forecast for Ontario and 0.5% for all of Canada, suggesting a significant downturn in economic growth in the near term, largely driven by global economic uncertainty in response to current U.S. tariffs and protectionist measures. [2]

[1] Valued at approximately $0.72 U.S. as of April 2025.
[2] Provincial Economic Outlook, BMO Capital Markets, March 28, 2025.

Figure 2-2
Province of Ontario and Canada
Annual Real Gross Domestic Product (G.D.P.) Growth, Historical (2006 to 2024), and Forecast (2025 to 2026)



Note: The years 2025 and 2026 are forecasts by BMO Capital Markets Economics. The year 2024 is a forecast for the Province of Ontario.
Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, March 28, 2025, by Watson & Associates Economists Ltd.

2.3.3 Outlook for National and Provincial Manufacturing Sector

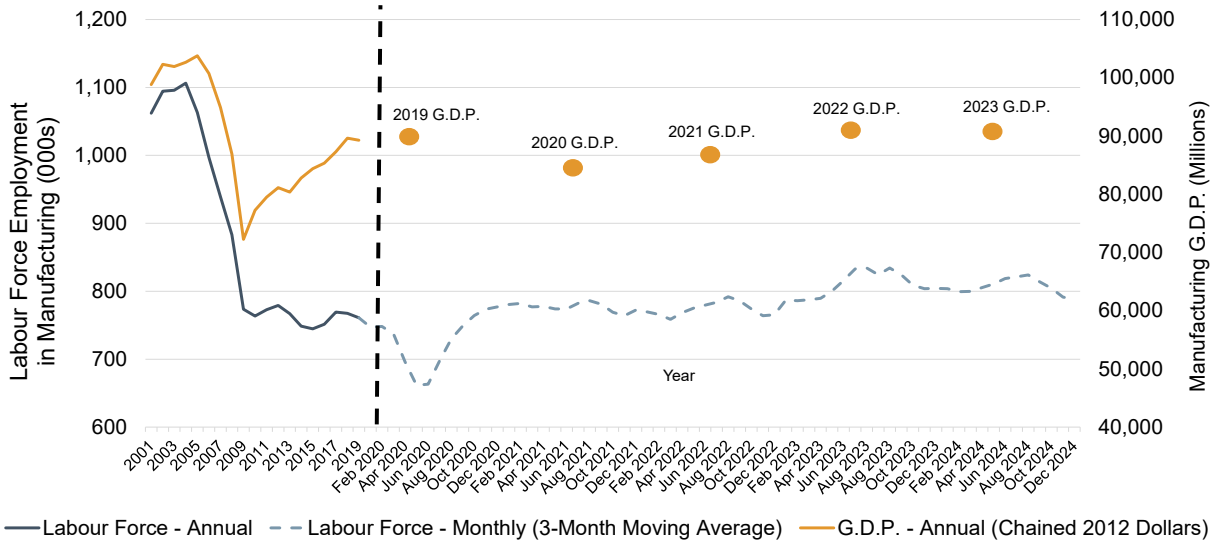
While manufacturing remains vitally important to the provincial and regional economy with respect to jobs and economic output, this sector has not represented an employment growth sector at the provincial level over the past several decades. Notwithstanding these structural economic challenges provincially, within the Hamilton-Niagara Peninsula Economic Region, the manufacturing sector has experienced a relatively strong recovery over the past decade, increasing from a 2014 labour force of 92,600 to a labour force of 100,500 by 2023. Multibillion-dollar investments in the electric-vehicle supply chain, such as Volkswagen's PowerCo battery gigafactory in St. Thomas alone, are slated to create a significant amount of indirect supply-chain jobs by 2031.

While there will continue to be a manufacturing focus in Ontario, the nature of industrial processes is rapidly shifting, becoming more capital/technology intensive and automated, with lower labour requirements. The highly competitive nature of the manufacturing sector will require production to be increasingly cost-effective and value-

added oriented, which bodes well for firms that are specialized and capital/technology intensive. As a result of increased technological efficiencies in the manufacturing sector, provincial G.D.P. levels related to the manufacturing sector are anticipated to outpace labour force growth over the next decade, indicating an increasing G.D.P. output per employee.

As summarized in Figure 2-3, from 2004 to 2009, the labour force and G.D.P. of Ontario's manufacturing sector decreased significantly. Between 2009 and 2019, however, provincial labour force levels stabilized in this sector, while G.D.P. output steadily increased. Since stabilizing in 2010, labour force levels in the manufacturing sector have remained relatively steady except for the mid-2020 decline and sharp recovery following the onset of COVID-19.

Figure 2-3
Province of Ontario
Manufacturing Labour Force Trends
2001 to December 2024



Source: Annual labour force data from Statistics Canada Labour Force Survey, Table 282-0125, monthly data from Table 14-10-0091-01, and 2021 to 2023 monthly data from Table 14-10-0388-01. Annual gross domestic product (G.D.P.) data from Statistics Canada Table 36-10-0402-01, by Watson & Associates Economists Ltd.

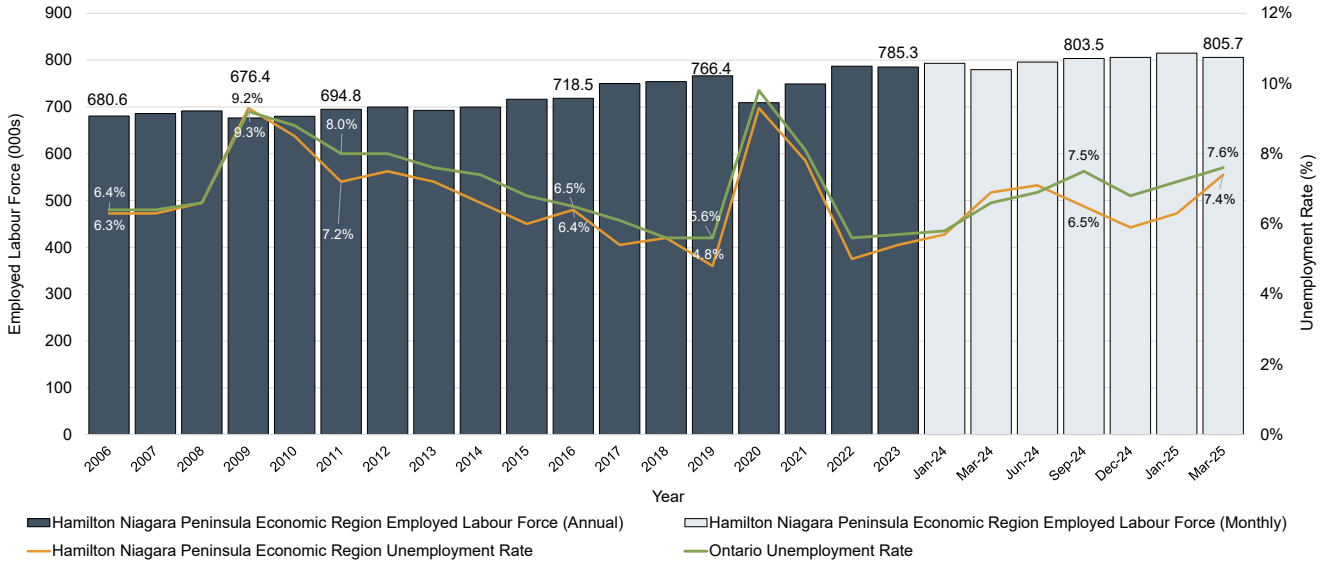
2.3.4 Regional Labour Force Trends

Figure 2-4 summarizes total labour force and unemployment rate trends for the Hamilton-Niagara Peninsula Economic Region.[1] Key observations include:

- The total labour force within the Hamilton-Niagara Peninsula Economic Region grew from 681,000 in 2001 to 766,000 in 2019, an increase of 85,000. During this time, the unemployment rate in the Economic Region peaked at 9.2% in 2009, coinciding with the 2008 global recession, followed by a steady decline to a recent low of 5% in 2022;
- Despite the strong recent historical performance of the Hamilton-Niagara Peninsula Economic Region labour market, the unemployment rate peaked in 2020 at 9.3% as a result of the COVID-19 pandemic;
- The labour force has steadily increased since the onset of COVID-19, reaching a high of 814,800 in January 2025. More recent data on the labour force shows that employment in the Economic region has decreased slightly to 805,700 in March 2025; and
- The unemployment rate has declined since COVID-19, reaching a low of 5% in 2022. However, since 2022, the unemployment rate has been increasing steadily to 7.4% by March 2025. During the same period, the unemployment rate across the province was slightly higher at 7.6%.

[1] The Hamilton-Niagara Peninsula Economic Region includes Haldimand County and represents the lowest level of geography this dataset is available for.

Figure 2-4
Hamilton Niagara Peninsula Economic Region
Total Labour Force and Unemployment Rate Trends, 2006 to 2025 YTD



2.4 Economic Trends and Growth Drivers within a Regional Context

This section examines labour force trends over the past 15 years in Haldimand in relation to the broader economic Region and the Province of Ontario. These trends are important to understand given the close relationship between regional labour force growth, net migration, and population growth.

2.4.1 Outward Growth Pressure

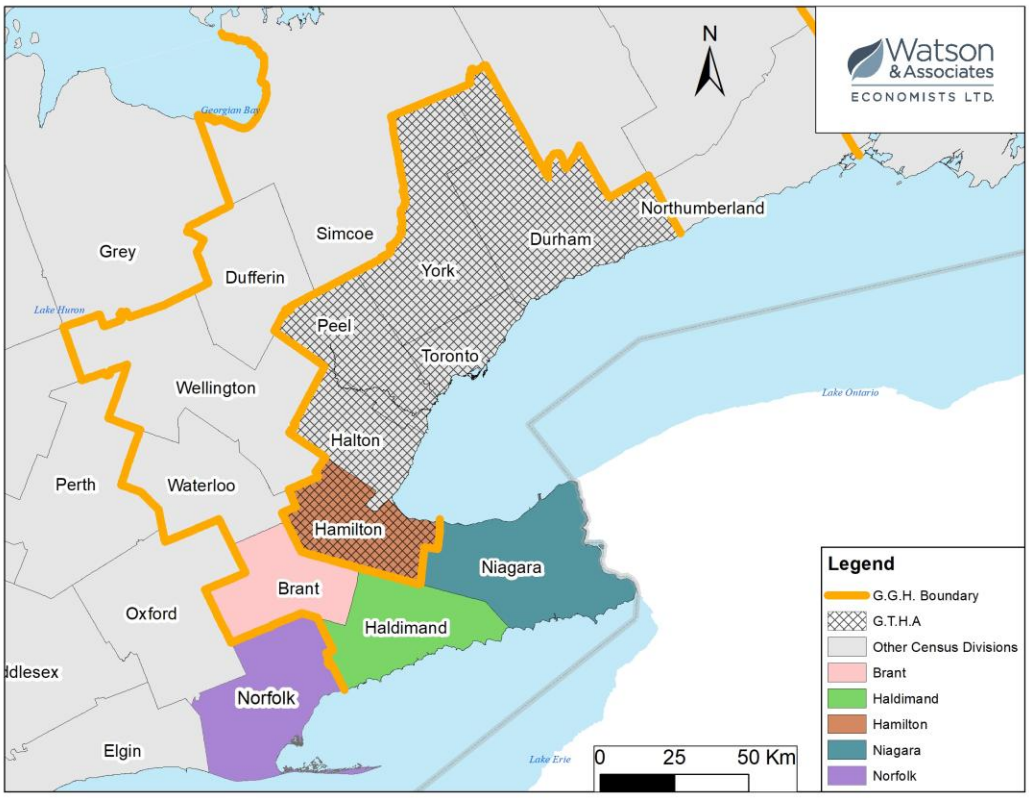
Haldimand is located in the southwest of one of the fastest-growing Regions in North America, known as the G.G.H. This region comprises the municipalities that make up the Greater Toronto and Hamilton Area (G.T.H.A.), as well as the surrounding Regions/ Counties within Central Ontario, known as the G.G.H. "Outer Ring," which extends from Haldimand County in the southwest to Simcoe County in the north, to Niagara Region in the southeast (refer to Figure 2-5). The strength of the broader regional G.G.H. economy presents a key opportunity for Haldimand's economy and its residents within commuting distance to many of the growing regional employment markets within this region, particularly within the western G.G.H.

The G.G.H. represents the economic powerhouse of Ontario and the centre of a large portion of the economic activity in Canada. The G.G.H. is also economically diverse, with most of the top 20 traded industry clusters throughout North America having a strong presence in this region. Within the G.G.H., the G.T.H.A. industrial and office commercial real estate markets are significant, having the third and sixth largest inventories, respectively, in North America.[1]

With a robust economy and diverse mix of export-based employment sectors, the G.G.H. is highly attractive on an international level to new businesses and investors. The G.G.H. also has a strong appeal given the area's regional infrastructure (i.e., Toronto Pearson International Airport, other regional airports, provincial highways, inter-modal facilities), access to labour force, post-secondary institutions, and proximity to the United States border. This continues to support steady population and housing growth within this region, largely driven by international and inter-provincial net migration.

[1] Source: Derived from Cushman & Wakefield Toronto Industrial Market Beat and U.S. Industrial Market Beat Snapshot, Q3 2017, and Cushman & Wakefield Toronto Office Market Beat and U.S. Office Market Beat Snapshot, Q3 2017 by Watson & Associates Economists Ltd.

Figure 2-5
Haldimand County within the Context of the G.G.H.



In line with M.O.F. projections, it is important to recognize that a 30-year outlook spans several economic cycles, meaning near-term headwinds have only a limited effect on the region's long-term trajectory. Over this horizon, the G.G.H. is projected to see robust population growth, driven by sustained economic expansion that will remain concentrated in its larger urban centres.

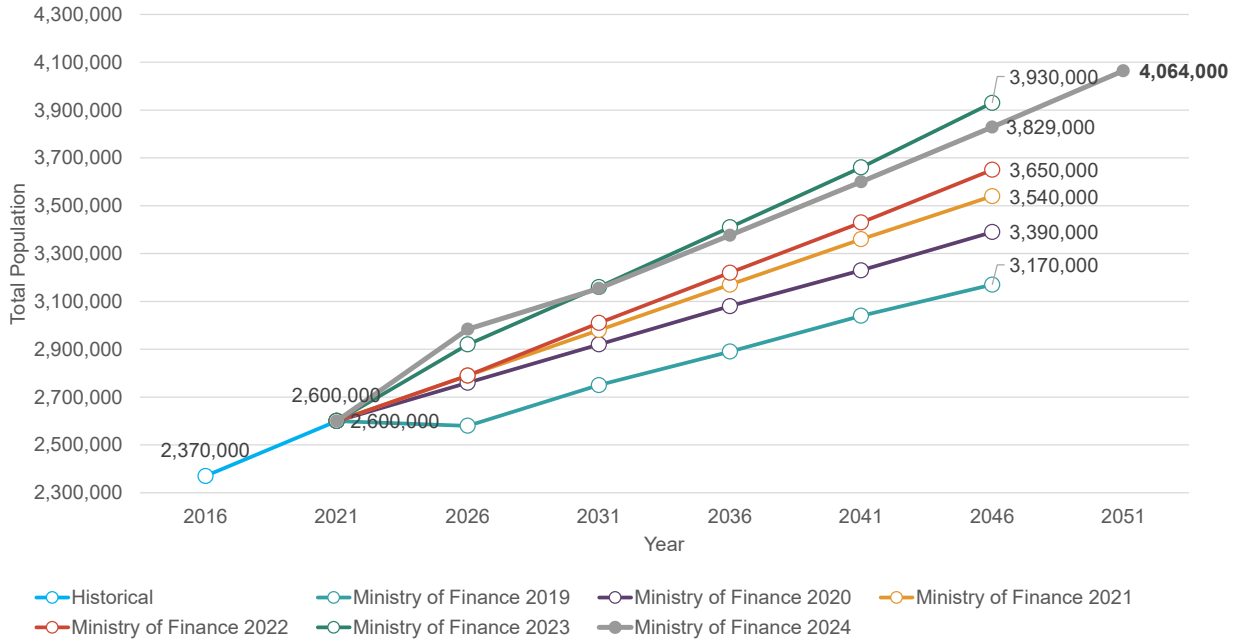
- Over the past several decades, the G.T.H.A. has experienced the highest annual rate of population growth within the Province of Ontario. Since 2011, however, the share of Ontario's population growth has been increasingly concentrated in the G.G.H. Outer Ring, Eastern Ontario, and Southwestern Ontario. These growth patterns experienced between 2016 and 2021 are anticipated to continue in the future and are reflected in the M.O.F. 2024 Reference Scenario.

Figure 2-6 presents the 2024 reference forecast from M.O.F. for the G.G.H. Outer Ring. Key highlights include the following:

- Historically, the G.G.H. Outer Ring has grown at an annual average rate of 1.1%, which is comparable to growth in the Province as a whole.
- Similar to the Province of Ontario, with the exception of the M.O.F. 2020 projections, the M.O.F. projections for this region steadily increased between 2020 to 2023. The rate of population growth in the most recent 2024 M.O.F. forecast, however, has slightly decreased.
- In accordance with the M.O.F. 2024 projections, between 2021 and 2051, the G.G.H. Outer Ring is projected to grow at an annual rate of 1.5%, reaching a population of approximately 4.1 million by 2051.
- While the 2024 M.O.F. projections reflect a slightly lower growth rate than previous releases, they remain optimistic given current macroeconomic challenges. Nevertheless, these projections still exceed those of the Growth Plan, 2019 and indicate a strong long-term growth outlook for the G.G.H. Outer Ring, particularly when viewed against historical trends over the past two decades and the broader provincial growth outlook.[1]

[1] The Growth Plan, 2019 forecast for the G.G.H. projects that the region is expected to grow at an annual rate of 1.3%, reaching 3.7 million people by 2051, which is approximately 360,000 less than the 2024 M.O.F. forecast.

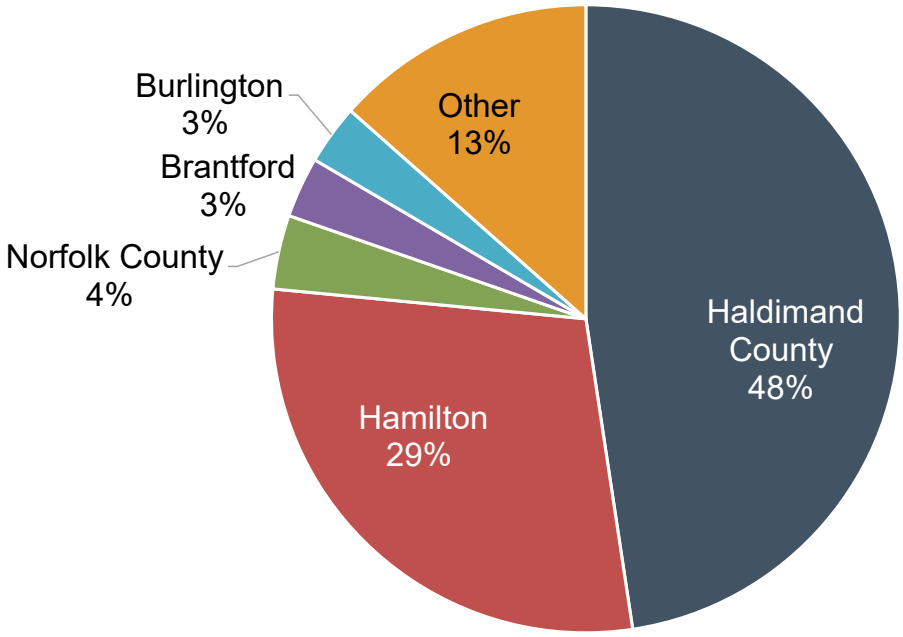
Figure 2-6
Greater Golden Horseshoe – Outer Ring
Recent Ministry of Finance Projections, 2021 to 2051



Note: Population includes net Census undercount. Figures have been rounded.
Source: Data from Statistics Canada Census, 2001 to 2021, and M.O.F. projections from Summer 2019 to Fall 2024 derived by Watson & Associates Economists Ltd., 2024.

As previously mentioned, the strength of the broader regional G.G.H. economy, in particular the G.G.H. Outer Ring, presents a significant opportunity for Haldimand's economy and its residents within commuting distance to this growing regional employment market. According to the 2021 Census, 48% of Haldimand's residents work within Haldimand, 29% in Hamilton and 4% in Norfolk County, while the rest commute to other areas for work. The G.T.A. represents the largest employment hub outside the three areas, as it employs 4% of Haldimand's residents.

Figure 2-7
Haldimand County
Where Haldimand County Residents Commute to, 2021



Source: Statistics Canada Commuting Flow data, derived by Watson & Associates Economists Ltd., 2022.

2.4.2 Regional Economic Opportunities

Export-based economic growth throughout the local and surrounding regional economy will continue to generate demand for new housing within Haldimand. New housing construction and associated local population growth is anticipated to generate demand for local industries within Haldimand related to the construction sector, as well as population-related employment sectors such as retail, accommodation, and food, plus other personal service uses. Other local "knowledge-based" and "creative class" employment sectors, such as information and cultural industries, arts, entertainment, and recreation, and professional, scientific and technical services are also beginning to experience moderate employment growth. Population growth combined with the aging of the existing population base will also place increasing demands on employment sectors and municipal services related to the growing population base of seniors, primarily related to the health care and social assistance sector.

The local economic base is also oriented towards small businesses and home-based occupations. Such businesses act as incubators for local economic development and

stimulate innovation and entrepreneurialism within Haldimand. Home-based job growth will be facilitated by opportunities related to telecommuting and increased technology. Demographics also play a role in the employment outlook for work-at-home employment. As the population and labour force continue to age, an increased number of working and semi-retired residents will likely be seeking lifestyles that will allow them to work from home on a full-time or part-time basis.

Chapter 3
Haldimand County Economic Overview

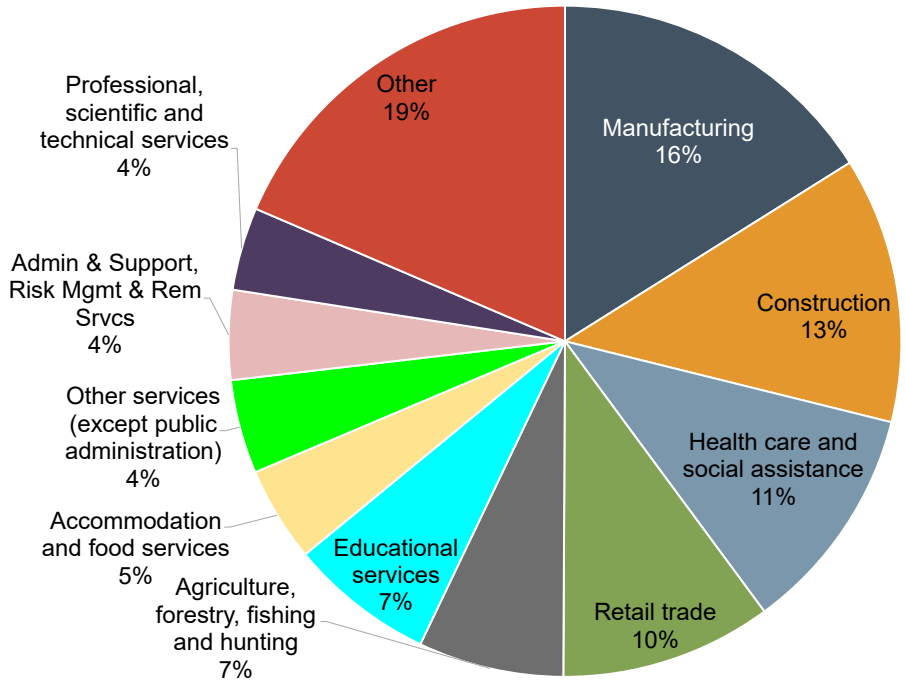
3. Haldimand County Economic Overview

The following chapter provides an overview of Haldimand's economic base, including concentrated industry sectors (i.e., clusters) as well as a comparison of Haldimand's recent employment growth trends in relation to the Province.

3.1 Employment and Business Structure

Haldimand has an estimated employment of 19,000 jobs, as of 2021.[1] These jobs are across a diverse employment base, as illustrated in Figure 3-1. The largest sector in Haldimand is manufacturing, which accounts for 16% of total employment. Other key sectors include construction; health care and social assistance; retail trade; agriculture, forestry, fishing and hunting; and educational services.

Figure 3-1
Haldimand County Employment Base by Major Industry Sector, 2021



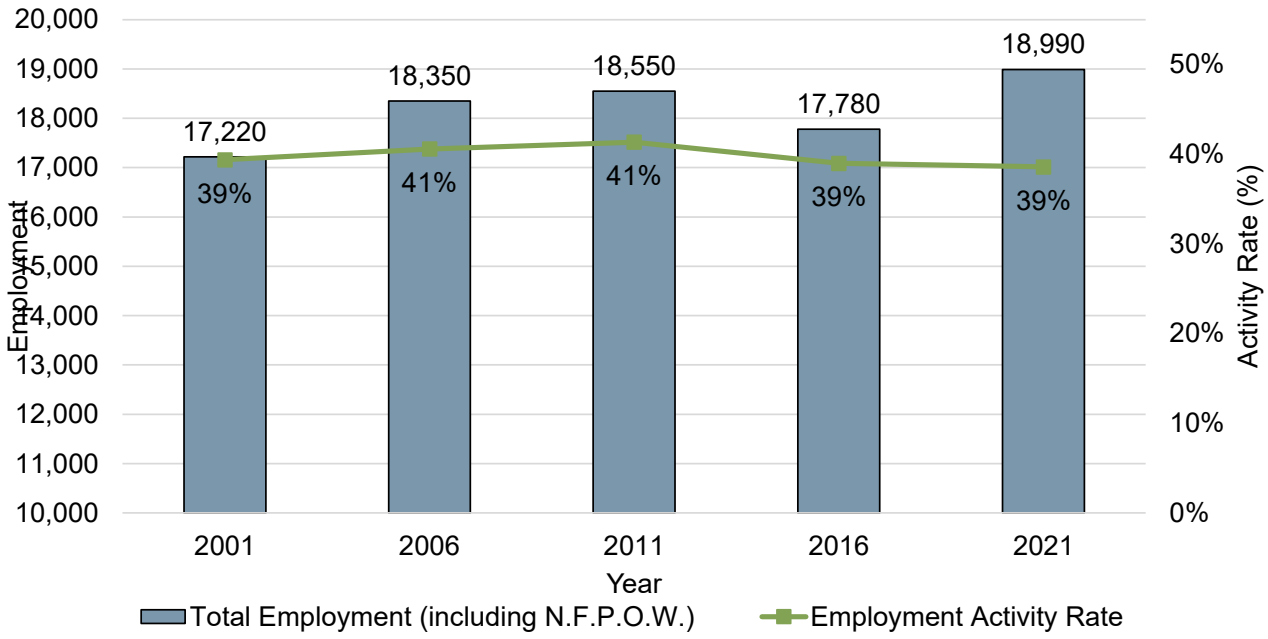
Source: Derived from 2021 Statistics Canada Census, presented by Watson & Associates Economists Ltd., 2023.

[1] Based on 2021 Statistics Canada Census data.

3.2 Employment and Economic Growth Trends

The total employment base for Haldimand grew from approximately 17,215 jobs in 2001 to 17,780 jobs in 2016, as illustrated in Figure 3-2. Over the 15-year period (2001 to 2016), employment growth peaked in 2011 and averaged 0.2% annually, which is lower than the growth rate of 1.2% in the G.G.H. Haldimand's 2021 employment base is estimated at a total of approximately 19,000, having increased by an estimated 1,210 over the 2016 to 2021 period, despite Census enumeration occurring during a Provincial lockdown caused by COVID-19. As illustrated in Figure 3-2, over the 2001 to 2021 period, Haldimand's employment activity rate (ratio of jobs to population) has remained stable, ranging from 39 to 41% over the Census periods. This indicates that the local population base increases at a similar rate to the local employment base over the 20-year period.

Figure 3-2
Haldimand County Employment Base and Activity Rate, 2001 to 2021



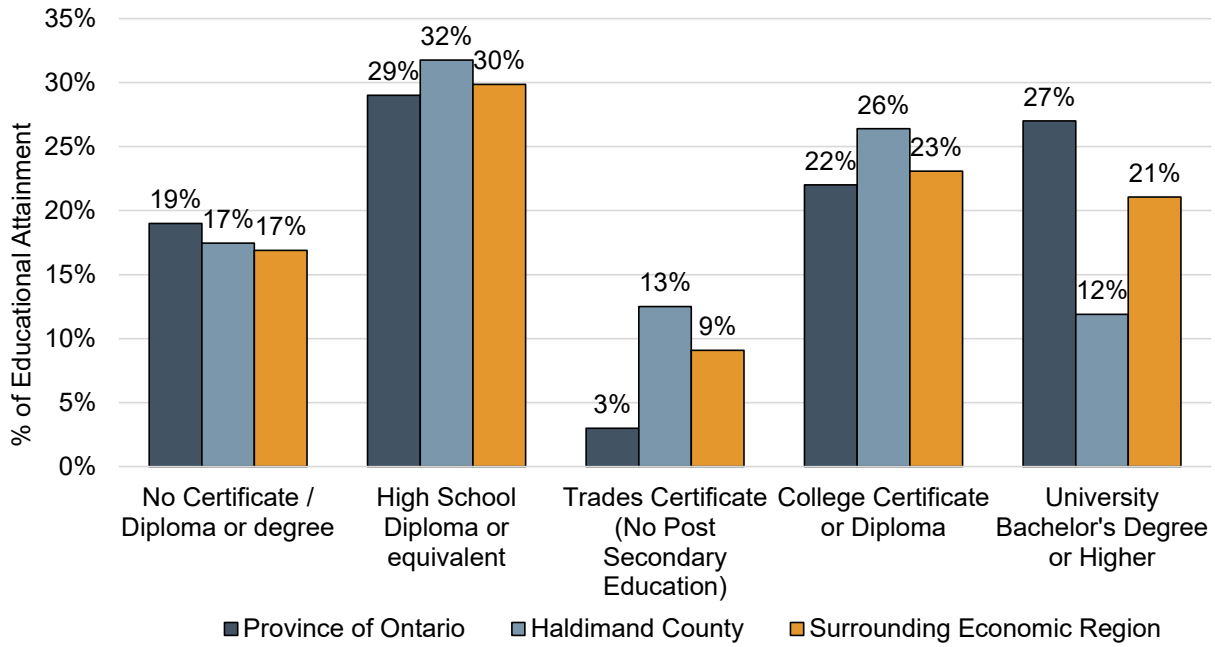
Source: 2001 to 2021 using Statistics Canada Census Data. Derived by Watson & Associates Economists Ltd., 2023.

Haldimand boasts a diverse pool of skilled labour, which is attractive for both international and locally based industries over a wide range of export-based sectors. As

shown in Figure 3-3, Haldimand has a relatively well-rounded population with about half the population having a trades certificate, college certificate or diploma, or a university degree.

The share of Haldimand's population without any diploma or degree is less than the surrounding economic region or provincial averages, representing a strong labour force. Compared to the other geographies, Haldimand has a significantly higher proportion of the population with a trades certificate or a college certificate or diploma, yet has a much lower share of the population with a University Bachelor's Degree or Higher. This educational attainment suggests that Haldimand can retain workers typically associated with the trades industries, however, a low concentration of jobs within the knowledge-based sector suggests that County residents have less opportunity to be employed in a knowledge-based sector than the other geographies surveyed. Looking forward, Haldimand should consider ways in which it can promote university degree attainment while also retaining the educated workforce.

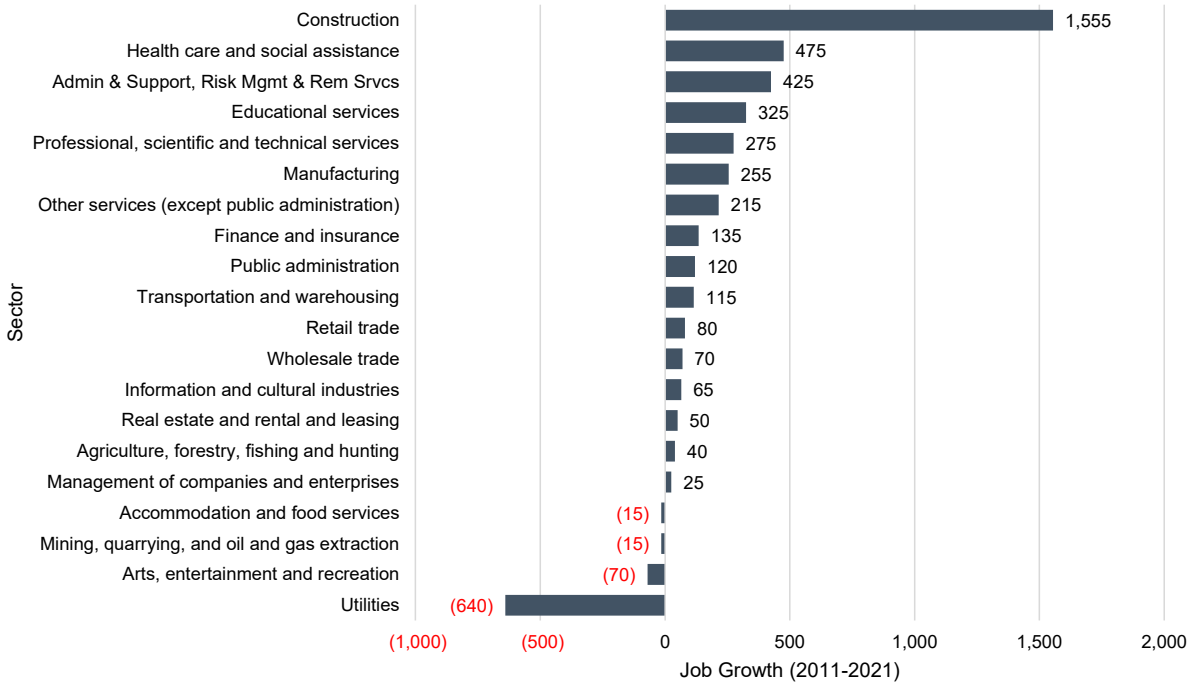
Figure 3-3
Province of Ontario, Haldimand County, and the Surrounding Economic Region
Highest Level of Education Attained, 2021



Note: Surrounding Economic Region includes Norfolk, Niagara, Brant, Brantford, and Hamilton.
Source: Derived from Statistics Canada Place of Work data by Watson & Associates Economists Ltd., 2022.

Similar to the provincial economy as a whole, the nature of Haldimand's economy is changing. Over the past decade, the composition of Haldimand's employment base has gradually shifted from goods-producing sectors to services-providing sectors. Figure 3-4 illustrates the employment change by sector from 2011 to 2021 in Haldimand. Over this period, Haldimand has shown growth in a number of jobs in a broad range of sectors, including construction; health care and social assistance; educational services; professional and technical services; and manufacturing.

Figure 3-4
Haldimand County Employment Growth by Sector, 2011 to 2021



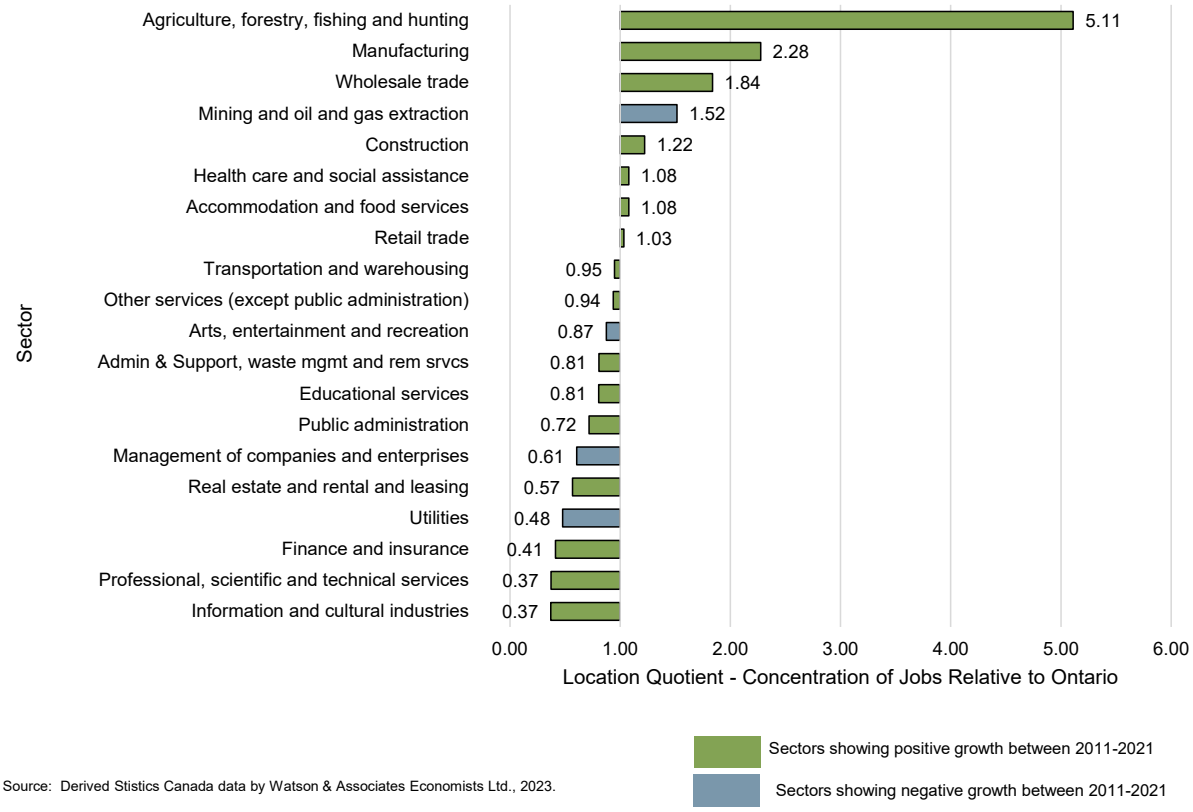
Source: Employment data from Statistics Canada Census, derived by Watson & Associates Economists Ltd., 2023.

To assess the relative strength of business growth within Haldimand, Figure 3-5 examines employment growth by industry sector over the 2011 to 2021 period in Haldimand, relative to Ontario. This comparative share analysis is helpful in identifying how much faster or slower employment is growing in Haldimand relative to Ontario as a whole, by sector. Industry sectors that generate a strong positive value indicate employment clusters where Haldimand potentially has a competitive advantage relative to the surrounding market with respect to business growth. On the other hand, industry

sectors that exhibit a negative value suggest areas where Haldimand may be at a competitive disadvantage to other select municipalities or the Province.

As shown in Figure 3-5, of the employment sectors within Haldimand that experienced positive employment growth between 2011 and 2021, agriculture, manufacturing, wholesale trade, and construction currently exhibit significantly higher employment concentrations relative to the Province, indicating the presence of an employment cluster and high potential within these sectors. Haldimand also has a low concentration in many of the traditional knowledge-based sectors, such as real estate and rental and leasing, finance and insurance, and professional, scientific and technical services, and information and cultural industries.

Figure 3-5
Haldimand County Location Quotient Relative to Ontario, 2011 to 2021



Source: Derived Stistics Canada data by Watson & Associates Economists Ltd., 2023.

These established and emerging industrial sectors summarized above, particularly those that are identified as steadily growing, are anticipated to represent a large share

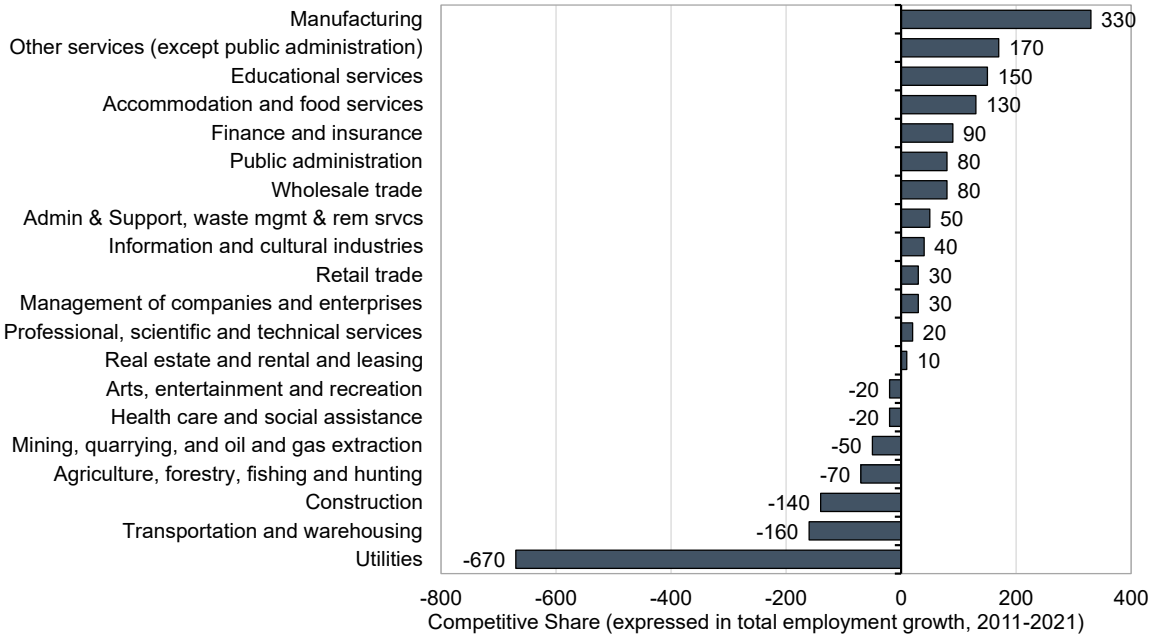
of Haldimand's employment growth in Employment Areas over the next several decades.

3.3 Haldimand County Shift Share Analysis

Another measure of assessing the competitive share of Haldimand's economy as compared to the Province is a shift share analysis. This analysis helps determine if a specific regional industry showed faster or slower growth in comparison with the regional economy. For example, if regional growth in a given employment sector is similar to the pace of provincial or national growth, the regional growth can be attributed to trends occurring on a broader scale and does not represent a unique regional growth context.

As seen in Figure 3-6, the competitive share of manufacturing; educational services; accommodation and food services; finance and insurance; as well as many other sectors have outpaced growth that can be attributed to shifting provincial patterns. These industries can be considered leading, i.e., they outperform the Province in terms of competitive share. Interestingly, construction has been the fastest-growing sector in Haldimand over the past 10 years, but this analysis would indicate that those gains should have been even more pronounced over the last decade. Similarly, the utilities sector has shown to be the sector lagging the furthest behind provincial patterns.

Figure 3-6
Haldimand County Competitive Share Relative to Ontario, 2011 to 2021

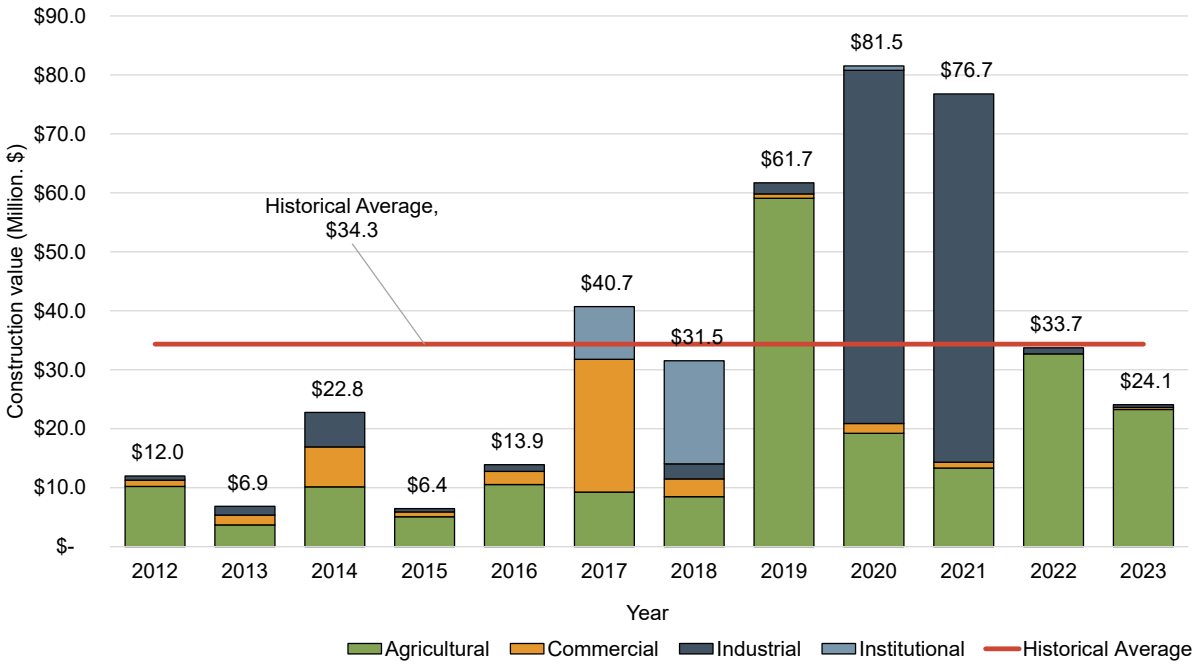


Source: Derived from Statisics Canada Census, by Watson & Associates Economists Ltd., 2023.

3.4 Recent Non-Residential Development Activity

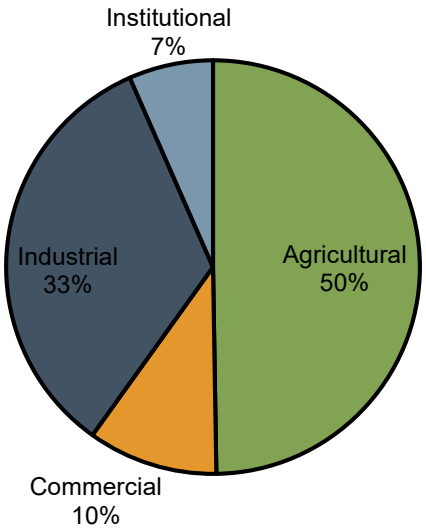
Figure 3-7 provides a summary of recent annual non-residential development activity (2012 to 2023) for Haldimand, expressed in construction value. As illustrated, Haldimand averaged $34.3 million of non-residential development construction value annually from 2012 to 2023. During this period, industrial development accounted for 33% of total construction value, compared to 50% for agricultural development and 10% and 7% for commercial and institutional development, respectively (see Figure 3-8). Haldimand experienced higher-than-average levels of industrial development in 2020 and 2021, which have since moderated.

Figure 3-7
Haldimand County Non-Residential Development Activity, 2012 to 2023



Source: Building permit data provided by Haldimand County. Figure by Watson & Associates Economists Ltd., 2025.

Figure 3-8
Haldimand County Non-Residential Development Activity by Major Sector, 2012 to 2023



Source: Building permit data provided by Haldimand County. Figure by Watson & Associates Economists Ltd., 2025.

3.5 Observations

A key driver of population growth for Haldimand is its proximity to the G.T.H.A. and the growing potential for Haldimand to accommodate new business and skilled labour. Future employment growth within Haldimand is strongly correlated with the growth outlook and competitiveness of the broader Economic Region and G.G.H. economy. Historical employment growth within Haldimand has occurred at a slower rate than observed provincially. Manufacturing remains the largest industry within Haldimand, but this sector has been experiencing declines over the past decade.

A major factor in the future competitiveness of Haldimand's economic base is dependent, in part, on the quantity and quality of its Employment Areas. As such, Haldimand will look to ensure it contains an ample and marketable supply of employment lands to generate new employment opportunities within Haldimand. Over the next 30 years, Haldimand's local employment base is forecast to increase, generating new live/work opportunities within Haldimand. Haldimand is geographically well-positioned in the economic heartland of southern Ontario to accommodate this increased growth.

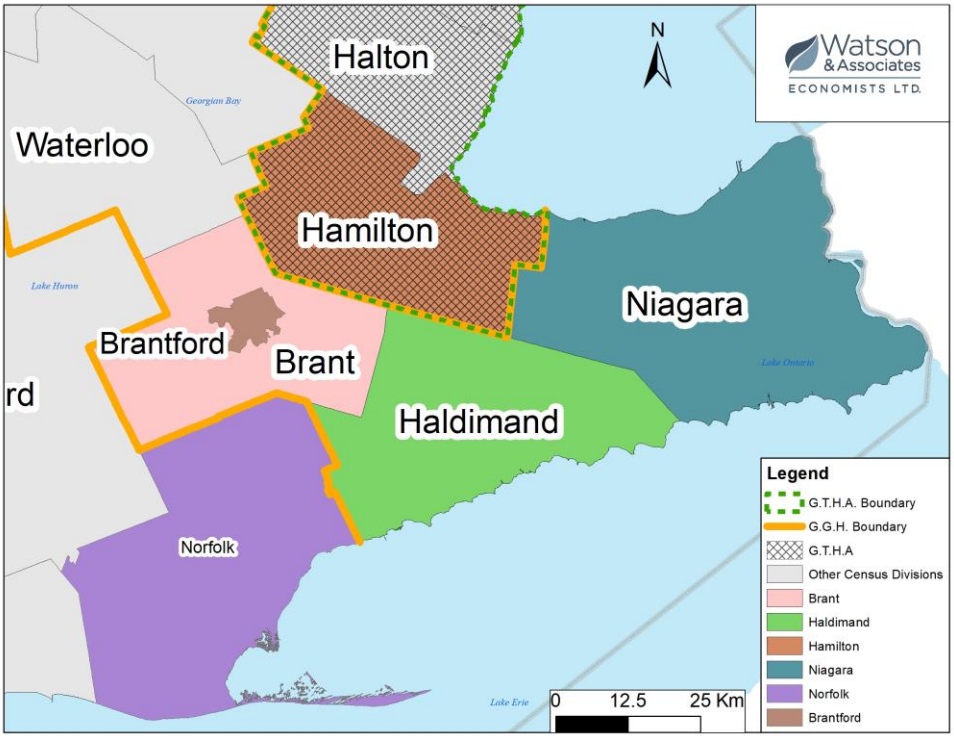
Chapter 4
Review of Haldimand County's Competitive Position within the Broader Regional Market Area

4. Review of Haldimand County's Competitive Position within the Broader Regional Market Area

Employment land development conditions and forecast development trends for a number of selected Ontario municipalities were reviewed to better assess Haldimand's competitive position within the broader regional market area. As shown in Figure 4-1, comparator geographies reviewed include:

- The City of Hamilton;
- Niagara Region;
- The City of Brantford;
- Brant County; and
- Norfolk County.

Figure 4-1
Haldimand County
Broader Regional Market Area



Each of the above-listed comparator municipalities was reviewed against a number of economic, physical and fiscal attributes, including:

- Land value;
- Hard construction costs (e.g., materials, labour) and soft costs (e.g., engineering, consulting services);
- Development/permit fees;
- Development charges; and
- Developer project profit.

4.1 Employment Land Supply and Demand Analysis

According to Haldimand's O.P. (subsection C.1.23, and Schedule 1.1 to 1.5), Haldimand has four separate industrial classifications:

- Major Industrial;
- Industrial;
- Urban Business Parks; and
- Rural Industrial.

Haldimand has a large industrial employment presence outside the urban areas and within rural industrial areas. Haldimand's 2019 Municipal Comprehensive Review report identifies that urban industrial employment as of 2018 is estimated to represent 44% of Haldimand's industrial employment base. The Urban Employment Area Employment growth between 2021 and 2051 is estimated at 3,380 or 113 jobs annually.[1] Furthermore, according to Haldimand's Growth Forecast and Land Needs Assessment Report, Haldimand has a vacant urban employment land inventory of 154 gross ha.[2] Based on the assessment, it is estimated that Haldimand has a deficit of employment

[1] Haldimand County, 2020, Revised Growth Analysis to 2051, Watson & Associates Economists Ltd. A forecast update has since been conducted on August 27, 2024 but the corresponding land needs calculation was not updated through this recent report. Accordingly, the findings from 2020 are still relevant here.
[2] https://www.haldimandcounty.ca/wp-content/uploads/2021/06/Growth-Strategy-Revised-Report-MRA-June-2021-Final-compressed-again.pdf

lands at 2051. Figure 4-2 provides a summary of the Employment Area land need by 2051 for Haldimand and the Caledonia area.

Figure 4-2
Haldimand County
Employment Area Land Need Summary

Parameter	Haldimand County	Caledonia
Total Employment	6,400	3,280
Urban Employment Lands Employment Growth (2021 to 2051)	3,380	2,190
Employment Lands Employment Growth Adjusted for Intensification	3,211	2,081
Proposed Employment Area Density	**15**	**15**
Urban Employment Land Supply (ha)	154	46
Employment Land Demand (ha)	214	139
Deficit at 2051 (according to Growth Strategy Report) (ha)	**60**	**93**

Source: Watson & Associates Economists Ltd., Haldimand County, Revised Growth Analysis to 2051, September 2020. Matt Reniers and Associates, Haldimand County Official Plan Update: Growth Strategy Report, June 2021.

Based on the above findings, Haldimand expanded the North Caledonia Employment Area boundary, providing an additional 51 developable hectares of land. Additional lands outside of the current study area will be required to accommodate the remaining 42 developable hectares required by 2051.

In order to understand the competitiveness of employment land supply, the competitor municipalities have been reviewed in terms of their employment land availability. With respect to long-term employment land needs, the following observations can be made regarding the above-listed comparator geographies:

- As shown in Figure 4-3, relative to the other municipalities surveyed, Haldimand's Growth Strategy identifies a supply of vacant urban employment land of approximately 154 ha in Haldimand and 46 ha in North Caledonia.
- With respect to the small/medium-sized municipalities surveyed, Haldimand's urban employment lands are estimated to be absorbed at a slower rate of 7 ha annually, compared to surrounding municipalities like Brant, where annual employment demand is 13 ha annually, respectively; and

- Employment land absorption within larger urban municipalities has been focused towards multi-tenant industrial development as well as standalone industrial development within the warehousing/distribution and transportation sector. In contrast, recent employment land development within the smaller municipalities surveyed has been more concentrated in the manufacturing sector.

For each of the comparator municipalities surveyed, a broad assessment of forecast employment land supply and demand was prepared to the year 2051. This is based on the M.C.R.s conducted by these municipalities, and in some cases has resulted in O.P. updates to expand their Employment Areas. The results of this assessment are summarized below in Figure 4-3. In accordance with approved O.P. forecasts for each of the comparator municipalities, employment land absorption rates within the surrounding market area are anticipated to significantly increase between 2021 and 2051, relative to Haldimand's estimated land absorption levels.

Figure 4-3
Forecast Annual Employment Land Demand and Employment Land Supply for Comparator Municipalities, 2021 to 2051

Comparator Municipality	Available Net Vacant Employment Land Supply (ha)	Expansion proposed according to M.C.R. (ha)	Annual Employment Land Demand (ha)
Haldimand County	154	51	7
Niagara Region	716	255	32
City of Hamilton	1,290	-	36
Brant County	344	108	13

Source: Compiled from Recent Municipal Comprehensive Review reports by Watson & Associates Economists Ltd., 2023.
Note: The Expansion Areas mentioned may not be final and might be subject to change through the O.P.R. process. Furthermore, these do not include employment area conversions / change in designations of existing employment areas.

4.2 Cost Competitiveness Analysis

A significant factor influencing business decisions on where to locate is the cost competitiveness (both capital investment and operating costs) of the development in relation to market demand and potential return on investment. The cost competitiveness of development on employment lands is examined herein, through a series of pro-forma financial analyses assessing the cost of constructing and operating various prototypical industrial/office developments within Haldimand, as well as several other comparator municipalities within the broader regional market area.

For the purposes of this exercise, two prototypical developments were assessed, including a one-storey 30,000 sq.ft. manufacturing facility and a 60,000 sq.ft. warehouse. The physical characteristics of the two building typologies and their respective land requirements are summarized in Figure 4-4.

Figure 4-4
Prototypical Building Typologies

Building Type	Gross Floor Area sq.m	Gross Floor Area sq.ft.	Floor Space Index	Land Area net ha	Land Area net acres
1-Storey Factory	2,800	30,000	30%	0.9	2.3
1-Storey Warehouse	5,600	60,000	30%	1.9	4.6

Source: Watson & Associates Economists Ltd., 2023.

The cost competitiveness of the select prototypical industrial/office developments was assessed through a review of total development cost and the impact of operating costs (including property taxes and utility costs) in Haldimand and the comparator municipalities. In the generation of the total development cost of the prototypical developments (expressed in dollars per sq.ft.), the following input costs were included (see Appendix A for more details):

- **Land Cost** – average price of serviced vacant employment land per acre based on market data, multiplied by the acreage requirement based on an assumed

F.S.I.,[1] e.g., 30%, divided by the gross floor area for the building size being considered (e.g., 30,000 sq.ft.);

- **Construction Costs**[2] – reflects hard construction costs (e.g., materials, labour) and soft costs (e.g., engineering, consulting services) – average construction costs per sq.ft. vary by development type;
- **Development Charges** – on a sq.ft. basis, calculated based on the current upper- and lower-tier or single-tier municipal schedules and school board development charges schedules;
- **Building Permit Fees** – on a sq.ft. basis per current municipal schedules; and
- **Developer Project Profit** – a flat percentage of the total cost (land + construction + development charges + building permit fees per sq.ft.) at 5%.

The total development cost was then annualized to determine the average annual cost of developing a building over a defined period (i.e., 25 years) to compare with annual operating costs.[3] Annual operating costs for each prototypical development were determined based on an assessment of the following:

- **Utility Costs** – Important operating costs for businesses are utility costs, particularly for high consumption users and, for the purposes of this assignment, these include the cost of water/wastewater, electricity and natural gas. Consumption rates for each prototypical development were determined on an annual gross floor area per sq.ft. basis and held constant across all geographic locations. Annual costs were determined in accordance with the following:
    - **Water/wastewater costs** – multiplying the annual consumption by the average cost per cubic metre within each municipality, reflected on a sq.ft. basis;
    - **Electricity costs** – multiplying the annual consumption by the average cost per kWh within each municipality, reflected on a sq.ft. basis;
    - **Natural gas costs** – multiplying the annual consumption by the average cost per cubic metre within each market, reflected on a sq.ft. basis; and

[1] Floor Space Index (F.S.I.).
[2] Construction costs vary by municipality based on location factors provided in 2022 RSMeans Building Construction Costs data.
[3] Annualized costs determined using an annualization factor of 6.5% which is based on a 25-year period and discount rate of 4.1% which is representative of industry trends.

- **Property Taxes** – Property taxation estimates for the comparator municipalities were based on approximate assessment values utilizing current local taxation rates. Property assessment values were derived based on a survey of comparative developments utilizing MPAC property assessment data.

The annual operating costs (i.e., property taxes and utility costs) were combined with the annualized development costs to generate the total annualized cost per sq.ft. within each location surveyed.

4.2.1 Total Annualized Costs

Total annualized costs (development and operating costs) for the two prototypical developments in Haldimand and the comparator municipalities are summarized in Figure 4-5 and Figure 4-6. Additional details are provided in Appendix A. Key findings include:

Development Costs

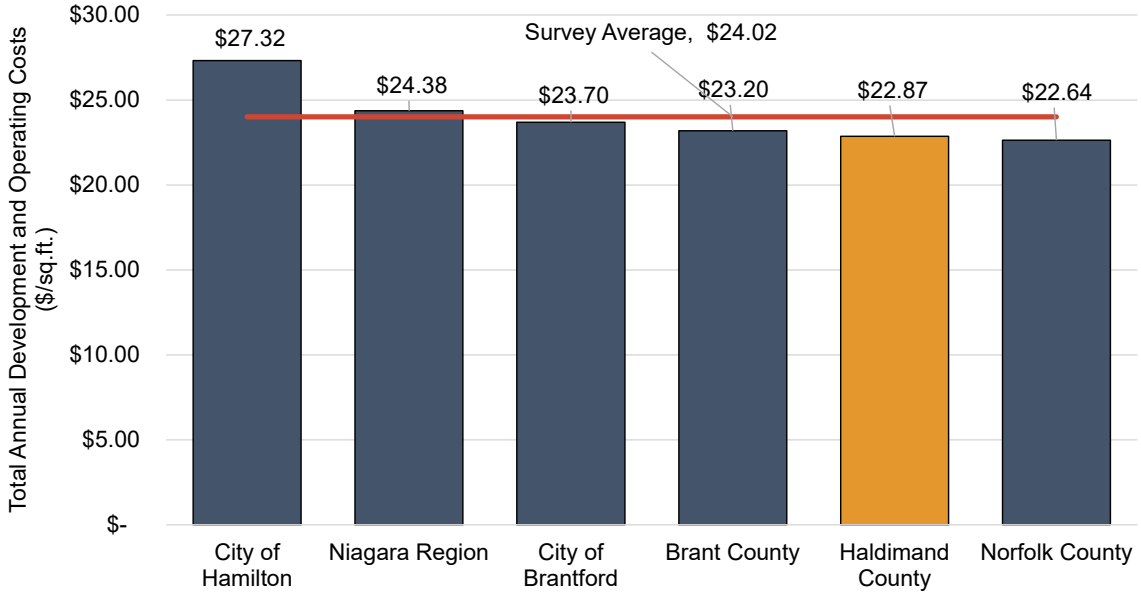
- Development costs are relatively similar across Haldimand, Norfolk County, Brant County, and the City of Brantford. The Niagara Region has slightly higher development costs on average than these municipalities and the City of Hamilton has consistently higher development costs than all other municipalities surveyed;
- Land cost per acre within Haldimand is lower than the average cost of land across the surveyed municipalities, largely due to the high land costs in Hamilton inflating the survey average. Land costs per acre are more expensive in Haldimand compared to Norfolk County, Brant County, and the City of Brantford;
- Development charges per sq.ft. are lowest within Haldimand compared to all other municipalities surveyed and building permit fees are also quite low compared to the survey average;
- Overall, Haldimand is competitive in respect to development costs due to moderate land prices and low development charge and building permit rates.

Annual Operating Costs

- Haldimand has the second lowest operating costs among the surveyed municipalities, with only Norfolk County having marginally lower operating costs per sq.ft.;
- While Haldimand has relatively average tax rates, the average assessment value (based on MPAC averages) results in a relatively low taxes per sq.ft. compared to the other municipalities surveyed (with only Norfolk County lower);
- Water and wastewater costs in Haldimand are the lowest across all surveyed municipalities, while electricity costs are highest per sq.ft.; and
- The high electricity costs are generally offset by the low property taxes and water/wastewater fees within Haldimand.

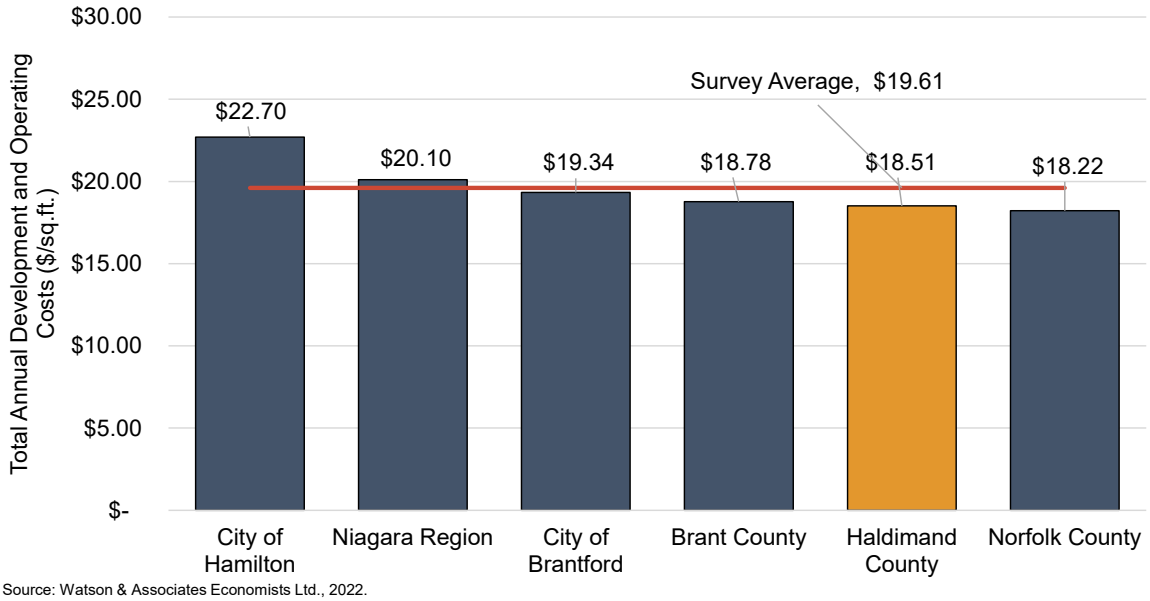
On average, Haldimand is cost competitive among the comparator markets for industrial development. This is largely attributed to lower operating costs and development costs relative to the adjacent urban municipalities. Haldimand is significantly more competitive from a cost perspective than the City of Hamilton and moderately more affordable compared to the Niagara Region. Brant County and Brantford may have closer access to the G.T.H.A. market, but this locational advantage may be offset by Haldimand's more competitive development and operating costs for certain prospective industries.

Figure 4-5
One-Storey Factory Prototypical Development
Total Annualized Costs per Sq.ft.



Source: Watson & Associates Economists Ltd., 2022.

Figure 4-6
One-Storey Warehouse Prototypical Development
Total Annualized Costs per Sq.ft.



Source: Watson & Associates Economists Ltd., 2022.

4.3 Observations

Haldimand represents a cost-competitive environment for employment land development. From examining the above prototypical developments, it is apparent that the development and operation of employment land uses within Haldimand are affordable within the context of the broader economic region. This marks a competitive advantage for Haldimand and future marketing efforts for the North Caledonia Employment Area could explore this as a selling feature. Haldimand could also consider ways in which to further promote affordable industrial development – in the Niagara Region, for example, upper-tier development charges are exempt for industrial developments. Incentivizing development on the North Caledonia Employment Area could allow Haldimand to foster economic activity as well as attract skilled labour to Haldimand; however, such initiatives would need to be examined within the context of the broader fiscal impacts to Haldimand.

Chapter 5
Future North Caledonia Employment Area Target Sectors and Land Use Review

5. Future North Caledonia Employment Area Target Sectors and Land Use Review

This chapter identifies the key target sectors for the new Employment Area in North Caledonia. The target sectors established in this chapter have been established in consideration of Haldimand's current labour force characteristics, changing Employment Area trends across the G.G.H and beyond, Haldimand's competitive position, changes to the definition of Employment Areas based on the P.P.S., 2024, and the findings of the Phase 2 analysis which suggest the North Caledonia Employment Area will function without full municipal wastewater services in the interim.

5.1 Policy Context

As noted in Chapter 1, since the completion of the Phase 1 Report in May 2023, significant changes to the provincial land use policy framework have occurred. Most notably, the release of the Provincial Planning Statement (P.P.S.), 2024, introduces a redefined "Employment Area" that now exclusively pertains to industrial-type uses such as manufacturing, warehousing, and related employment functions. This represents a fundamental shift from the broader employment land permissions contemplated under the previous policy regime, which informed the original target sector analysis in Phase 1 of this study. Several of the sectors identified in the Phase 1 vision – such as business services, professional and technical services, and employment-supportive uses – are no longer permitted as primary uses within designated Employment Areas under the P.P.S., 2024. As a result, it is necessary to revisit and revise the employment land visioning work to ensure conformity with the updated definition and policy direction. This chapter provides an updated target sector and land use framework aligned with the industrial-only permissions of the P.P.S., 2024.

5.2 Phase 2 Financial Impact Analysis Impacts

In addition to changes brought forward through the P.P.S., 2024, the findings of Phase 2 of this study also impact long-term vision and target sectors for the North Caledonia Employment Area. Phase 2 builds on the capital and operating infrastructure costs identified in Phase 1 by evaluating lifecycle replacement costs and testing different development delivery models to determine whether Haldimand could support servicing these lands in a fiscally sustainable manner. The intent is to create a defensible

business case to guide future investment, servicing strategies, and marketing efforts to support job growth and economic development.

Initial analysis tested four scenarios, ranging from private developer-led subdivision development to full County-led acquisition and servicing. All scenarios, even under accelerated buildout assumptions, resulted in sustained negative cashflows over a 30-year period. The most financially favourable of the original options – Scenario 1 (privately developed and traditionally serviced) – still failed to achieve breakeven, primarily due to the high costs of growth-related infrastructure and ongoing lifecycle liabilities. These findings raised significant concerns about Haldimand's debt capacity and its ability to responsibly invest in employment land development under a traditional servicing model.

In response, staff directed the Consultant Team to explore refinements to Scenario 1 that might improve financial outcomes. The resulting analysis explored three alternative developer-led models that reduce County obligations while maintaining the goal of facilitating employment growth:

- **Scenario 1A: Partial Municipal Servicing (Water Only)**
  This scenario assumes Haldimand would extend only water services, while wastewater would be managed privately in the interim. By removing wastewater infrastructure and associated costs, the model shows positive cumulative cashflow by year 23 (excluding DCs) or year 26 (including DCs), with full servicing deferred until financially feasible.
- **Scenario 1B: One Large Development per Phase**
  This option assumes a single large industrial user develops each of the two phases (east and west of Highway 6), with no internal servicing costs borne by Haldimand. Tax revenues begin earlier, and Haldimand reaches a positive cashflow position by year 5 (excluding DCs) or year 14 (including DCs). While attractive financially, this model hinges on attracting major anchor tenants.
- **Scenario 1C: Industrial Condominium Model**
  Internal infrastructure is privately owned and maintained through a condominium corporation, removing associated costs from Haldimand's books. Positive cashflow is achieved by year 6 (excluding DCs) and breakeven is reached by year 28 (including DCs). Though uncommon for industrial lands, it remains a feasible alternative.

These modified approaches represent more fiscally sustainable paths forward, though they may limit flexibility and market appeal relative to fully serviced lands. Scenario 1A, interim municipal water servicing with long-term wastewater planned, is viewed as the most practical moving forward. Appendix C provides the full Phase 2 report and associated memorandum, which assesses the above findings in greater detail.

5.3 Vision for the New North Caledonia Employment Area

The following analysis presented in this chapter contemplates the long-term target sectors and vision for the North Caledonia Employment Area, in accordance with both the changes to the P.P.S., 2024 and the findings of the Phase 2 analysis. Ultimately, these changes require that the North Caledonia Employment Area be planned to accommodate industrial uses that can operate without full municipal wastewater services in the interim. This is explored further below.

The ability of the new North Caledonia Employment Area to support the target employment sectors was considered based on the following criteria:

- Locational requirements (i.e., general industrial designation);
- Range of parcel sizes needed;
- Transportation access (route from highway, proximity to customer base, etc.);
- Labour force needs (skilled, unskilled, or mobile labour force);
- Land-use requirements (potential for expansion, buffers from surrounding land uses, integration with surrounding operations, etc.); and
- Development characteristics (building coverages, parking requirements, ceiling heights, infrastructure needs etc.)

5.3.1 General Characteristics of Employment Areas

Employment Areas require good access to regional transportation networks, on-site infrastructure including roadways and utilities, a critical mass, and available, zoned, shovel-ready lands. Employment Areas are typically located on flat to slightly rolling topography in areas with minimal environmental issues. Roadways within Employment Areas tend to be laid out in a grid system to optimize circulation and parcel configuration. Parcels are typically square or rectangular in shape to optimize site design. Many of these attributes help to optimize the end-users' speed to market, while minimizing development costs and project risk.

At both the regional and local levels, location requirements of industry can vary considerably depending on the nature of the employment sector/use. Employment sectors typically situated in Employment Areas have varying site-specific requirements. To be successful in attracting a broad range of employment sectors, it is recommended that the future Employment Area provide the corresponding industry requirements. The specific attributes that are required for an Employment Area to be successful are largely based on the intended function and designations. These are discussed in more detail below within the context of general industrial parks, Employment Areas and research and development parks.

Under the P.P.S., 2024, Employment Areas now have a more general industrial orientation and accommodate largely industrial uses such as advanced manufacturing, logistics, distribution, and transportation sectors. These areas typically offer the following physical requirements:

- **Access** – Proximity to controlled access highways (i.e., Highway 6) is critical for the success of Employment Areas that have a significant degree of manufacturing, warehousing, distribution, and logistics uses. These Employment Areas do not necessarily have to be adjacent to a controlled access highway but must be in proximity and easily accessible via major arterials that pass through limited residential or mixed-use commercial area(s);
- **Critical Mass** – Size is vital to ensure a wide selection/flexibility of land options, and Employment Areas must include a sufficient supply of large parcels. As a minimum, 80 ha (200 acres) is generally a suitable size for an Employment Area, in order to reach the critical mass needed to provide reasonable presence, choice and economies of scale;
- **Location** – The location must provide efficient and effective vehicular access and circulation, particularly for heavy truck traffic, with a minimum of two access points to enter/exit the industrial park;
- **Land-Use Compatibility** – Buffering is important for Employment Areas in order to minimize noise and air pollution to neighbouring residential and other sensitive land uses;
- **Market Choice** – Parcel size and configuration need to be conducive for a wide range of industrial land uses, especially for land-extensive uses such as wholesale trade and transportation; and
- **Competitive Development/Operating Costs** – Land prices must remain competitive, particularly given the land-extensive nature of many industrial users.

Cost-sensitive servicing strategies, including phasing, private infrastructure ownership, or reduced internal servicing, can also help lower development costs and support market uptake.

- **Servicing Model** – While full municipal servicing remains the long-term objective, many general industrial uses are compatible with phased or partial servicing strategies. Dry uses with low wastewater demand - such as logistics, warehousing, and light manufacturing - can operate effectively with interim servicing models (e.g., municipal water and private wastewater systems). These approaches can be both financially viable and attractive to certain industry types, especially where land is available, accessible, and development-ready.

5.3.2 Interim Vision for the North Caledonia Employment Area

While full municipal servicing remains the long-term objective, it is not a prerequisite for all types of industrial development. Many industrial uses can operate effectively in “dry” conditions – that is, with municipal water and private or limited wastewater solutions – particularly in sectors such as logistics, warehousing, construction and light manufacturing. These uses often have low water and wastewater demands and can be accommodated through phased or alternative servicing models without compromising functionality. Interim servicing solutions can be both financially viable and attractive to the right industries, provided that there is adequate transportation access, land readiness, and clarity on future servicing plans.

In some models, particularly industrial condominium formats or large single-owner developments, internal infrastructure such as roads, stormwater systems, and utilities may be privately owned and maintained. These arrangements can reduce municipal capital and lifecycle cost exposure, allowing development to proceed without full public servicing. However, there are risks associated with long-term maintenance, enforcement, and consistency with municipal standards. Privately owned systems may lead to uneven quality or delayed reinvestment unless properly regulated, and municipalities may face pressure to assume responsibility over time if infrastructure deteriorates or fails. Careful planning, clear legal agreements, and ongoing oversight are essential if this approach is pursued.

In all cases, Haldimand should aim to preserve flexibility in how Employment Areas are brought to market by the private sector, recognizing that financial feasibility, servicing constraints, and market conditions may require non-traditional approaches. However,

these must remain consistent with the functional role, infrastructure expectations, and land use compatibility objectives set out in the P.P.S., 2024.

5.4 Target Sector Analysis

The new North Caledonia Employment Area should be planned as a general Employment Area, which is initially serviced with water infrastructure, and planned for full municipal services over the long term. Utilizing the strategic advantages of the Highway 6 corridor will allow for the attraction of a wider range of potential employment uses and create a diverse Employment Area environment. With this vision in mind, the key target sectors for the new North Caledonia Employment Area are explored in detail in Figure 5-1 and are summarized below:

- **Manufacturing / Light Industrial**: Sub-sectors that are water-dependent but generate limited wastewater, such as electrical components, furniture manufacturing, packaging, certain textiles, vehicle part assembly, and clean technologies (e.g., solar panels, EV infrastructure, electronics), can operate effectively in a water-only context. These operations often focus on assembly, light fabrication, or component testing, and align with long-term economic development objectives while functioning within interim servicing constraints.
- **Distribution and Logistics**: Warehousing and logistics facilities typically have modest water demands and minimal wastewater generation, focusing on storage, handling, and goods movement. These operations are particularly well suited to interim-serviced areas with lower employment intensity.
- **Agri-business**: Activities such as grain storage, agricultural equipment sales, food packaging, and non-food greenhouses represent agri-business operations with low water use and limited sanitary needs, making them compatible with partial servicing.
- **Construction and Trade Services**: Industrial-oriented uses such as modular or precast manufacturing, trades-based light manufacturing, and contractor support facilities (e.g., service bays, repair shops, fabrication) can function with minimal wastewater needs while generating employment and supporting broader economic activity. These uses are distinct from passive storage or laydown yards and align with the P.P.S. intent for Employment Areas to accommodate job-generating, industrial functions.

The selected sectors are viable in an interim-serviced Employment Area because they typically involve limited daily water use, minimal wastewater generation, and can function at lower employment densities in early phases. These uses generally rely on water for employee needs and light operational requirements, and can operate using private or interim servicing solutions such as holding tanks or septic systems. Site layouts may initially be more land-extensive but still offer meaningful job creation and alignment with the industrial intent of designated Employment Areas.

As full municipal servicing becomes available, this Employment Area is expected to support more intensive development and increased employment densities. Some of the initial uses can scale up or evolve – for example, into higher-throughput manufacturing, multi-tenant industrial buildings, or service-intensive uses that require wastewater connections. Site planning should anticipate this transition by protecting servicing corridors, coordinating road alignments, and designing lots that can accommodate intensification. This will allow the area to evolve logically over time, consistent with long-term economic development and infrastructure objectives.

Figure 5-1
Target Employment Sectors Profile for the Future North Caledonia Employment Area

Employment Sector/Land Use	Parcel Sizes	Transportation	Labour Force	Surrounding Context	Development Characteristics
Manufacturing / Light Industrial	1 to 4 ha and greater.	Access to controlled-access highways. Proximity to markets and related industries.	Access to skilled and unskilled labour.	• Expansion potential. • Buffers from surrounding non-industrial uses. • Emphasis on integrated operations (logistics and office), landscaping and enclosed storage.	• Low to high design quality. • 10,000 to 250,000 sq.ft. High building coverage and on-site employment density. • Range of building types, including small, large single-tenant and multi-tenant buildings. • Loading/unloading areas.
Distribution and Logistics	5 to 20 ha Flexibility in parcel configuration to accommodate large-scale users.	• Access to controlled-access Highway. • Excellent access/ traffic circulation for heavy truck traffic; Truck access, loading/unloading requirements. • Proximity to markets, customer base and related industries.	Mobile labour force.	• Need for open storage or enclosed vertical storage. • Compatible surrounding land uses/ buffers from surrounding non-industrial uses. • Access to on-site and proximity to off-site services • Expansion potential.	• Low to moderate design quality. • 10,000-1,000,000 sq. ft. • Ceiling height - 30 ft.+ • Large parcels with flat topography. • Low to high building coverage and low on-site employment density. • Loading/unloading areas.

Employment Sector/Land Use	Parcel Sizes	Transportation	Labour Force	Surrounding Context	Development Characteristics
Agri-Business	1 to 4 ha and greater.	• Access to highways and multimodal facilities. • Access to warehousing, markets and distribution centres.	Access to both skilled and semi-skilled labour force.	Access to upstream & downstream industries. • Storage space for material and equipment. Loading/unloading requirements.	• Low to high design quality. • High building coverage and on-site employment density. • Range of building types, including small, large single-tenant and multi-tenant buildings. • Loading/unloading areas.
Construction	Market choice in the range of size of development sites	Access to customer base	Access to a skilled and semi-skilled labour force	• Need for open storage • Proximity to customer base • Loading/unloading area • Buffered from surrounding residential uses	• Low design quality • <1,000 sq.ft. to 10,000 sq.ft. • Low building coverage and low on-site employment density • Outdoor storage for equipment

5.5 Land Use Review

This land use planning review identifies the applicable land use planning context to inform this study. It reviews the provincial, regional and local land use planning framework and will be used to inform the land use planning perspective of the final report, which will include background review, location analysis, market research and analysis, and functional servicing design.

5.5.1 Legislation and Policy Background

The *Planning Act*, R.S.O. 1990, legislates the planning process in Ontario and sets out tools for directing and regulating land uses:

- Section 2 of the *Planning Act* establishes the provincial interests for which planning authorities shall have regard. Provincial interests include the protection of ecological systems, natural areas, agricultural resources, the supply and efficient use and conservation of water and energy, the protection of public health and safety, the appropriate location for development, well-designed built form and the adequate provision of employment opportunities.
- Section 3 establishes requirements for a Provincial Policy Statement.
- Section 16 prescribes rules for O.P.s, requiring that they contain goals, objectives, and policies to manage and direct physical change in the area within the municipality. O.P.s shall also contain descriptions of the measures and procedures for consulting the public for amendments to the O.P., zoning by-laws and plans of subdivision.
- Section 22 establishes rules for the process by which an O.P. may be amended.
- Section 34 of the *Planning Act* establishes rules governing zoning by-laws, and Part VI establishes rules for the subdivision of land.
- Section 41 established requirements for site plan control. Municipalities may designate areas as a site plan control area, which demands more stringent application and design requirements for development. Subsection 4 provides a process for the approval of plans or drawings, and subsection 6 provides a list of conditions of approval that a municipality may require from the owner of the land.

The *Planning Act* establishes the rules and directions by which any land use planning for Employment Areas must follow.

5.5.2 Provincial Policy Statement (2024)

The Provincial Policy Statement, 2024 (P.P.S.), is issued by the Province under section 3 of the *Planning Act*. The P.P.S. provides policy direction on matters of provincial interest relating to land use planning, development, and the wise management of resources. Municipal planning decisions must be consistent with the policies of the P.P.S. The P.P.S. includes policies relevant to the Study, such as those that provide direction on employment.

The P.P.S. establishes that an appropriate mix and range of employment uses must be available to meet long-term needs to facilitate a diversified economic base (Policy 2.8.1). Specifically, the P.P.S. states that planning authorities shall plan for, protect, and preserve Employment Areas for current and future uses and ensure that necessary infrastructure is provided to support current and projected needs (Policy 2.8.2.1). Employment Areas planned for industrial or manufacturing uses should include appropriate transition to adjacent non-employment uses, including the application of a 300.0 metre buffer around designated employment areas to avoid, minimize or mitigate potential impacts on the long-term viability of employment use (Policy 2.8.1.3). The P.P.S. also identifies the importance of protecting Employment Areas in proximity to major goods movement facilities and corridors (Policy 2.8.2.2).

The P.P.S. also establishes prohibitions on certain land uses within designated Employment Areas, including residential uses, commercial uses, public service facilities, and other institutional uses, as well as retail and office uses that are not associated with the principal employment use (2.8.2.3b) and c)). Planning authorities are required to update land use policy applicable to employment areas regarding the planned function of employment areas as directed by the P.P.S., as well as with regards to ensure land use compatibility over the long term (Policy 2.8.2.4).

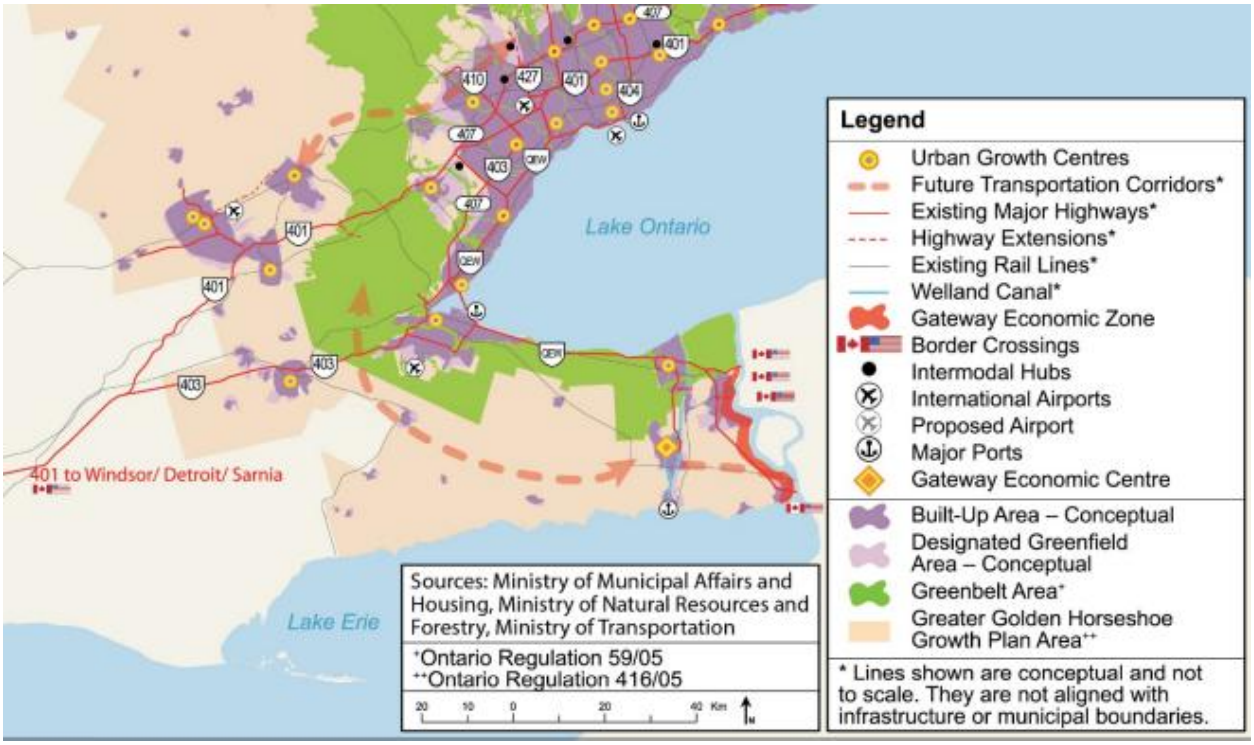
5.5.3 A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019)

Although no longer in force, A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019, 2020 Office Consolidation) previously provided a comprehensive land use planning framework to guide growth and economic development across the G.G.H., including within Haldimand County. Many of the principles and approaches outlined in the Growth Plan continue to offer relevant context as municipalities transition to the integrated policy direction of the 2024 P.P.S.

The Growth Plan emphasized the need for municipalities to ensure sufficient lands were available to accommodate a diverse range of employment uses and to support forecasted job growth (formerly Policy 2.2.5.1.b). It also encouraged planning approaches that promoted active transportation, minimized surface parking, and supported transit-oriented design in Employment Areas (formerly Policy 2.2.5.4).

The Growth Plan identified a conceptual future transportation corridor running through Caledonia towards Welland and Fort Erie (see Figure 5-2, based on Schedule 6 of the Growth Plan – Moving Goods), highlighting the strategic importance of regional goods movement infrastructure.

Figure 5-2
Schedule 6 of the Growth Plan – Moving Goods



While implementation requirements have since evolved under the 2024 PPS, the Growth Plan previously directed municipalities to manage Employment Areas by limiting sensitive and major retail uses and establishing land use compatibility standards (formerly Policy 2.2.5.7). It also called for municipalities, particularly single-tier jurisdictions, to establish minimum employment density targets to support intensification and efficient land use (formerly Policy 2.2.5.13). These themes remain consistent with broader provincial objectives under the new policy framework.

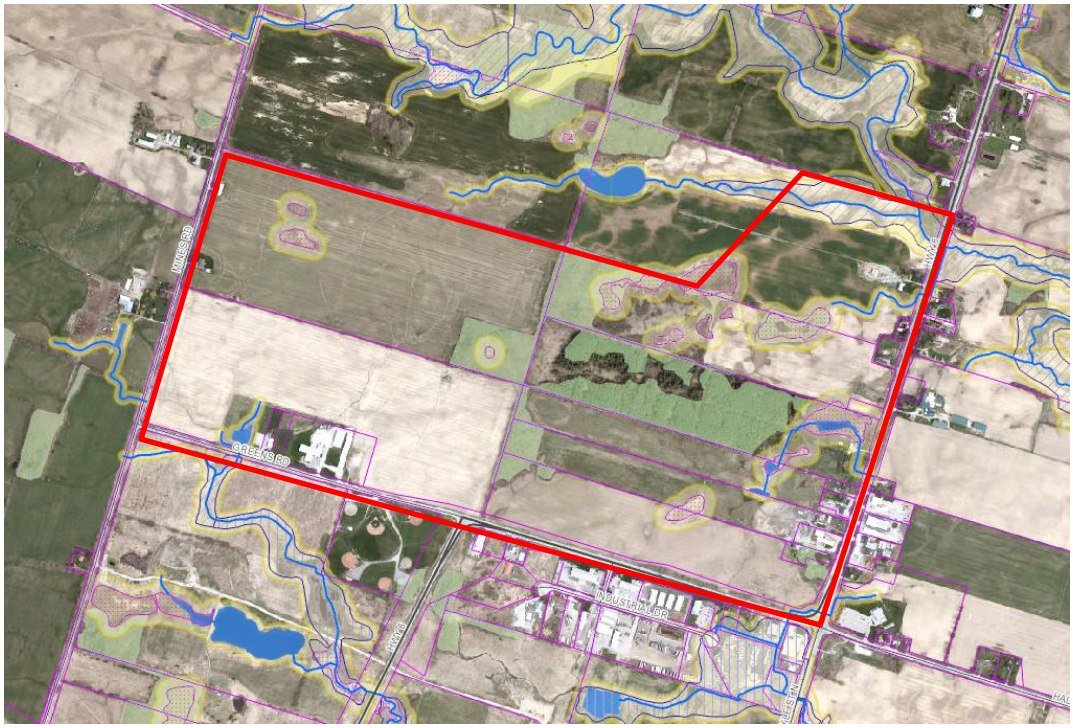
5.5.4 Grand River Conservation Authority

The Subject Lands fall within the jurisdiction of the G.R.C.A. The G.R.C.A. is established under the *Conservation Authorities Act*, R.S.O. 1990, c. C.27 and provides land use regulation over the areas that fall within the Grand River Watershed. Its purpose is to further the conservation, restoration, development and management of natural resources and the watershed.

The Province delegates authority to Conservation Authorities (C.A.s) for regulatory powers through the development application and review process, including applications made under the *Planning Act*. It performs a plan review function through the Development Interference with Wetlands and Alterations to Shorelines and Watercourses regulation. Through this regulation, the G.R.C.A. controls land uses within its boundaries. Under the *Planning Act*, the G.R.C.A. also has an advisory role, providing input and review for municipal policy documents and development proposals.

The G.R.C.A. provides policy for erosion and sediment control, fill importation, wetlands, requirements for Environmental Impact Studies and submission requirements, a protocol for evaluating wetlands, and stormwater management submissions checklists. Provincial and G.R.C.A. mapping identifies several areas of wetlands within the site.

Figure 5-3
G.R.C.A. Map of Regulated Areas



Note: Wetlands are represented by pink outlines with pink dots. There are several small areas of regulated streams and woodlands within the Subject Lands.

5.5.5 *Haldimand County Official Plan (Office Consolidation, November 25, 2024)*

Haldimand's O.P. was adopted by Haldimand in June of 2006 and was most recently approved by the Province on November 25, 2024. It is established under section 16 of the *Planning Act* and replaces the O.P.s of the former Region of Haldimand-Norfolk, the former Towns of Dunnville and Haldimand, and the former City of Nanticoke. The O.P. provides a vision, strategic direction, goals, objectives and policy direction for land use planning in Haldimand and is required to be consistent with the P.P.S.

Section C.1) of the O.P. establishes County-wide policies for industrial business parks, including four separate classifications for the development of industrial Employment Areas. The Subject Lands are designated as Urban Business Park with site-specific policy area HCOP-63, as amended by By-law number 1234-HC/21. The Urban Business Park designation includes light industrial activities and some commercial uses which provide services to the industrial area or increase the attractiveness of industrial

uses (subsection C.1)7). The O.P. stipulates that, regarding the establishment of new Urban Business Parks, adequate water and wastewater services shall be available. Regard shall also be had for the impact on surrounding areas, proper design of industry and the adequacy of the road system (section C.9). Industrial uses that generate high volumes of vehicular traffic shall generally be located in proximity to arterial roads, and development near provincial highways or arterial roads shall be required to provide a higher standard of amenity related to landscaping, buffering and the provision of outdoor storage.

Permitted uses in the Urban Business Parks designation include manufacturing, fabrication, assembly and processing of partially processed material, goods and products, warehousing, bulk storage tanks, service and maintenance operations, public utilities, transportation facilities, trade schools, research and development laboratories and facilities and similar uses, commercial uses which provide services for the industrial area, and additional industrial-related commercial uses.

In August 2022, Haldimand's Council adopted amendment No. 69 to Haldimand's O.P. to ensure the Plan is consistent with the P.P.S. and the Growth Plan. Applicable amendments to Haldimand's O.P. within the context of the Study include:

- Adding a minimum overall density of 15 jobs per hectare within Employment Areas;
- Reducing four classifications of industrial Employment Areas to three: industrial, urban business park and rural industrial; and,
- Permitting additional uses within the urban business park designation, including processing of agricultural products, building supply establishments, printing and publishing establishments, data processing centres and telecommunication facilities.

Site Specific Policy Area HCOP-63 establishes requirements that must be met before development can occur. It stipulates that access to the Subject Lands from the portion of Greens Road currently used as Highway 6 shall not be permitted until such time as Highway 6 has been developed. Development on the Subject Lands east of the future Highway 6 extension will require a transportation impact study and approval of access arrangement by the M.T.O. In addition, all development within the Subject Lands shall require the completion of certain technical studies and servicing strategies, including:

- Demonstration that municipal water and wastewater services can be extended to accommodate development, and that there is sufficient reserve capacity;
- A stormwater management plan that meets the standards of the M.T.O., County and the C.A.;
- An environmental analysis;
- A Cultural Heritage and Archaeological Assessment carried out in consultation with provincial ministries and local Indigenous communities;
- An urban design brief outlining the site and built form design criteria that recognizes the gateway significance of the area;
- An agricultural impact analysis that identifies mitigation and/or avoidance measures, and that is based on consultation with the Agricultural Advisory Committee; and,
- A road system that meets County and M.T.O. access requirements.

Haldimand has now completed Phase 2 of its Official Plan Review. Official Plan Amendment 69, which took legal effect on 13 May 2024, introduces updated policies for the natural heritage system and hazard lands, community building and housing, leisure, culture and heritage, health and social services, and the agricultural, commercial, industrial, lakeshore and hamlet areas.

5.5.6 Haldimand County Zoning By-law

The Haldimand County Comprehensive Zoning By-law HC1-2020 (the "Zoning By-law") was enacted in 2020 under section 34 of the *Planning Act*. The Zoning By-law amalgamates and replaces three former zoning by-laws for the municipalities of the City of Nanticoke, the Town of Haldimand, and the Town of Dunnville.

The Zoning By-law comprises a range of zones throughout Haldimand to implement the various land use designations of the O.P. Each zone establishes permitted uses and certain regulations, such as defined terms, general provisions and parking requirements and regulations. There are seven distinct industrial zones, as follows:

- Specialized industrial zones for marine uses, and disposal and extractive industries,
- Rural Industrial (MR) zone, which permits a broad range of uses with stricter zoning standards.
- Heavy Industrial (MH),

- General Industrial (MG), and
- Light Industrial (ML)

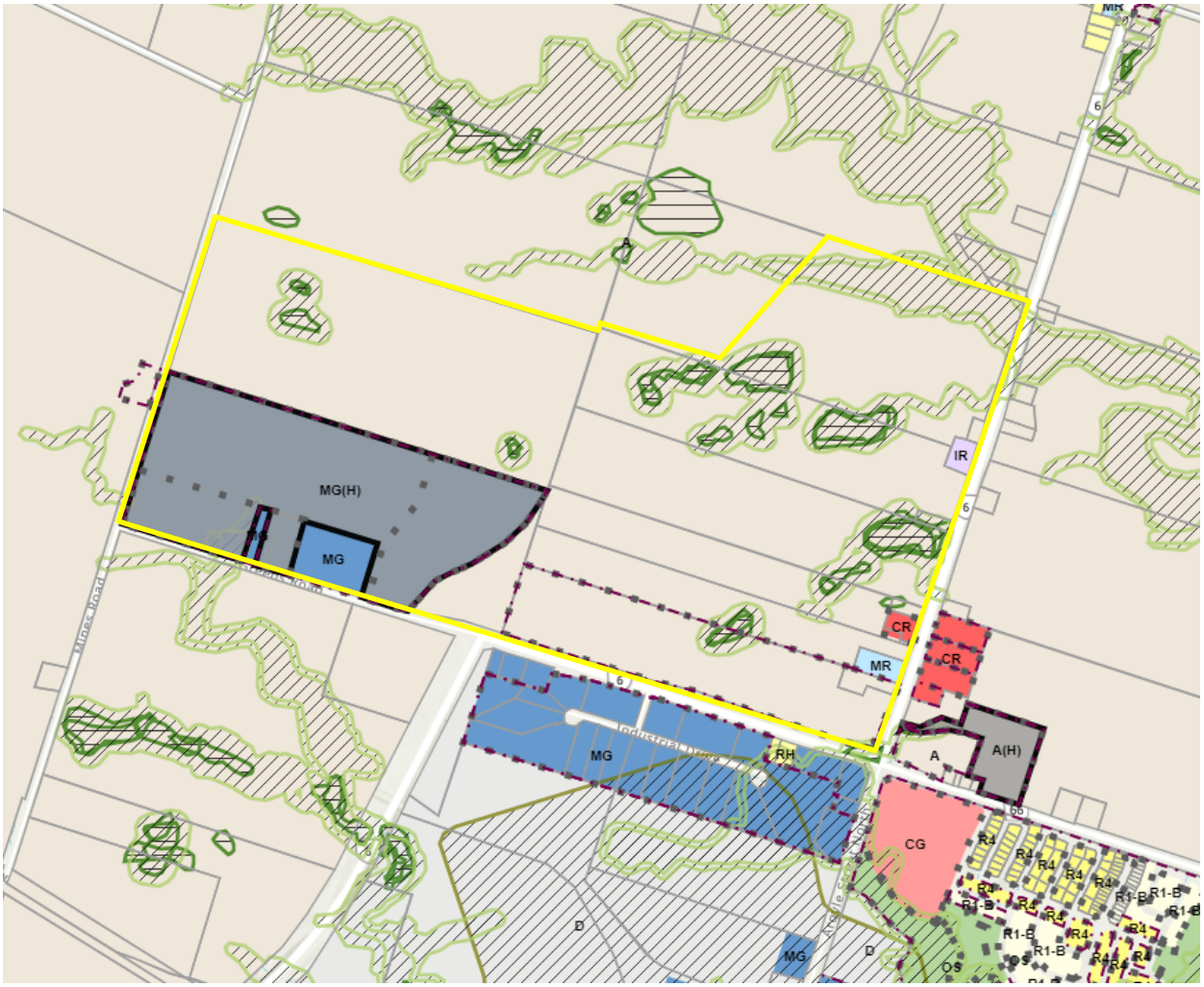
Generally, the Heavy Industrial (MH) Zone permits a broad range of employment and industrial-related uses. The General Industrial (MG) Zone permits many industries, although excluding those with the most adverse impacts. The Light Industrial (ML) Zone permits even fewer uses.

The Subject Lands, as shown in Figure 5-4, are predominantly zoned Agriculture (A) Zone with portions in the southwest being zoned MG and General Industrial – Holding (MG(H)). Along the eastern portion of the Subject Lands, there are parcels zoned Rural Institutional (IR), Rural Commercial (CR), and Rural Industrial (MR). The Zoning By-law also establishes several overlays within the Subject Lands relating to natural heritage features and special provisions. Wetlands and Natural Environment Areas are identified as a zoning overlay with data provided from the G.R.C.A.

There are five Special Provisions applied within the subject area: HAL36.32; HAL36.93; HAL36.94; HAL36.95; and HAL36.369. Generally, each of these Special Provisions establish permissions for additional uses.

Lands to the periphery of the Subject Lands are largely zoned Agricultural (A) , with some lands zoned Rural Commercial (CR) to the south-east, and General Industrial (MG) to the south. Further south of Greens Road and west of Argyle Street North is a large area with a hazards overlay, which largely restricts development.

Figure 5-4
Haldimand County Comprehensive Zoning By-law HC 1-2020.



5.5.7 Haldimand County Economic Development Strategy

Haldimand issued the Economic Development Strategy in January 2017. The Strategy was developed to facilitate economic development and tourism, and to ensure that Haldimand is investment-ready. The Strategy provided a summary of and consultation for Haldimand's demographic and economic position and then performed a strengths, weaknesses, opportunities and threats (SWOT) analysis. The five resulting strategic themes are:

- Becoming investment ready: This theme focuses on competing in an investment environment, which entails the ability to provide key data to business inquiries, having an inventory of available land and buildings, including the current zoning

and any limitations. This theme contemplates business investment in Haldimand as a product that can be marketed and sold, which requires knowing the strengths and weaknesses of Haldimand and being able to communicate those effectively to investors.

- Ensuring Haldimand is a great place to invest and to do business: This theme focuses on developing capacity to support business growth into the future. It suggests ongoing monitoring and review of Haldimand's business friendliness, fostering partnerships with Haldimand's business community, adopting a coordinated approach to business development, and recognizing the importance of businesses in Haldimand.
- Creating a unique Haldimand County economic development identity: This theme focuses on developing a strong brand that includes a value proposition for business investment, an economic development identity, and a marketing strategy.
- Building stronger economic development partnerships: This theme focuses on creating business partnerships. It contemplates partnerships with the business community, neighbouring communities, the implementation of the Tourism strategy, and aligning economic development efforts with regional partners.
- Building a more unified County: The focus of this theme is unifying the several smaller communities within Haldimand. It suggests undertaking a County-based community strategy and addressing youth engagement and youth employment.

Each of the strategic themes is supported by recommended actions.

5.5.8 Strategic Plan 2025 – 2045

The County's 2025 – 2045 Strategic Plan ("Strategic Themes") addresses Haldimand's evolving needs and guides long-term decision-making and resource management. It outlines the County's goals and associated actions. The plan communicates the vision for Haldimand and the related short and long-term priorities, reflecting community aspirations, and formalizes Council's commitment to resident satisfaction.

The Strategic Plan includes five strategic themes. They are:

- Future Ready: Prepare for and adapt to anticipated future challenges and opportunities to ensure Haldimand can thrive in the face of evolving economic, environmental, technological, and social conditions through: infrastructure

reliability; environmental stewardship; financial sustainability; growth management; and; innovation.

- Exceptional Service: Deliver quality public services that meet the day-to-day community expectations reliably and affordably, ultimately enhancing the quality of life for all residents through: citizen-centred service; communication; continuous improvement, and; operational excellence.
- Economic Vitality: Be a location of choice for business growth and sustainable investment, promoting a vibrant, diversified economy while having regard for our agricultural community, small business, and industry through: business pathways; employment opportunities, and; tourism.
- Healthy Communities: Investing in quality programs and services that promote the safety and well-being of communities and residents through: community safety; healthy lifestyle opportunities; commitment, equity, and inclusion; and community partnerships.
- Good Governance: Foster an efficient, effective and accountable municipal government that prioritizes the well-being of its citizens and staff through: effective government; citizen engagement, and; staff investment.

The Strategic Plan guides Council and administrative actions and decision-making within the County to inform policy, operational, and budget decisions, while also providing a framework for oversight and management of service delivery.

5.5.9 Discussion

The policy and regulatory environment for employment lands in Haldimand is supportive of achieving Haldimand's employment objectives over the planning horizon. The land use planning framework will need to be consistent with the P.P.S. and conform to the Growth Plan. Provincial policy requires rationalization that the Subject Lands are feasible for employment uses for the long term.

While the Subject Lands are currently zoned for rural and agricultural uses, the O.P. has recently redesignated the lands for employment uses within the urban settlement boundary. This redesignation contemplates an enabling policy framework to facilitate the long-term redevelopment of the Subject Lands, including a broad range of permitted employment uses. Based on regulatory mapping and policies, there are some identified regulated areas and natural heritage features on the Subject Lands that will require further study.

The Subject Lands are subject to provincial and local policy that must be considered through the Study to develop a comprehensive land use planning framework for the Subject Lands.

Chapter 6
Property Administration and Management Marketing Recommendations

6. Property Administration and Management Marketing Recommendations

6.1 Comparable Best Practices in Industrial Land Development

This subsection explores best practices from other Ontario municipalities in addressing the high costs and financial risks of employment land development – challenges that closely parallel those identified through Phase 2 of the North Caledonia Employment Lands Study. That phase evaluated multiple development models and confirmed that traditional approaches involving full municipal servicing are fiscally unsustainable due to high infrastructure and lifecycle costs. In response, three refined, developer-led models were analyzed – partial municipal servicing (water only), phased large-user development, and an industrial condominium model – all of which demonstrated improved financial outcomes with reduced municipal obligations. In response to these challenges, Haldimand County commissioned a best-practices review to explore how other municipalities are addressing similar barriers. Section 3 of this report summarizes insights from the City of Kingston and the Municipality of Middlesex Centre, each of which is grappling with servicing feasibility, uncertain returns on investment, and evolving strategies to maintain momentum in their employment land initiatives.

6.1.1 City of Kingston

In discussion with Kingston's economic development staff, the City outlined significant challenges in developing its northern Employment Area, primarily due to high infrastructure costs and weak returns on investment. Although some business parks have broken even, rising costs exacerbated by topography and parcel-specific needs have hindered further development. Of the City's five parks, two are sold out, but recent servicing efforts for a new park struggled to price land competitively. Kingston has adopted a financial buffer approach rather than standard cap rates to address cost fluctuations, though some parcels need additional infrastructure, like sanitary servicing, making them harder to sell, especially as EV-sector spin-offs have been slower than expected.

Businesses have shown limited interest in land priced at $200,000 per acre when development charges are included. In response, the City is considering redesignating

some Employment Area lands for commercial use, which improves financial returns but reduces land-use protections under the 2024 P.P.S.

Grant funding was also highlighted. In the past, provincial and federal programs covered up to 60% of business park costs, but most of these have been reduced or discontinued. Kingston now relies on reserves, debt, and development charges, which strain its ability to proceed. Use of reserve funds is further limited by legislation, particularly when trying to cross-subsidize other developments. With financial barriers unresolved, the City has delayed northern park development, preferring to wait until returns improve, even as it considers interim private wastewater solutions.

6.1.2 Municipality of Middlesex Centre

Middlesex Centre aims to develop a 162-hectare Employment Area along Highway 402 near Delaware to attract industrial and commercial users. A 2022 report identified this location as optimal, estimating $46.5 million in servicing costs. However, the Municipality does not own the land and cannot fund servicing despite having healthy debt capacity. It is exploring options, including water-only servicing and communal wastewater systems, but Council support is uncertain.

Like Kingston, Middlesex Centre has struggled to secure grant funding, as current provincial and federal priorities are focused on housing. Discussions with the Association of Municipalities of Ontario are ongoing to identify infrastructure funding options like the Canada Community-Building Fund. The Municipality is also engaging the Province to position the lands for large-scale industrial uses, potentially tied to the EV sector, which could justify investment and improve R.O.I. Feasibility studies are assessing whether full servicing is necessary to attract such users.

6.1.3 Observations

Both Kingston and Middlesex Centre illustrate the financial obstacles municipalities face in delivering Employment Areas. High infrastructure costs, limited funding, and slow economic returns make such projects difficult to advance. In Kingston, some lands may be repurposed for commercial use, while Middlesex Centre is still seeking a viable path forward. The decline of senior government grants has forced municipalities to rely on reserves and debt, often without sufficient financial capacity. These examples, like Haldimand's, demonstrate the need to consider phased or flexible servicing models and alternative land-use approaches to align with financial realities.

6.2 Marketing Recommendations

A marketing program is required to successfully assist Haldimand County in the promotion and sale of properties in the North Caledonia Employment Area. It is noted that the employment lands within the study area and associated marketing plan are privately owned and planned for private development. The objective of this section is to support the creation of a coordinated marketing strategy that fosters a collaborative partnership between Haldimand and private landowners. This approach is intended to align efforts, promote the strategic value of the lands, and attract investment that advances Haldimand's broader economic development goals. The marketing strategy should build on Haldimand's existing, established efforts to attract investment. For the North Caledonia Employment Area, particularly, key focus should be given towards the target sectors previously identified, including light industrial, distribution and logistics, agri-business, and construction.

6.2.1 Key Messaging

To achieve the objective of a water-only serviced approach (as an interim solution), Haldimand's messaging must clearly communicate its intent and the desired outcomes. At a minimum, the messaging should include:

- Vision for the Employment Area, including the mix of uses, amenities, and access.
- Proximity to airport.
- Access to Highway 6 and G.T.H.A. / G.G.H. markets.
- Flexibility of zoning and lot size.
- Competitive industrial tax rates.
- Available incentives to attract prospective businesses.
- Intent to promote and attract environmentally sustainable investment.
- Key sectors of interest.
- Possible infrastructure development in the future (emphasizing water-only as an interim solution and vision of development of full services in the future).

Haldimand can include additional messaging that promotes the community, including:

- Rate of population and employment growth.
- Testimonials from existing businesses in key sectors.

- Planned public- and private-sector investment that improves/enhances the quality of life for residents.
- Quality of the local/regional workforce.

6.2.2 Strengths, Weaknesses, Opportunities and Challenges of Developing a Water-Only Employment Area in North Caledonia

Further to the key highlights discussed above, a S.W.O.C. (Strengths, Weaknesses, Opportunities, and Challenges) analysis can be utilized to inform marketing efforts and messaging to attract industrial investment. In addition to highlighting competitive advantages, a S.W.O.C. can also identify potential gaps and risks that allow for proactive messaging and the development of mitigation strategies for future businesses and investors. The following is a summary of key strengths, weaknesses, opportunities, and challenges for the development of the Employment Area in North Caledonia with interim water-only services.

Strengths

- Proximity to Highway 6, Hwy 6 Extension, Hamilton Airport;
- Large vacant land sites with suitable configuration options;
- Minimal land use conflicts;
- Proximity to the City of Hamilton, Brantford, the United States border, and the G.T.H.A.;
- Competitive cost of land and lower operations cost;
- Lower environmental impact; and
- Availability of affordable housing options to support labour.

Weaknesses

- Certain industries that rely on wastewater/effluent treatment need to be excluded in the interim; and
- Encumbered access to 400-series Highways.

Opportunities

- Possibility to market as a hub/cluster for water-only dependent industries;
- Possibility to expand infrastructure to full services in the future; and

- Interim water servicing enables near-term development, offering a lower-cost option for light industrial and logistics uses. The area can support regional partnerships across the G.T.H.A. as a complementary site for supply chain or overflow operations.

Challenges

- Competition with larger urban centres and amenities, including transit coverage for labour force access;
- Development of infrastructure – water, roads, energy, etc.; and
- Marketing to water-only businesses limits the potential audience. This, however, allows for focused, targeted outreach to sectors that value affordability and can operate without full servicing in the interim.

6.2.3 Target Audiences

The following section represents critical target markets for Haldimand County's marketing message.

Internal Stakeholders/Municipal Staff

Internal stakeholders, including municipal staff, must be aware of the new development, its focus, and Haldimand's vision for it. Haldimand County's efforts to improve its investment readiness and support economic development should be a priority across the organization.

Community Partners

It is critical that organizations working in the region are informed about the investment readiness efforts. These partners can become potential collaborators in the implementation of the strategy and it is important that, in addition to being aware of the park's development, they know the partnership opportunities to develop effective referral relationships and shared resources.

Existing Business Owners/Property Owners

The current business community in Haldimand County represents the foremost potential for economic growth through retention and expansion. Existing businesses are already involved in Haldimand's economy. These businesses understand the advantages of

being located there and have learned to manage their businesses locally; therefore, making them aware of the new opportunity is key to their growth potential.

Relocating Businesses and Entrepreneurs

New businesses bring vibrancy to the local economy and strengthen the business community. In addition to creating local employment, attracting and relocating like-minded businesses can expand the network and collaboration inside the park.

Real Estate Professionals

Commercial real estate agents are a key market in terms of regional awareness. They are commonly a strategic source for potential investors as they can transmit their vision of a community and its business dynamics to those who have only had the chance to learn about it through Haldimand's website. By tapping into the real estate community across the broader region and ensuring their awareness of the investment readiness, the Employment Area's vision, advantages, and potential partnerships, there is an opportunity to build a positive impression and turn them into ambassadors of the park.

6.2.4 Marketing Tools

To attract investment opportunities and communicate Haldimand's investment readiness, different media and technology channels can be used simultaneously. Combining all of them will ensure Haldimand's efforts are reaching every target audience. As discussed in subsection 5.5.7. of this report, Haldimand already has many of these practices in place. Accordingly, this sub-section builds on leveraging Haldimand's existing marketing tools and efforts.

Tool	Goal Supported	Metrics
Leverage County's Economic Development and Tourism (EDT) brand and create messaging directly aligned with business attraction	Engaging Haldimand County's business community as partners in economic development.	Level of familiarity with Haldimand's EDT brand and message among the community and investors.

Tool	Goal Supported	Metrics
Showcase Investment Opportunities on Microsite/Webpage	Focus on proactively improving Haldimand's investment readiness.	The number of visitors to the webpage and number of inquiries on available parcels.
Community Showcase/ Events	Potential investors, visitors, and residents are aware of what development or investment sites in North Caledonia and Haldimand.	Number of visitors to community showcase/ events.
Traditional Media Advertisements		Total circulation of printed advertisements/ number of enquiries received by Haldimand.
Social Media (including LinkedIn, Meta, X messaging)		Assessment of engagement, follower growth, conversion rates, website traffic, brand mentions, and sentiment analysis
Community/Sectors Profile (including continuous updates to the existing data)	Becoming Investment Ready - Gathering the basic required information to respond to investment inquiries.	Number of community profiles distributed/ number of website downloads.
Video/Photography Content Bank		Number of new photo and video assets added to the content bank each year.

6.3 Balancing Marketability with Long-Term Municipal Control

The North Caledonia Employment Lands represent a strategic growth opportunity, offering immediate access to municipal water and highway proximity. However, full wastewater servicing is not yet available, meaning early phases will rely on interim private systems. This positions the site as attractive for certain uses, such as warehousing or tech assembly, but not yet viable for heavier industrial operations that require full municipal servicing. Attracting investment in this context requires a careful balance. On one hand, Haldimand can explore ways to remain competitive with other jurisdictions to secure new industry. On the other hand, it should consider tools to ensure that early development aligns with long-term infrastructure planning, environmental standards, and municipal fiscal capacity. The challenge is to facilitate early investment without introducing long-term servicing liabilities, incompatible uses, or undermining Haldimand's ability to deliver future phases in a coordinated way.

Municipalities that have advanced dry industrial development — including Ramara, Colborne, and Strathroy-Caradoc — offer useful examples of how flexibility can be paired with enforceable protections. In Ramara, for instance, early development proceeded on municipal water and private septic, supported by cost incentives such as waived development charges and a clear commitment to long-term servicing upgrades. Colborne, in Northumberland County, introduced a communal sanitary system to support dry industrial uses on partially serviced lands, which helped accelerate business attraction. Strathroy-Caradoc has used development agreements registered on title to require that any properties developed with interim servicing must connect to municipal systems once available — a measure that ensures temporary systems do not become permanent liabilities. These examples show how enforceable servicing expectations and proactive marketing can co-exist. For Haldimand County, preserving marketability while protecting servicing interests may involve similar approaches, provided any restrictions are predictable, proportionate, and clearly tied to infrastructure readiness.

In many municipalities, real estate covenants provide a legal mechanism to control land use, enforce build-out timelines, and even reclaim land if development does not occur as agreed. However, these covenants are typically only enforceable when the municipality owns and sells the land. In the case of North Caledonia, where the lands are privately owned, Haldimand cannot rely on this tool. Instead, Haldimand can use

mechanisms under the Planning Act and development agreements registered on title to secure similar outcomes. Site plans and subdivision agreements can include servicing obligations, use restrictions, and design standards that prepare lands for future connections. Servicing agreements registered on title can bind both current and future landowners to connect to municipal wastewater infrastructure when it becomes available. Holding (H) Symbols can also be used to delay development approvals until certain conditions are met. While these tools do not allow Haldimand to enforce build-out deadlines or repossess undeveloped land, they can provide a strong legal framework for managing servicing risks and sequencing growth. Ultimately, Haldimand should continue to collaborate with landowners to ensure that the long-term vision for these lands is maintained.

6.3.1 Supporting Council Decision Making

The tools discussed above should be viewed as potential governance mechanisms that support Council and staff in making consistent, strategic decisions. Council may explore options to approve or defer development based on servicing availability, set thresholds for infrastructure investment, and ensure land-use permissions reflect both market and policy realities. Council could also consider establishing a trigger-based capital planning mechanism — for example, initiating a new feasibility analysis for sewer extensions once 75% of Phase 1 lands are developed. Policies such as this signal Haldimand's long-term commitment to developing the North Caledonia site as a fully serviced Employment Area to landowners. This enhances the marketability of the lands and provides Haldimand with a long-term strategic guiding framework.

To further reinforce alignment with long-term servicing objectives, Council could direct staff to prepare annual "Employment Lands Readiness Reports" that combine land uptake tracking with servicing capacity assessments and developer commitments. These reports would serve as a recurring checkpoint to inform future infrastructure funding decisions and policy refinements. In instances where infrastructure is in place but development has stalled, Council may consider time-limited servicing allocations or expiry provisions on allocation agreements. Such tools can help prevent premature infrastructure investments from sitting idle while encouraging timely development.

Land use policy could also be clarified to distinguish between fully-serviced and interim-serviced Employment Areas, ensuring clear expectations for developers and enabling targeted policy responses. This could be supported by O.P. policies that require a

servicing strategy and phasing rationale as part of any zoning or site plan application within unserviced employment areas. Ultimately, Council's role is to steer employment growth in a way that supports Haldimand's economic and fiscal objectives, while managing the risks inherent in interim servicing. With the appropriate tools and decision-support frameworks, Haldimand can remain flexible to market interest while maintaining control over how and when employment lands are built out.

6.4 Observations

This chapter outlines a comprehensive framework for advancing the North Caledonia Employment Area by integrating lessons from comparable municipalities, targeted marketing strategies, and planning mechanisms. Case studies highlight the financial constraints and servicing risks facing employment land development across Ontario, reinforcing the need for flexible, phased approaches like water-only servicing. This chapter emphasizes the importance of a coordinated marketing strategy between Haldimand and private landowners, identifying priority sectors such as logistics, light industrial, and agri-business. A detailed S.W.O.C. analysis supports the promotion of the area's locational advantages while acknowledging servicing limitations. To safeguard long-term planning goals, the chapter also explores legal and policy tools to align near-term investment with future servicing and growth management objectives. Together, these elements provide a practical and adaptable roadmap for unlocking development in the North Caledonia Employment Area while managing risk.

Chapter 7
Implementation Plan

7. Implementation Plan

7.1 Overview of Existing Policy Context

As identified in the Land Use Review Section of this report, the Subject Lands are located within the urban settlement boundary, have an Urban Business Parks land use designation and are subject to a site-specific policy. The Urban Business Parks land use designation applies to clusters of industries and businesses located within Urban Areas (Section 4.C.3 of the O.P.).

This Designation is intended to provide opportunities for the development of industrial activities and commercial uses that provide services to the industrial area or increase the attractiveness of industrial uses, such as offices and retail outlets, that may require outdoor storage. The Urban Business Parks designation is also subject to an overall employment density target of 15 jobs per hectare.

The development of the lands will promote economic development within Haldimand County while ensuring an adequate supply of serviced and developable lands are available to attract target employment sectors and businesses.

7.2 Development Concept & Phasing Strategy

A two-phase development concept and phasing strategy is recommended, with the western portion of the Study Area, Phase 1, to be advanced prior to the eastern, Phase 2, portion:

- **The Phase 1 concept contains:** approximately 60 hectares of developable land (potentially more depending on the efficiency of resulting parcel layouts); approximately 16 hectares of protected natural areas; a new road for two connections to Mines Road; and water/wastewater service extensions through Phase 2 to Phase 1.
- **The Phase 2 concept contains:** approximately 39 hectares of developable land; 39 hectares of protected natural areas, including tree replanting areas; and a new road connecting to Phase 1, including an intersection with existing Hwy 6 and a permanent cul-de-sac.

This phasing strategy is based on land availability, natural environment constraints, and the absence of a confirmed timeline for the Highway 6 realignment, which places limitations on the connection of the proposed Phase 2 road to existing Highway 6. Servicing study findings were presented to County Council on September 19, 2023, highlighting environmental constraints, including the need to preserve woodlands, wetlands, and regulated watercourses and floodplains. The Study also highlighted jurisdictional considerations relating to: new road connections required to be limited to within 800 metres from existing intersections of the existing Highway 6; a prohibition of new road connections being permitted to the Future Highway 6 extension; and, a prohibition on servicing extensions through the intersection of Highway 6 / Haldimand Road 66.

7.3 Relationship to the Official Plan

As documented previously in this Report, the Subject Lands are designated Urban Business Parks and subject to site-specific policy area HCOP-63, as amended by By-law number 1234-HC/21. The O.P. requires that the establishment of new Urban Business Parks is subject to the availability and provision of adequate water and wastewater services, and that the Urban Business Parks designation will achieve an overall employment density target of 15 jobs per hectare. Further, Policy 3 of the site-specific policy area HCOP-63 establishes that the development of land shall require the completion of development plans and servicing strategies, satisfactory to Haldimand and applicable agencies or authorities.

HCOP-63 Policy 3 of the O.P. requires the completion of adequate municipal water and wastewater services; sufficient reserve capacity in the water treatment and wastewater treatment services; or meeting the Ministry of Transportation Ontario's storm water management plan. As it has been determined that it is not feasible to provide fully connected wastewater services to the Study Area, it is recommended that the subject lands be redesignated to an appropriate designation suitable for industrial uses within the urban settlement boundary.

7.4 Recommended Redesignation and Site-Specific Policy

It is recommended that the lands be redesignated to Industrial with a site-specific area policy. The Industrial Land Use Designation is intended to provide employment

opportunities and diversify the assessment base of Haldimand. Additionally, it is Haldimand's aim to allocate sufficient industrial land, at suitable locations, to meet projected needs.

Permitted uses in the Industrial designation generally include: Steel, metal production and ancillary facilities; Electrical power generation and ancillary facilities; Warehousing, storage and logistic facilities. However, as municipal wastewater services will not be available in North Caledonia Employment Area in the interim, a site-specific Policy and the application of Holding provisions are also recommended to limit permitted uses on the subject lands to dry industrial and to implement phasing and appropriate development requirements.

7.5 Recommended Permitted Uses

It is recommended that the site-specific policy reference the existing O.P. Section 4.C.4, recognizing that the range of potential land uses will be restricted to those that can viably operate on partial servicing only. This existing O.P. policy establishes permitted uses for the Rural Industrial Land Use designation, which are restricted to dry industrial uses, which include industrial uses that do not require municipal water and wastewater services, consisting of dry forms of:

- Light manufacturing uses;
- Agriculture-related manufacturing and processing;
- Agricultural service and supply establishments;
- Cannabis production facility;
- Commercial greenhouses;
- Building supply establishments;
- Contractor's yard, supply and service shops;
- Warehousing; and
- Public utility yards.

It is recommended that a similar range of land use permissions be established by the O.P., which may be further specified through the implementing zoning by-law.

7.6 Application of a Holding Symbol

The application of a Holding Symbol is recommended to implement and facilitate the phasing strategy for Phases 1 and 2, ensuring orderly and appropriate timing of development. As detailed in O.P. Section 8.E: Zoning By-law, a holding symbol, denoted by suffix "H," may be applied where land use is established but the specifics of development are yet to be determined or where specific requirements have not been met.

In addition to the specific conditions for removing the Holding Symbol, as detailed below, the Holding Symbol would principally function to restrict permitted uses to only legally existing uses, until such time that the conditions are satisfied, and development may proceed. This is to ensure that development does not outpace the provision of necessary infrastructure, that the required technical studies can be undertaken, and that there is no encroachment of land uses that may conflict with the planned function of the employment lands. Additional details regarding the recommended conditions are presented below.

An implementing by-law that establishes a Holding Symbol must clearly specify the purpose for which the "H" is applied and include a statement outlining the conditions under which the holding provisions shall be lifted. The preliminary recommended conditions for removing the Holding Symbol are:

- Servicing and utilities, regarding matters related to municipal water supply, wastewater treatment, stormwater management, waste collection, and coordination with utility providers such as electricity, natural gas, and telecommunications.
- Transportation and traffic, regarding matters related to ensuring the existing or planned transportation network is adequate and appropriate for the development, and that the access points to the development are adequate and safe regarding the surrounding land use context.
- Technical studies, regarding matters such as natural and heritage features, archaeological investigation, traffic, soil, environmental constraints, design features, land use compatibility, and market impact analysis, for example.
- Consultation, regarding matters where other agencies or authorities may have jurisdiction, including the Grand River Conservation Authority, or the Ministry of Transportation, for example.

- Agreements or approvals, regarding matters such as Site Plan Control, development permits, or servicing agreements, for example.

The applicable conditions would need to be fulfilled to the satisfaction of Haldimand prior to the Holding Symbol being removed.

7.7 Site-Specific Policy Recommendations

A site-specific policy is also recommended to provide further and more detailed directions for the development of the Employment Area. It is recommended that the site-specific policy contemplates matters related to phasing, development criteria, including required technical studies, permitting, and consultation. The following sections provide further detail regarding these matters.

7.7.1 Employment Density

As noted in subsection 4.1 of this report, as an outcome of its land needs analysis to 2051, Haldimand expanded the North Caledonia Employment Area boundary by an additional 51 developable hectares of land.[1] This expansion requirement is based on an assumed density of 15 jobs per developable ha. Given the challenges the study area faces with interim wastewater servicing, it may be difficult to achieve the target density of 15 jobs per developable hectare in the short- to medium-term. As such, it is important that site plan applications be evaluated in light of their projected interim employment yields and the implications for overall density across the Employment Area. Haldimand may also require businesses to demonstrate how connection to full municipal services would affect employment density assumptions over time. It is recommended that Haldimand continue to monitor employment land densities in the Employment Area and reevaluate the study area's long-term growth potential to 2051 within the context of Haldimand's next Employment Area land needs update.

7.7.2 Servicing

It is recommended that the site-specific policy acknowledge that the employment lands are planned to initially only have access to municipal water servicing. Further, it is recommended that the policy contemplate that the employment lands are only planned

[1] Additional lands outside of the current study area will be required in Haldimand to accommodate the remaining 42 developable hectares required County-wide by 2051.

to be developed with private wastewater servicing until such time that municipal services may be made available. It is also recommended that the site-specific policy provide further direction with regard to targeted timelines for full municipal servicing to be provided to the employment lands, or a commitment from Haldimand to review the feasibility of doing so at regular intervals, in consultation with landowners and businesses.

7.7.3 Land Use Compatibility

Section 5.F Land Use Compatibility with Existing Uses of the O.P. provides direction on matters related to compatibility between more intensive land uses and sensitive land uses, such as residential. The policies of the O.P. generally defer to the Provincial D-Series Guidelines and contemplate specific matters to mitigate compatibility conflict, such as:

- Separation of uses by increased setbacks;
- Screening and buffering such as landscape strips, architectural screenings, fences or berms;
- Location of lighting so that it is deflected away or shielded from adjacent sensitive uses;
- Proper location of parking, loading and unloading areas, and outside storage; and
- Provision of safe, convenient pedestrian access with minimal interference from vehicular movement.

Based on the existing and planned land uses in proximity to the employment lands, it is not anticipated that land use compatibility conflicts will arise. However, to ensure that this risk is mitigated to the extent possible, it is recommended that the current land use compatibility policies of the O.P. are re-emphasized in the site-specific policy, and that a Holding Symbol is applied, as described in Section 7.2.6 of this Report.

7.7.4 Urban Design

Urban design principles and/or guidelines may be prepared by Haldimand for the entirety of the employment lands or required as part of a development application on a site-specific basis. The design principles and/or guidelines are an important tool to further implement and augment Haldimand's objectives in accordance with Section 5.G of the O.P. General principles that may be considered are:

- Where development is situated in proximity to Provincial highways or arterial roads, the development shall generally be required to provide a higher standard of architectural control, and amenity related to landscaping, buffering, and screening than those lands having frontage on internal service roads.
- Buildings shall be street-oriented and sited to address the public realm, with parking, loading, refuse management, and outdoor storage screened from view. Except for visitor parking, the following are encouraged to be located in an interior side yard or rear yard: employee parking areas; loading area; refuse management, and; outdoor storage.
- Where lands may abut Highway 6, a Collector Road, or an Arterial Road, building orientation and overall site design will be oriented to the road providing access to the site. Employee parking areas, loading areas, refuse management, and outdoor storage are encouraged to be located within an interior side yard or rear yard.
- Where an interior side yard, exterior side yard, or rear yard may abut Highway 6, a Collector Road, or an Arterial Road, enhanced landscaping and/or screening is encouraged to buffer viewsheds from the public realm. Heightened architectural controls, including building material, fenestration, and building articulation, may be required for portions of a rear or side portions of a building where they are viewable from Highway 6, a Collector Road, or an Arterial Road.
- The number of access points from individual lots to public roads shall be minimized. Shared access, parking and internal connections between adjacent lots are encouraged.
- Where a rear or exterior lot line abuts a public road, and/or public open space, heightened landscaping, building treatments, and architectural control are encouraged to ensure that the street-facing façades are visually attractive and contribute to a high-quality built form.

Establishing urban design expectations in the site-specific policy contributes to a higher quality built form that is more functional and aesthetically pleasing, ultimately creating a more attractive investment environment.

7.7.5 Parking and Loading Areas

Parking should generally be located at the rear or on the interior side yard of a building. In some cases, parking may be permitted in a yard that abuts Highway 6, a Collector Road, or an Arterial Road, however, a heightened landscaping buffer between the

parking area and the highway right-of-way is recommended. The following additional criteria are recommended in regard to parking areas:

- Parking between the principal building and the street line is discouraged;
- The implementing zoning by-law may consider reduced parking requirements to minimize the total area required for parking areas;
- Large parking areas for employees and customers should be treated with landscaping islands and pedestrian pathways to minimize visual impact, reduce heat island effect, and provide for the safe movement of pedestrians;
- Dedicated pedestrian walkways should be incorporated through parking areas for employees and defined through differentiated surface material.
- Parking and access design should mitigate potential pedestrian and vehicular conflicts through clearly demarcated circulation routes, pavement marking, and signage;
- Opportunities to integrate Low Impact Development should be implemented, where feasible; and
- Site and parking area design should address other matters such as snow storage and wayfinding, for example.

It is anticipated that certain land uses within the employment lands will require loading areas as part of day-to-day business operations. The following are recommended regarding service areas, loading areas, and refuse storage:

- Service areas, loading area, and refuse storage should be located within main building structures, where possible, or in separate enclosed buildings where it is not possible to locate them in the main building; and
- Service areas, loading areas, and refuse storage should be in areas of low visibility, such as the interior side or the rear of buildings.

In regard to parking and loading design criteria, it is important to acknowledge that these are fundamental components of any business located within the employment lands, and while it is desirable to establish Haldimand's expectations in this regard, it is also beneficial to ensure there is some flexibility to accommodate site-specific and business specific considerations.

7.7.6 Outdoor Storage

Where outdoor storage areas are permitted within the employment lands, it is recommended that the following criteria apply:

- It is recommended that the location of outdoor storage be prohibited in front yards, exterior side yards, or any yard that may abut Highway 6, a Collector Road, or an Arterial Road;
- Outdoor storage areas should be located away from any adjacent lands containing existing residential uses or adjacent to a Residential Designation, or have adequate buffers that will visually screen the storage area from adjacent lands;
- Buffers, fencing and screening be required to visually enhance the site, be permanent in its construction, such as natural landscaping with coniferous flora, or alternatively opaque architectural fencing; and,
- Where natural landscaping is proposed, it is of adequate size to appropriately screen the storage area year-round.

It is likely that outdoor storage will be required by many of the businesses that are established in the employment lands, given the range of recommended permitted uses. Similar to parking and loading design criteria, it may be beneficial to establish some flexibility in the criteria to accommodate site-specific or business-specific considerations.

7.7.7 Sustainability

Haldimand may consider encouraging sustainable site and building design through new development that reduces energy and water consumption, contributes to improved air quality, water quality, and more efficient waste management. Additionally:

- Emphasize the protection and enhancement of trees and other natural features, and where feasible, incorporate those features into the site design;
- Encourage the planting of additional trees adjacent to public streets and within parking areas to minimize the heat island effect;
- Multi-modal transportation connectivity and associated infrastructure should be promoted to encourage alternative transportation modes that are safe and efficient; and

- Use Low Impact Development (LID) techniques in the site design process to reduce impermeable surfaces and more effectively manage stormwater runoff.

Attracting investment is critical to the long-term success of the intended function and role of the employment lands. Recognizing that certain sustainability-related criteria may require heightened upfront investment, Haldimand should explore opportunities to offset these costs borne by landowners through financial incentives, such as those offered through a community improvement plan, for example.

7.7.8 Approvals, Permitting and Agreements

It is recommended that the O.P. establish direction regarding potential approvals, permitting, and agreements that may be required prior to development occurring. For example, this could include a Site Plan Agreement, permits obtained from the Ministry of Transportation, or the Grand River Conservation Area. Providing direction on required approvals and permitting will support a more streamlined development application process, while also offering some certainty to landowners with regard to what may be required prior to development.

7.7.9 Incentives

Section 8 of the O.P. establishes a range of tools afforded to Haldimand pursuant to the Planning Act to support implementation of the updated policy applicable to the employment lands, including zoning by-laws, lot creation, and community improvement. It is recommended that Haldimand explore an opportunity to designate the employment lands as a community improvement project area pursuant to s.28 of the Planning Act and adopt a community improvement plan. The community improvement plan could offer financial incentives to offset certain costs of development, such as those related to Planning Act applications or building permit fees. A community improvement plan may also offer financial incentives related to undertaking certain technical studies, site design features such as landscaping, or promoting more sustainable development and buildings, for example. Financial incentives can function to promote and facilitate development by reducing financial barriers associated with development and are widely used by municipalities throughout Ontario as an effective implementation tool.

Haldimand may also explore opportunities to undertake municipally led initiatives that reduce certain barriers for landowners or result in the employment lands becoming a more desirable investment location. This could include, for example, preparing certain

technical studies for the entirety of the employment lands, as an alternative to a site-specific basis that is undertaken by the landowner. Initiatives may also include aesthetic improvements to the public realm, such as gateway features, landscaping, wayfinding, signage, or the multi-modal network and facilities. Other initiatives may include upgrades to municipal servicing infrastructure and the transportation network, for example.

The site-specific policy may contemplate additional implementation and incentive opportunities that are undertaken by Haldimand, such as education, awareness, or promotional material to market the employment lands and generate investment interest. Additional resources and tools could also be contemplated, such as informational material, or opportunities for more streamlined development application and review, such as administrative processes.

7.7.10 Consultation

Providing direction on required consultation may similarly bring certainty to the development application and review process for applicants. It is recommended that, at a minimum, the O.P. identify that consultation may be required with Indigenous communities, the Grand River Conservation Authority, the Ministry of Transportation, and utility providers. It is expected that relevant agencies and authorities would otherwise be circulated as prescribed pursuant to the Planning Act.

7.7.11 Zoning

A zoning by-law amendment is recommended to implement the Holding Symbol and associated conditions, as well as specific matters established by the recommended site-specific policy. Clearance of conditions should occur for Phase 1, followed by Phase 2. As permitted by Section 8.D: Secondary Plans, the Holding provision conditions should pertain to matters identified in Section 7.2.6 of this Report. Landowners may apply to remove the Holding Symbol after they have addressed the conditions to the satisfaction of Haldimand or any relevant agency or authority. Until such time that the Holding Symbol is removed, it is recommended that only legally existing uses be permitted within the employment lands.

It is recommended that a broad range of land uses be permitted in accordance with the uses permitted under Table 8.1: Permitted Uses in the Industrial Zones for the Light Industrial (ML) Zone of Zoning By-law HC 1-2020. Further, the current zone provisions

for the Light Industrial (ML) Zone, as established in Table 8.2: Zone Provisions for the Industrial Zones, are also recommended to be applied to the employment lands, as applicable to future development of the lands. Haldimand may consider establishing a Special Exception applicable to the employment lands to further implement the site-specific policy in regard to provisions that regulate certain design criteria or land use compatibility, in addition to establishing a Holding Symbol and associated conditions, as previously recommended in this Report.

Chapter 8
Conclusions

8. Conclusions

The North Caledonia Employment Lands Feasibility and Servicing Study presents a comprehensive and phased framework for unlocking strategic employment growth in Haldimand County. The study responds to regional economic opportunities, fiscal realities, and evolving provincial policy direction, ensuring that Haldimand can attract and accommodate industrial investment in a responsible and market-aligned manner.

Over the course of three phases between 2022 and 2025, the study assessed the developability, financial feasibility, and implementation strategy for the future North Caledonia Employment Area. Phase 1 established baseline conditions – physical constraints, infrastructure capacity, and market positioning – while identifying preliminary target sectors. Phase 2 utilized detailed financial models to test a range of development delivery scenarios. These models revealed that under traditional, fully-serviced approaches, the lands would generate sustained negative cashflows and exceed Haldimand's debt tolerance. Phase 3 translated this analysis into a realistic path forward, recommending a phased implementation strategy with interim water-only servicing.

Haldimand's geographic position further strengthens the case for near-term industrial development. Located along the Highway 6 corridor and within reach of Hamilton, Brantford, and key trade routes, North Caledonia is well-positioned to attract industrial investment, particularly from businesses seeking lower-cost, accessible sites. A cost competitiveness analysis shows that Haldimand offers clear advantages over regional comparators in terms of development and operating costs, though incentive tools may still be considered to accelerate absorption.

A key outcome of the study is the revised vision for the Employment Area, which reflects the dual influence of provincial policy changes and servicing limitations. The 2024 P.P.S. introduced a narrower definition of "Employment Area" that now restricts permitted uses to industrial-type activities, such as manufacturing, warehousing, and logistics. Simultaneously, financial testing confirmed that full municipal servicing is not currently viable due to its cost and long-term fiscal impact. These two forces, policy and servicing, together required a re-evaluation of the land use and marketing framework. The updated vision focuses on sectors that are permitted under the new P.P.S. and operationally feasible under interim servicing conditions.

Accordingly, the target sectors for the North Caledonia Employment Area emphasize low-intensity, water-dependent industrial uses such as light manufacturing, warehousing and logistics, agri-business, and construction services. These uses align with both provincial land use direction and the financial reality of Haldimand's infrastructure capacity. As full servicing becomes available over time, the area can support more intensive development. In the interim, flexibility is key: the plan supports private-sector-led servicing approaches and market-responsive phasing, while protecting corridors and infrastructure for future expansion.

Implementation recommendations are grounded in practical planning tools that manage both opportunity and risk. These include a redesignation of the lands through an O.P. amendment, the application of a holding symbol to regulate the timing of development, and site-specific policies to address servicing triggers, employment density, built form, and compatibility. The plan also provides guidance on zoning, approvals, and marketing strategies tailored to the area's strengths and near-term potential.

This study sets out a balanced and responsive approach to employment land development in Haldimand County. By addressing the realities of infrastructure financing and aligning with the new P.P.S., Haldimand can move forward with confidence, supporting job creation, leveraging regional economic advantages, and maintaining control over long-term servicing investments. The recommended strategy positions North Caledonia for success as a phased, market-ready Employment Area that evolves with municipal capacity and regional demand. It offers the flexibility to respond to changing market conditions while preserving key infrastructure corridors and phasing tools that ensure future servicing is delivered efficiently and sustainably. Through this approach, Haldimand can enable near-term development without compromising long-term objectives, ensuring that infrastructure investment, land use policy, and economic development efforts remain aligned over time. As growth pressures intensify across the region, North Caledonia stands as a strategic and adaptable asset within Haldimand's broader employment land portfolio. Ongoing monitoring of development activity and employment yields will be a critical next step to inform infrastructure planning, policy updates, long-term Employment Area land needs, and the timing of full municipal servicing.

Appendix A

Assessment of Development and Operating Annualized Costs

Appendix A: Assessment of Development and Operating Annualized Costs

1-Storey Factory

Building	30,000 square feet
Land	2.3 Acres (30% FSI)
Annualization Factor	6.5%

Development Costs

Market Area	Land Cost per Acre[1]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges per Sq.ft.[3]	Building Permit Fees per Sq.ft.[3]	Developer Profit (5%) Per Sq.ft.	Total Development Cost Per Sq.ft.	Annualized Development Cost (6.5%) Per Sq.ft.
	A	B = A * 2.3 / 30,000	C	D	E	F = 5% * (B+C+D+E)	F = B + C + D + E + F	G = F * 6.5%
Haldimand County	$ 140,615	$ 10.76	$ 209.29	$ 6.11	$ 1.12	$ 11.36	$ 238.64	$ 15.51
City of Hamilton	$ 373,096	$ 28.55	$ 221.84	$ 13.94	$ 1.19	$ 13.28	$ 278.80	$ 18.12
Norfolk County	$ 113,682	$ 8.70	$ 209.29	$ 6.94	$ 2.72	$ 11.38	$ 239.03	$ 15.54
Niagara Region	$ 185,379	$ 14.19	$ 205.10	$ 3.46	$ 1.10	$ 11.19	$ 235.04	$ 15.28
Brant County	$ 87,986	$ 6.73	$ 209.29	$ 8.49	$ 2.93	$ 11.37	$ 238.81	$ 15.52
City of Brantford	$ 119,082	$ 9.11	$ 209.29	$ 9.18	$ 0.83	$ 11.42	$ 239.83	$ 15.59

Operating Costs

Market Area	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft	Water/Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[6]	Total Annual Operating Costs per Sq.ft.	Combined Development (Annualized) and Operating Costs per Sq.ft.
	H	I	J = H * I	K	L	M	N = J + K + L + M	O = G + N
Haldimand County	3.4%	$ 47.52	$ 1.60	$ 0.42	$ 3.77	$ 1.57	$ 7.36	$ 22.87
City of Hamilton	4.4%	$ 77.40	$ 3.43	$ 0.62	$ 3.58	$ 1.57	$ 9.20	$ 27.32
Norfolk County	2.9%	$ 50.45	$ 1.46	$ 0.67	$ 3.40	$ 1.57	$ 7.10	$ 22.64
Niagara Region	4.0%	$ 78.61	$ 3.18	$ 0.59	$ 3.66	$ 1.67	$ 9.10	$ 24.38
Brant County	3.1%	$ 67.65	$ 2.07	$ 0.53	$ 3.50	$ 1.57	$ 7.67	$ 23.20
City of Brantford	3.6%	$ 64.16	$ 2.30	$ 0.74	$ 3.50	$ 1.57	$ 8.11	$ 23.70

Source: Watson & Associates Economists Ltd., 2022.

[1] Land prices are based sample sale data from from the Municipal Property Assessment Corporation (MPAC), compiled by Watson & Associates Economists Ltd., 2022.

[2] Based on RSMeans locational factor data.

[3] Most recent development charge rates are based on an area municipal average where applicable.

[4] Based on most up-to-date area municipal averages.

[5] Assessment per sq.ft. is based on Watson & Associates Economists Ltd. survey averages from MPAC.

[6] Costs for water/wastewater, natural gas and electricity are based on industry average consumption rates and local cost data.

1-Storey Warehouse

Building	60,000 square feet
Land	4.6 Acres (30% FSI)
Annualization Factor	6.5%

Development Costs

Market Area	Land Cost per Acre[1]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges per Sq.ft.[3]	Building Permit Fees per Sq.ft.[3]	Developer Profit (5%) Per Sq.ft.	Total Development Cost Per Sq.ft.	Annualized Development Cost (6.5%) Per Sq.ft.
	A	B = A * 4.6 / 60,000	C	D	E	F = 5% * (B+C+D+E)	F = B + C + D + E + F	G = F * 6.5%
Haldimand County	$ 140,615	$ 10.78	$ 145.40	$ 6.11	$ 1.12	$ 8.17	$ 171.58	$ 11.15
City of Hamilton	$ 373,096	$ 28.60	$ 154.12	$ 13.94	$ 1.19	$ 9.89	$ 207.75	$ 13.50
Norfolk County	$ 113,682	$ 8.72	$ 145.40	$ 6.94	$ 1.89	$ 8.15	$ 171.09	$ 11.12
Niagara Region	$ 185,379	$ 14.21	$ 142.49	$ 3.46	$ 1.10	$ 8.06	$ 169.33	$ 11.01
Brant County	$ 87,986	$ 6.75	$ 145.40	$ 8.49	$ 2.04	$ 8.13	$ 170.80	$ 11.10
City of Brantford	$ 119,082	$ 9.13	$ 145.40	$ 9.18	$ 0.83	$ 8.23	$ 172.76	$ 11.23

Operating Costs

Market Area	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft	Water/Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[6]	Total Annual Operating Costs per Sq.ft.	Combined Development (Annualized) and Operating Costs per Sq.ft.
	H	I	J = H * I	K	L	M	N = J + K + L + M	O = G + N
Haldimand County	3.4%	$ 47.52	$ 1.60	$ 0.42	$ 3.77	$ 1.57	$ 7.36	$ 18.51
City of Hamilton	4.4%	$ 77.40	$ 3.43	$ 0.62	$ 3.58	$ 1.57	$ 9.20	$ 22.70
Norfolk County	2.9%	$ 50.45	$ 1.46	$ 0.67	$ 3.40	$ 1.57	$ 7.10	$ 18.22
Niagara Region	4.0%	$ 78.61	$ 3.18	$ 0.59	$ 3.66	$ 1.67	$ 9.10	$ 20.10
Brant County	3.1%	$ 67.65	$ 2.07	$ 0.53	$ 3.50	$ 1.57	$ 7.67	$ 18.78
City of Brantford	3.6%	$ 64.16	$ 2.30	$ 0.74	$ 3.50	$ 1.57	$ 8.11	$ 19.34

Source: Watson & Associates Economists Ltd., 2022.

[1] Land prices are based sample sale data from from the Municipal Property Assessment Corporation (MPAC), compiled by Watson & Associates Economists Ltd., 2022.

[2] Based on RSMeans locational factor data.

[3] Most recent development charge rates are based on an area municipal average w here applicable.

[4] Based on most up-to-date area municipal averages.

[5] Assessment per sq.ft. is based on Watson & Associates Economists Ltd. survey averages from MPAC.

[6] Costs for w ater/w astew ater, natural gas and electricity are based on industry average consumption rates and local cost data.

Appendix B
Employment Area Servicing Analysis

North Caledonia Employment Land Feasibility and Servicing Study

GMBP File No. 722015
May 2023



Prepared by GM BluePlan Engineering for Haldimand County, in association with Watson & Economists and WSP

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VERSION LOG

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APPENDICES

APPENDIX A: DESIGN CALCULATIONS – WATER INFRASTRUCTURE

APPENDIX B: DESIGN CALCULATIONS – WASTEWATER INFRASTRUCTURE

APPENDIX C: DESIGN CALCULATIONS – STORMWATER INFRASTRUCTURE

1. INTRODUCTION

Haldimand County (County) is a single-tier municipality located on the Niagara Peninsula on the north shore of Lake Erie. The County is adjacent to Norfolk County, the County of Brant, the City of Hamilton, and Niagara Region, and includes the communities of Caledonia, Dunnville, Hagersville, Jarvis, Townsend, and Cayuga. The County is located in the Greater Golden Horseshoe (GGH) which is one of the fastest growing regions in North America. The County has seen a substantial increase in residential development over the last 10 years, along with increased interest in business development. Upon completion of Phase 1 of the County's Official Plan Update in 2021, the following was identified and approved for Haldimand County:

- Accommodate the Provincial 2051 forecast of 77,000 residents and 29,000 jobs;
- Accommodate an additional population of 30,000 new residents, 12,700 new households, and 11,000 new jobs by 2051;
- Set a minimum target of 40 residents and jobs per hectare in new community areas; and,
- Plan for and protect employment land.

A key driver of Haldimand's future population growth is its location within the southwest region of the GGH. As the remaining greenfield areas within the mature areas of the GGH gradually build out, increased growth pressure will be placed on the outer ring of the GGH which includes Haldimand County. This population growth is anticipated to be located in the County's larger urban centres, including Caledonia. As the County's 2021 Official Plan Update identified Caledonia as the highest demand area, an area in North Caledonia of approximately 138 hectares (ha) was added to the urban boundary of Caledonia and allocated for employment uses. This area was adjacent to existing land allocated for employment uses for a total employment area of approximately 184 ha. The consolidated employment area is henceforth referred to as the Study Area in this report and is identified on **Figure 1-1**.

Currently, the Study Area is primarily agricultural with some commercial and residential uses along the boundary roads of Highway 6, Greens Road, and Mines Road. The Study Area does not have access to municipal servicing and the existing properties are serviced by private (on-site) systems. The purpose of this report will be to review the existing development constraints for the Study Area and provide recommendations for site servicing and a conceptual subdivision layout. This report will include servicing analysis to support the development of a conceptual subdivision layout based on the identified constraints. High Level cost estimates will be provided for the infrastructure required for the conceptual subdivision layout to support future planning purposes.

This report is being completed in association with Watson & Associates Economists Ltd. (Watson) and WSP, who are completing market research assessment and planning review, respectively, for the Study Area.

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study

- Conceptual Highway 6 Extension
- Conceptual Highway 6 Right-of-Way (90m)
- Current Limits of Highway 6 Corridor
- North Caledonia Employment Lands

General Features

- Railways
- Parcels
- Urban Boundary
- Parks
- Grand River Conservation Authority Regional Floodline
- Grand River Conservation Authority Regulation Limit
- Significant Natural Heritage Features
- Wetland
- Woodlot
- Core Natural Environment Areas
- Waterbody and Watercourse
- Municipal Boundary

Figure 1-1

Study Area

BluePlan Engineering

May, 2023
722015-001
Projection EPSG:26917

0 0.5 1 km

1.1 Physical Constraints to Study Area

Caledonia is located in the northern portion of Haldimand County, approximately 2 km south of the City of Hamilton. The Grand River runs through Caledonia, splitting the community into north and south areas. North Caledonia has several new growth areas including the Study Area, which is located at the northern limit of the urban area settlement boundary. The following sub-sections identify various physical and natural environmental constraints specific to the Study Area, along with the assumptions carried for each constraint.

1.1.1 Topography

Elevations within the Study Area range from approximately 203 metres to 213 metres above sea level (masl) and generally consist of gradually sloping agricultural fields. The Study Area does not appear to contain any significant elevation changes that would impact developable yield. The lowest elevations are along the streams which discharge to the Grand River.

1.1.2 Watercourses and Waterbodies

There are several streams identified throughout the Study Area by Grand River Conservation Authority (GRCA) mapping, however only the creek in the northeast section of the Study Area has a Regulatory floodplain associated with it. The remainder of the streams within the Study Area discharge through small waterbodies and/or wetlands to outlet at the south, east, and north limits of the Study Area (refer to **Figure 1-2**). For the purposes of this report, watercourses and waterbodies that have GVCA regulation limits associated with them are considered constraints to development. These features will be maintained on the landscape with appropriate development buffers applied to them. For drainage features that are not regulated by the GVCA, it was assumed that these features can be incorporated into the stormwater management and drainage systems where necessary.

1.1.3 Wetlands

There are approximately twelve wetland areas throughout the central portion of the Study Area which range in size from 0.05 to 1.3 ha. Several of these wetland areas are surrounded by agricultural fields and are therefore isolated on the landscape. However, several wetland areas are located in wooded areas and are hydraulically connected to the watercourses noted in **Section 1.1.2**. The ecological significance of the wetland features was not evaluated as part of this report and therefore it was assumed that these features are constraints to development and will be maintained on the landscape with appropriate development buffers applied to them. If impacts to the existing wetland features are deemed necessary to accommodate a functional concept plan, reconstructed wetland features would be required to replicate the form and function of the existing wetlands.

1.1.4 Woodlands

There is a Significant Woodland feature located in the central portion of the Study Area. The feature is approximately 26 hectares in size and coincides with several other environmental features including wetland features, watercourses, and waterbodies. As confirmed by the County, this Significant Woodland feature is to be protected and maintained on the landscape. Some minor modifications may

be considered in areas where there will be no negative impacts on the natural features or ecological functions. Similar to the existing wetland features, if impacts to the existing woodland features are deemed necessary to accommodate a functional concept plan, reconstructed woodland features would be required to replicate the form and function of the existing wetlands. The compensation rates for woodland removal are based on the age of the woodland as defined below:

- Pioneer: A community that has invaded disturbed or newly created sites and represents the early stages of either primary or secondary succession.
- Young: A community that has not yet undergone a series of natural thinning and replacements; plants are essentially growing as independent individuals rather than as members of a phytosociological community.
- Mid-aged: A community that has undergone natural thinning and replacement as a result of species interaction and often contains examples of both early successional and late successional species.
- Mature: A successionally maturing community dominated primarily by species that are replacing themselves and are likely to remain an important component of the community if not disturbed again; significant remnants of early seral stages may still be present.
- Climax: A self-perpetuating community composed primarily of late seral species that show uneven stand age distribution, including large old trees (generally older than 120 years) without open-grown characteristics.

11.2 hectares of the woodland feature is classified as 'Young' and 14.7 hectares of the feature is classified as 'Mid-Aged'. Per the field work completed to confirm these age designations, it was identified that the larger trees along the edges of the 'Young' plantation are considered part of the 'Young' plantation and in the event of their removal; they should be reforested at the 'Young' compensation rates. The compensation rates for woodland removal are presented in **Table 1-1**.

Table 1-1: Afforestation Rates

Existing Age of Woodland	Area of Woodlands Clear Cut	Afforestation Area Required on Subject Lands	Afforestation Area Required on Owner's Other Lands	Afforestation Area Required Cash-in-Lieu Payment to County
Pioneer	1 Hectare	1 Hectare	2 Hectares	3 Hectares
Young	1 Hectare	2 Hectares	4 Hectares	5 Hectares
Mid-Aged	1 Hectare	3 Hectares	6 Hectares	9 Hectares
Mature	1 Hectare	4 Hectares	8 Hectares	12 Hectares
Climax	1 Hectare	5 Hectares	10 Hectares	15 Hectares

As discussed with the County, the existing Significant Woodlands feature will be maintained on the landscape and protected with a 10 metre width buffer that is subject to change based on future Environmental Impact Studies (EIS). If impacts to the existing woodlands features are deemed necessary to accommodate a functional concept plan, woodland compensation areas will be identified per the ratios presented in **Table 1-1**.

Haldimand County

North Caledonia Employment Lands
Feasibility and Servicing Study

Seneca Creek

Greens Road

Mines Road

Catchment 103
(53.0 Ha)

Catchment 106
(14.0 Ha)

Catchment 101
(69.4 Ha)

Catchment 104
(29.8 Ha)

Catchment 102
(10.6 Ha)

Catchment 105
(7.3 Ha)

B1

C8

C7

C3

C1

C2

C4

C5

C6

Greens Road

Haldimand-Road-66

Industrial Drive

Argyle Street

6

6

0 250 500 m

North Caledonia Employment Lands

General Features

- Parcels
- Urban Boundary
- Existing Culverts
- Existing Stormwater Pond
- Pre-Development Drainage Catchment
- Parks
- Grand River Conservation Authority Regional Floodline
- Grand River Conservation Authority Regulation Limit
- Significant Natural Heritage Features
- Wetland
- Woodlot
- Core Natural Environment Areas
- Waterbody and Watercourse
- Overland Flow Direction

Figure 1-2

Existing Conditions and Pre-Development Drainage Plan

BluePlan ENGINEERING

May, 2023
722015-001
Projection EPSG:26917

1.1.5 Easements

From a desktop review of the Study Area, no existing easements were identified that would impact development of the Study Area.

1.1.6 Highway 6

Based on a discussion with the Ministry of Transportation (MTO), an existing MTO corridor (Highway 6) follows the south & east limits of the Study Area. In the future, the MTO plans to extend Highway 6 through the Study Area as reflected in **Figure 1-3**. This highway extension includes the following constraints within the Study Area:

- New road access connections from within the Study Area to the future Highway 6 extension will not be allowed.
- New road access connections from within the Study Area to existing Highway 6 must exceed 800 metres in distance from existing intersections.
- Subsurface infrastructure crossings of the future Highway 6 extension should be minimized and consolidated where possible. Crossings must include sufficient vertical clearance to not preclude future design and construction of the highway extension.
- Extending services through the intersection of Highway 6 and Haldimand Road 66 will not be permitted. It was also noted that extending services within the Highway 6 / Greens Road corridor would not be permitted and service crossings of this corridor should be minimized wherever possible. Any services extended parallel to the Highway 6 / Greens Road corridor would need to be located within a separate easement in favour of the County.

As reflected in **Figure 1-3**, the Highway 6 extension coincides with several of the aforementioned natural features, including wetland features and portions of the Significant Woodlot. The required compensation for removal of these existing features will be assessed through the studies completed to support the design of the highway extension and are not reviewed or assessed within this report.

It is understood that once the MTO extends Highway 6 through the Study Area, the portion of existing Highway 6 that follows the south & east limits of the Study Area will be transferred to the County. Upon transfer of Highway 6 to the County, the feasibility of additional accesses onto this length of roadway will need to be further reviewed.

Haldimand County

North Caledonia Employment Lands
Feasibility and Servicing Study

Greens Road

Mines Road

Phase 1

Phase 2

Greens Road

6

Haldimand Road 66

Industrial Drive

Argyle Street

0 250 500 m

- Conceptual Highway 6 Extension
- Conceptual Highway 6 Right-of-Way (90m)
- North Caledonia Employment Lands
- Phase 1 North Employment Lands
- Phase 2 North Employment Lands

General Features

- Parcels
- Urban Boundary
- Parks
- Grand River Conservation Authority Regional Floodline
- Grand River Conservation Authority Regulation Limit
- Significant Natural Heritage Features
- Wetland
- Woodlot
- Core Natural Environment Areas
- Waterbody and Watercourse

Figure 1-3

MTO Extension (Hwy 6) and Phasing of Study Area

BluePlan ENGINEERING

May, 2023
722015-001
Projection EPSG:26917

2. SERVICING DESIGN PARAMETERS

A review of servicing design criteria was conducted based on recent servicing studies conducted in Haldimand County and Caledonia. The following servicing studies were reviewed as part of this exercise:

1) Haldimand County Design Criteria: Section K - Wastewater Collection System (August 2018)
2) Haldimand County Design Criteria: Section J - Water Distribution System (August 2018)
3) Haldimand County Design Criteria: Section H - Storm Water Management and Drainage (2015)
4) Technical Memo: Caledonia North Sewage Pumping Station Design Basis (WSP, September 2019)
5) Water Servicing Review and Updates – Caledonia Master Servicing Plan Update (C3 Water, November 2020)
6) Wastewater Servicing Review and Updates – Caledonia Master Servicing Plan Update (J.L. Richards & Associates, December 2020)
7) Caledonia Urban Boundary Expansion Servicing Review (J.L. Richards & Associates, December 2020)

These studies were reviewed to confirm the design criteria to be applied to the Study Area, which is detailed in the sub-sections below.

2.1 Design Criteria

2.1.1 Water

Design criteria for estimating water supply demands are summarized in **Table 2-1**.

Table 2-1: Design Criteria for Estimating Future Water Demand

Parameter	Criteria	Source
Average Water Demand	365 L/cap/day	Gateway North SPS Tender Documents (Dry Weather Flow) (WSP, March 2020)
Maximum Daily Demand Factor	1.58	Caledonia Master Servicing Plan Update (MSP 2020)
Maximum Hourly Demand Factor	2.0	Haldimand County Design Guidelines

Per the County's Design Criteria (Section J, August 2018), the water system should be designed to meet the greater of either of the following demands:

a) Maximum daily demand plus fire flow; or
b) Maximum hourly demand.

Fire flows will be considered in accordance with the requirements of the latest edition of 'Water Supply For Public Fire Protection', which is a guide to recommended practices by the Fire Underwriters Survey (FUS).

2.1.2 Wastewater

Design criteria for estimating wastewater flows are summarized in **Table 2-2**.

Table 2-2: Design Criteria for Estimating Future Wastewater Flows

Parameter	Criteria	Source
Sewage Generation Rate – Collection System	365 L/capita/day	Gateway North SPS Tender Documents (Dry Weather Flow) (WSP, March 2020) Note: 12 m^3/ha/day / 33 people/ha = 365 L/cap/day
Infiltration Flow (Allowance)	0.23 L/s/ha	Haldimand County Design Criteria: Section K - Wastewater Collection System (August 2018)
Peaking Factor – Collection System	Modified Harmon Formula $Me = 0.8\left(1 + \frac{14}{4 + Pe^{0.5}}\right)$ Where: M_e = ratio of peak flow to average flow P_e = equivalent tributary population in thousands	Haldimand County Design Criteria: Section K - Wastewater Collection System (August 2018)
Sewage Generation Rate – Treatment	338 L/capita/day	MSP 2020 Note: Based on 2016 Actuals
Peaking Factor (Day) - Treatment	3.0	MSP 2020

Per the County's Design Criteria (Section K, August 2018), the design flow that the wastewater collection system must be able to convey is calculated as follows:

Design Flow = (Average Dry Weather Flow x Peaking Factor) + Infiltration Allowance

The following criteria from the County's Design Criteria are also relevant to the Study Area:

- For Commercial and Industrial areas, the minimum sewer diameter shall be 300 mm at a minimum grade of 0.25%.
- The maximum velocity shall not exceed 3.0 m/s with the pipe flowing full and the minimum velocity should not be less than 0.6 m/s. The actual velocity for a 200mm pipe (or greater) shall not be less than 0.5 m/s.
- The obvert of the sewer pipe shall be a minimum of 2.75 m below the centerline of the road.

2.1.3 Stormwater Management and Drainage

As outlined in Section H of the County's Design Criteria, the following stormwater management (SWM) and drainage criteria are applicable to the Study Area:

1) Quantity Control: In an area where no Subwatershed Impact Study (SIS) has been completed, it is the policy of Haldimand County to require that runoff peak flows are controlled to pre-development levels for the 2-year through 100-year events.
2) Quality Control: Per the 2003 MOE SWM Planning & Design Manual, water quality treatment will be required to maintain an Enhanced Level of Protection corresponding to the end-of-pipe storage volumes required for the long-term removal of 80% of suspended solids.
3) Erosion Control: Extended Detention Storage for the 25mm rainfall event is required as outlined in the Provincial Guidelines (SWM Planning & Design Manual, MOE, 2003).
4) Minor Conveyance System: Storm sewers are to be sized to convey the 5-year event.
5) Major Conveyance System: No new building should be subject to flood damage from the Regulatory Flood; which is defined as the greater of Hurricane Hazel (transposed), modelled 100-year flood, observed flood, or frequency-based 100-year flood. Major overland flow routes should be provided to convey drainage to appropriate outlets with flooding to not exceed 150mm depth over the crown of any roadway during a 100-year event and should be contained within the designated right-of-way.
6) Storm sewers and open channels can be designed using the Rational Formula.

As outlined in Table H1 of Appendix H of the County's Design Criteria, wet ponds are suitable for providing water quality and quantity treatment, therefore the use of wet ponds will be assumed for the SWM blocks within the Study Area.

Rooftop storage is also applicable to peak flow control for industrial/commercial applications per the County's Design Criteria, however it will not be used for the Study Area due to its proximity to existing and future Highway 6 and the MTO's policies regarding the use of rooftop storage.

As previously noted, it has been assumed that existing drainage features in the Study Area that are not regulated by the GVCA will be integrated into the stormwater infrastructure.

3. FUTURE GROWTH

3.1 Total Serviceable Lands

Using the natural hazard mapping provided by the County, the total serviceable land (or net developable area) was established for Phases 1 & 2 of the Study Area. The decision to advance Phase 1 versus Phase 2 was based on land availability, natural environment constraints, and the lack of confirmed timing for the Highway 6 extension which places limitations on the connection of the proposed Phase 2 road to existing Highway 6. While this preferred phasing has been identified in this report, it is anticipated that the re-development of lands within Phases 1 and/or 2 will proceed based predominantly on owner-driven development applications.

The natural hazard mapping included features within the Study Area identified as watercourses (with and without associated Regulatory floodplains), waterbodies, woodlands, wetlands, Natural Environment Areas, and Significant Natural Heritage features. The future Highway 6 extension was also identified as a constraint area for development. As previously noted, natural environment areas were assumed to be protected and maintained on the landscape with any impacts deemed necessary to accommodate a functional concept plan for the Study Area requiring suitable compensation to replicate the size, form, and function of the removed natural features. Landscaped buffers are required between these retained and/or re-constructed natural areas and adjacent development blocks. The buffers applied to inform the development of the Concept Plan are as follows:

- Significant Natural Heritage feature: 30 metre width buffer
- Significant Woodlands feature: 10 metre width buffer
- Wetland feature: 30 metre width buffer per GVCA Regulation limit
- Regional Floodplain: 15 metre width buffer per GVCA Regulation limit
- Watercourse and waterbody: 15 metre width buffer per GVCA Regulation limit
- Re-constructed natural features: 15 metre width buffer

Public roads (20.0 m corridor width) were extended through Phases 1 & 2 with wet ponds within SWM blocks identified to achieve the SWM design objectives. A breakdown of the pre-development and post-development areas within the Study Area, including the net developable area, is included in **Table 3-1**.

Table 3-1: Area Breakdown in Study Area

	Phase 1 (ha)		Phase 2 (ha)	
	Existing Area	**Proposed Area**	**Existing Area**	**Proposed Area**
MTO Dedication	8.4			
Total Natural Features	15.7	16.4	39.0	38.6
Agriculture	70.0	-	51.3	-
Stormwater Ponds	-	5.4	-	7.7
Roads	-	3.5	-	2.4
Temporary Cul-de-sac	-	-	-	0.4
Re-constructed Woodlot	-	-	-	1.8
Natural Environment Setback	-	-	-	0.5
Development Blocks	-	60.4	-	38.9
TOTAL:	**85.7**	**85.7**	**90.3**	**90.3**

The total area of the Study Area is approximately 184.4 hectares, which includes 85.7 hectares in Phase 1, 90.3 hectares in Phase 2, and 8.4 hectares for the MTO dedication area required for the Highway 6 extension. As shown, Phases 1 & 2 have a combined developable area of 99.3 ha.

3.2 Equivalent Population Projections

An employment density and equivalent population was defined for Phases 1 and 2 of the Study Area based on the employment land needs identified by Watson in Table 4-2 of their Phase 1 report.

As identified in **Figure 4-2**, the southwest portion of the Study Area (approximately 46 ha) was already included within the urban boundary as of 2020. It was previously assumed that this area would have a gross employment density of 15 jobs/hectare or 690 jobs. In the context of this report, the gross employment density is the jobs per hectare when including the proposed areas allocated for development blocks, SWM ponds, and roads.

A summary of the equivalent populations by phase is provided in **Table 3-2**.

Table 3-2: Phased Equivalent Population Growth

Land Use Classification	Phase 1	Phase 2	Phases 1 & 2
Development blocks (ha):	60.4	38.9	99.3
Stormwater Ponds (ha):	5.4	7.7	13.1
Roads (ha):	3.5	2.2	5.7
Total Area (ha):	69.3	48.8	118.1
Total Population (persons):	**1,040**	**732**	**1,772**

As shown in **Table 3-2**, at an employment density of 15 jobs/hectare for a gross available area of 118.1 hectares, the Study Area can accommodate 1,772 jobs.

3.3 Parcel Sizing

As identified by Watson in Table 5-1 of the Phase 1 Report, the following key employment sectors are considered suitable for the Study Area:

- Manufacturing (Parcel size = 1 to 4 hectares or greater)
- Distribution and Logistics (Parcel size = 5 to 20 hectares or greater)
- Professional, Technical Services, Research and Development (Parcel size = 1 to 2 hectares)

As a range of parcel sizes may be required in the Study Area, the local road network was designed to ensure that adequate frontage and depth was available to accommodate parcels of the noted range in size.

	Phase 1		Phase 2	
	Existing Area	Proposed Area	Existing Area	Proposed Area
MTO Dedication	8.4 Ha			
Total Natural Features[1]	15.7 Ha	16.4 Ha	39.0 Ha	38.6 Ha
Agriculture	70.0 Ha	-	51.3 Ha	-
Stormwater Ponds	-	5.4 Ha	-	7.7 Ha
Proposed Roads	-	3.5 Ha	-	2.4 Ha
Temporary Cul-de-Sac	-	-	-	0.4 Ha
Reconstructed Woodlot[2]	-	-	-	1.8 Ha
Natural Environment Setback (15m)	-	-	-	0.5 Ha
Development Blocks	-	60.4 Ha	-	38.9 Ha
Total Areas	85.7 Ha	85.7 Ha	90.3 Ha	90.3 Ha

Phase 1

Phase 2

SWM-1

SWM-2

SWM-3

SWM-4

SWM-5

SWM-6

SWM-7

SWM-8

SWM-9

C1

C2

C3

C4

C5

C6

C7

C8

B1

12m width servicing easement

10m width drainage easement

12m width servicing easement

10m width servicing easement

12m width servicing easement

Mines Rd

Greens Rd

Greendale Dr

Industrial Dr

Haldimand Road 66

Argyle St N

6

6

N

0 250 500 m

Notes:

1) 'Total Natural Environment' includes regulation limits, significant natural features with 30m setback, core natural areas, woodlots with 10m setback, wetlands, and watercourses/waterbodies. Total Natural Environment does not include the MTO dedication area.

2) Assumed 4:1 compensation ratio based on 'Young' classification (0.405 ha removed for Phase 2 local road extension; 1.62 ha required compensation)

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study

General Features
- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Culverts
- Existing Stormwater Pond
- Wetland (GRCA)
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Proposed Conditions
- Servicing Easement
- Booster Pumping Station Area
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Pond Outlet
- Proposed Stormwater Pond
- Development Block
- Conceptual Primary Gateway
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)

Figure 3-1

Concept Plan

BluePlan ENGINEERING

February 2023
722015-003
Projection EPSG:26917

4. WATER INFRASTRUCTURE

4.1 Existing Infrastructure

As outlined in the 2020 Caledonia Master Servicing Plan Update study (henceforth referred to as the 2020 MSP), the Caledonia water system is supplied by the City of Hamilton via a trunk 450mm diameter watermain on Highway 6. The watermain conveys water from the Hamilton system to a County-owned in-ground reservoir and pump station, known as the Caledonia Reservoir & Pumping Station. This reservoir is located at 721 Highway 6, which is adjacent to the north limits of the Study Area (refer to **Figure 4-1**). The reservoir supplies the Caledonia water system which consists of one (1) standpipe and three (3) valve chambers.

4.1.1 Treatment

The Caledonia Water Treatment Plant (WTP) is comprised of the in-ground reservoir and pumping station at 721 Highway 6, which has a capacity of 2,004 m^3 and is fed by a 450mm watermain on Highway 6 from the City of Hamilton at an approximate hydraulic grade line (HGL) of 260 masl. The County has an agreement with the City of Hamilton that allows for a maximum daily supply of 13.8 Megalitres per day (MLD). The incoming water from Hamilton is chloraminated and treated with sodium hypochlorite at the reservoir to reach the breaking point and remove the ammonia from the water. The pumping station is equipped with four (4) high lift pumps that delivery water throughout the distribution network to maintain a pressure of 58 psi at an HGL of 245 masl. The firm capacity of the pumping station is approximately 143 L/s.

4.1.2 Standpipe

The Caledonia standpipe has a height of 31 metres, a capacity of 4,420 m^3, and a top water level (TWL) of 237 masl. The standpipe is located in South Caledonia, near the corner of Argyle Street South and Haddington Street and acts as a hydraulic control point for South Caledonia.

4.2 Water Demand

4.2.1 Historical Water Demand from Caledonia per 2020 MSP

Per the modelling completed to support the 2020 MSP, an existing maximum daily demand (MDD) of 4.78 MLD (or 55.3 L/s) was identified through a review of historical records from 2013 to 2018. This MDD of 4.78 MLD was selected as the 2018 baseline value for future growth projections. The MDD peaking factor was determined by dividing the MDD value (55.3 L/s) by the average daily demand (ADD) value measured from 2015 to 2018 and choosing the highest factor of 1.58, which was considered reasonable for a municipality of Caledonia's size. Therefore the 2018 baseline conditions were 3.02 MLD (35.0 L/s) for ADD and 4.78 MLD (55.3 L/s) for MDD when applying a peaking factor of 1.58.

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study

Caledonia Reservoir and Pumping Station (to be upgraded per Caledonia MSP Update (2020)

Future North Elevated Tank

Future South Elevated Tank

10WBS02 Existing Standpipe

Seneca Creek

Greens Road

Mines Road

McClung Road

Tyneside Road

Haldimand Road 66

Industrial Drive

Argyle Street

Harrison Road

Haldimand Highway 54

Morrison Drive

Orkney Street

Sutherland Street

Williamson Drive

Ross Street

Banff Street

Caithness Street

Oaktree Drive

Maclachlan Avenue

Larry Crescent

Forfar Street

Selkirk Street

Renfrew Street

Wigton Street

Berwick Street

Fife Street

Stirling Street

Haddington Street

McMaster Drive

Tartan Drive

Dunrobin Drive

Kinross Street

Mckenzie Road

Celtic Drive

Morgan Drive

Caledonia Avenue

Caledonia Drive

Fuller Drive

River Drive

Sims Lock Road

River Road

Oneida Road

6th Line

0 1 2 km

- Conceptual Highway 6 Extension
- Conceptual Highway 6 Right-of-Way (90m)
- North Caledonia Employment Lands
- Future Water Facility per Caledonia MSP Update (2020)
- Future Transmission Main per Caledonia MSP Update (2020)

Existing Infrastructure

- Water Treatment Plant
- Booster Station
- Reservoir
- Water Tower
- Transmission Main
- Distribution Main

General Features

- Railways
- Parcels
- Urban Boundary
- Parks
- Woodlot
- Core Natural Environment Areas
- Waterbody and Watercourse
- Municipal Boundary

Figure 4-1

Existing Water Infrastructure

BluePlan Engineering

March, 2023
722015-002
Projection EPSG:26917

4.2.2 Water Demand from Study Area per 2020 CUBE study

The Caledonia Urban Boundary Expansion study (J.L. Richards, December 2020) (henceforth referred to as the 2020 CUBE study) included a 126.2 ha portion of the Study Area as part of its assumed expansion area. This expansion area is identified in **Figure 4-2** as 'Caledonia 1' & 'Caledonia 2'. The remainder of the Study Area includes the southwest portion of the Study Area (46 ha) which was already within the urban boundary as of the completion date of the 2020 CUBE study and the northeast portion of the Study Area (12.2 ha) that was added to the urban boundary post-completion of the 2020 CUBE study. Refer to **Figure 4-2** for the location of the various expansion areas within the Study Area.

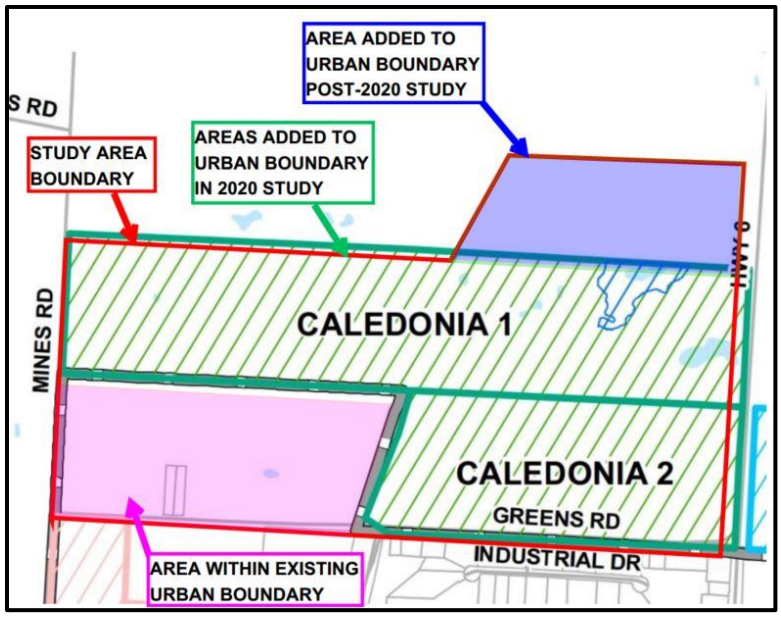


Figure 4-2: Boundary Expansion Areas from 2020 Report

Based on the 2020 CUBE study, an equivalent population of 6,232 persons was assumed for the 126.2 ha areas of 'Caledonia 1' & 'Caledonia 2', or 49.4 people per hectare (pph). An ADD of 1,514 m^3/day (1.51 MLD) and MDD of 2,392 m^3/day (2.39 MLD) was calculated for the 2020 CUBE study, corresponding to the ICI water demand rate of 243 L/capita/day, as assumed for the 2020 CUBE study. These populations and associated water demand projections were used to inform the infrastructure upgrades recommended through the 2020 CUBE study.

4.2.3 Water Demand from Study Area

Future water demand for the Study Area was calculated using the areas and populations noted in **Table 3-2**, and the water design criteria identified in **Table 2-1**. A summary of the projected water demand from the Study Area is provided in **Table 4-1**.

Table 4-1: Water Demand from Study Area

Phase	Equivalent Population (persons)	ADD		MDD	
		MLD	L/s	MLD	L/s
1	1,040	0.38	4.39	0.60	6.94
2	732	0.27	3.09	0.42	4.89
1 & 2	1,772	0.65	**7.48**	1.02	**11.82**

As outlined in **Table 4-1**, a MDD of 11.82 L/s (1.02 MLD) was calculated for the Study Area which is less than the MDD of 27.7 L/s (2.39 MLD) calculated as part of the 2020 CUBE study. The difference was due to the Study Area having a smaller net developable area and a lower population density estimate, albeit with a higher unitary demand rate.

Further details on the calculations for ADD, MDD as well as Fire Flow are provided in **Appendix A**

4.3 External Infrastructure Upgrades

4.3.1 Recommendations per 2020 MSP

The 2020 MSP developed an all pipes model of Caledonia's water system in InfoWater Pro to assess the existing and future demand in the system. As part of the 2020 MSP, the existing system deficiencies were identified, future servicing strategies were evaluated, and a recommended servicing strategy was presented. The recommended servicing strategy included infrastructure upgrades to achieve the 2046 population growth projections. The upgrades are identified on **Figure 4-3** and outlined in **Table 4-2**.

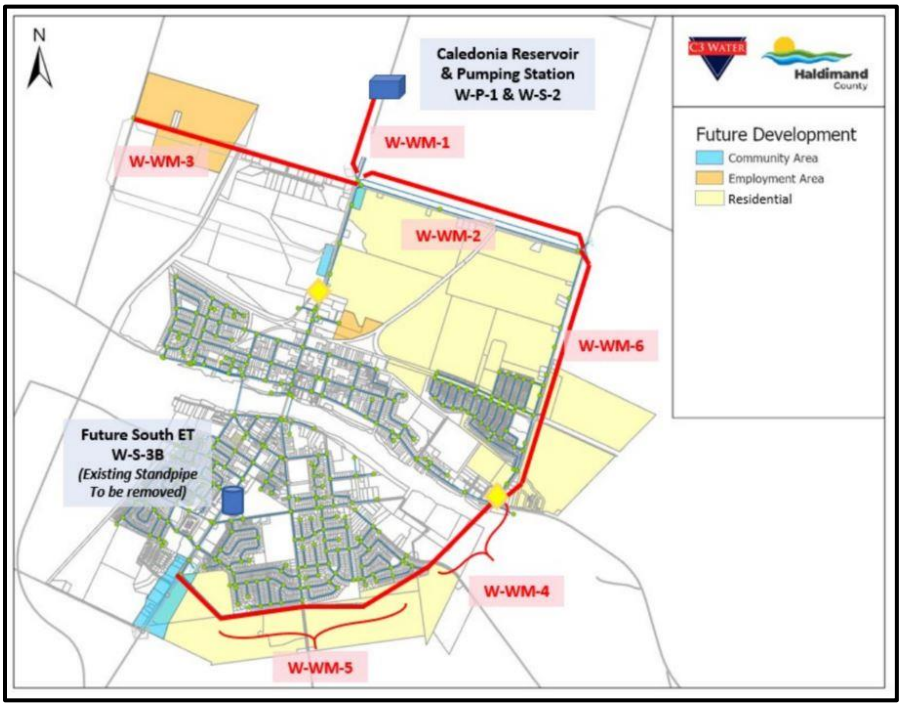


Figure 4-3: Recommended Servicing Strategy from 2020 MSP

Table 4-2: Summary of Infrastructure Upgrades per Recommended Servicing Strategy in 2020 MSP

Project Identifier	Project Description
W-WM-1	Twinning of 450mmø watermain (WM) along Highway 6
W-WM-2	Twinning of 350mmø WM along Haldimand Road 66
W-WM-3	350mmø WM along Greens Road
W-WM-4	300mmø river crossing
W-WM-5	300mmø looped river crossing from River Road to Argyle Street South
W-S-2	Increase in-ground reservoir capacity by 5,000 m^3
W-S-3B	New 5,000 m^3 South Elevated Tank (ET)

Of note, the W-WM-6 project identified on **Figure 4-3** was considered in the 2020 MSP, but not included in the recommended servicing strategy. This project included twinning the 350mmø watermain along McClung Road from Haldimand Road 66 to Caithness Street East. The purpose of the watermain was to service growth along the McClung Road corridor, reduce headloss in the water system to fill the existing standpipe and/or future South ET, and maintain reasonable pressure throughout the system.

4.3.2 Recommendations per 2020 CUBE study

Per the 2020 MSP, the baseline 2018 MDD for Caledonia was identified as 4.78 MLD and was projected to increase to 15.51 MLD by 2046, excluding the urban expansion areas identified in the 2020 CUBE study. The 2020 CUBE study estimated a total MDD of 6.17 MLD for the new expansion areas which would increase the system's MDD to 21.68 MLD by 2046.

In order to provide the additional capacity required within Caledonia's water system for the expansion areas, the CUBE study recommended the following additional infrastructure upgrades in addition to the recommended servicing strategy put forth in the 2020 MSP.

Water Treatment: The current water supply agreement with Hamilton will need to be increased from 13.8 MLD to 21.7 MLD to meet the MDD. Peak hour demands can be supplied by storage within the Caledonia Reservoir and new South Elevated Tank (ET).

Storage: As outlined in the 2020 MSP, there is currently a storage deficit in Caledonia with the current available storage being 4,484 m^3, while 8,648 m^3 is required for the 2018 baseline condition. The 2020 MSP identified a storage volume of 12,000 m^3 required to meet the demands of the 2046 growth projections and recommended the replacement of the existing standpipe with a new 5,000 m^3 South ET and a capacity increase of the Caledonia WTP in-ground reservoir by 5,000 m^3. As the current reservoir has a capacity of 2,004 m^3, the upgrades would increase the system's total capacity to 12,000 m^3. Updated storage calculations were completed as part of the 2020 CUBE study which identified the need for an additional 2,000 m^3 of storage to provide adequate balancing and equalization storage for the expansion areas. It was recommended that the additional 2,000 m^3 be added to the in-ground reservoir at the Caledonia WTP to achieve the total system capacity of 14,000 m^3.

Distribution System: As outlined in the 2020 MSP, distribution system upgrades W-WM-1, W-WM-2, W-WM-3, W-WM-4, and W-WM-5 were proposed to address the population growth projections to 2046. The 2020 CUBE study re-ran the InfoWater Pro model including the expansion areas and identified

impacts to the W-WM-1 and W-WM-2 projects, along with the requirement for the W-WM-6 project (which was identified, but not included, in the recommended servicing strategy put forth in the 2020 MSP). The 2020 CUBE study identified the following upgrades to meet the demand of the expansion areas:

- W-WM-1: Increase watermain diameter from 450mmø to 600mmø
- W-WM-2: Increase watermain diameter from 350mmø to 450mmø
- W-WM-6: Addition of 350mmø watermain along McClung Road

Pressure: The ground elevations in the 'Caledonia 1' and 'Caledonia 2' lands range from approximately 203 metres above sea level (masl) to 213 masl, with some localized areas reaching elevations of 215 m asl. Based on the current water system, an elevation of 210 masl corresponds to the minimum target pressure (40 psi). Therefore, the 2020 CUBE study included the requirement for a booster pumping station to service these lands.

4.3.3 External Infrastructure Upgrades Required for Study Area

Upon review of recommendations of past studies and refinement of the Study Area's constraints, development potential and population growth estimates, the following external infrastructure upgrades were identified through this study to meet the water demand of the Study Area:

Water Treatment: As identified in **Table 4-1**, a MDD of 1.02 MLD was calculated for the Study Area which was less than the MDD of 2.39 MLD calculated as part of the 2020 CUBE study. Therefore, the updated MDD to 2046 is 20.31 MLD [21.68 MLD – (2.39 MLD – 1.02 MLD)]. As such, the current water supply agreement with Hamilton will need to be increased from 13.8 MLD to 20.3 MLD to meet the MDD demands to 2046, including the expansion areas and the updated water demand from the Study Area. Peak hour demands for Caledonia can be supplied by storage within the Caledonia Reservoir and the new South ET.

Storage: Updated storage calculations for the Study Area were completed and summarized in **Appendix B**, along with a comparison of the storage calculations from the 2020 MSP and 2020 CUBE studies. As noted in **Section 4.3.1**, the 2020 MSP recommended a storage capacity increase of 5,000 m^3 to the existing Caledonia WTP in-ground reservoir to achieve a total storage volume of 7,000 m^3. A new 5,000 m^3 South ET was also recommended to replace the existing standpipe for a total system storage capacity of 12,000 m^3 to meet demands to 2046. The 2020 CUBE study recommended that an additional 2,000 m^3 of balancing and equalization storage was required for the expansion areas for a total system storage capacity of 14,000 m^3. It was recommended that this additional storage be added to the in-ground reservoir at the Caledonia WTP. Based on the population density identified for the Study Area, the updated additional storage required for the Study Area is 1,502 m^3 for a total system storage requirement of 13,502 m^3 to 2046 including the expansion areas. Similar to the recommendations of the 2020 CUBE study, it is recommended that this storage be added to the in-ground reservoir at the Caledonia WTP.

Distribution: As identified in Section 4.3.1, an upgrade to the W-WM-1 & W-WM-2 projects, along with the inclusion of the W-WM-6 project, was required to service the expansion areas per the 2020 CUBE study. Based on the anticipated water demand of the Study Area and to ensure future growth potential,

these projects will continue to be recommended. W-WM-3 is also required for the development of the Study Area.

Pressure: As previously noted, the ground elevation of the Study Area ranges from approximately 203 masl to 213 masl, with some localized areas reaching elevations of 215 masl. The current water system experiences pressure deficiencies for properties exceeding 210 masl. Based on the anticipated land use for the Study Area, it is expected that re-grading will be required, and the elevation of the majority of the Study will remain below 213 masl. In order to ensure flexibility in the future development potential of the Study Area, ensuring sufficient water pressure for a range of water demands is critical. Therefore, a booster pumping station is recommended to service the Study Area. Preliminary pumping station sizing: ~107 L/s (12 L/s MDD + 95 L/s Fire Flow), however, details on pump sizing and firm capacity should be confirmed/finalized during subsequent development analysis.

4.4 Proposed Internal Infrastructure

As identified on **Figure 4-4**, the internal water system will consist of a network of local 300mmø watermains (sizing to be confirmed at detailed design) located within future road right-of-ways or easements, with connections to the future trunk watermains on Highway 6, Greens Road, and Haldimand Road 66.

Parcels within Phase 1 of the Study Area will be serviced by a local watermain extension, which will extend from the local watermain in the future local road located in Phase 2, through an easement to the future local road in Phase 1. The easement will cross the future Highway 6 corridor and the watermain within this future MTO corridor will be steel encased. The local watermain will follow the local road in Phase 1 and connect to the future 350mmø watermain (W-WM-3) on Greens Road via an extension of the local watermain on Mines Road. A valve chamber (c/w bleeder valves) will be located at the connection between the local and trunk watermain at Greens Road and Mines Road to ensure adequate water circulation between the varying pressure boundaries.

Parcels within Phase 2 of the Study Area will also be serviced by a local watermain extension, located in an easement and the future local road in Phase 2. The local watermain will connect to the future 600mmø watermain (W-WM-1) on Highway 6, at the intersection of Haldimand Road 66 and approximately 880 m north of that intersection. Water pressure for the Study Area will be boosted by the proposed booster pumping station (BPS) located at the intersection of the local road in Phase 2 and Highway 6. The second connection to W-WM-1 at the intersection of Haldimand Road 66 and Highway 6 will include a valve chamber with bleeder valves to ensure adequate water circulation between the different pressure boundaries.

If construction of the internal water infrastructure is phased, looping of the internal watermain system should be considered to minimize dead ends where possible. If a dead end is required, regular flushing of the system may be required to maintain suitable water quality levels.

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study

Seneca Creek

Greens Rd

Mines Rd

Caledonia Reservoir and Pumping Station

Phase 1

Phase 2

T/G = 210.0 ±

T/G = 208.0 ±

T/G = 205.0 ±

T/G = 209.0 ±

T/G = 210.0 ±

T/G = 203.0 ±

B1

C1

C2

C3

C4

C5

C6

C7

C8

Watermain located in 12m width servicing easement

Watermain located in 12m width servicing easement

Watermain located in Mines Rd

Greens Rd

Greendale Dr

Industrial Dr

Haldimand Road 66

Argyle St N

6

6

0 250 500 m

General Features

- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Culverts
- Existing Stormwater Pond
- Wetland
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Existing Infrastructure

- Reservoir and Pumping Station
- Transmission Mains
- Watermain

Proposed Conditions

- Booster Pumping Station
- Local Watermain
- Future Transmission Main (per 2020 MSP)
- Servicing Easements
- Booster Pumping Station Area
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Proposed Stormwater Pond
- Conceptual Primary Gateway
- Development Block
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)

Figure 4-4

Proposed Water Infrastructure

BluePlan ENGINEERING

February 2023
722015-003
Projection EPSG:26917

5. WASTEWATER INFRASTRUCTURE

5.1 Existing Infrastructure

As outlined in the 2020 MSP, the Caledonia wastewater system includes one (1) Wastewater Treatment Plant (WWTP), seven (7) sewage pump stations (SPSs), and a wastewater collection system. With the exception of several industrial properties located in the northwest area of Caledonia, including the properties on Industrial Drive and within the Study Area (186, 200, 202 Greens Road), all properties are serviced by municipal wastewater. Refer to **Figure 5-1** for the existing wastewater infrastructure within Caledonia.

5.1.1 Wastewater Treatment Plant

The Caledonia WWTP is located south of the Grand River in Caledonia and treats all wastewater flows from North and South Caledonia. The WWTP receives flows from North Caledonia via the Nairne SPS which pumps sewage across the Grand River via twin 300 mm diameter forcemains. Sewage from South Caledonia either flows by gravity to the Caledonia WWTP or is pumped by the Paisley SPS to a gravity main that flows to the plant. The WWTP has an on-site pumping station known as the Main SPS which has a rated capacity of 7.2 MLD. The plant uses a conventional activated sludge (CAS) system with biosolids used for land application and discharges treated effluent to the Grand River. The plant is owned by the County and currently operated by Veolia Water.

Haldimand County

North Caledonia Employment Lands
Feasibility and Servicing Study

- Conceptual Highway 6 Extension
- Conceptual Highway 6 Right-of-Way (90m)
- North Caledonia Employment Lands

Proposed Sanitary Infrastructure

- Future Sanitary Main per Caledonia MSP Upd
- Undersizied Sewer per MSP 2020
- Conceptual Caledonia WWTP (New) Phased Expansion (per Caledonia MSP Update (2020))

Existing Infrastructure

- Wastewater Treatment Plant
- Sanitary Pumping Station (SPS)
- Sanitary Force Main
- Sanitary Mains

General Features

- Railways
- Parcels
- Urban Boundary
- Parks
- Woodlot
- Core Natural Environment Areas
- Waterbody and Watercourse
- Municipal Boundary

Figure 5-1

Existing Wastewater Infrastructure

BluePlan Engineering

May, 2023
722015-002
Projection EPSG:26917

0 1 2 km

5.1.2 Pumping Stations

The County has seven (7) SPSs, which are summarized in **Table 5-1**. The SPSs are owned by the County and operated by Veolia Water.

Table 5-1: Summary of Sewage Pumping Stations in Caledonia

Facility	Status	Rated Capacity (L/s)	Firm Capacity (L/s)
North			
Nairne SPS	Active; opened in 1990	207	138
McClung SPS	Active; opened in 2017	230[Note 1]	115[Note 2]
Orkney SPS	Active; opened in 1975	Unknown	Unknown
Kincardine SPS	Active; opened in 1960	27	14
Domtar SPS	To be decommissioned once Gateway SPS comes online	18	9
Gateway SPS	Substantially completed in 2022	200	100[Note 3]
South			
Main SPS	Active	293	114[Note 4]
Paisley SPS	Active; opened in 1975	104	50[Note 5]

Note 1: Requires verification per 2020 MSP.
Note 2: McClung SPS designed for an ultimate firm capacity of 160 L/s per 2020 MSP.
Note 3: Gateway SPS designed for an ultimate firm capacity of 150 L/s per 2020 MSP. The station is expandable to an estimated maximum capacity of 300 L/s per the Caledonia North SPS Design Basis TM (WSP, 2019)
Note 4: Based on the Capacity Evaluation of the Main SPS completed by Wood in 2018. The capacity does not include upstream flow equalization from the equalization tank at the WWTP (Wood, 2018).
Note 5: Based on the firm capacity identified in ECA. The Capacity Evaluation of the Paisley SPS completed by Wood in 2018 identified a firm capacity of 54 L/s.

As noted, the Nairne SPS pumps the wastewater flows generated from North Caledonia via 300mm diameter twin forcemains that join into a singular 300mm diameter forcemain across the river directly to the Caledonia WWTP. As identified in **Table 5-1**, there are four other SPSs located in North Caledonia which all pump to gravity mains that drain to the Nairne SPS.

The Paisley SPS collects wastewater flows from the southwest area of Caledonia and pumps via forcemain to the east gravity system on Haddington Street, which drains to the Caledonia WWTP. The remainder of the lands in South Caledonia drain by gravity to the Main SPS, which is located on the WWTP site.

5.1.3 Gateway Sewage Pumping Station

In March 2020, WSP completed the detailed design for the Gateway Sewage Pumping Station (SPS) and in April 2022, the County deemed the station construction substantially complete. As per the design report, the following design parameters apply to the station:

- New ±150 L/s SPS with a type 3 wet well configuration per the County's Design Standards

- Four (4) wet well submersible pumps (3 duty and 1 standby) with Variable Frequency Drive (VFD)
- Wet well with two (2) cells to provide approximately half-hour of emergency storage and a combined 1-hour of system emergency storage at 150 L/s
- An emergency overflow into a nearby SWM pond, if required
- 765 m length of 300mmø twin forcemain system along Argyle Street discharging from the new station into the existing sanitary sewer south of the existing Domtar SPS

The Gateway SPS is located at 350 Argyle Street North at an approximate elevation of 199.50 m asl. The wet well depth is approximately 15 to 16 metres deep and the inlet sewer enters the wet well at approximately 12.5 metres below grade (invert elevation = ~186.50 m asl).

5.2 Wastewater Flows

5.2.1 Study Area per 2020 MSP

Per the modelling completed to support the 2020 MSP, an existing average dry weather flow (ADWF) of 3.3 MLD (or 38.3 L/s) was identified for Caledonia as the 4-year average from 2016 to 2019. In order to calculate future treatment flows, a peaking factor of 3.0 and a per capita sewage generation rate of 338 L/capita/day was selected.

As reflected in **Figure 5-2**, a portion of the Study Area and an area south of Greens Road (identified as the 'North West Employment Area') is located in the urban boundary identified in the 2020 MSP. The 2020 MSP identified an equivalent population growth of 2,889 persons for this area from 2021 to 2046.

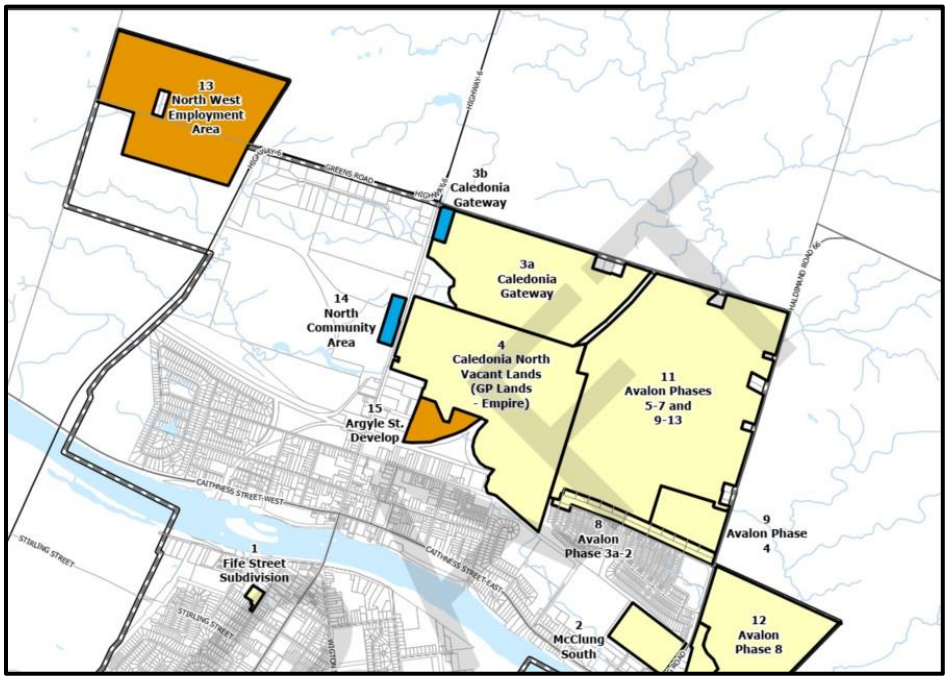


Figure 5-2: Caledonia Urban Boundary per 2020 MSP

Table 5-2 provides a summary of the projected wastewater treatment flows that the Caledonia WWTP will need to treat to 2046 per the 2020 MSP.

Table 5-2: Future Wastewater Treatment Flows per 2020 MSP

	Average Daily Flow (MLD)	Maximum Daily Flow (MLD)
2021	3.7	11.0
2031	8.0	24.0
2046[Note 1]	9.7	29.0

*Note 1: Represents build-out conditions to the urban boundary identified in the 2020 MSP (refer to **Figure 5-2**) less 400 potential units in Caledonia South Vacant Lands which are available to develop beyond 2046.*

As identified in **Table 5-2**, the average daily flow for treatment design purposes is 9.7 MLD to 2046 which exceeds the Caledonia WWTP's firm capacity of 7.2 MLD. The 2020 MSP estimates that the Caledonia WWTP will reach its rated capacity by 2029. As outlined in the 2020 MSP, the preferred alternative for accommodating future treatment flows is to construct a new 9.7 MLD WWTP on the north side of the Grand River, while continuing to operate the existing 7.2 MLD Caledonia WWTP until the end of its service life.

5.2.2 Wastewater Flows from Study Area per 2020 CUBE study

The 2020 CUBE study included a 126.2 ha portion of the Study Area as part of its assumed expansion area. This expansion area is identified in **Figure 4-2** as 'Caledonia 1' & 'Caledonia 2'. The remainder of the Study Area includes the southwest portion of the Study Area (46 ha) which was already within the urban boundary as of the completion date of the 2020 CUBE study and the northeast portion of the Study Area (12.2 ha) that has been added to the urban boundary post-completion of the 2020 CUBE study. Refer to **Figure 4-2** for the location of the various expansion areas within the Study Area.

Based on the 2020 CUBE study, an equivalent population of 6,232 persons was assumed for the 126.2 ha areas of 'Caledonia 1' & 'Caledonia 2', or 49.4 pph. An ADWF of 1,514 m^3/day (17.5 L/s) was calculated for the 2020 CUBE study. Future treatment flows for Caledonia '1' & Caledonia '2' were estimated at rates of 2,107 m^3/day (24.4 L/s) for Average Daily Flow (ADF) and 6,319 m^3/day (73.1 L/s) for Maximum Daily Flow (MDF), based on a peaking factor of 3. These populations and associated wastewater generation flow projections were used to inform the infrastructure upgrades recommended through the 2020 CUBE study.

5.2.3 Wastewater Flows from Study Area per 2019 'Caledonia North Sewage Pumping Station Design Basis' Technical Memorandum

The Caledonia North Sewage Pumping Station Design Basis Technical Memorandum (TM) (WSP, September 13, 2019) was completed to outline the detailed design of the Caledonia North SPS, or Gateway SPS as it was referred to in previous master planning studies. For the purposes of this report, it will be referred to as the Gateway SPS TM. The Gateway SPS TM also outlined the construction of a forcemain on Argyle Street North and identified the decommissioning of the existing Domtar SPS and associated forcemain system.

The Gateway SPS TM identified several sewersheds that will be tributary to the station, which are identified in **Figure 5-3** and summarized in **Table 5-3**. As shown in **Figure 5-3**, approximately 33 hectares of the Study Area was identified as a portion of the service area identified for future Light Industrial

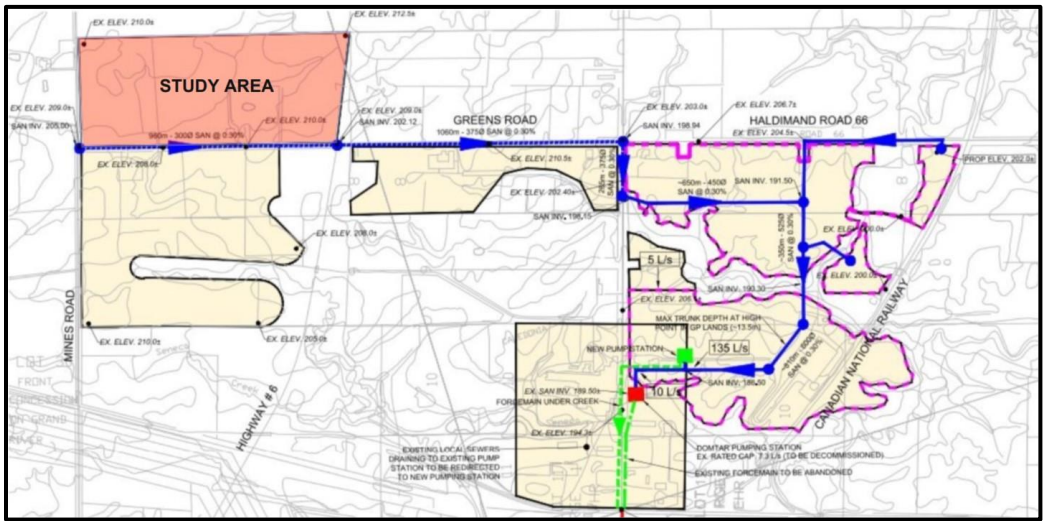


Figure 5-3: Gateway SPS Service Areas per Gateway SPS TM

uses. As identified in **Table 5-3**, this area corresponded to a population of 1,089 person (at an assumed population density of 33 people/ha) and a peak flow rate of 25.0 L/s.

The Gateway SPS detailed design report applied the Harmon Peaking Factor, a sanitary flow rate of 365 L/capita/day, and an infiltration allowance of 0.23 L/s/ha, which is reflected in the design criteria identified in **Table 2-2**. As summarized in **Table 5-3**, the firm capacity for the station was based on conveying wastewater flows from the proposed commercial and residential development east of Argyle Street North, existing wastewater flows form the Domtar SPS, future development on Slack Developments land, and wastewater flows from future Light Industrial lands, some of which included the Study Area.

Table 5-3: Summary of Service Areas to Gateway SPS per Gateway SPS TM

Gateway SPS Service Area	Equivalent Population (persons)	Tributary Area (ha)	Average Dry Weather Flow (ADWF) (L/s)	Peaking Factor (PF)	I&I Allowance (L/s)	Peak Flow (L/s)
Caledonia Gateway community and Georgia Pacific community	4,082	48.65	17.2	3.3	11.2	68.0
Slack Developments land	292	2.16	0.9	4.1	0.5	4.2
Light Industrial lands	2,919	88.44	12.3	3.5	20.3	62.7
Study Area	**1,089**	**~33.0**	**4.6**	**3.7**	**7.6**	**25.0**
Existing Domtar SPS service area	N/A	N/A	N/A	N/A	N/A	7.3
					Required Station Capacity (L/s)	**142.2**
					Provided Station Capacity (L/s)	**150.0**

It was also identified in the Gateway SPS TM that the County has future plans to expand the urban boundary north along Highway 6 therefore the station was designed to be modular, with expansion capacity up to 300 L/s. The following features associated with the expansion were identified:

- Twin wet well, complete with 2 pumps per wet well with separate discharge headers connecting into each respective forcemain. This enables each wet well to be upgraded with larger pumps, and larger discharge piping and valves, while the opposite wet well and forcemain configuration remains in service during the upgrade.
- Exterior generator can be twinned, or a larger generator installed in the event of a capacity upgrade.
- Motor control centre can be upgraded or replaced in the event of a capacity upgrade.
- Electrical, instrumentation and control, as well as process mechanical upgrades would be required for a capacity upgrade. However, no major civil or structural upgrades would be required to facilitate a capacity upgrade.

It is of note that there would be a 50% loss of emergency storage capacity if the peak flow rated capacity was doubled from 150 L/s to 300 L/s.

5.2.4 Wastewater Flows from Study Area

Future wastewater flows generated from the Study Area were calculated using the net developable areas and equivalent populations noted in **Table 3-2**, along with the wastewater design criteria applicable to each component of the wastewater system. As identified in **Table 2-2**, there are differing design criteria applicable to the capacities of the treatment system (Caledonia WWTP), pumping system (Gateway SPS & forcemain), and conveyance (trunk sewers). The wastewater flows associated with each wastewater system component are identified below:

Treatment Capacity: As noted in **Table 2-2**, the sewage generation rate associated with treatment capacity is 338 L/capita/day with a daily peaking factor of 3.0. The sewage flows associated with these design criteria are outlined in **Table 5-4**.

Table 5-4: Caledonia WWTP - Wastewater Flows from Study Area

Phase	Equivalent Population (persons)	Average Daily Flow (ADF) (L/s)	Peaking Factor	Maximum Daily Flow (MDF) (L/s)
1	1,040	4.1	3.0	12.2
2	732	2.9	3.0	8.6
1 & 2	1,772	6.9	3.0	20.8

As noted in **Table 5-4**, the Study Area will require a wastewater treatment allocation of 0.6 MLD (or 6.9 L/s) for ADF and 1.8 MLD (or 20.8 L/s) for MDF from the Caledonia WWTP or a new WWTP.

Conveyance Capacity: As noted in **Table 2-2**, the peaking factor when sizing the collection system is based on a modified Harmon formula, a sanitary flow rate of 365 L/capita/day, and an infiltration allowance of 0.23 L/s/ha. The sewage flows associated with these design criteria are outlined in **Table 5-5**.

Table 5-5: Gateway SPS & Forcemain - Wastewater Flows from Study Area

Phase	Equivalent Population (persons)	Sewershed Area (ha)	ADWF (L/s)	Peaking Factor	I&I Allowance (L/s)	Peak Flow (L/s)
1	1,040	69.3	4.4	3.0	15.9	29.3
2	732	48.8	3.1	3.1	11.2	20.8
1 & 2	1,772	118.1	7.5	2.9	27.2	48.9

As noted in **Table 5-5**, the Study Area will require a conveyance system capable of conveying peak flows of 48.9 L/s. This requirement applies to the pumping capacity of the Gateway SPS and forcemain system. As identified in **Table 5-3**, the station's design report included approximately 25.0 L/s of pumping capacity for a portion of the Study Area, therefore a further allocation or expansion of **23.9 L/s** at the Gateway SPS is required to accommodate the Study Area.

5.3 External Infrastructure Upgrades

5.3.1 Recommendations per 2020 MSP

The 2020 MSP developed a steady state pipe-by-pipe model of Caledonia's wastewater conveyance system in PCSWMM to assess the existing and future demand in the system. As part of the 2020 MSP, existing system deficiencies were identified. The system deficiencies specific to the Study Area are listed below:

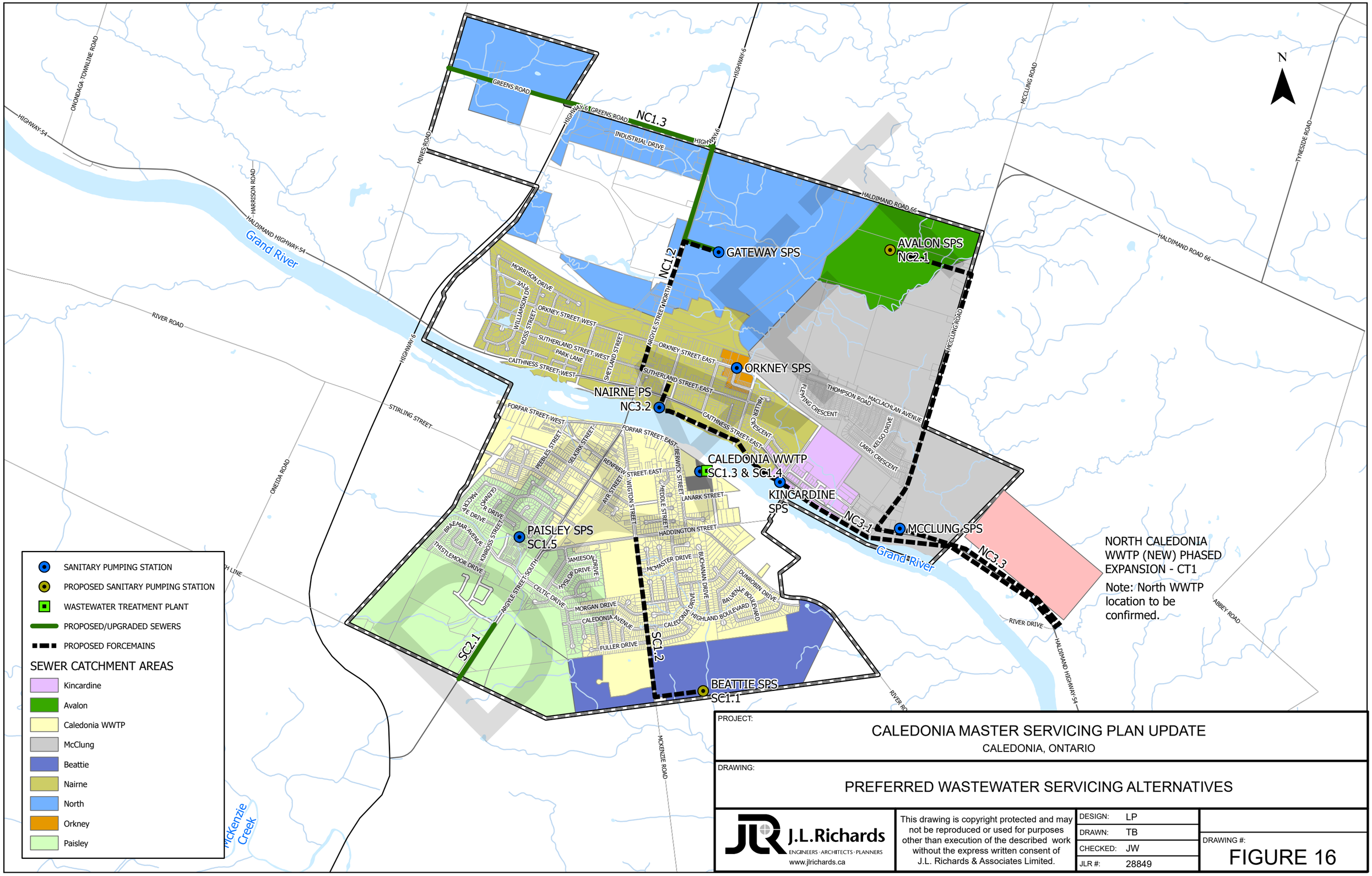
- Wastewater treatment capacity: the existing WWTP will reach its rated capacity by 2029.
- Nairne SPS: the existing SPS will reach its capacity by 2028.
- Sewers on Argyle Street North, Sutherland St. E., W. Edinburgh Square, and Caithness St. E. will require upsizing to accept additional flows from the Gateway SPS.

Future servicing strategies were evaluated and a recommended servicing strategy was presented. The recommended servicing strategy includes infrastructure upgrades to achieve the 2046 population growth projects. The upgrades relevant to the Study Area are outlined in **Table 5-6** and identified on **Figure 5-4**.

Table 5-6: Summary of Infrastructure Upgrades per Recommended Servicing Strategy in 2020 MSP

Project Identifier	Project Description	Cost Estimate (2020$)	Estimated Completion Timing
NC1.1	Gateway SPS	Complete	-
NC1.2	Forcemain from Gateway SPS to downstream sewer and upgrades to downstream gravity sewer to Nairne SPS	$2.8M	2020
NC1.3	Collector sewer from Gateway SPS to Study Area (Greens Road and Highway 6) (250mmø – 3.1 km in length)	$3.5M	2023
CT1.1	New WWTP (including land acquisition & cost for Class EA)	$54.7M	2028
NC3.1	Forcemain extension from Nairne SPS to new WWTP	$1.6M	2028
NC3.2	Upgrade Nairne SPS (inc. pump and pipe upgrades, and labour costs)	$0.7M	2028

Note: Cost estimates include 30% contingency and 12% engineering costs.



PROJECT:

CALEDONIA MASTER SERVICING PLAN UPDATE

CALEDONIA, ONTARIO

DRAWING:

PREFERRED WASTEWATER SERVICING ALTERNATIVES

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS
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DESIGN:	LP
DRAWN:	TB
CHECKED:	JW
JLR #:	28849

DRAWING #: FIGURE 16

File Location: P:\28000\28849-000 - Caledonia Master Plan\3-Production\1-Civil\28849-003 FIGURE 16.aprx

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5.3.2 Recommendations per 2020 CUBE study

As identified in the 2020 MSP, the baseline 2021 Maximum Daily Flow (MDF) for Caledonia is 11.0 MLD which is projected to increase to 29.0 MLD by 2046, excluding the urban expansion areas identified in the 2020 CUBE study. The 2020 CUBE study estimated a total MDF of 16.3 MLD for the new expansion areas which would increase the system's MDF to 45.3 MLD by 2046. In order to provide the additional capacity required within Caledonia's wastewater system for the expansion areas, the CUBE study recommended the following additional infrastructure upgrades in addition to the recommended servicing strategy put forth in the 2020 MSP.

Wastewater Treatment: The baseline 2021 Average Daily Flow (ADF) for Caledonia is 3.7 MLD. It was projected to increase to 9.7 MLD by 2046 per the 2020 MSP with the 2020 CUBE study identifying an additional ADF of 5.5 MLD for the expansion areas, thereby requiring an ADF of 15.2 MLD to 2046 for wastewater treatment design purposes.

Pumping and Collection System: As outlined in the 2020 MSP, the Nairne SPS was identified to reach its capacity by 2028 and the trunk sewers on Argyle Street North, Sutherland St. E., W. Edinburgh Square, and Caithness St. E. will require upsizing to accept additional flows from the Gateway SPS. The 2020 CUBE study re-ran Caledonia's PCSWMM model, including the expansion areas, to determine peak flows within existing and future pumping stations, forcemains, and gravity sewers. The following upgrades were identified to meet the demand of the expansion areas:

- Nairne SPS: Increase of build-out peak flows from 160 L/s (2020 MSP) to 260 L/s (2020 CUBE study) & increase in forcemain diameter from 2020 MSP.
- Gateway SPS: Increase of build-out peak flows from 103 L/s (2020 MSP) to 204 L/s (2020 CUBE study)
- Trunk sewers on Argyle Street North, Sutherland Street East, West Edinburgh Square, and Caithness Street East: Increased upsizing of sewers from requiring a 450 mm diameter sewer (2020 MSP) to a 525 mm diameter sewer (2020 CUBE study).
- Trunk sewer from Gateway SPS to Study Area: Increase sewer diameter from 250 mm to 450 mm.

5.3.3 External Infrastructure Upgrades Required for Study Area

Upon completion of the updated population growth estimates for the Study Area, the following external infrastructure upgrades were identified to meet the wastewater flow projections of the Study Area.

Wastewater Treatment: As identified in Section 5.3.2, the 2020 MSP identified that the ADF for Caledonia is anticipated to increase from 3.7 MLD in 2021 to 9.7 MLD by 2046. The 2020 CUBE study identified an additional ADF of 5.5 MLD for the expansion areas, thereby increasing the ADF to 15.2 MLD by 2046. This study updated the growth projections for the Study Area which involved updated wastewater treatment flow projections for the Study Area and Caledonia as a whole. Refer to **Table 5-7** for a summary of the wastewater treatment flow projections calculated for the Study Area, and Caledonia, based on the growth projections identified in the 2020 MSP, the 2020 CUBE, and this study.

Table 5-7: Summary of Wastewater Treatment Flow Projections

Study	Flow Projection	Areas	2021	2031[1]	2046
2020 MSP (Assumed population of 2,889 persons for portion of Study Area. Estimated 70% of North West Employment Area in Study Area, therefore a population of 2,022 was assumed)	Average Daily Flow (MLD)	Entire Area	3.7	8.0	9.7
		Study Area	0.0	0.5	**0.7**
	Maximum Daily Flow (MLD)	Entire Area	11.0	24.0	29.0
		Study Area	0.0	1.5	**2.1**
2020 CUBE study (Assumed population of 6,232 persons for Study Area)	Average Daily Flow (MLD)	Entire Area	3.7	11.9	15.2
		Study Area	0.0	1.5	**2.1**
	Maximum Daily Flow (MLD)	Entire Area	11.0	35.8	45.3
		Study Area	0.0	4.6	**6.3**
North Caledonia Employment Lands Feasibility Study (Assumed population of 1,772 persons for Study Area)	Average Daily Flow (MLD)	Entire Area	3.7	10.4	13.1
		Study Area	0.0	0.4	**0.6**
	Maximum Daily Flow (MLD)	Entire Area	11.0	31.0	38.7
		Study Area	0.0	1.3	**1.8**

Note 1: 2031 values were interpolated based on growth rates identified in 2020 MSP.

As shown in **Table 5-7**, the 2020 MSP assumed an estimated population of 2,022 persons for a 46.0 ha portion of the Study Area while the 2020 CUBE study assumed a population of 6,232 persons for a separate 126.2 ha portion of the Study Area. This study identifies a total population of 1,772 persons for the entire Study Area, which is a reduction of 6,482 persons [(2,022 + 6,232) – 1,772] from the estimates for the Study Area provided in the 2020 MSP & CUBE studies. Therefore, the ADF & MDF for wastewater treatment flows in Caledonia to 2046 is reduced to 13.1 MLD and 38.7 MLD, respectively. This update will be reflected in the required sizing of the new WWTP.

Conveyance: As identified in **Figure 5-4** and summarized in **Table 5-6**, conveyance of sewage flows from the Study Area was recommended by the 2020 MSP to be accomplished through the following infrastructure projects or upgrades:

- Forcemain extension from new WWTP to Nairne SPS
- Nairne SPS upgrades (pumps, etc.)
- Sewer upgrades upstream of Nairne SPS & forcemain extension to Gateway SPS
- Gateway SPS
- Trunk sewer from Gateway SPS to Study Area

The 2020 MSP infrastructure projects identified in **Table 5-6** were updated through the 2020 CUBE study to include the expansion areas. The required upgrades are summarized in Section 5.3.2, however these upgrades are based on the population growth estimates assumed in the 2020 MSP and 2020 CUBE studies which as previously noted are overestimated by 6,482 persons for the Study Area. Refer to **Table 5-8** for a summary of the wastewater collection system flow projections calculated for the Study Area based on the growth projections identified in the 2020 MSP, the 2020 CUBE study, and this study.

Table 5-8: Summary of Wastewater Collection System Flow Projections from the Study Area

Study	Equivalent Population (persons)	Sewershed Area (ha)	ADWF (L/s)	Peaking Factor	I&I Allowance (L/s)	PWWF (L/s)
2020 MSP	2,022	46.0	8.5	3.6	10.6	41.2
2020 CUBE Study	6,232	126.2	26.3	3.2	29.0	112.1
2019 Gateway SPS TM	1,089	33.0	4.6	3.8	7.6	25.0
North Caledonia Employment Lands Feasibility Study	**1,772**	**118.1**	**7.5**	**2.9**	**27.2**	**48.9**

Based on the updated flow projections for the wastewater collection system, refer to **Table 5-9** for the recommended external upgrades to accommodate the flows from the Study Area.

Table 5-9: Summary of Wastewater Collection System Upgrades

Project Identifier	Project Description	Project Status	2020 MSP Recommendation	2020 CUBE Study Recommendation	North Caledonia Employment Lands Feasibility Study
NC1.1	Gateway SPS	Complete; station currently has 150 L/s firm capacity; expandable to 300	Expected peak flow of 103 L/s.	Expected peak flow of 204 L/s; expand SPS to accommodate.	Expected peak flow of 141 L/s; does not require expansion.
NC1.2	Gateway SPS Forcemain and Undersized Sewer to Nairne SPS (currently under construction)	Gateway SPS forcemain is constructed as a 300mmø twinned forcemain system. Undersized sewers are currently a 250mmø sewer.	Gateway SPS forcemain is sufficient size. 250mmø sewer to be upsized to 450mmø sewer. Currently under construction.	Carry forward 2020 MSP recommendation.	Carry forward 2020 MSP recommendation.
NC1.3	Collector sewer from Study Area to Gateway SPS	Not constructed.	Recommended as a 250mmø sewer with an approximate length of 3.1 km.	Increase pipe diameter to 450mm.	Reduce pipe diameter to 375mm. Revise length to 1 km within Argyle St. N.
NC3.1	Forcemain extension from Nairne SPS to new WWTP	Not constructed.	Capacity constraints at Nairne SPS anticipated by 2028; implement prior to 2028.	Carry forward 2020 MSP recommendation.	Carry forward 2020 MSP recommendation.
NC3.2	Upgrade Nairne SPS (including pump and pipe upgrades, and labour costs)	Not constructed.	Capacity constraints at Nairne SPS anticipated by 2028; implement prior to 2028.	Carry forward 2020 MSP recommendation.	Carry forward 2020 MSP recommendation.
CT1.1	New North WWTP (including land acquisition)	Not constructed.	Build-out design flow of 9.7 MLD.	Build-out design flow increases from 9.7 MLD to 15.2 MLD.	Build-out design flow decreases to 13.1 MLD.

5.4 Proposed Internal Infrastructure

As identified on **Figure 5-5,** the internal wastewater system will consist of a network of local 375mmø sewers (sizing to be confirmed at detailed design) located within future road right-of-ways or easements. The local system will discharge flows to the trunk sewer extension on Argyle Street North, which will terminate at the intersection of Argyle Street North and Haldimand Road 66. As identified on **Figure 5-5**, the wastewater conveyance system has been laid out to allow the connection of future sewers to convey sewage flows from the existing properties south of the Study Area, on Industrial Drive. Confirmation of sewer sizing should be completed at detailed design to ensure adequate conveyance upon determination of inclusion or exclusion of the sewage flows from Industrial Drive.

Haldimand County

North Caledonia Employment Lands
Feasibility and Servicing Study

Seneca Creek
Greens Rd
Mines Rd
Greendale Dr
Industrial Dr
Haldimand Road 66
Argyle St N
6

Phase 1
Phase 2

T/G = 210.0 ±
T/G = 208.0 ±
T/G = 205.0 ±
T/G = 205.0±
Inv. = 195.00
T/G = 209.0±
Inv. = 198.20
T/G = 211.3±
Inv. = 195.40
T/G = 208.0±
Inv. = 198.00
T/G = 209.0 ±
T/G = 210.0 ±
Local sanitary main
located in 12m width
servicing easement
T/G = 212.0±
Inv. = 192.70
Local sanitary main
located in 12m width
servicing easement
T/G = 210.0±
Inv. = 191.40
T/G = 207.0±
Inv. = 190.95
T/G = 202.0±
Inv. = 189.96
T/G = 203.0±
Inv. = 189.57
T/G = 208.0±
Inv. = 192.36
T/G = 207.0±
Inv. = 191.85
T/G = 202.0±
Inv. = 192.85
Creek Bed = 198.00±
Pipe Obv. = 189.33
T/G = 201.0±
Inv. = 189.40
T/G = 202.0±
Inv. = 188.82
T/G = 199.40
Inlet Sewer Inv. = 187.00
Gateway SPS
Domtar PS
(Decommissioned)
Twinned 300m
diameter
forcemains

0 250 500 m

General Features
- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Stormwater Pond
- Wetland
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Existing Infrastructure
- Sanitary Pumping Station (SPS)
- Sanitary Forcemain
- Sanitary Mains

Proposed Conditions
- 375mm Sanitary Main (Average 0.3% Slope)
- Optional Future Sanitary Main (Average 0.3% Slope)
- Sanitary Servicing Junction
- Optional Future Sanitary Servicing Junction
- Servicing Easements
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Proposed Stormwater Pond
- Development Block
- Conceptual Primary Gateway
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)

Figure X-X

Proposed Wastewater Infrastructure

BluePlan ENGINEERING

February 2023
722015-003
Projection EPSG:26917

6. STORMWATER INFRASTRUCTURE

6.1 Existing Infrastructure

As the Study Area is primarily agricultural, there is limited stormwater infrastructure (ponds, sewers, etc.) within the Study Area with surface drainage conveyed overland and through creeks or swales to existing outlets at the limits of the Study Area. Refer to **Figure 6-1** for the existing stormwater infrastructure within Caledonia.

There is a stormwater management (SWM) pond located north of Greens Road, approximately 250 metres east of Mines Road, which collects drainage from a portion of the Study Area. There are eight (8) culverts and one (1) bridge on the perimeter roads which facilitate drainage from and through the Study Area; which are identified on **Figure 3-1**. The existing perimeter roads (Mines Road, Greens Road, Highway 6) all have rural cross-sections including roadside ditches and driveway culverts to facilitate drainage.

6.2 Existing Drainage Areas

The Study Area is located in the Seneca Creek watershed and contains six sub-catchments which drain to tributaries of Seneca Creek, which subsequently drain to the Grand River.

The pre-development drainage catchments, along with the relevant hydraulic structures (bridges, culverts, etc.), are identified on **Figure 1-2** with additional details provided in **Table 6-1**.

Haldimand County

North Caledonia Employment Lands
Feasibility and Servicing Study

- Conceptual Highway 6 Extension
- Conceptual Highway 6 Right-of-Way (90m)
- North Caledonia Employment Lands

Existing Infrastructure

- Storm Mains
- Stormwater Pond
- Pre-Development Drainage Catchment

General Features

- Railways
- Parcels
- Urban Boundary
- Parks
- Woodlot
- Grand River Conservation Authority Regional Floodline
- Grand River Conservation Authority Regulation Limit
- Significant Natural Heritage Features
- Wetland
- Core Natural Environment Areas
- Waterbody and Watercourse
- Municipal Boundary

0 1 2 km

Figure 6-1

Existing Stormwater Infrastructure

BluePlan Engineering

May, 2023
722015-002
Projection EPSG:26917

Table 6-1: Pre-development Drainage Areas

Catchment ID	Catchment Area (ha)	Catchment Outlet	Additional Notes:
101	69.4	Tributary to Seneca Creek via Culvert 2 (C2)	C1 & C3 convey external drainage from west of Mines Road into the Study Area, which is conveyed through the Study Area via existing creeks to C2 which outlets to the Seneca Creek tributary
102	10.6	Tributary to Seneca Creek via Culvert 4 (C4)	
103	53.0	Seneca Creek	Several hydrologic features within this catchment including wetlands. Bridge 1 (B1) conveys Seneca Creek under Hwy 6.
104	29.8	Tributary to Seneca Creek via Culvert 7 (C7)	Several hydrologic features within this catchment including wetlands and creeks. C7 conveys drainage from the Study Area via a creek east of the Study Area which then crosses Highway 6 via C6 and ultimately drains to Seneca Creek via C5.
105	7.3	Seneca Creek via Culvert (C5)	Drainage flows overland through Study Area to C5.
106	14.0	Tributary to Seneca Creek via Culvert 8 (C8)	Several hydrologic features within this catchment including wetlands and a creek.
TOTAL:	**184**	-	-

As noted, the majority of the Study Area is agricultural with several residential and commercial properties fronting the perimeter roads. There are also several wooded areas and wetlands throughout the Study Area. Based on a review of the topographic shapefile provided by the County, the Study Area has a generally flat terrain with typical slopes of approximately 2%. There are localized areas with steeper terrain exceeding a 5% slope.

6.3 Proposed Drainage Areas

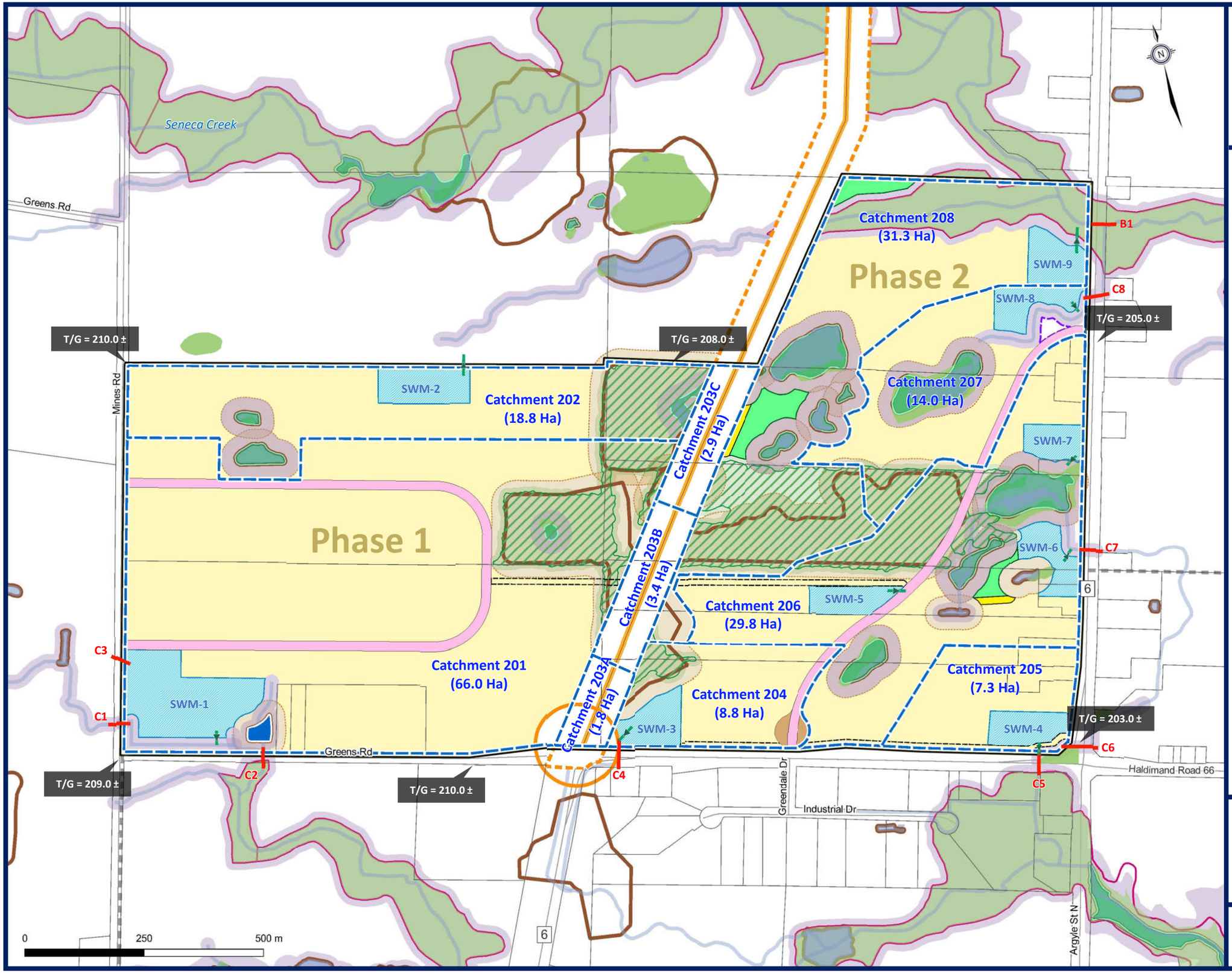
Existing drainage patterns will be preserved as much as possible under the proposed development condition. Impacts to the quantity and quality of runoff resulting from the implementation of the proposed concept plan will be mitigated by SWM controls, specifically wet ponds for quantity and quality control. Source controls (pipe storage, oil-grit separators, etc.) may be employed in localized portions of the local road right-of-way if access to a wet pond is not available. The minor system conveyance of drainage throughout the Study Area will be via conventional storm sewers with the major system conveyed overland through municipal corridors. The post-development drainage catchments are identified on **Figure 6-2** with additional details provided in **Table 6-2**.

Table 6-2: Post-development Drainage Areas

Existing Outlet	Catchment ID	Catchment Description	Catchment Area (ha)
Culvert 2 (C2)	201	Private lots and local road extension in Phase 1	66.0
	203B	Portion of MTO corridor (Hwy 6 Extension)	3.4
		TOTAL:	69.4
Culvert 4 (C4)	203A	Portion of MTO corridor (Hwy 6 Extension)	1.8
	204	Private lots, local road extension, and natural area in Phase 2	8.8
		TOTAL:	10.6
Seneca Creek	202	Private lots & natural areas in Phase 1	18.8
	203C	Portion of MTO corridor (Hwy 6 Extension)	2.9
	208	Private lots and natural areas in Phase 2	31.3
		TOTAL:	53.0
Culvert 7 (C7)	206	Private lots, local road extension, and natural areas in Phase 2	29.8
		TOTAL:	29.8
Culvert 5 (C5)	205	Private lots in Phase 2	7.3
		TOTAL:	7.3
Culvert 8 (C8)	207	Private lots, local road extension, and natural area in Phase 2	14.0
		TOTAL:	14.0
		TOTAL:	**184**

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study



General Features
- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Culverts
- Existing Stormwater Pond
- Wetland
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Proposed Conditions
- Post-Development Drainage Areas
- Servicing Easement
- Booster Pumping Station Area
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Pond Outlet
- Proposed Stormwater Pond
- Development Block
- Conceptual Primary Gateway
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)

Figure 6-2

Post-Development Drainage Plan

BluePlan Engineering

February 2023
722015-003
Projection EPSG:26917

6.4 Stormwater Quality

Based on the existing and future catchment areas, and imperviousness, a total of nine (9) stormwater management (SWM) facilities are proposed within the Study Area to accommodate the change in land use. Each of these facilities is proposed as an end-of-pipe wet pond facility to provide quantity control and quality treatment of stormwater prior to discharging to the respective tributaries of Seneca Creek.

Per Table 3.2 of the MECP SWM Planning and Design Manual (2003), an Enhanced Level of Protection (80% removal of suspended solids on an annual loading basis) was chosen for the SWM ponds. The impervious level of each post-development catchment area dictated the required water quality storage volume as presented in **Table 6-3**.

Table 6-3: Stormwater Quality Storage Volumes

SWM Facility	**Total Contributing Drainage Area** (ha)	**Percent Imperviousness of Drainage Area** (%)	**Required Water Quality Storage Volume** (m^3/ha)	**Required Water Quality Storage Volume** (m^3)
SWM-1	66.0	71	227	14,982
SWM-2	18.8	60	202	3,798
SWM-3	8.8	70	225	1,980
SWM-4	7.3	85	250	1,825
SWM-5	5.2	85	250	1,300
SWM-6	10.0	66	216	2,160
SWM-7	3.4	85	250	850
SWM-8	9.4	74	232	2,181
SWM-9	21.7	35	140	3,038

As further discussed in Section 6.7 and identified in **Figure 6-3**, a portion of the local road in Phase 2 of the Study Area requires source controls for the treatment of water quality. Source controls involve treating water at the location where it is collected and can include oil-grit separators, bioswales, or vegetated swales. The specific method of providing the source controls is to be confirmed in a subsequent study but it should be designed to provide the same level of protection provided by the SWM wet ponds.

6.5 Stormwater Quantity

Stormwater quantity criteria was derived from Table 6-36 of the Draft Final Storm Drainage Report (Wood, October 2019) which was completed in support of the 2020 MSP. As detailed in the 2019 report, an assessment of the SWM requirements for quantity control was performed for the urban business park and employment land areas in the Seneca Creek watershed. Unitary criteria were derived at significant crossings and confluences within Seneca Creek with the unitary criteria for the crossing at Greens Road applied to all SWM ponds within the Study Area. The unitary volume criteria at the Greens Road crossing are as follows:

- 700 m^3 per impervious hectare for the 25-year event
- 850 m^3 per impervious hectare for the 100-year event

A summary of the quantity control volumes for the SWM ponds in the Study Area is provided in **Table 6-4**.

Table 6-4: Stormwater Quantity Storage Volumes

SWM Facility	**Total Contributing Impervious Drainage Area** (ha)	**25-year Unitary Volume** (m^3/imp. ha)	**25-year Required Volume** (m^3)	**100-year Unitary Volume** (m^3/imp. ha)	**100-year Required Volume** (m^3)
SWM-1	46.9	700	32,802	850	39,831
SWM-2	11.3		7,896		9,588
SWM-3	6.2		4,312		5,236
SWM-4	6.2		4,344		5,274
SWM-5	4.4		3,094		3,757
SWM-6	6.6		4,620		5,610
SWM-7	2.9		2,023		2,457
SWM-8	7.0		4,869		5,913
SWM-9	7.6		5,317		6,456

As noted in Section 6.4 and further detailed in Section 6.7, a portion of the local road in Phase 2 of the Study Area requires source controls for water quantity which can include subsurface storage such as oversized pipe or storage tanks. The specific method of providing the source controls is to be confirmed in a subsequent study.

6.6 Summary of SWM Facility Sizing

Based on a wet pond configuration, conceptual sizing of the SWM ponds and associated land requirements were completed and are presented in **Table 6-5**.

Table 6-5: Summary of SWM Pond Storage Volumes and Footprints

SWM Facility	Storage Volume (m^3)				SWM Block Size (ha)
	Water Quality	25-year	100-year	Total	
SWM-1	14,982	32,802	39,831	87,677	3.8
SWM-2[1]	3,798	7,896	9,588	21,313	1.5
SWM-3	1,980	4,312	5,236	11,590	1.1
SWM-4[1]	1,825	4,344	5,274	11,435	1.1
SWM-5[1]	1,300	3,094	3,757	8,120	1.0
SWM-6[1]	2,160	4,620	5,610	12,390	1.1
SWM-7[1]	850	2,023	2,457	5,345	0.9
SWM-8[1]	2,181	4,869	5,913	13,031	1.2
SWM-9[1]	3,038	5,317	6,456	14,818	1.2

***Note 1**: These SWM facilities are not planned to accept drainage from municipal corridors therefore these ponds will be privately-owned. The method through which SWM quantity and quality controls are provided for private development blocks will be subject to change based on future studies.*

Confirmation of the discharge rates to downstream receiving watercourses and volumetric sizing of the SWM facilities must be completed at the design stage. The pond sizing may change due to increased use of on-site controls or low impact development (LID) techniques.

6.7 Proposed Internal Infrastructure

As identified on **Figure 6-3**, the internal storm sewer system will consist of a network of local sewers (sizing to be confirmed at detailed design) located within future road right-of-ways or easements. The SWM design criteria identified in Section 2.1.3 is applicable to the development blocks with the local roads designed to convey the minor and major storm systems to the applicable SWM facility for treatment. As previously noted, the drainage collected within a portion of the local road in Phase 2 will require source controls as it does not have access to an end-of-pipe facility. The source controls will provide the necessary water quality and quantity treatment prior to discharge to the receiving watercourse(s) at the locations noted on **Figure 6-3**. Drainage discharging from retained naturalized areas within the Study Area will be either conveyed overland via its existing drainage pattern or via the storm sewer system to an appropriate outlet. Drainage collected within the MTO corridor (Highway 6 extension) will be directed towards the outlets identified in **Table 6-2** with the required SWM infrastructure required to meet the necessary SWM criteria being the responsibility of the MTO.

Haldimand County

North Caledonia Employment Lands Feasibility and Servicing Study

Seneca Creek
Greens Rd
Mines Rd
Phase 1
Phase 2
SWM-1
SWM-2
SWM-3
SWM-4
SWM-5
SWM-6
SWM-7
SWM-8
SWM-9
B1
C1
C2
C3
C4
C5
C6
C7
C8
T/G = 210.0 ±
T/G = 208.0 ±
T/G = 205.0 ±
T/G = 209.0 ±
T/G = 210.0 ±
T/G = 203.0 ±
Stormwater Sewer located in 10m width servicing easement
Greendale Dr
Industrial Dr
Haldimand Road 66
Argyle St N
6
0
250
500 m

General Features
- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Culverts
- Existing Stormwater Pond
- Wetland
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Proposed Conditions
- Stormwater Sewer
- Stormwater Sewer Requiring Source Controls
- Post-Development Drainage Areas
- Servicing Easement
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Pond Outlet
- Proposed Stormwater Pond
- Development Block
- Conceptual Primary Gateway
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)

Figure 6-3

Proposed Stormwater Infrastructure

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Projection EPSG:26917

7. ROAD & RAIL NETWORK

7.1 Existing Infrastructure

As shown in **Figure 1-3**, the Study Area is bounded by Mines Road to the west, Greens Road to the south, and Highway 6 to the south and east. North of the Study Area are agricultural fields and naturalized areas without direct road access. Mines Road and Green Road both have rural cross-sections with a single lane eastbound & westbound. Highway 6 also has a rural cross-section with two lanes westbound and a single lane eastbound along the south limits of the Study Area. Highway 6 changes to two lanes northbound and southbound along the east limits of the Study Area. Highway 6 continues north and connects Caledonia to Highway 403 in Hamilton. Driveway accesses onto Mines Road, Greens Road, and Highway 6 provide access to the existing properties in the Study Area.

The Study Area does not have direct access to the existing rail network through Caledonia, however it is located approximately 1 km south of the Study Area on Mines Road.

7.2 Highway 6 Extension

The future extension of Highway 6 through the Study Area is detailed in Section 1.1.6 and reflected on **Figure 1-3**. Through correspondence completed with MTO for this study, timing of commencing the Highway 6 extension has not been confirmed. As noted in Section 1.1.6, the following was considered during the development of the concept plan:

- Road access connections to future Highway 6 will not be allowed.
- Road access connections to existing Highway 6 must exceed 800 metres in distance from existing intersections.
- It is understood that once the MTO extends Highway 6 through the Study Area, the portion of existing Highway 6 that follows the south & east limits of the Study Area will be transferred to the County. Upon transfer of Highway 6 to the County, the feasibility of additional driveway accesses onto this length of roadway will need to be further reviewed.

7.3 Proposed Internal Infrastructure

As identified on **Figure 7-1**, road access to future development blocks within the Study Area will be from local road extensions through the Study Area. The local road extensions are shown as 20 metre width urban cross-sections and are to be designed to Haldimand County standards, including curb and gutter, sidewalk, boulevard, and associated utilities.

The road extension through Phase 1 includes two intersections with Mines Road, approximately 340 metres apart, and will provide driveway access to private development blocks within Phase 1. The approval of any additional accesses onto Mines Road or Greens Road should be minimized and will be at the discretion of the municipality at the time of application.

The road extension through Phase 2 connects to Highway 6, approximately 850 metres north of the intersection of Haldimand Road 66 and Highway 6, which is in line with the request by MTO for a minimum of 800 metres in distance from existing intersections. The local road extension through Phase

2 is proposed to terminate at a temporary cul-de-sac immediately adjacent to existing Highway 6 until such time as the future Highway 6 extension is constructed and this section of Highway 6 is turned over to the County. The requirement for emergency access (fire vehicles, etc.) from the temporary cul-de-sac to existing Highway 6 should be discussed with the MTO.

The local road extension has been located such that an all-moves intersection could theoretically be constructed with Greendale Drive, however the feasibility of an all-moves intersection within that proximity to the future interchange with Highway 6 will need to be reviewed once the detailed design of the Highway 6 extension has been further advanced. Alternatively, a right-in/right-out intersection could facilitate access from the Study Area onto Haldimand Road 66 once it is owned by the County. Driveway accesses to private development blocks will be off of the local road extension with any additional accesses onto the boundary roads fronting Phase 2 to be minimized and at the discretion of the municipality at the time of application.

7.4 External Infrastructure Upgrades

As previously noted, the boundary roads for the Study Area are as follows:

- Mines Road: North limit of Study Area to Greens Road (2-lane rural cross-section)
- Greens Road: Mines Road to Highway 6 (2-lane rural cross-section)
- Highway 6/Greens Road: Highway 6 to Haldimand Road 66 (3-lane rural cross-section)
- Highway 6: Haldimand Road 66 to north limit of Study Area (4-lane rural cross-section)

Due to the anticipated increase in traffic stemming from the change in land use, the following boundary road improvements are recommended to facilitate access from the Study Area to major transportation routes (Highway 6, etc.):

- Upgrade Mines Road to 4-lane urban cross-section from north intersection with Phase 1 local road to Greens Road (approximate distance of 550 metres)
- Upgrade Greens Road to 4-lane urban cross-section from intersection with Mines Road to Highway 6 (approximate distance of 890 metres)

In order to facilitate the proposed Phase 1 local road, two (2) new 3-leg signalized intersections are recommended at the connections of the Phase 1 local road to Mines Road. One (1) new signalized 3-leg intersection is recommended at the connection of the Phase 2 local road to Highway 6, approximately 850 metres north of Haldimand Road 66. While approval of a second signalized intersection for the Phase 2 local road will be determined by a future traffic study, this intersection, along with the demolition of the temporary cul-de-sac, have been included in the costing provided in Section 10.4.

It is also recommended that the existing 3-leg stop-control intersection of Mines Road and Greens Road be upgraded to a 3-leg signalized intersection. Confirmation of these recommended external road improvements are contingent on a future transportation impact study (TIS) to be completed at the application stage.

	Phase 1		Phase 2	
	Existing Area	Proposed Area	Existing Area	Proposed Area
MTO Dedication	8.4 Ha			
Total Natural Features[1]	15.7 Ha	16.4 Ha	39.0 Ha	38.6 Ha
Agriculture	70.0 Ha	-	51.3 Ha	-
Stormwater Ponds	-	5.4 Ha	-	7.7 Ha
Proposed Roads	-	3.5 Ha	-	2.4 Ha
Temporary Cul-de-Sac	-	-	-	0.4 Ha
Reconstructed Woodlot[2]	-	-	-	1.8 Ha
Natural Environment Setback (15m)	-	-	-	0.5 Ha
Development Blocks	-	60.4 Ha	-	38.9 Ha
Total Areas	85.7 Ha	85.7 Ha	90.3 Ha	90.3 Ha

Haldimand County

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General Features
- Study Area
- Parcels
- Urban Boundary
- Grand River Conservation Authority Floodplain Limits
- Grand River Conservation Authority Regulation Limits
- Existing Culverts
- Existing Stormwater Pond
- Wetland
- Waterbody, Watercourse
- Natural Environment Areas
- Woodlot
- 10m Woodlot Setback
- Significant Natural Heritage Features
- 30m Significant Natural Heritage Features

Proposed Conditions
- Servicing Easement
- Booster Pumping Station Area
- Local Road (20m Width)
- Temporary Cul-de-Sac
- Woodlands Compensation Area
- Natural Features Buffer (15m Width)
- Pond Outlet
- Proposed Stormwater Pond
- Development Block
- Conceptual Primary Gateway
- Conceptual Hwy 6 Extension
- Conceptual Hwy 6 R.O.W. (90m Width)
- 3-Leg Signalized Intersection
- Rural to Urban Road Reconstruction

Phase 1

Phase 2

SWM-1

SWM-2

SWM-3

SWM-4

SWM-5

SWM-6

SWM-7

SWM-8

SWM-9

C1

C2

C3

C4

C5

C6

C7

C8

B1

12m width servicing easement

10m width drainage easement

12m width servicing easement

10m width servicing easement

12m width servicing easement

Mines Rd

Greens Rd

Greendale Dr

Industrial Dr

Haldimand Road 66

6

Argyle St N

Notes:

1) 'Total Natural Environment' includes regulation limits, significant natural features with 30m setback, core natural areas, woodlots with 10m setback, wetlands, and watercourses/waterbodies. Total Natural Environment does not include the MTO dedication area.

2) Assumed 4:1 compensation ratio based on 'Young' classification (0.405 ha removed for Phase 2 local road extension; 1.62 ha required compensation)

0 250 500 m

Figure 7-1

Proposed Road Infrastructure and Improvements

BluePlan Engineering

February 2023
722015-003
Projection EPSG:26917

8. UTILITIES AVAILABLE TO STUDY AREA

In order to determine the availability of utilities for service extension into the Study Area, the project team contacted the existing utility companies within Caledonia. The responses received from the various utilities are outlined in the sub-sections below.

8.1 Electrical Capacity

Hydro One confirmed that electrical infrastructure (3 phase overhead) is installed along the west, south, and east borders of the Study Area, on Mines Road, Greens Road, and Highway 6, respectively. An extension of this infrastructure could provide electrical servicing to the Study Area however available capacity would need to be confirmed at the development stage based on the anticipated loading.

8.2 Natural Gas Availability

As identified on **Figure 8-1**, Enbridge Gas confirmed that natural gas infrastructure is installed adjacent to the Study Area. A 4" gas pipeline capable of 420 kPa Maximum Operating Pressure (MOP) is installed along the south border of the Study Area on Greens Road. A 10" gas pipeline capable of 3450 kPA MOP is installed along the east border of the Study Area on Highway 6. Enbridge Gas confirmed that the Study



Figure 8-1: Enbridge Infrastructure Adjacent to Study Area

Area could be serviced by an extension of their infrastructure into the Study Area; however, could not confirm available capacity within their system until the development timing of the Study Area was better understood.

As noted by Enbridge Gas, the volume of natural gas available to service each site is dependent upon the capacity of their natural gas system at the time of the client's request, the client's specific natural gas requirements, and the expected in-service date of the facility. Enridge Gas will require the following information to complete an up-to-date analysis on their system's capacity upon submission of a development application:

- Total connected load of all gas-fired appliances (max BTU/hour)
- Peak hour requirements (m^3/hour)
- Requested delivery pressure at the outlet of the meter (kPa or psig)
- Estimated peak daily consumption (m^3/day)

- Natural gas requirements ramp up schedule including any construction gas requirements
- Service requirements (Firm and/or Interruptible service)

Upon receipt of the client's specific natural gas requirements, Enbridge Gas would conduct the up-to-date analysis and confirm the natural gas service parameters for the property, which would include the following:

- Delivery service options
- Natural gas facility requirements to service the client
- Cost estimate to attach to the system
- Lead time for first delivery of natural gas

A high-level capacity assessment was conducted at the time of this study's completion which identified that the upstream gas network could support approximately 3,000 m^3/hr when factoring in system upgrades driven by another project that is expected to be in service by 2024. There would be several distribution station upgrades required to accommodate the load on the local network, however the size and scope of these upgrades would depend on the actual timing and confirmed load requirements. Typical of any new attachment to Enbridge's system, new service lines to each property and customer station (pressure regulation and measurement) would also be required. A larger than expected load requirement could trigger required upgrades to the upstream system, however that would need to be confirmed at the time of the Study Area's development.

8.3 Telecommunications / Cellular

8.3.1 Bell Canada

GMBP attempted to contact Bell Canada on November 24th, 2022 and December 12th, 2022 in order to confirm the availability of Bell infrastructure in proximity to the Study Area. A response was not received from Bell Canada; however, from a review of Bell Canada's online coverage map, coverage for 4G, LTE, and 5G cellular devices is available for the Study Area.

8.3.2 Rogers Communications

GMBP attempted to contact Rogers Communications on November 23rd, 2022 and December 12th, 2022 in order to confirm the availability of Rogers infrastructure in proximity to the Study Area. A response was not received from Rogers Communications; however, from a review of Rogers Communications' online coverage map, coverage for 4G LTE and 5G cellular devices is available for the Study Area.

8.4 Broadband

8.4.1 Metro Loop/Xplore Internet

Metro Loop/Xplore Internet confirmed that fiber optic infrastructure is installed along the south border of the Study Area, on Greens Road from Highway 6 to Mines Road. Metro Loop/Xplore confirmed that the entire Study Area could be serviced by an extension of their infrastructure into the Study Area.

8.4.2 KWIC Internet

KWIC Internet confirmed that they do not have any broadband infrastructure in proximity to the Study Area.

9. CONCEPTUAL SUBDIVISION LAYOUT

The conceptual subdivision layout of the Study Area is outlined on **Figure 3-1**. As previously noted, the existing environmental areas are retained wherever possible within the Study Area with buffers applied to development blocks. Water, wastewater, and storm servicing has been extended throughout the Study Area via proposed local road extensions and/or municipal servicing easements. SWM facilities have been identified to control and treat the additional storm flows anticipated from the change in land use. Road and servicing access for each development block will be provided via the local road extensions in Phases 1 and 2. Section 3.3 identifies the range in development block sizing anticipated within the Study Area based on the anticipated land use; however, the location, size, and orientation of each development block will be refined at subsequent development stages.

10. COST ESTIMATES

10.1 Water

A summary of the external water infrastructure projects and costs associated with developing the Study Area is provided in **Table 10-1**. These external projects were identified in the 2020 MSP and 2020 CUBE studies; a summary of which is provided in **Table 10-1** for comparison.

A summary of the internal water infrastructure projects necessary for development of Phases 1 and 2 of the Study Area and associated high level cost estimates provided in **Table 10-2.**

All of the identified external and internal water infrastructure projects benefit multiple landowners within the Study Area and are therefore development charge (DC) applicable.

Table 10-1: Cost Estimate for External Water Infrastructure Projects

2020 MSP			2020 CUBE study		2023 North Caledonia Employment Land Feasibility and Servicing Study	
Project Label	*Project Description*	*Cost Estimate (2020$)*	*Revision per Boundary Expansion*	*Updated Cost Estimate (2020$)*	*Updated Boundary Expansion*	*Updated Cost Estimate (2020$)*
W-WM-1	Twinning of 450mmø WM along Highway 6	$1,500,000	Increase WM to 600mmø	$2,900,000	Maintain 600mmø WM	$2,900,000
W-WM-3	Extension of 350mmø WM along Greens Road	$2,000,000	Not included	-	Maintain 350mmø WM	$2,000,000
W-S-2	Increase In-Ground Reservoir at Caledonia WTP by 5,000 m^3	$5,900,000	Increase In-Ground Reservoir by 7,000 m^3 (Additional 2,000 m^3)	$8,200,000	Increase In-Ground Reservoir by 6,502 m^3 (Additional 1,502 m^3)	$7,600,000
W-P-3	Booster Pumping Station (BPS) for Caledonia 1 & 2	-	Additional pumping to higher elevation areas	$4,000,000	Include BPS for Study Area	$3,750,000
Various	Remaining recommendations from the 2020 MSP	$13,800,000	Remaining recommendations from 2020 MSP & other unimpacted recommendations from the 2020 CUBE study	$22,100,000	Remaining recommendations from 2020 MSP & other unimpacted recommendations from the 2020 CUBE study	$20,100,000
	2020 MSP Total:	**$23.2M**	**Revised Total:**	**$37.2M**	**Updated Total:**	**$36.4M**

Table 10-2: Cost Estimate for Internal Water Infrastructure Projects

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price ($)
W-1	300mmø PVC WM Class 150 DR18 (Greenfield installation within Phases 1 & 2)	4,180	m	$873 per metre	$5,180,000
W-2	300mmø PVC WM Class 150 DR18 (Tunnelled crossing of retained environmental area adjacent to and within the future Hwy 6 extension, approx. 345 metres north of Haldimand Road 66)	165	m	$40,000 per 20 metres	$470,000
W-3	600mmø steel casing for crossing of future Hwy 6 extension	110	m	$1000 per metre	$155,000
W-4	300mmø PVC WM Class 150 DR18 (Tunnelled crossing of Hwy 6 & Haldimand Road 66 intersection)	60	m	$127,000 per 60 metres	$180,000
W-5	300mmø PVC WM Class 150 DR18 (Within existing right-of-way of Mines Road)	600	m	$1222 per metre	$1,040,000
W-6	1500mmø valve chambers	16	units	$20,000 per unit	$450,000
W-7	1800mm x 2400mm rectangular valve chambers	6	units	$100,000 per unit	$850,000
W-8	1800mm x 2400mm rectangular valve chambers (c/w bleeder valves)	2	units	$100,000 per unit	$285,000
W-9	Air release or drain valve chambers	7	units	$100,000 per unit	$995,000
				TOTAL (PHASES 1 & 2):	**$9.6M**

Note: Cost estimate includes 12% engineering and 30% contingencies

10.2 Wastewater

A summary of the external wastewater infrastructure projects and costs associated with developing the Study Area is provided in **Table 10-3**. These external projects were identified in the 2020 MSP and 2020 CUBE studies; a summary of which is provided in **Table 10-3** for comparison.

A summary of the internal wastewater infrastructure projects necessary for development of Phases 1 and 2 of the Study Area and associated high level costs is provided in **Table 10-4**.

All of the identified external and internal wastewater infrastructure projects benefit multiple landowners within the Study Area and are therefore development charge (DC) applicable.

Table 10-3: Cost Estimate for External Wastewater Infrastructure Projects

2020 MSP			2020 CUBE study		2023 North Caledonia Employment Land Feasibility and Servicing Study	
Project Label	Project Description	Cost Estimate (2020$)	Revision per Boundary Expansion	Updated Cost Estimate (2020$)	Updated Boundary Expansion	Updated Cost Estimate (2020$)
NC1.1	Gateway SPS (firm capacity of 150 L/s; expandable to 300 L/s)	-	Upgrade Gateway SPS (increase build-out peak flows from 103 L/s to 204 L/s)	$260,000	Estimated peak flow of 141 L/s; does not require expansion.	-
NC1.2	Gateway SPS Forcemain and Undersized Sewer to Nairne SPS. Maintain 300mmø Gateway forcemain and upsize	$2,786,040	Maintain 2020 MSP recommendations.	$2,825,090	Maintain 2020 MSP recommendations.	$2,825,090
NC1.3	250mmø sewer to Study Area (Greens Road & Highway 66; approximately 2960 metres in length)	$3,521,600	Maintain length of sewer extension, increase sewer diameter to 450mm.	$3,741,700	Reduce pipe diameter to 375mm and length to 970 metres (within Argyle Street North)	$4,845,000
NC3.1	Forcemain extension from Nairne SPS to new WWTP	$1,590,000	Increase in forcemain diameter per 2020 MSP	$2,172,600	Carry forward 2020 MSP recommendation.	$2,172,600
NC3.2	Upgrade Nairne SPS	$710,000	Build-out peak flow increases from 160 L/s to 260 L/s triggers new SPS/major expansion.	$5,680,000	Carry forward 2020 CUBE recommendation.	$5,680,000

2020 MSP			2020 CUBE study		2023 North Caledonia Employment Land Feasibility and Servicing Study	
CT1.1	New North WWTP (including land acquisition)	$54,201,400	Build-out design flows increase from 9.7 MLD to 15.2 MLD	$113,841,400	Build-out design flows increase from 9.7 MLD to 13.1 MLD.	$91,071,000
Various	Remaining recommendations from the 2020 MSP	$9,591,000	Remaining recommendations from 2020 MSP & other unimpacted recommendations from the 2020 CUBE study.	$12,180,000	Remaining recommendations from 2020 MSP & other unimpacted recommendations from the 2020 CUBE study.	$12,206,000
	2020 MSP Total:	**$72.4M**	**Revised Total:**	**$140.7M**	**Updated Total:**	**$118.8M**

Note: Cost estimate includes 12% engineering and 30% contingencies

Table 10-4: Cost Estimate for Internal Wastewater Infrastructure Projects

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price ($)
WM-1	375mmø PVC sewer (Greenfield installation within Phases 1 & 2) (>10 metre depth)	4,185	m	$2,738 per metre	$16,270,000
WM-2	375mmø PVC sewer (Tunnelled crossing of retained environmental area adjacent to and within the future Hwy 6 extension, approx. 345 metres north of Haldimand Road 66)	165	m	$166,000 per 20 metres	$1,945,000
WM-3	600mmø steel casing for crossing of future Hwy 6 extension	110	m	$1000	$155,000
WM-4	375mmø PVC WM sewer (Tunnelled crossing of Hwy 6 & Haldimand Road 66 intersection)	60	m	$418,000 per 60	$595,000
WM-5	1200mmø manhole structure (>10 metre depth)	50	units	$20,000 per unit	$1,420,000
				TOTAL (PHASES 1 & 2):	**$20.4M**

Note: Cost estimate includes 12% engineering and 30% contingencies

10.3 Stormwater

A summary of the internal stormwater infrastructure projects necessary for development of Phases 1 and 2 of the Study Area and associated costs is provided in **Table 10-5.** As noted in **Table 6-5**, seven (7) of the nine (9) wet ponds identified in **Table 10-5** do not accept drainage from municipal corridors and are therefore planned to be privately-owned ponds. Further efficiencies and refinements to the method through which SWM quantity and quality controls are provided for each development block will be determined through subsequent studies. As such, the cost and maintenance of privately-owned SWM facilities is the sole responsibility of the landowner. The remaining SWM infrastructure projects (SWM-1, SWM-3, SWM-10, SWM-11, SWM-12, SWM-13, and SWM-14) benefit multiple landowners within the Study Area and are therefore development charge (DC) applicable.

Table 10-5: Cost Estimate for Stormwater Infrastructure Projects

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price ($)
SWM-1	SWM block size of 3.8 ha.	87,677	m^3	$40/$m^3$	$5.0M
SWM-2	SWM block size of 1.5 ha.	21,313	m^3	$75/$m^3$	$2.3M
SWM-3	SWM block size of 1.1 ha.	11,590	m^3	$100/$m^3$	$1.6M
SWM-4	SWM block size of 1.1 ha.	11,435	m^3	$100/$m^3$	$1.6M
SWM-5	SWM block size of 1.0 ha.	8,120	m^3	$125/$m^3$	$1.4M
SWM-6	SWM block size of 1.1 ha.	12,390	m^3	$100/$m^3$	$1.8M
SWM-7	SWM block size of 0.9 ha.	5,345	m^3	$150/$m^3$	$1.1M
SWM-8	SWM block size of 1.2 ha.	13,031	m^3	$100/$m^3$	$1.9M
SWM-9	SWM block size of 1.2 ha.	14,818	m^3	$100/$m^3$	$2.1M
SWM-10	Re-aligned municipal drain c/w landscaping	260	m	$850/m	$315K
SWM-11	Storm sewers (various sizes)	2,250	m	$700/m	$2.2M
SWM-12	Manholes (various sizes)	28	units	$11,000 per unit	$440K
SWM-13	Catch basins	56	units	$5,000 per unit	$400K
SWM-14	Allowance for conveyance and source controls in Phase 2 local road	-	-	-	$1.0M
				TOTAL (PHASES 1 & 2):	**$23.2M**

Note: Cost estimate includes 12% engineering and 30% contingencies

10.4 Roads

A summary of the external road infrastructure projects and costs associated with developing the Study Area are provided in Table 10-6**.**

A summary of the internal road infrastructure projects necessary for development of Phases 1 and 2 of the Study Area and associated costs are provided in Table 10-7**.**

All of the identified external and internal road infrastructure projects benefit multiple landowners within the Study Area and are therefore development charge (DC) applicable.

Table 10-6: Cost Estimate for External Road Infrastructure Projects

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price ($)
PHASE 1					
T-1	New 3-leg signalized intersection (local road connections to boundary roads)	4	-	$550,000	$2.2M
T-2	Re-construction of 3-leg stop-control intersection (Mines Road & Greens Road) to 3-leg signalized intersection	1	-	$480,000	$480K
T-3	Re-construction of existing 2-lane Mines Road to 4-lane urban cross-section	550	m	$4,200	$2.3M
T-4	Re-construction of existing 2-lane Greens Road to 4-lane urban cross-section	890	m	$4,200	$3.7M
				TOTAL:	**$12.4M**

Note: Cost estimate includes 12% engineering and 30% contingencies

Table 10-7: Cost Estimate for Internal Road Infrastructure Projects

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price ($)
PHASE 1					
T-5	Local 20m width road extension in Phase 1 c/w surface works (granular base, asphalt, curb & gutter, sidewalk, utilities, landscaping, street lighting)	1,760	m	$2,500 per metre	$6.3M

T-6	Local 20m width road extension in Phase 2 c/w surface works (granular base, asphalt, curb & gutter, sidewalk, utilities, landscaping, street lighting)	1,120	m	$2,500 per metre	$4.0M
T-7	Temporary cul-de-sac in Phase 2 (including removal costs)	1	unit	-	$300K
				TOTAL (PHASES 1 & 2):	**$10.7M**

Note: Cost estimate includes 12% engineering and 30% contingencies

11. CONCLUSIONS

As detailed in this report, the North Caledonia Employment Lands can be serviced by an extension and/or expansion of the existing water and wastewater systems in Caledonia, in line with the strategies put forth by the previous servicing studies for the area. These lands can provide valuable employment uses in Caledonia and assist in meeting the goals laid out in the County's 2021 Official Plan Update. The timing and specifics of implementation of this project's recommendations will be subject to funding and interest by applicable landowners.

APPENDIX A:
DESIGN CALCULATIONS – WATER INFRASTRUCTURE

Project: North Caledonia Employment Lands Feasibility and Servicing Study **Design:** BP **Date:** 20-Mar-23
Project No.: 722015 **Check:** MZ **Updated:** -

Water Demand

Proposed Site Conditions

A. **Proposed Land Use**

Area #	Density (jobs/hectare)	Area	Population
Phase 1	15	69.3	1,040
Phase 2	15	48.8	732
TOTAL	**-**	**118.1**	**1,772**

B. **Area's**

Site Area	118.1	ha
Site Area	1,181,000	m^2

C. **Design Criteria**

Average Consumption Rate[2] =	365.0 L/cap/d	Note: Average Consumption Rate taken from Gateway North SPS Tender Documents (Dry Weather Flow) (WSP, March 2020)
Max Day Factor[2] =	1.6	Note: Max Daily PF taken from Caledonia Master Servicing Plan Update (MSP 2020)
Max Hour Factor[2] =	2.0	Note: Max Hourly PF taken from Haldimand County Design Guidelines

D. **Water Demand - Phase 1 & 2**

Industrial - Phase 1

Average Daily Flow	365	x	1,040	=			379,418	L/day	=	4.39	L/s
Maximum Day Flow	365	x	1,040	x	1.6	=	599,480	L/day	=	6.94	L/s
Maximum Hourly Flow	365	x	1,040	x	2.0	=	758,835	L/day	=	8.78	L/s

Industrial - Phase 2

Average Daily Flow	365	x	732	=			267,180	L/day	=	3.09	L/s
Maximum Day Flow	365	x	732	x	1.6	=	422,144	L/day	=	4.89	L/s
Maximum Hourly Flow	365	x	732	x	2.0	=	534,360	L/day	=	6.18	L/s

E. **Total Water Demand - Phases 1 & 2**

Average Daily Flow	365	x	1,772	=			646,598	L/day	=	7.48	L/s
Maximum Day Flow	365	x	1,772	x	1.6	=	1,021,624	L/day	=	11.82	L/s
Maximum Hourly Flow	365	x	1,772	x	2.0	=	1,293,195	L/day	=	14.97	L/s

Project:	North Caledonia Employment Lands Feasibility and Servicing Study	Design:	BP	Date:	20-Mar-23
Project No:	722015	Check:	MZ	Updated:	-

POPULATION

			Notes
Existing:	10,781	persons	Per 2020 MSP
2046	28,558	persons	Per 2020 MSP
Build-out of Urban Expansion:	44,659	persons	Per 2020 CUBE study, which assumed 126.2 hectares of serviceable land for Caledonia Areas 1 & 2 (refer to Figure 4-2) with a population density of 49.4
Revised Build-out per North Caledonia Employment Lands Feasibility Study:	40,199	persons	Per this study, there are 118.1 gross hectares of employment land with a population density of 15 jobs/hectare for a total population of 1,772 jobs.

MAXIMUM DAILY WATER DEMAND

Study Area:	1.02	MLD	Phases 1 & 2
	11.82	L/s	
Caledonia:	20.31	MLD	Updated per the population projections for the Study Area.
	235.07	L/s	

A - FIRE STORAGE

MECP Fire Flow Guidelines value of 318 L/s for 5 hours was used, similar to the 2020 MSP Update and 2020 CUBE study.

Flow:	318	L/s
Duration:	5	hours
Volume:	5724	m^3

B - BALANCING

Maximum Daily Water Demand:	235.07	L/s
Balancing (25% of Max Day):	58.77	L/s
Volume:	5077.5	m^3

C - EMERGENCY

Emergency (25% of A + B):	2700.4	m^3

STORAGE = A + B + C

Storage:	13501.9	m^3

Table 8-1: Fire Flow Requirements

EQUIVALENT POPULATION[1]	SUGGESTED FIRE FLOW (L/s)	DURATION (HOURS)
500 – 1 000	38 (10 ft/s)	2
1 000	64 (17 ft/s)	2
1 500	79 (21 ft/s)	2
2 000	95 (25 ft/s)	2
3 000	110 (29 ft/s)	2
4 000	125 (33 ft/s)	2
5 000	144 (38 ft/s)	2
6 000	159 (42 ft/s)	3
10 000	189 (50 ft/s)	3
13 000	220 (58 ft/s)	3
17 000	250 (66 ft/s)	4
27 000	318 (84 ft/s)	5
33 000	348 (92 ft/s)	5
40 000	378 (100 ft/s)	6

Note [1]: When determining the fire flow allowance for commercial or industrial areas, it is recommended that the area occupied by the commercial/industrial complex be considered at an equivalent population density to the surrounding residential lands.

Estimated fire flow for the Study Area is 95 L/s for a duration of 2 hours based on a projected population of 1,772 people.

SUMMARY OF WATER STORAGE VOLUMES:

2020 MSP Update:	12,000	m^3
2020 CUBE Study:	14,000	m^3
2023 North Caledonia Employment Lands Feasibility and Servicing Study:	13,502	m^3

Therefore, an additional 1,500 m3 of water storage is required beyond the infrastructure recommendations made within the 2020 MSP Update report.

APPENDIX B:
DESIGN CALCULATIONS – WASTEWATER INFRASTRUCTURE

Project: North Caledonia Employment Lands Feasibility and Servicing Study | **Design:** BP | **Date:** 20-Mar-23
Project No.: 722015 | **Check:** MZ | **Updated:** -

Wastewater Flows

Proposed Site Conditions

A. **Proposed Land Use**

Area #	Density (jobs/hectare)	Area	Population
Phase 1	15	69.3	1,040
Phase 2	15	48.8	732
TOTAL	**-**	**118.1**	**1,772**

B. **Area's**

Site Area	118.1	ha
Site Area	1,181,000	m^2

C. **Design Criteria**

Sewage Generation Rate - Collection System:	365	L/capita/day	Note: 'S Tender Documents (Dry Weather Flow)
Peaking Factor - Collection System:	Modified Harmon Formula	$Me = 0.8\left(1 + \frac{14}{4 + Pe^{0.5}}\right)$	Note: Where: M_e = ratio of peak flow to average flow; P_e = equivalent tributary population in thousands
Sewage Generation Rate - Treatment:	338	L/capita/day	Note: Based on 2016 actuals
Peaking Factor - Treatment:	3.0		Note: Per 2020 MSP
Infiltration Flow (Allowance):	0.23	L/s/ha	

D. **Wastewater Flows - Collection System**

Note: Using Modified Harmon Formula

	Area (ha)	Population (Persons)	Average Dry Weather Flow (ADWF) (L/s)	Peaking Factor (PF)	Peak Dry Weather Flow (PDWF) (L/s)	Inflow & Infiltration Allowance (L/s)	Peak Wet Weather Flow (PWWF) (L/s)
Phase 1	69.3	1,040	4.39	3.0	13.3	15.9	29.3
Phase 2	48.8	732	3.09	3.1	9.6	11.2	20.8
Phases 1 & 2	118.1	1,772	7.48	2.9	21.7	27.2	48.9

E. **Wastewater Flows - Treatment**

	Area (ha)	Population (Persons)	Average Daily Flow (ADF) (L/s)	Peaking Factor (PF)	Maximum Daily Flow (MDF) (L/s)
Phase 1	69.3	1,040	4.07	3.0	12.2
Phase 2	48.8	732	2.86	3.0	8.6
Phases 1 & 2	118.1	1,772	6.93	3.0	20.8

APPENDIX C:
DESIGN CALCULATIONS – STORMWATER INFRASTRUCTURE

	Contributing Drainage Area (ha)	Percent Imperviousness of Drainage Area (%)	Required Water Quality Storage Volume (m3/ha)	Required Water Quality Storage Volume (m3)	Total Contributing Impervious Drainage Area (ha)	25-year Unitary Volume (m3/imp. ha)	25-year Required Volume (m3)	100-year Unitary Volume (m3/imp. ha)	100-year Required Volume (m3)	Total Required Volume (m3)	Approximate Land Requirement (ha)
SWM 1	66	71	227	14,982	46.9	700	32,802	850	39,831	87,615	3.84
SWM 2	18.8	60	202	3,798	11.3	700	7,896	850	9,588	21,282	1.45
SWM 3	8.8	70	225	1,980	6.2	700	4,312	850	5,236	11,528	1.10
SWM 4	7.3	85	250	1,825	6.2	700	4,344	850	5,274	11,443	1.09
SWM 5	5.2	85	250	1,300	4.4	700	3,094	850	3,757	8,151	0.97
SWM 6	10	66	216	2,160	6.6	700	4,620	850	5,610	12,390	1.13
SWM 7	3.4	85	250	850	2.9	700	2,023	850	2,457	5,330	0.87
SWM 8	9.4	74	232	2,181	7.0	700	4,869	850	5,913	12,963	1.15
SWM 9	21.7	35	140	3,038	7.6	700	5,317	850	6,456	14,810	1.21

Appendix C
Financial Analysis and Business Plan

Memorandum

To	Lidy Romanuk, Manager, Economic Development and Tourism Mark Merritt, General Manager – Financial & Data Services
From	Daryl Abbs, Managing Partner
Date	October 2024
Re:	Additional Scenario Analysis re: North Caledonia Employment Land Feasibility and Servicing Study – Financial Analysis and Business Plan

Fax ☐ Courier ☐ Mail ☐ Email ☒

1. Introduction

The Consultant Team of Watson & Associates Economists Ltd. (Watson), WSP Canada Group Limited (WSP) and GM BluePlan Engineering (GM BluePlan) was retained to prepare an Employment Lands Feasibility and Servicing Study to assist Haldimand County (the "County") in being well-positioned to accommodate a diverse range of employment growth over the coming decades.

This study is being prepared in three (3) phases:

1. Phase 1: location analysis, market research and analysis, and functional servicing design;
2. Phase 2: financial analysis and business plan; and
3. Phase 3: property administration and management.

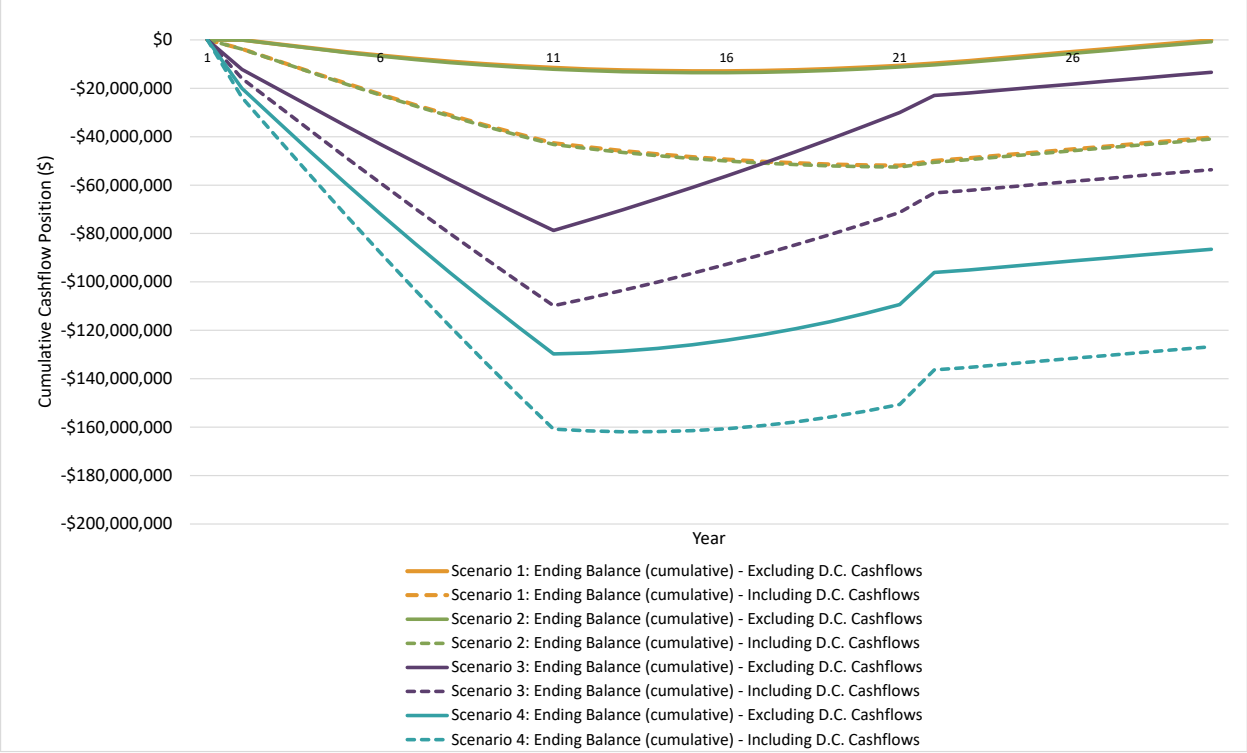
As part of the phase 2 work, Watson undertook a preliminary financial assessment which included a full operating and capital cost analysis based on the anticipated development of the study area. The full report is appended to this memorandum. As part of the analysis, four development scenarios were analyzed to determine the financial feasibility of developing the employment lands:

1. The Study Area is privately developed and traditionally designed and operated;
2. The County invests in conceptual planning, then sells the plans to a developer;
3. The County acts as the land developer in partnership with the private sector; and

4. The County develops, acquires, services, and sells land parcels.

The financial analysis was undertaken on an annual basis for each of the four (4) scenarios to provide a cashflow which summarized the cumulative and net annual impacts. The following graph provides a comparison of the four (4) scenarios with respect to the cashflow position over a 30-year horizon (assuming development occurs over 20-years) both with and without D.C.-related cashflows (i.e., D.C. expenditures and revenues):

Figure 1-1
Haldimand County
Comparison of Cashflow Scenarios



As demonstrated in greater detail in the following report, none of the four (4) scenarios provide a net positive annual impact over the 30-year time horizon, both with and without the consideration of D.C. cashflows. This is generally due to the significant capital costs required to service the development, along with the annual lifecycle replacement costs for the infrastructure. Given the required investments in growth-related infrastructure, the cashflow remains in a significant negative position when D.C. cashflows are considered. The County is required to debt finance these works which imposes a negative burden on the County's finances.

When D.C.-related cashflows (i.e. D.C. revenues and expenditures) are excluded from the analysis, Scenarios 1 and 2 do not provide for positive cashflow by year 30,

however they are close to the breakeven point, given the tax revenues exceed annual lifecycle replacement costs by year 15.

Given these results, the County wished to explore variations on Scenario 1 which may provide a positive cashflow by the end of the forecast period. This memo provides a summary of the additional scenarios that were analyzed, based on utilizing the initial assumptions from Scenario 1 (i.e. traditionally developed, designed and operated lands).

2. Additional Scenarios Analyzed

As noted above, the following additional scenarios were analyzed with respect to the development of the Study Area:

- **Scenario 1a:** the Study Area would receive partial municipal servicing (water only) as an interim solution;
- **Scenario 1b:** the Study Area would be developed with one large development (for each of the two phases of development); and
- **Scenario 1c:** the Study Area would be developed as an industrial condominium.

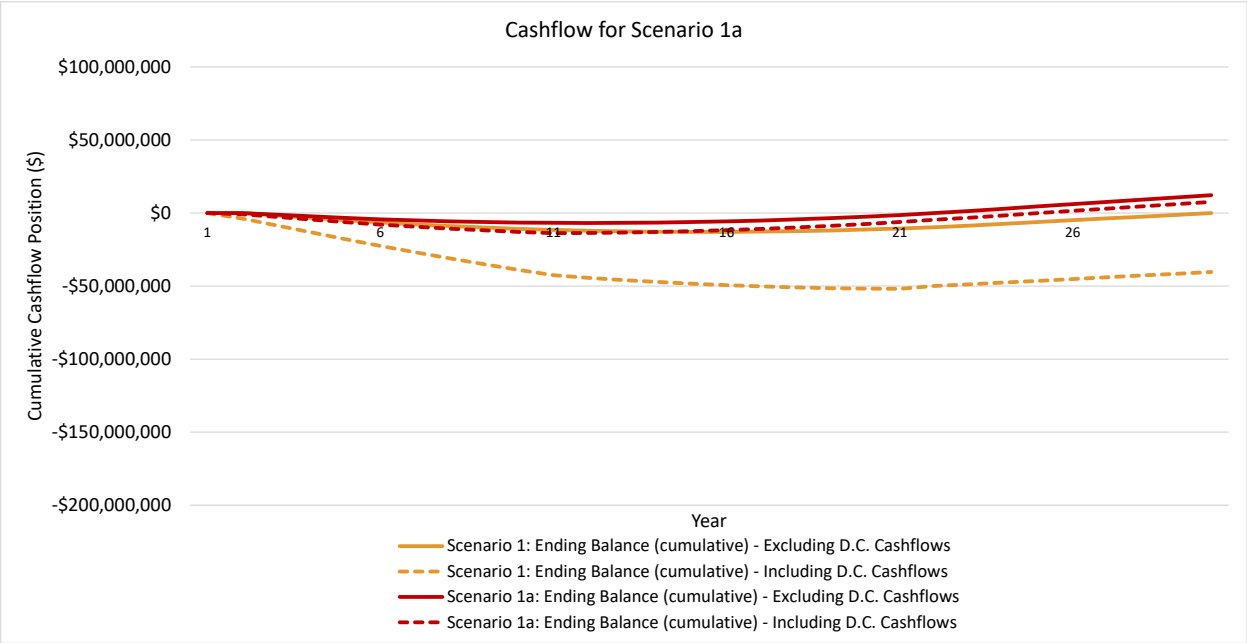
The results of these additional scenarios are summarized in the following sections.

3. Results of Additional Scenario Analysis

3.1 Scenario 1a: Partial Municipal Servicing (Water Only)

For this scenario, it is assumed that the development lands would be serviced by water with private wastewater servicing in the interim. The long-term plan would include servicing this area with wastewater in the future. As a result, this scenario assumes that capital costs related to internal and external wastewater works would be removed from the cashflow. Associated operating costs, lifecycle (replacement) costs and revenues have been removed from the analysis. The graph in Figure 3-1 provides for the cumulative cashflow position over the 30-year period for the scenario including D.C. cashflows (solid) and the scenario excluding D.C. cashflows (dashed). Scenario 1a is compared to the initial analysis for Scenario 1 (i.e. assuming full water and wastewater servicing). Similar to the initial analysis, this scenario assumes development occurs in even increments over 20 years.

Figure 3-1
Haldimand County
Cashflow Comparison of Scenario 1 versus Scenario 1a



Given that the D.C.-related capital investment for water services is not as large as the wastewater investment, the cashflow including D.C. cashflows provides for a net positive impact by year 26. When D.C. cashflows are excluded from the analysis, the development provides for a positive cashflow position at an even earlier stage by year 23. This is a result of lower overall lifecycle and operating expenditures related to wastewater infrastructure.

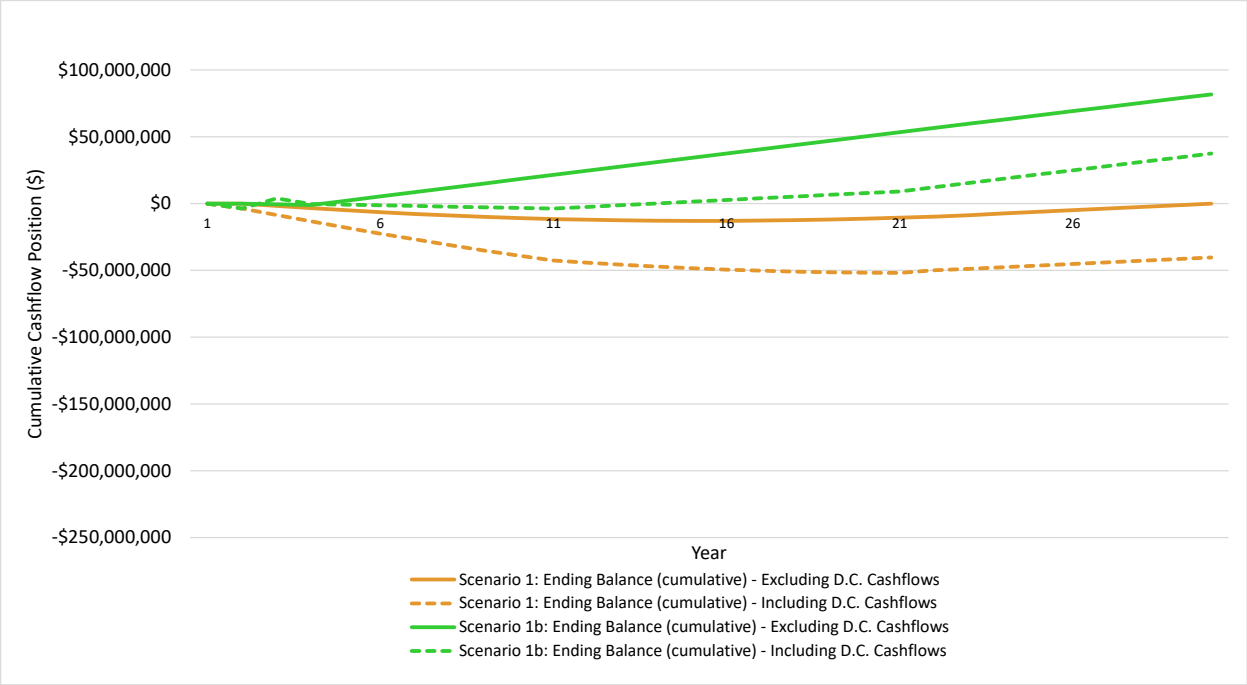
Note, it is assumed that private wastewater servicing would be an interim solution. The County would install wastewater servicing at a later stage when cashflows from the development area are positive. The costs for wastewater infrastructure can be recovered from landowners at a future date through a capital charge under Part XII of the *Municipal Act.* Alternatively, the initial developer can construct the works and costs can be recovered through a best efforts recovery.

3.2 Scenario 1b: One Large Development for Each of the Two Phases Identified

The next scenario that was reviewed assumed that there would be one large development for each of the two phases of development in the Study Area, as opposed to smaller subdivided lots to be owned by multiple property owners. This scenario assumes that the entire development will be in place by year 3 of the analysis and would be assessed at the industrial tax rate. In addition, given there would only be two lots under this scenario, there are no local/internal works (water, wastewater, stormwater, and roads) assumed as part of this scenario. It is noted that this scenario

provides for full water and wastewater municipal servicing to the development area (i.e. external water and wastewater infrastructure), however, the internal works would be privately owned and operated. As a result, all associated operating and lifecycle costs for internal infrastructure have been deleted from the cashflow analysis. Figure 3-2 provides for the comparison of cumulative positions with and without D.C. cashflows for Scenario 1 and Scenario 1b:

Figure 3-2
Haldimand County
Cashflow Comparison of Scenario 1 and Scenario 1b



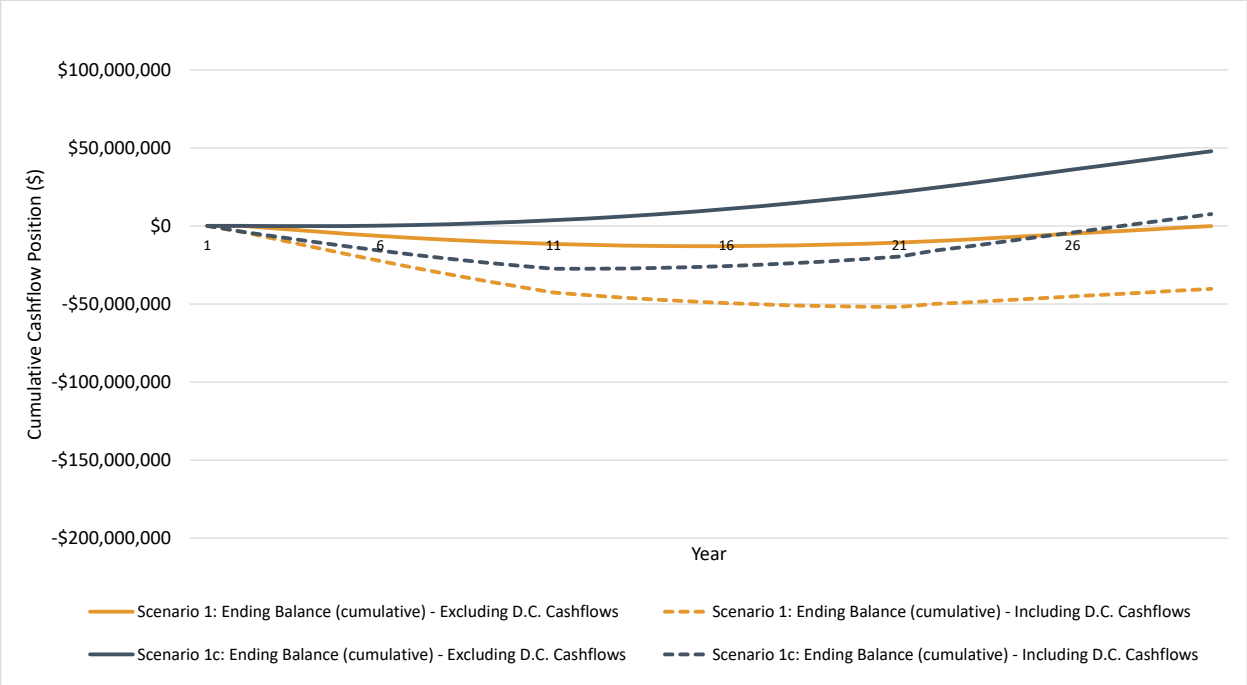
Under this scenario, full tax revenues would be received upfront beginning in year 5. Since the operating and lifecycle costs related to internal infrastructure have been removed from the analysis, a positive cashflow position would be provided by year 5 (excluding D.C. cashflows). In addition, given the lower operating and lifecycle costs, the cashflow position when considering D.C. cashflows also reaches a positive position by year 14.

Under the original scenarios identified as part of this analysis, lifecycle and operating costs associated with the internal infrastructure led to a significantly negative cashflow position throughout the forecast period. Given that in the above scenario the County does not assume these costs, a positive cashflow position is provided.

3.3 Scenario 1c: Industrial Condominium Model

Under the industrial condominium model, lifecycle and operating costs related to internal works for water, wastewater, roads, and stormwater would be removed from the analysis, given that this infrastructure would be owned and maintained by the landowner. All other assumptions would remain the same relative to Scenario 1 (e.g. assume study area builds out over 20 years). Based on these assumptions the cashflow graph for this scenario is provided below:

Figure 3-3
Haldimand County
Cashflow Comparison of Scenario 1 versus Scenario 1c

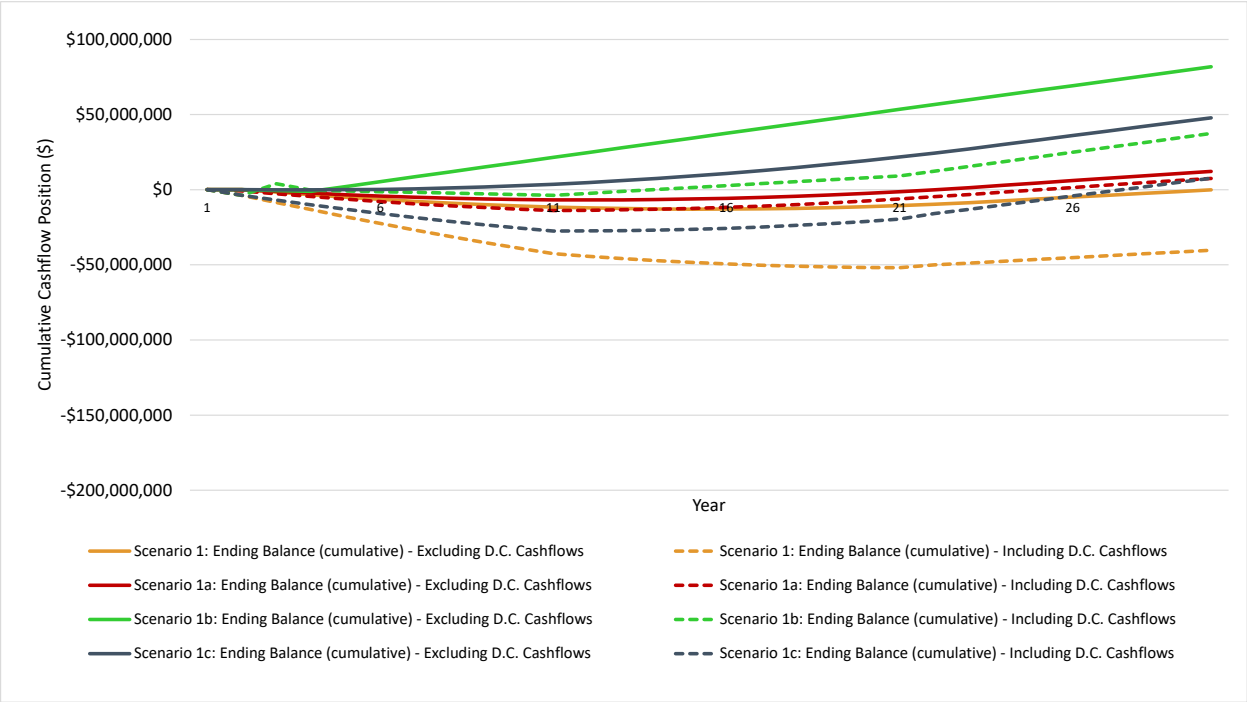


With the exclusion of D.C.-related cashflows, the industrial condominium model provides for positive cashflow by year 6 of the forecast. This is due to the reduction of operating and lifecycle costs that are associated with internal infrastructure. In addition, when D.C. cashflows are factored into the analysis, the cumulative cashflow position reaches the breakeven point by year 28.

3.4 Comparison of Additional Scenarios Analyzed

The following graph provides a comparison of Scenario 1 with the three (3) variations discussed above:

Figure 3-4
Haldimand County
Comparison of Additional Scenarios Analyzed



Based on the above, all three scenarios provide for a positive cashflow position when D.C.s related cashflows are not considered. Scenario 1b (one large development) provides for the earliest breakeven year with the most positive cashflow by Year 30. When D.C.s are factored into the analysis, both Scenarios 1b and 1c provide for a positive cashflow impact by year 14 and year 28, respectively. Scenario 1a does not provide for a positive position by the end of the 30 year forecast period.

The following table provides a summary of the return-on-investment calculations for the four scenarios, excluding D.C. related cashflows (note the net cumulative position column provides for the net present value of the cumulative cash flows for years 10, 20, and 30):

Figure 3-5
Haldimand County
Summary of Return on Investment (Net Cumulative Position for Years 10, 20, and 30) – Excluding D.C. Cashflows

Summary of Return on Investment Excluding D.C. Cashflows	Scenario 1 - Privately Planned and Developed		Scenario 1a - Partial Servicing		Scenario 1b - One Large Development		Scenario 1c - Industrial Condominium Model	
Initial Investment	-		-		-		-	
Breakeven Year	N/A		Year 23		Year 5		Year 6	
Year	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**
Year 10	(9,041,185)	n/a	(5,468,859)	n/a	15,304,472	n/a	2,220,520	n/a
Year 20	(7,792,237)	n/a	(1,704,078)	n/a	34,521,236	n/a	13,217,166	n/a
Year 30	(51,133)	n/a	6,837,664	n/a	46,051,507	n/a	26,951,101	n/a

Note: although there is no initial investment in non-growth-related capital required by the County, once infrastructure is installed, costs would be incurred related to ongoing lifecycle cost allocations as well as additional operating costs. Given there is no initial investment for these scenarios, the return on investment is not applicable here.

Compared to Scenario 1, all three (3) alternative scenarios provide for a net positive cashflow position by Year 30, with Scenario 1b providing for the earliest breakeven year. Note that with all of the scenarios, there will still be significant debt required to finance the growth-related/D.C.-eligible capital expenditures. In addition, there are also a number of risks associated with these scenarios that should be considered. For example, with respect to the scenario providing for one development for each of the two phases, this would require a developer to acquire lands held as 18 different parcels.

4. Further Considerations

The following is provided for further consideration in the County's business case related to investment in the North Caledonia employment lands.

4.1 Commentary on Infrastructure Grants

Given that the negative financial impact of developing the study area is due to the significant growth-related capital investment required to construct the infrastructure, potential grant funding would result in a more positive financial position for this development.

As noted in the initial analysis, the significant investment in capital infrastructure requires debt financing. The Ministry of Municipal Affairs regulates the level of debt

incurred by municipalities at a level where no more than 25% of the municipality's own purposes revenue may be allotted for servicing the debt (i.e. debt charges). The County has imposed a more conservative debt capacity policy limit at 10% of own purpose revenues.

Through the County's annual budget process, the County anticipates it will exceed the 10% debt capacity limit in 2025, based on debt commitments for capital projects required outside of the Study Area. Given these debt requirements and for the purposes of this analysis, it is assumed that the County would be required to raise this debt policy limit to 20%. The County should determine which grants this development could be eligible for and apply to limit the financial burden of developing this area. The following provides a few examples of grants that are currently available to municipalities in Ontario:

Infrastructure Funding Programs

Various infrastructure funding programs are made available to municipalities on an application basis by both the Federal and Provincial Government, including those made available through associations such as the Federation of Canadian Municipalities. These programs include the Investing in Canada Infrastructure Program (I.C.I.P.), the Public Transit Infrastructure Fund (P.T.I.F.), the Green Municipal Fund, etc. Funding applications are often required in order to secure funding through these programs.

Canada Community Building Fund (formerly Federal Gas Tax program)

The Canada Community Building Fund (C.C.B.F.) is a permanent source of funding provided up front, twice-a-year, to Provinces and Territories, who in turn flow this funding to their municipalities to support local infrastructure priorities. Municipalities can pool, bank, and borrow against this funding, providing financial flexibility. Every year, the federal C.C.B.F. provides over $2 billion and supports approximately 4,000 projects in communities across Canada. Each municipality selects how best to direct the funds with the flexibility provided to make strategic investments across the various project categories.

Housing-Enabling Water Systems Fund

The Housing-Enabling Water Systems Fund (H.E.W.S.) helps municipalities develop, repair, rehabilitate, and expand critical drinking water, wastewater and stormwater infrastructure. The projects funded through this program aim to support housing opportunities, protect communities and enhance economic growth. Although the focus of this funding program is mainly on housing, projects related to industrial development would also be considered under this grant program given that employment growth helps drive economic growth. The first application intake closed on April 19, 2024, with a total investment of $970 million in 54 water infrastructure projects. The second intake of applications is currently open, with a deadline of November 1, 2024 and with additional funding of $250 million available to Ontario municipalities.

Federal and Provincial Investments in Employment Lands

It is also noted that the Federal and Provincial governments have been actively investing in employment lands across the Province. For example, investments have recently been made in Alliston and St. Thomas by the Provincial and Federal governments for the development of battery manufacturing plants. These investments are aimed at creating economic and job growth within Ontario. The County may seek out similar investments from other levels of government for developments in key sectors such as electric vehicle battery plants, if appliable to these employment lands.

4.2 Other Items for Consideration

- It must be noted that the above scenarios all assume the development in the Study Area is classified as industrial for D.C. and property tax purposes. If the proposed development is considered commercial, then the assumptions on what infrastructure is D.C. funded versus developer funded would change. In addition, the buildings that are constructed would be assessed at the lower commercial property tax rate, relative to the industrial rate.
- Through the County's D.C. process, the local service policy should be reviewed to ensure that works related to large commercial/industrial developments are D.C. eligible.
- Given that growth-related capital investment to develop these lands is significant, the County would need a strong commitment from the developing landowners that the study area will be built out in the timeframe agreed upon prior to investing in the required infrastructure. Front-end financing may be required to limit the impact on the County's debt capacity and overall financial risk if development does not occur within a timely manner.
- Given the alternative scenarios presented above, the County is still in a negative cashflow position when D.C. cashflows are considered. If the County proceeds with the development of these lands, it is recommended that the D.C. by-law is updated to include the growth-related infrastructure that has been identified as part of this study. However, the anticipated cashflow analysis would provide similar results as the cashflow analysis is negative related to D.C.s as the D.C.s generated from development in this area are not sufficient to pay for the growth-related infrastructure.

4.3 Key Points and Factors to Success

As the goal of the County is to be well-positioned to accommodate a diverse range of employment growth over the coming decades, development of employment lands is integral to achieving this goal. Based on the financial analysis undertaken, success in developing these employment lands may be achieved based on the following:

- **Grant funding**: The County should seek grant funding for the required infrastructure to reduce the significant growth-related costs required to service these lands. This will also assist in reducing the debt funding required for the capital infrastructure.

- **Flexibility**: In determining the potential development yields of these lands, the County should remain flexible to alternative development approaches that minimize the financial burden on County tax and ratepayers. This includes consideration of partial servicing in the interim, development as an industrial condominium, and seeking one large development rather than a number of smaller businesses.

- **Timing of Development**: This is integral to the success of the County's investment. The County should seek to obtain commitments from landowners and businesses who are looking to develop to ensure tax revenues are collected as soon as possible and the County tax and ratepayers are not cashflowing the development of these lands for an extended period of time.

Appendix A
Details for Cashflow Analysis

APPENDIX A: DETAILS FOR CASHFLOW ANALYSIS

Figure A-1
Haldimand County
Scenario 1 Cashflow

Cash Flow Analysis - Employment Lands Privately Developed

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100																		
General Industrial	-	-	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946																		
Total Employment (cumulative)	**-**	**-**	**265,046**	**530,092**	**795,138**	**1,060,184**	**1,325,230**	**1,590,276**	**1,855,322**	**2,120,368**	**2,385,414**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	44	44	44	44	44	44	44	44	44	45																		
General Industrial	-	-	133	133	133	133	133	133	133	133	133	134																		
Total Employment (cumulative)	**-**	**-**	**177**	**354**	**531**	**708**	**885**	**1,062**	**1,239**	**1,416**	**1,593**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*																		
General Industrial	-	-	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*																		
DC Revenue - Non-residential (inflated)	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926																		
Total DC Revenues	**-**	**-**	**1,189,422**	**1,225,105**	**1,261,858**	**1,299,714**	**1,338,705**	**1,378,866**	**1,420,232**	**1,462,839**	**1,506,725**	**1,551,926**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC	-																												-	-
DC (Debenture)																														
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	39,586	79,172	118,758	158,344	197,930	237,516	277,102	316,688	356,274	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,422,682**	**-**	**1,664,386**	**1,703,972**	**1,743,558**	**1,783,144**	**1,822,730**	**1,862,316**	**1,901,902**	**1,941,488**	**1,981,074**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure A-1 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		136,327	278,107	425,503	578,685	737,823	903,095	1,074,683	1,252,773	1,437,558	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	-	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,712,962	3,849,289	3,991,069	4,233,899	4,388,989	4,550,074	4,717,332	4,890,945	5,071,102	5,257,993	3,649,827	3,684,641	3,720,151	3,756,372	3,793,316	3,831,000	3,869,437	3,908,644	3,948,634	3,989,424	2,121,898	2,164,336	2,207,623	2,251,775	2,296,811	2,342,747	2,389,602	2,437,394	2,486,142
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sub-total Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)						-	-	-	-	-	-	-	-																	
Beginning Balance	-	-	(3,712,962)	(7,916,909)	(12,141,422)	(16,107,032)	(19,719,845)	(22,979,461)	(25,885,472)	(28,437,455)	(30,634,973)	(32,477,575)	(32,161,630)	(33,029,199)	(33,528,475)	(34,034,020)	(34,545,959)	(35,064,422)	(35,589,538)	(36,121,441)	(36,660,266)	(37,206,151)	(35,850,106)	(34,501,407)	(33,160,201)	(31,826,638)	(30,500,870)	(29,183,053)	(27,873,347)	(26,571,913)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,422,682																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926																		
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,712,962)	(7,916,909)	(12,141,422)	(16,107,032)	(19,719,845)	(22,979,461)	(25,885,472)	(28,437,455)	(30,634,973)	(32,477,575)	(32,161,630)	(33,029,199)	(33,528,475)	(34,034,020)	(34,545,959)	(35,064,422)	(35,589,538)	(36,121,441)	(36,660,266)	(37,206,151)	(35,850,106)	(34,501,407)	(33,160,201)	(31,826,638)	(30,500,870)	(29,183,053)	(27,873,347)	(26,571,913)	(25,278,917)
Net Annual Position	-	(3,712,962)	(4,203,947)	(4,224,512)	(3,965,610)	(3,612,812)	(3,259,617)	(2,906,011)	(2,551,983)	(2,197,518)	(1,842,602)	315,945	(867,569)	(499,275)	(505,545)	(511,940)	(518,463)	(525,116)	(531,903)	(538,825)	(545,885)	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(1,680,407)	(3,417,062)	(4,931,569)	(6,131,133)	(7,016,492)	(7,588,408)	(7,847,661)	(7,795,056)	(7,431,420)	(6,758,270)	(5,716,707)	(4,306,851)	(2,903,264)	(1,506,073)	(115,404)	1,268,612	2,645,841	4,016,148	5,379,394	6,735,439	8,084,138	9,425,344	10,758,907	12,084,675	13,402,492	14,712,198	16,013,632
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(1,680,407)	(3,417,062)	(4,931,569)	(6,131,133)	(7,016,492)	(7,588,408)	(7,847,661)	(7,795,056)	(7,431,420)	(6,758,270)	(5,716,707)	(4,306,851)	(2,903,264)	(1,506,073)	(115,404)	1,268,612	2,645,841	4,016,148	5,379,394	6,735,439	8,084,138	9,425,344	10,758,907	12,084,675	13,402,492	14,712,198	16,013,632	17,306,628
Net Annual Position	-	-	(1,680,407)	(1,736,655)	(1,514,506)	(1,199,564)	(885,360)	(571,915)	(259,253)	52,605	363,636	673,150	1,041,563	1,409,856	1,403,587	1,397,192	1,390,669	1,384,015	1,377,229	1,370,307	1,363,246	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure A-2
Haldimand County
Scenario 1a Cashflow

Cash Flow Analysis - Partial Servicing (Water Only)

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21								
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66								
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
DC Revenues																														
Light Industrial	-	-	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	*23,153*	-	-	-	-	-	-	-	-
General Industrial	-	-	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	*115,997*	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	147,623	152,052	156,614	161,312	166,151	171,136	176,270	181,558	187,005	192,615	198,393	204,345	210,476	216,790	223,294	229,992	236,892	243,999	251,319	258,858	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**147,623**	**152,052**	**156,614**	**161,312**	**166,151**	**171,136**	**176,270**	**181,558**	**187,005**	**192,615**	**198,393**	**204,345**	**210,476**	**216,790**	**223,294**	**229,992**	**236,892**	**243,999**	**251,319**	**258,858**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	7,522	15,044	22,565	30,087	37,609	45,131	52,652	60,174	67,696	75,218	82,740	90,261	97,783	105,305	112,827	120,349	127,701	135,054	142,407	149,760	149,760	149,760	149,760	149,760	149,760	149,760	149,760	149,760
Sub-total Capital Expenditures	**6,932,569**	**-**	**1,092,522**	**1,100,044**	**1,107,565**	**1,115,087**	**1,122,609**	**1,130,131**	**1,137,652**	**1,145,174**	**1,152,696**	**1,160,218**	**1,167,740**	**1,175,261**	**1,182,783**	**1,190,305**	**1,197,827**	**1,205,349**	**1,212,701**	**1,220,054**	**1,227,407**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**	**1,234,760**

Figure A-2 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					77,879	79,436	81,025	82,646	84,299	85,985	87,704	89,458	91,247	93,072	94,934	96,833	98,769	100,745	102,759	104,815	106,911	109,049	111,230	113,455	115,724	118,038	120,399	122,807	125,263	127,768
Debenture Payments (capital + land)	-	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	854,723	923,271	994,562	1,146,555	1,225,136	1,306,744	1,391,467	1,479,399	1,570,633	1,665,267	908,677	1,010,410	1,115,850	1,225,103	1,338,280	1,455,494	1,576,861	1,700,386	1,828,221	1,960,490	2,097,318	2,139,264	2,182,049	2,225,690	2,270,204	2,315,608	2,361,921	2,409,159	2,457,342
Operating Revenues																														
Per Employee (inflated) X 487.77	-	-	45,165	92,137	140,970	191,719	244,442	299,197	356,045	415,046	476,266	539,768	605,619	673,889	744,648	817,967	893,921	972,586	1,052,647	1,135,521	1,221,289	1,310,034	1,336,234	1,362,959	1,390,218	1,418,022	1,446,383	1,475,311	1,504,817	1,534,913
Sub-total Operating Revenues	-	-	45,165	92,137	140,970	191,719	244,442	299,197	356,045	415,046	476,266	539,768	605,619	673,889	744,648	817,967	893,921	972,586	1,052,647	1,135,521	1,221,289	1,310,034	1,336,234	1,362,959	1,390,218	1,418,022	1,446,383	1,475,311	1,504,817	1,534,913
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)						-	-	-	-	-	-	-	-	-																
Beginning Balance	-	-	(854,723)	(2,677,728)	(4,528,144)	(6,302,287)	(7,924,694)	(9,396,273)	(10,717,966)	(11,890,738)	(12,915,583)	(13,793,524)	(13,670,891)	(13,403,492)	(12,992,438)	(12,438,878)	(11,743,989)	(10,908,985)	(9,935,113)	(8,822,765)	(7,573,232)	(6,187,838)	(4,667,949)	(3,240,270)	(1,646,258)	(68,628)	1,492,292	3,036,169	4,562,661	6,071,421
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(6,932,569)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	(854,723)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,092,522)	(1,100,044)	(1,107,565)	(1,115,087)	(1,122,609)	(1,130,131)	(1,137,652)	(1,145,174)	(1,152,696)	(1,160,218)	(1,167,740)	(1,175,261)	(1,182,783)	(1,190,305)	(1,197,827)	(1,205,349)	(1,212,701)	(1,220,054)	(1,227,407)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)
Operating Expenditures	-	-	(68,549)	(139,839)	(291,832)	(370,413)	(452,021)	(536,744)	(624,676)	(715,910)	(810,544)	(908,677)	(1,010,410)	(1,115,850)	(1,225,103)	(1,338,280)	(1,455,494)	(1,576,861)	(1,700,386)	(1,828,221)	(1,960,490)	(2,097,318)	(2,139,264)	(2,182,049)	(2,225,690)	(2,270,204)	(2,315,608)	(2,361,921)	(2,409,159)	(2,457,342)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	6,932,569																													
Operating Revenues	-	-	45,165	92,137	140,970	191,719	244,442	299,197	356,045	415,046	476,266	539,768	605,619	673,889	744,648	817,967	893,921	972,586	1,052,647	1,135,521	1,221,289	1,310,034	1,336,234	1,362,959	1,390,218	1,418,022	1,446,383	1,475,311	1,504,817	1,534,913
DC Revenues	-	-	147,623	152,052	156,614	161,312	166,151	171,136	176,270	181,558	187,005	192,615	198,393	204,345	210,476	216,790	223,294	229,992	236,892	243,999	251,319	258,858	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(854,723)	(2,677,728)	(4,528,144)	(6,302,287)	(7,924,694)	(9,396,273)	(10,717,966)	(11,890,738)	(12,915,583)	(13,793,524)	(13,670,891)	(13,403,492)	(12,992,438)	(12,438,878)	(11,743,989)	(10,908,985)	(9,935,113)	(8,822,765)	(7,573,232)	(6,187,838)	(4,667,949)	(3,240,270)	(1,646,258)	(68,628)	1,492,292	3,036,169	4,562,661	6,071,421	7,562,095
Net Annual Position	-	(854,723)	(1,823,005)	(1,850,416)	(1,774,144)	(1,622,406)	(1,471,580)	(1,321,693)	(1,172,771)	(1,024,845)	(877,941)	122,633	267,400	411,053	553,560	694,889	835,004	973,872	1,112,348	1,249,533	1,385,394	1,519,889	1,427,679	1,594,012	1,577,630	1,560,920	1,543,877	1,526,492	1,508,760	1,490,673
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(1,115,905)	(2,263,650)	(3,339,684)	(4,268,680)	(5,051,688)	(5,689,794)	(6,184,112)	(6,535,793)	(6,746,016)	(6,815,998)	(6,746,992)	(6,540,283)	(6,197,199)	(5,719,100)	(5,107,389)	(4,363,510)	(3,488,054)	(2,482,519)	(1,348,444)	(87,413)	1,340,265	2,934,277	4,511,907	6,072,827	7,616,704	9,143,196	10,651,957
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,092,522)	(1,100,044)	(1,107,565)	(1,115,087)	(1,122,609)	(1,130,131)	(1,137,652)	(1,145,174)	(1,152,696)	(1,160,218)	(1,167,740)	(1,175,261)	(1,182,783)	(1,190,305)	(1,197,827)	(1,205,349)	(1,212,701)	(1,220,054)	(1,227,407)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)	(1,234,760)
Operating Expenditures	-	-	(68,549)	(139,839)	(291,832)	(370,413)	(452,021)	(536,744)	(624,676)	(715,910)	(810,544)	(908,677)	(1,010,410)	(1,115,850)	(1,225,103)	(1,338,280)	(1,455,494)	(1,576,861)	(1,700,386)	(1,828,221)	(1,960,490)	(2,097,318)	(2,139,264)	(2,182,049)	(2,225,690)	(2,270,204)	(2,315,608)	(2,361,921)	(2,409,159)	(2,457,342)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	45,165	92,137	140,970	191,719	244,442	299,197	356,045	415,046	476,266	539,768	605,619	673,889	744,648	817,967	893,921	972,586	1,052,647	1,135,521	1,221,289	1,310,034	1,336,234	1,362,959	1,390,218	1,418,022	1,446,383	1,475,311	1,504,817	1,534,913
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(1,115,905)	(2,263,650)	(3,339,684)	(4,268,680)	(5,051,688)	(5,689,794)	(6,184,112)	(6,535,793)	(6,746,016)	(6,815,998)	(6,746,992)	(6,540,283)	(6,197,199)	(5,719,100)	(5,107,389)	(4,363,510)	(3,488,054)	(2,482,519)	(1,348,444)	(87,413)	1,340,265	2,934,277	4,511,907	6,072,827	7,616,704	9,143,196	10,651,957	12,142,630
Net Annual Position	-	-	(1,115,905)	(1,147,745)	(1,076,034)	(928,995)	(783,008)	(638,106)	(494,319)	(351,680)	(210,223)	(69,982)	69,006	206,708	343,084	478,099	611,711	743,879	875,456	1,005,535	1,134,075	1,261,031	1,427,679	1,594,012	1,577,630	1,560,920	1,543,877	1,526,492	1,508,760	1,490,673

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure A-3
Haldimand County
Scenario 1b Cashflow

Cash Flow Analysis - One Development

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	441,000																											
General Industrial	-	-	2,209,460																											
Total Employment (cumulative)	**-**	**-**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	441																											
General Industrial	-	-	1,331																											
Total Employment (cumulative)	**-**	**-**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*11,211,446*																											
General Industrial	-	-																												
DC Revenue - Non-residential (inflated)	-	-	11,894,223	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**11,894,223**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle																														
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,422,682**	**-**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**

Figure A-3 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		1,364,809	1,392,105	1,419,947	1,448,346	1,477,313	1,506,859	1,536,996	1,567,736	1,599,091	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					22,451	22,900	23,358	23,825	24,302	24,788	25,283	25,789	26,305	26,831	27,368	27,915	28,473	29,043	29,624	30,216	30,820	31,437	32,066	32,707	33,361	34,028	34,709	35,403	36,111	36,833
Debenture Payments (capital + land)	-	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,712,962	5,077,771	5,105,067	5,155,360	5,184,208	5,213,633	5,243,647	5,274,260	5,305,486	5,337,337	3,565,994	3,599,131	3,632,931	3,667,407	3,702,572	3,738,441	3,775,027	3,812,345	3,850,410	3,889,235	2,019,706	2,060,100	2,101,302	2,143,328	2,186,194	2,229,918	2,274,516	2,320,007	2,366,407
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	1,204,417	1,228,505	1,253,075	1,278,136	1,303,699	1,329,773	1,356,369	1,383,496	1,411,166	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	1,204,417	1,228,505	1,253,075	1,278,136	1,303,699	1,329,773	1,356,369	1,383,496	1,411,166	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831
Sub-total Taxation Revenues	-	-	-	-	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831
Sale of Land (inflated)						-	-	-	-	-	-	-	-	-																
Beginning Balance	-	-	(3,712,962)	3,911,598	(361,272)	(830,034)	(1,302,582)	(1,778,992)	(2,259,342)	(2,743,710)	(3,232,177)	(3,724,824)	(2,417,905)	(1,115,335)	182,798	1,476,406	2,765,399	4,049,683	5,329,166	6,603,750	7,873,338	9,137,830	12,306,255	15,469,379	18,627,094	21,779,294	24,925,867	28,066,700	31,201,681	34,330,690
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)
Operating Expenditures	-	-	(1,364,809)	(1,392,105)	(1,442,398)	(1,471,246)	(1,500,671)	(1,530,684)	(1,561,298)	(1,592,524)	(1,624,374)	(1,656,862)	(1,689,999)	(1,723,799)	(1,758,275)	(1,793,441)	(1,829,309)	(1,865,896)	(1,903,214)	(1,941,278)	(1,980,103)	(2,019,706)	(2,060,100)	(2,101,302)	(2,143,328)	(2,186,194)	(2,229,918)	(2,274,516)	(2,320,007)	(2,366,407)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,422,682																													
Operating Revenues	-	-	1,204,417	1,228,505	1,253,075	1,278,136	1,303,699	1,329,773	1,356,369	1,383,496	1,411,166	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	11,894,223	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,712,962)	3,911,598	(361,272)	(830,034)	(1,302,582)	(1,778,992)	(2,259,342)	(2,743,710)	(3,232,177)	(3,724,824)	(2,417,905)	(1,115,335)	182,798	1,476,406	2,765,399	4,049,683	5,329,166	6,603,750	7,873,338	9,137,830	12,306,255	15,469,379	18,627,094	21,779,294	24,925,867	28,066,700	31,201,681	34,330,690	37,453,609
Net Annual Position	-	(3,712,962)	7,624,561	(4,272,870)	(468,762)	(472,548)	(476,410)	(480,350)	(484,368)	(488,467)	(492,647)	1,306,919	1,302,570	1,298,133	1,293,608	1,288,992	1,284,284	1,279,482	1,274,584	1,269,588	1,264,492	3,168,426	3,163,124	3,157,716	3,152,199	3,146,573	3,140,834	3,134,980	3,129,009	3,122,919
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(556,700)	(1,116,608)	2,127,593	5,368,007	8,604,558	11,837,171	15,065,765	18,290,260	21,510,575	24,726,626	27,938,328	31,145,593	34,348,332	37,546,456	40,739,872	43,928,486	47,112,202	50,290,922	53,464,545	56,632,971	59,796,094	62,953,810	66,106,009	69,252,582	72,393,416	75,528,396	78,657,406
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)
Operating Expenditures	-	-	(1,364,809)	(1,392,105)	(1,442,398)	(1,471,246)	(1,500,671)	(1,530,684)	(1,561,298)	(1,592,524)	(1,624,374)	(1,656,862)	(1,689,999)	(1,723,799)	(1,758,275)	(1,793,441)	(1,829,309)	(1,865,896)	(1,903,214)	(1,941,278)	(1,980,103)	(2,019,706)	(2,060,100)	(2,101,302)	(2,143,328)	(2,186,194)	(2,229,918)	(2,274,516)	(2,320,007)	(2,366,407)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	1,204,417	1,228,505	1,253,075	1,278,136	1,303,699	1,329,773	1,356,369	1,383,496	1,411,166	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831	3,829,831
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(556,700)	(1,116,608)	2,127,593	5,368,007	8,604,558	11,837,171	15,065,765	18,290,260	21,510,575	24,726,626	27,938,328	31,145,593	34,348,332	37,546,456	40,739,872	43,928,486	47,112,202	50,290,922	53,464,545	56,632,971	59,796,094	62,953,810	66,106,009	69,252,582	72,393,416	75,528,396	78,657,406	81,780,325
Net Annual Position	-	-	(556,700)	(559,908)	3,244,200	3,240,414	3,236,552	3,232,612	3,228,594	3,224,496	3,220,315	3,216,051	3,211,701	3,207,265	3,202,740	3,198,124	3,193,416	3,188,614	3,183,716	3,178,720	3,173,624	3,168,426	3,163,124	3,157,716	3,152,199	3,146,573	3,140,834	3,134,980	3,129,009	3,122,919

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure A-4
Haldimand County
Cashflow for Scenario 1c

Cash Flow Analysis - Industrial Condominium Model

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21								
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66								
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
DC Revenues																														
Light Industrial	-	-	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	-	-	-	-	-	-	-	-
General Industrial	-	-	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**594,711**	**612,552**	**630,929**	**649,857**	**669,353**	**689,433**	**710,116**	**731,420**	**753,362**	**775,963**	**799,242**	**823,219**	**847,916**	**873,353**	**899,554**	**926,541**	**954,337**	**982,967**	**1,012,456**	**1,042,830**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle																														
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle																														
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	19,905	39,810	59,715	79,619	99,524	119,429	139,334	159,239	179,144	199,049	218,953	238,858	258,763	278,668	298,573	318,478	337,935	357,393	376,850	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,422,682**	**-**	**19,905**	**39,810**	**59,715**	**79,619**	**99,524**	**119,429**	**139,334**	**159,239**	**179,144**	**199,049**	**218,953**	**238,858**	**258,763**	**278,668**	**298,573**	**318,478**	**337,935**	**357,393**	**376,850**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**	**396,308**

Figure A-4 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					22,451	22,900	23,358	23,825	24,302	24,788	25,283	25,789	26,305	26,831	27,368	27,915	28,473	29,043	29,624	30,216	30,820	31,437	32,066	32,707	33,361	34,028	34,709	35,403	36,111	36,833
Debenture Payments (capital + land)	-	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,712,962	3,781,511	3,852,801	3,949,367	4,026,839	4,107,316	4,190,886	4,277,641	4,367,676	4,461,085	2,754,139	2,854,599	2,958,740	3,066,669	3,178,494	3,294,330	3,414,291	3,536,382	3,662,754	3,793,531	2,019,706	2,060,100	2,101,302	2,143,328	2,186,194	2,229,918	2,274,516	2,320,007	2,366,407
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)						-	-	-	-	-	-	-	-	-																
Beginning Balance	-	-	(3,712,962)	(6,859,174)	(10,015,827)	(13,022,776)	(15,857,811)	(18,520,723)	(21,011,300)	(23,329,321)	(25,474,562)	(27,446,786)	(27,441,922)	(27,263,553)	(26,911,420)	(26,385,261)	(25,684,800)	(24,809,755)	(23,759,837)	(22,534,047)	(21,132,066)	(19,553,562)	(15,889,063)	(13,090,303)	(10,114,556)	(7,144,327)	(4,179,723)	(1,220,859)	1,732,152	4,679,192
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(19,905)	(39,810)	(59,715)	(79,619)	(99,524)	(119,429)	(139,334)	(159,239)	(179,144)	(199,049)	(218,953)	(238,858)	(258,763)	(278,668)	(298,573)	(318,478)	(337,935)	(357,393)	(376,850)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)
Operating Expenditures	-	-	(68,549)	(139,839)	(236,405)	(313,877)	(394,354)	(477,924)	(564,679)	(654,713)	(748,123)	(845,007)	(945,468)	(1,049,609)	(1,157,537)	(1,269,363)	(1,385,198)	(1,505,159)	(1,627,250)	(1,753,623)	(1,884,399)	(2,019,706)	(2,060,100)	(2,101,302)	(2,143,328)	(2,186,194)	(2,229,918)	(2,274,516)	(2,320,007)	(2,366,407)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,422,682																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,712,962)	(6,859,174)	(10,015,827)	(13,022,776)	(15,857,811)	(18,520,723)	(21,011,300)	(23,329,321)	(25,474,562)	(27,446,786)	(27,441,922)	(27,263,553)	(26,911,420)	(26,385,261)	(25,684,800)	(24,809,755)	(23,759,837)	(22,534,047)	(21,132,066)	(19,553,562)	(15,889,063)	(13,090,303)	(10,114,556)	(7,144,327)	(4,179,723)	(1,220,859)	1,732,152	4,679,192	7,620,141
Net Annual Position	-	(3,712,962)	(3,146,212)	(3,156,653)	(3,006,949)	(2,835,034)	(2,662,912)	(2,490,577)	(2,318,022)	(2,145,240)	(1,972,224)	4,864	178,369	352,132	526,159	700,461	875,045	1,049,919	1,225,790	1,401,981	1,578,504	3,664,499	2,798,761	2,975,746	2,970,230	2,964,603	2,958,864	2,953,011	2,947,040	2,940,949
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(27,961)	(84,204)	(9,120)	218,951	599,648	1,132,600	1,817,425	2,653,727	3,641,103	4,779,135	6,067,394	7,505,439	9,092,813	10,829,053	12,713,675	14,746,185	16,926,770	19,254,916	21,730,095	24,351,764	27,150,525	30,126,271	33,096,501	36,061,104	39,019,969	41,972,979	44,920,019
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(19,905)	(39,810)	(59,715)	(79,619)	(99,524)	(119,429)	(139,334)	(159,239)	(179,144)	(199,049)	(218,953)	(238,858)	(258,763)	(278,668)	(298,573)	(318,478)	(337,935)	(357,393)	(376,850)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)	(396,308)
Operating Expenditures	-	-	(68,549)	(139,839)	(236,405)	(313,877)	(394,354)	(477,924)	(564,679)	(654,713)	(748,123)	(845,007)	(945,468)	(1,049,609)	(1,157,537)	(1,269,363)	(1,385,198)	(1,505,159)	(1,627,250)	(1,753,623)	(1,884,399)	(2,019,706)	(2,060,100)	(2,101,302)	(2,143,328)	(2,186,194)	(2,229,918)	(2,274,516)	(2,320,007)	(2,366,407)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(27,961)	(84,204)	(9,120)	218,951	599,648	1,132,600	1,817,425	2,653,727	3,641,103	4,779,135	6,067,394	7,505,439	9,092,813	10,829,053	12,713,675	14,746,185	16,926,770	19,254,916	21,730,095	24,351,764	27,150,525	30,126,271	33,096,501	36,061,104	39,019,969	41,972,979	44,920,019	47,860,969
Net Annual Position	-	-	(27,961)	(56,244)	75,084	228,071	380,698	532,952	684,824	836,302	987,376	1,138,032	1,288,259	1,438,044	1,587,375	1,736,240	1,884,623	2,032,510	2,180,585	2,328,146	2,475,179	2,621,669	2,798,761	2,975,746	2,970,230	2,964,603	2,958,864	2,953,011	2,947,040	2,940,949

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Appendix B

Initial Phase 2 Report – Financial Analysis and Business Plan



North Caledonia Employment Land Feasibility and Servicing Study

Haldimand County

Phase 2 Report – Financial Analysis and Business Plan

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October 2024

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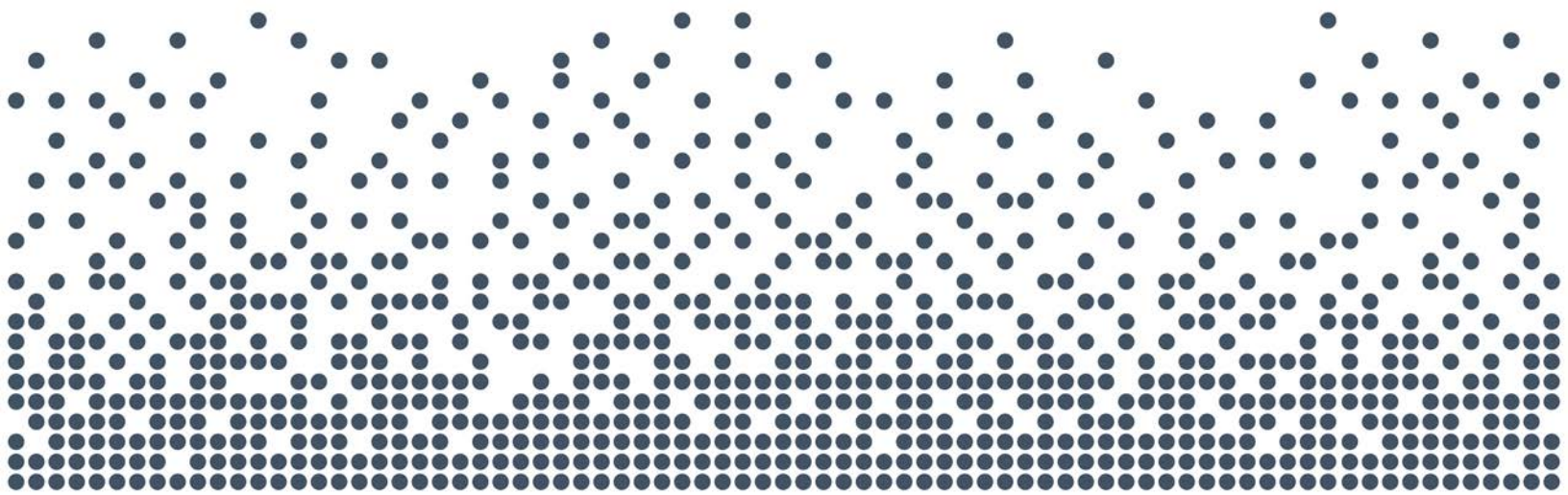
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List of Acronyms and Abbreviations

cu.m	Cubic metre
D.C.	Development Charges
F.I.R.	Financial Information Return
G.F.A.	Gross Floor Area
ha	Hectare
km	kilometre
L.S.P.	Local Service Policy
R.O.I.	Return on investment
sq.ft.	Square foot



Executive Summary

Executive Summary

The Consultant Team of Watson & Associates Economists Ltd. (Watson), WSP Canada Group Limited (WSP) and GM BluePlan Engineering (GM BluePlan) was retained to prepare an Employment Lands Feasibility and Servicing Study to assist Haldimand County (the "County") in being well-positioned to accommodate a diverse range of employment growth over the coming decades.

This study is being prepared in three (3) phases:

1. Phase 1: Location Analysis, Market Research and Analysis, and Functional Servicing Design;

2. Phase 2: Financial Analysis and Business Plan; and

3. Phase 3: Property Administration and Management.

This report presents the analysis undertaken for Phase 2 of this study. Based on the findings of Phase 1, a detailed financial analysis and business plan has been undertaken to quantify the financial impact of developing the North Caledonia Employment Lands on the County. The infrastructure and costing identified in the Servicing Analysis undertaken by GM BluePlan in addition to the potential development in the Study Area was utilized to determine financial impacts.

Growth Forecast

The Study Area is located in north Caledonia, bounded by Greens Road to the south, Mines Road to the west, and Highway 6 to the east. The following table provides for a summary of the anticipated development of the Study Area, as identified in Phase 1 of this Study:

Figure ES-1
Haldimand County
Summary of Development of Study Area

Employment Type	Land Area (Gross hectares)	Jobs per Gross Hectare	Total Jobs	Floor Space per Worker (sq.ft.)	Gross Floor Area (sq.ft.)
Light Industrial	19	23.4	441	1,000	441,000
General Industrial	102	13.0	1,331	1,660	2,209,460
Total	**121**	**14.6**	**1,772**	**1,500**	**2,650,460**

Operating Analysis

Based on the potential new employment and non-residential growth, an operating expenditure and revenue analysis was undertaken. The existing operating costs and revenues were examined to determine how they are likely to be impacted by development to estimate the growth-related impacts. These forecasted operating impacts were subsequently examined in conjunction with the capital financing forecast to determine net impacts to the County.

As a result of the additional employment growth, the County would receive additional assessment arising from the development of non-residential buildings. The total non-residential assessment is anticipated to increase by $151.89 million at buildout of the lands, based on the growth forecast presented above. These properties are expected to be taxed at the industrial tax rate, with a small proportion taxed at the commercial rate.

Capital Expenditures and Funding Sources

Based on the anticipated development of the Study Area, GM BluePlan has identified recommended site servicing and high-level cost estimates for the infrastructure required to accommodate a conceptual subdivision layout of the area.

There are significant capital costs associated with accommodating growth within the Study Area. Growth-related works which benefit a broader area, or a municipality as a whole, are generally funded by development charges (D.C.s), whereas works which benefit a single landowner/developing area (i.e. local service) are generally considered direct developer responsibility to construct and fund.

The County's local service policy (L.S.P.) sets out the general policy guidelines on D.C. versus local service funding for services related to a highway (roads), stormwater management, parkland development, and underground linear services (i.e. water and wastewater).

Based on the County's L.S.P., and given the Study Area will be a host for future industrial development, all external water and wastewater works required to service the Study Area are considered to be D.C. funded whereas internal water and wastewater works are considered direct developer responsibility and would need to be constructed/funded by the developer. In addition, all roads and stormwater related works are also considered direct developer responsibility.

The following table provides a summary of the total capital costs required to service this area, in addition to the D.C. and non-D.C. (i.e. benefit to existing development) related shares of the work:

Figure ES-2
Haldimand County
Capital Cost Funding Summary

Service	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
External Water Infrastructure Projects	$10,981,500	$10,981,500	$6,932,569	$0	$0
Internal Water Infrastructure Projects	20,763,000	-	-	-	20,763,000
External Wastewater Infrastructure Projects	91,792,000	91,792,000	31,490,113	-	-
Internal Wastewater Infrastructure Projects	21,455,000	-	-	-	21,455,000
Internal Stormwater Infrastructure Projects	32,220,000	-	-	-	32,220,000
External Roads Infrastructure Projects	16,114,000	-	-	-	16,114,000
Internal Roads Infrastructure Projects	14,335,000	-	-	-	14,335,000
Sub-Total External Infrastructure Project Costs	**$118,887,500**	**$102,773,500**	**$38,422,682**	**$0**	**$16,114,000**
Sub-Total Internal Infrastructure Project Costs	**$88,773,000**	**$0**	**$0**	**$0**	**$88,773,000**
Total Infrastructure Project Costs	**$207,660,500**	**$102,773,500**	**$38,422,682**	**$0**	**$104,887,000**

Further to the initial capital costs identified above, additional costs have been factored into the financial analysis to account for future replacement of the infrastructure. These are annual funds that are allocated to replace the infrastructure put in place at the end of its useful life, consistent with current policy and practice in the County. Given the large investment in infrastructure required to service this area, these annual lifecycle costs have a significant impact on the annual financial position identified herein.

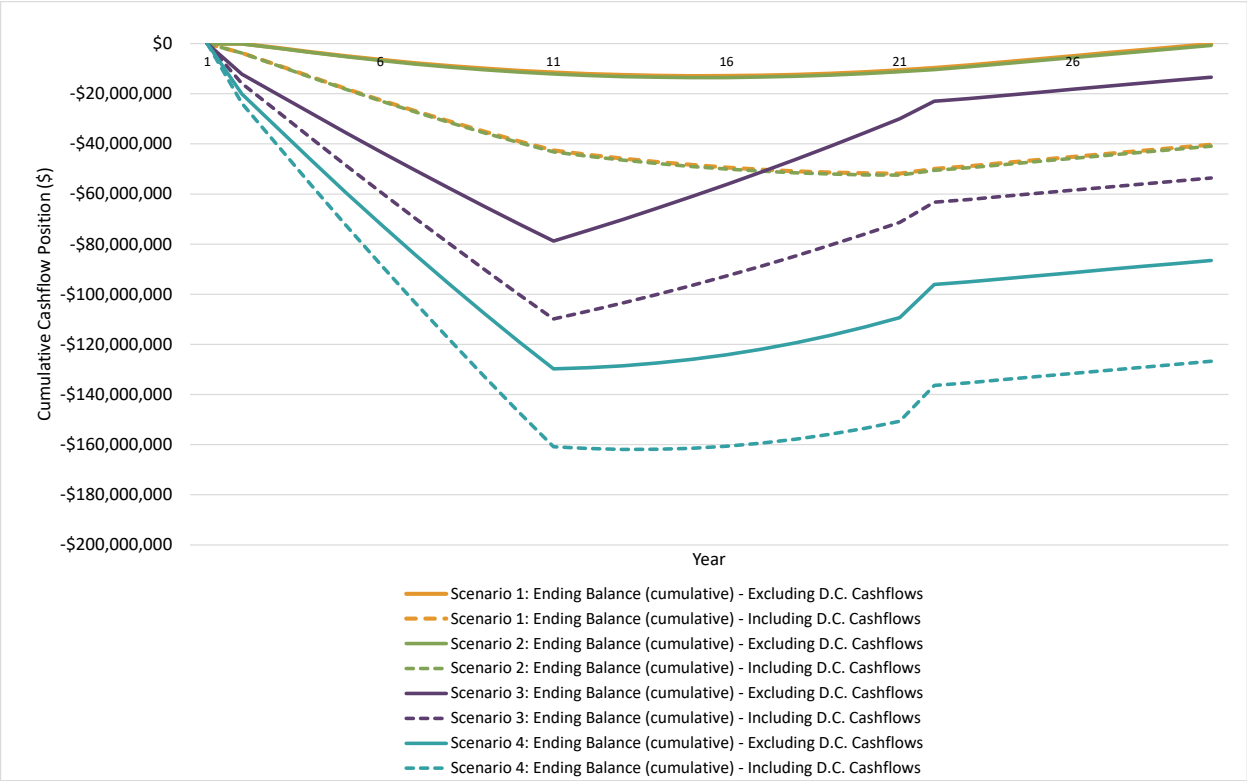
Business Case Scenario Analysis

The financial analysis and business case explores four (4) scenarios related to the development of the North Caledonia Employment Lands:

1. The Study Area is privately developed and traditionally designed and operated;
2. The County invests in conceptual planning, then sells the plans to a developer;
3. The County acts as the land developer in partnership with the private sector; and
4. The County develops, acquires, services, and sells land parcels.

The financial analysis is provided on an annual basis for each of the four (4) scenarios to provide a cashflow which summarizes the cumulative and net annual impacts. The following graph provides a comparison of the four (4) scenarios with respect to the cashflow position over a 30-year horizon (assuming development occurs over 20-years) both with and without D.C.-related cashflows (i.e., D.C. expenditures and revenues):

Figure ES-3
Haldimand County
Comparison of Cashflow Scenarios



When D.C. cashflows are included in the analysis[1], none of the four (4) scenarios provide a positive net annual impact over the 30-year time horizon. A separate analysis was undertaken to understand the net financial impacts excluding D.C. cashflows, given that this will provide a better understanding of the net impacts to existing taxpayers/ratepayers.

Based on the above graph, all four scenarios provide for a negative cashflow position by the end of the 30 years with the exclusion of D.C. cashflows. Scenarios 1 and 2 do not provide for positive cashflow by year 30, however they are close to the breakeven point given tax revenues exceed annual lifecycle replacement costs by year 15. Scenario 3

[1] This study reviewed the analysis both including and excluding D.C. cashflows. D.C. cashflows include the inflows (i.e. D.C. revenues received from the development of new buildings) and outflows (i.e. D.C.-funded capital expenditures). Given that these expenditures do not directly impact taxes/rates, the analysis was undertaken both with and without these cashflows to better understand the impact to the County.

provides for a larger negative cashflow position given the investments required in internal infrastructure. Scenario 4 provide for the largest negative cashflow position over the forecast, given the significant infrastructure and land investments required by the County.

In order to evaluate the profitability of the investment into these employment lands from a business case lens, it is important to look at the return on investment (R.O.I.) from the County's perspective. By year 30, none of the four scenarios provide for a positive R.O.I. given the negative cashflow.

Figure ES-4
Haldimand County
Summary of Return on Investment – Excluding D.C. Cashflows

Summary of Return on Investment Excluding D.C. Cashflows	Scenario 1 - Privately Planned and Developed		Scenario 2 - County Planned with Private Development		Scenario 3 - County Develops with Private Partnership		Scenario 4 - County Plans, Develops, and Sells Land	
Initial Investment	-		500,000		104,887,000		202,559,075	
Breakeven Year	N/A		N/A		N/A		N/A	
Year	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**
Year 10	(9,041,185)	n/a	(9,505,424)	-1901%	(60,162,186)	-57%	(99,466,038)	-49%
Year 20	(7,792,237)	n/a	(8,215,391)	-1643%	(24,387,425)	-23%	(77,607,080)	-38%
Year 30	(51,133)	n/a	(398,266)	-80%	(7,532,511)	-7%	(48,714,034)	-24%

Note: although there is no initial investment in non-growth-related capital required by the County for scenario 1, once infrastructure is installed, costs would be incurred related to ongoing lifecycle cost allocations as well as additional operating costs. Given there is no initial investment for this scenario, the return on investment is not applicable here.

A sensitivity analysis[1] was undertaken to analyze the impacts of a 10-year development timeframe. The R.O.I. table below indicates that with the exclusion of D.C.-related cashflows, scenarios 1, 2, and 3 provide for a positive cashflow by the end of the forecast, with the breakeven point occurring in year 18, whereas scenario 3 reaches the breakeven point by year 27. The positive cashflow is provided due to the acceleration of the buildout of the lands and full tax revenues from development are provided earlier

[1] A sensitivity analysis is a financial modeling tool to analyze how an independent variable would affect a specific dependent variable. For this analysis, the development timeframe (i.e. the independent variable), was adjusted from 20 to 10 years to determine the impact on cashflows (i.e. the dependent variable).

in the forecast. Scenario 4 does not reach a positive cashflow position given the investment required for land and internal infrastructure.

Figure ES-5
Haldimand County
Summary of Return on Investment – Excluding D.C. Cashflows
10-year Development Timeframe

Summary of Return on Investment Excluding D.C. Cashflows	Scenario 1 - Privately Planned and Developed		Scenario 2 - County Planned with Private Development		Scenario 3 - County Develops with Private Partnership		Scenario 4 - County Plans, Develops, and Sells Land	
Initial Investment	-		500,000		104,887,000		202,559,075	
Breakeven Year	Year 18		Year 18		Year 27		N/A	
Year	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.
Year 10	(6,522,554)	n/a	(6,986,793)	-1397%	(16,746,754)	-16%	(36,170,042)	-18%
Year 20	2,756,807	n/a	2,333,654	467%	(5,450,975)	-5%	(53,741,551)	-27%
Year 30	9,745,575	n/a	9,398,442	1880%	2,264,197	2%	(50,344,451)	-25%

Note: although there is no initial investment in non-growth-related capital required by the County for scenario 1, once infrastructure is installed, costs would be incurred related to ongoing lifecycle cost allocations as well as additional operating costs. Given there is no initial investment for this scenario, the return on investment is not applicable here.

Debt Capacity Considerations

The significant investment in capital infrastructure in this area requires debt financing under all four (4) scenarios. The following table provides a summary of the total debt requirements, by scenario:

Figure ES-6
Haldimand County
Summary of Debt Requirements, by Scenario

Scenario	Debt Requirements				
	D.C.	Non-D.C.	Local Service	Land	Total Debt Requirements
Scenario 1	38,422,682	-	-	-	**38,422,682**
Scenario 2	38,422,682	500,000	-	-	**38,922,682**
Scenario 3	38,422,682	-	104,887,000	-	**143,309,682**
Scenario 4	38,422,682	500,000	104,887,000	97,172,075	**240,981,757**

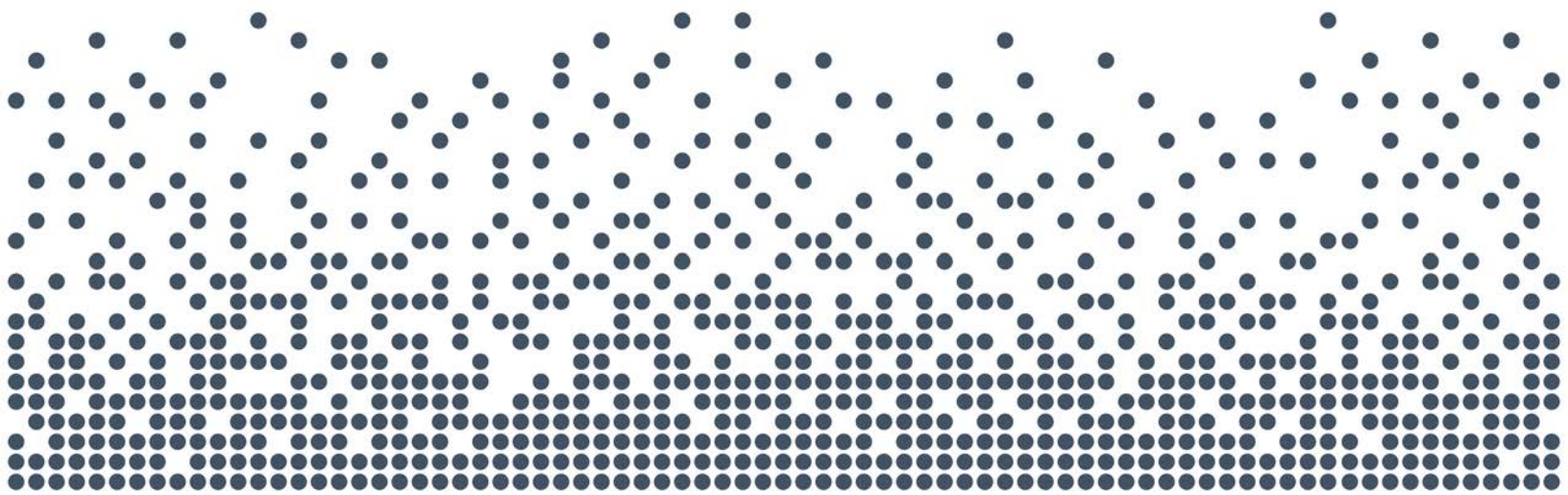
The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act.* Ontario Regulation 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). However, the County has a more conservative debt capacity policy limit set at 10% of own purpose revenue. It is also important to consider the debt requirements/commitments for other projects required across the County. Through the County's annual budget process, it is anticipated that the County will exceed the 10% debt capacity limit in 2025, based on debt commitments for capital projects required outside of this Study Area. If the County were to proceed with investing in the development of these lands, the debt payments may exceed the provincially imposed 25% cap.

Conclusions

- Investing in industrial lands provides numerous benefits to municipalities including generating employment opportunities, supporting lower property taxes and lower overall operating costs, relative to residential development types.
- There are significant capital costs associated with servicing this Study Area. This will impose a financial burden on the County, given the requirement to cashflow any debt payments and the annual lifecycle costs of the internal infrastructure.
- Based on the 20-year development forecast, all four scenarios provide negative cashflows by the end of the 30-year time horizon. This is largely due to the lifecycle replacement costs exceeding tax revenues until year 15 of the forecast period. These negative cashflow positions will impose a financial burden on existing taxpayers/ratepayers as funding will be required to support growth in the Study Area.
- Based on the sensitivity analysis which assumes growth occurs over a 10-year timeframe, the development provides for positive cashflow (excluding D.C. cashflows) under Scenarios 1 and 2, by year 18 and by year 27 for Scenario 3. Due to the accelerated growth, the tax revenues exceed the lifecycle costs earlier in the forecast period.
- The debt requirements would impose a financial risk on the County and limit future financial flexibility, given that a large portion of the County's debt capacity would be allocated to the development of this Study Area. These debt needs

would also require the County to revise its existing debt policies. Given other debt requirements, funding the development of this Study Area with debt may put the County over the Provincially mandated debt capacity.

- The analysis has assumed even annual development over 10- and 20-year time horizons. There is a further risk to the County if the Study Area is not built out over the assumed timeframes. The County would be responsible for cashflowing the works over a longer than anticipated timeframe which would impose a negative burden on the County's financial position.
- It is noted that many of the costs identified in the Servicing Plan for the Study Area are not included in the current D.C. background study. Further, the costs that are identified in the D.C. study are significantly lower than current cost estimates. It is important for the County to update its current by-law to incorporate these projects/cost updates to ensure a higher proportion of cost recovery from the development of this area.



Report

Chapter 1
Introduction

1. Introduction

1.1 Terms of Reference

The Consultant Team of Watson & Associates Economists Ltd. (Watson), WSP Canada Group Limited (WSP) and GM BluePlan Engineering (GM BluePlan) was retained to prepare an Employment Lands Feasibility and Servicing Study to assist Haldimand County (the "County") in being well-positioned to accommodate a diverse range of employment growth over the coming decades.

The County has identified a need for designated and serviced employment land to remain competitive in growing and changing markets and to accommodate forecasted employment growth within the County. The County has identified approximately 184 hectares of lands in North Caledonia (the "Study Area") as a location for future employment land uses.

To ensure continued growth and diversity of the County's Employment Areas, planning and marketing efforts must be geared toward both the broader strengths of its Employment Areas, as well as specific target sector investment attraction efforts. The County is forecast to experience significant population and employment growth to the year 2051. According to Watson's 2020 Growth Study Update, the County's reported 2021 population of 50,400 is expected to increase to 77,000 in 2051 with employment increasing from 19,205 to 29,000 during that same time horizon. The Growth Study also demonstrates that 50% of employment growth in the area is forecast to occur in Caledonia.

The key objectives of the North Caledonia Employment Lands Feasibility and Servicing Study are to continue to promote economic development within the County by ensuring there is an adequate supply of serviced and developable employment land to attract target employment sectors and businesses. This study has been undertaken to provide direction on the type of employment which should be attracted to the North Caledonia employment lands, the competitiveness of employment lands in the County compared to the surrounding regional area, as well as a plan for how these lands should be serviced and financed.

In accordance with this review, the study process is being undertaken in three phases as follows:

Phase 1: Location Analysis, Market Research and Analysis, and Functional Servicing Design

This report was completed in May 2023 and provides the following components:

- A location analysis to determine the constraints on developable limits, specifically those related to physical limitations, in the North Caledonia employment lands Study Area;
- An economic base and labour force analysis to identify current gaps and opportunities within Haldimand County's current employment market;
- A target sector analysis to determine key future employment sectors which have potential for growth, particularly those which have synergies with existing employment clusters;
- A competitive analysis which examines Haldimand County's competitive position compared to the surrounding regional area, regarding diversity of existing developable employment lands and the financial competitiveness of these lands; and
- A functional servicing design which:
    - Provides recommendations on potential changes to O.P. designations and/or zoning bylaws, in accordance with the future vision for the North Caledonia employment lands; and
    - Based on the above recommendations, provides further expertise regarding planning controls, type and cost of servicing, and a conceptual design of the North Caledonia employment lands.

Phase 2: Financial Analysis and Business Plan

Based on the findings of Phase 1, a detailed financial analysis and business plan has been undertaken to quantify the financial impact on the County. The infrastructure and costing identified in the Servicing Analysis undertaken by GM BluePlan in addition to the potential development in the Study Area was utilized to determine financial impacts. The findings of this analysis are provided in this report.

Phase 3: Property Administration and Management

Following Council's direction on Phases 1 and 2, the Consultant Team will commence Phase 3 which involves recommendations regarding property administration and management marketing as well as an implementation plan.

1.2 Benefits of Investing in Industrial Lands

Development typically accommodated on employment/industrial lands generates relatively strong economic multipliers (i.e. spin-off effects) that benefit the County and surrounding area directly and indirectly. In addition, industrial land development typically generates high-quality employment opportunities which can improve local socioeconomic conditions (i.e. live/work opportunities). Furthermore, achieving non-residential growth adds to the County's tax assessment base, which can help support lower property taxes and stronger municipal service levels. Industrial land development also tends to produce more favourable net fiscal benefits when compared to other types of development (e.g. residential and retail). Thus, a healthy balance between residential and non-residential development is considered an important policy objective for the County as a whole.

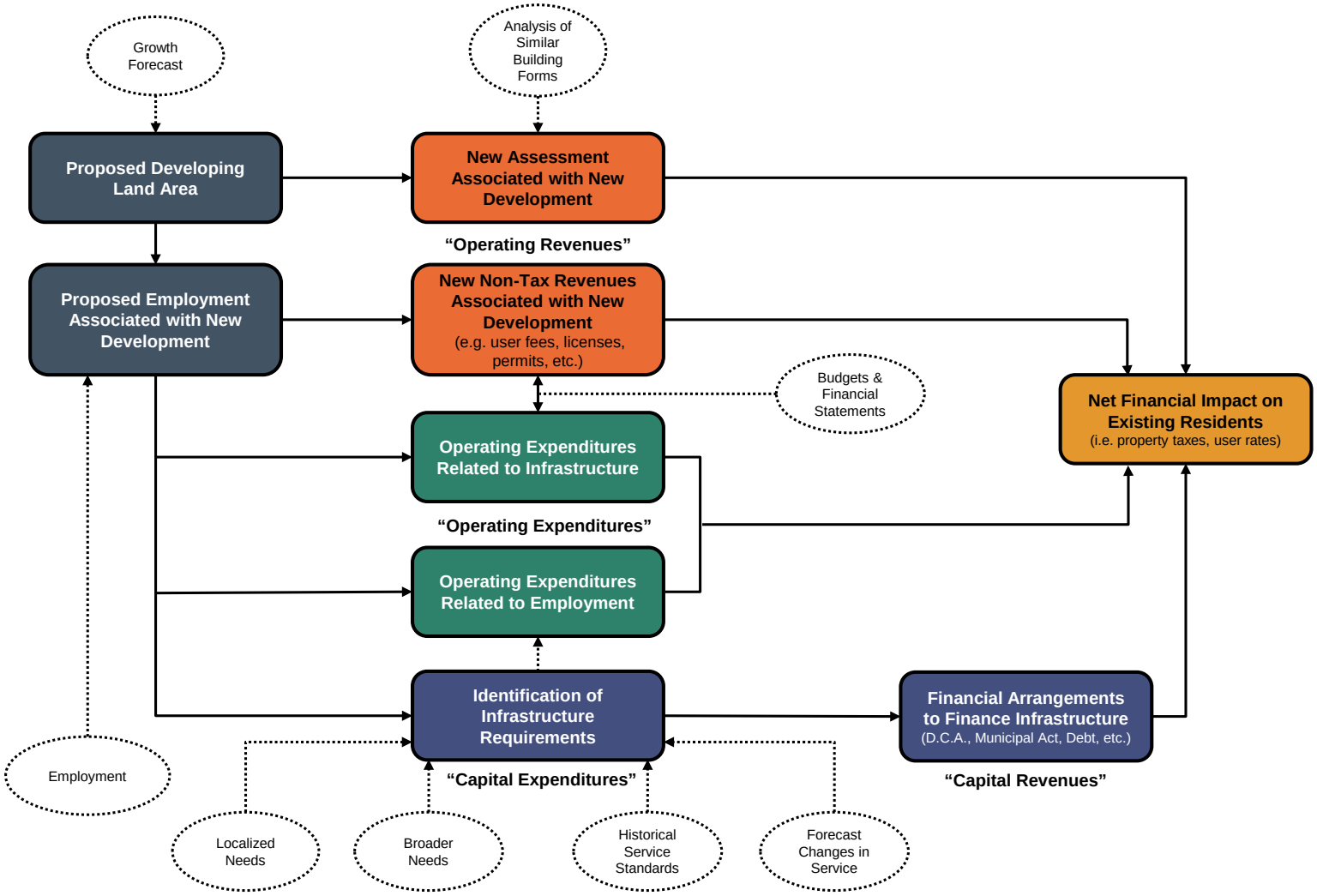
1.3 Overview of Financial Evaluation

Figure 1-1 below provides a schematic overview of the financial analysis undertaken for this report. The following provides further description of the steps undertaken.

- **Dark Blue Boxes** denote the anticipated development within the Study Area. The lower box denotes the employment growth forecast for the Study Area that is detailed in Chapter 2.
- **Green Boxes** denote the additional operating expenditures anticipated over time. These costs have been assessed on two different bases: operating costs related to infrastructure and operating costs related to employment. The former identifies the specific operating costs anticipated to be incurred as additional infrastructure (e.g., roads, water distribution infrastructure, wastewater collection infrastructure etc.) is constructed. The latter identifies program expenditures which are linked to employment growth. These impacts are discussed in Chapter 3.

- **Dark Orange Boxes** denote anticipated operating revenues commensurate with growth. The upper box identifies the additional assessment anticipated as non-residential building activity occurs over the forecast period. This new assessment gives rise to additional property tax revenue. The lower box identifies non-tax revenues such as user fees, permits, licenses, etc., which are anticipated to grow in concert with employment growth. The non-tax revenues and assessment growth are discussed in Chapter 3.
- **Purple Boxes** denote the capital infrastructure needs and associated financing to service the anticipated development. The capital requirements to support the servicing needs (water, wastewater, stormwater, and roads) were developed by GM BluePlan through the Site Servicing Analysis included in the Phase 1 report. The resultant capital needs and financing methods for funding the infrastructure are detailed in Chapter 4.
- **Light Orange/Yellow Box** denotes the overall financial impact on property taxes and rates over the forecast period. This impact is discussed further in Chapter 5 as part of the business case analysis.

Figure 1-1
Haldimand County
Overview of Financial Analysis Methodology



1.4 Report Outline

The report is structured to discuss each component of the financial analysis methodology noted above.

The remaining chapters of the report are provided as follows:

- Chapter 2 provides a summary of the anticipated growth in employment, non-residential floor area, and assessment over the buildout of the Study Area.
- Chapter 3 provides an analysis of operating impacts resulting from the anticipated growth.
- Chapter 4 discusses the capital needs and anticipated funding methods.
- Chapter 5 combines the assessment growth, operating, and capital impacts to provide an overall financial impact from a cashflow perspective. This analysis has been undertaken to review the financial feasibility of four different development scenarios. These scenarios have been reviewed utilizing a ten- and twenty-year development timeframe.
- Chapter 6 concludes the analysis and provides observations.

The report chapters are supported by appendices which provide additional detail to support the calculations and analysis.

Chapter 2
Summary of Potential Development

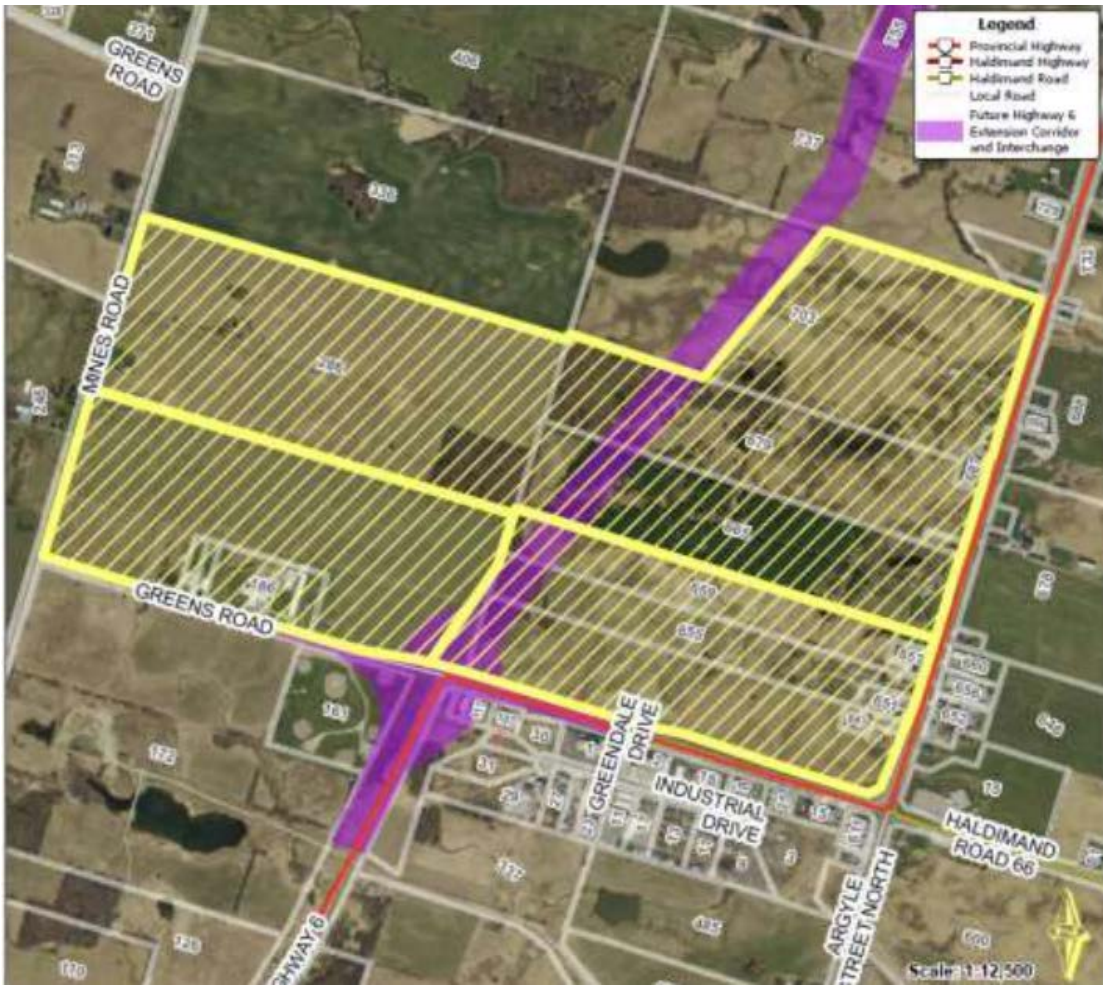
2. Summary of Potential Development

2.1 Overview of Subject Lands

The subject lands are located in north Caledonia, bounded by Greens Road to the south, Mines Road to the west, and Highway 6 to the east (see Figure 2-1). The site has a net developable area of 99.3 ha (245 acres). The predominant use of the Subject Lands is agriculture, with some light industrial and agriculture-related employment uses to the south and east fronting onto, and with access from, Greens Road and Highway 6. South of Greens Road is an existing unserviced industrial area that is designated by the County's Official Plan as Urban Business Park with businesses that appear targeted to logistics and construction. The Ministry of Transportation Ontario has identified a protected corridor to facilitate a long-term plan to construct a Highway 6 bypass that transects the Subject Lands, as shown on Figure 2-1.

The Subject Lands are strategically located, being in proximity to major transportation corridors including Highway 6, Highway 403, and the John C. Munro Hamilton International Airport. The Hamilton International Airport is the third largest cargo airport in Canada and the largest overnight express cargo airport, giving any future employment uses within the Subject Lands direct access to a much broader market. This strategic location gives it access to the regional markets of Hamilton, Brantford, Toronto, and Niagara, and international markets via the John C. Munro Airport and the land border with the United States of America via Niagara Region.

Figure 2-1
Haldimand County
North Caledonia Subject Lands



2.2 Future Growth in Study Area

The total area of the lands is approximately 184 hectares. GM BluePlan undertook an analysis to establish the total serviceable land (i.e. net developable area). Various undevelopable areas such as natural features, stormwater ponds, roads, woodlots, etc. were identified, which provides for a net developable area of 99.3 hectares.

An employment density was defined for the Study Area, based on the employment land needs identified in the Phase 1 report. Based on the table below and assumed

employment densities for light industrial and general industrial[1], the Study Area can accommodate 441 light industrial jobs (e.g., packaging, distribution facilities, certain types of manufacturing, etc.) and 1,331 general industrial jobs (e.g., machinery, chemicals, etc.) for a total estimated 1,772 jobs. Based on an assumed floor space per worker assumption of 1,500 sq.ft. per employee, the development of these lands would generate approximately 2,650,460 sq.ft. in non-residential gross floor area (G.F.A.).

Figure 2-2
Haldimand County
Summary of Development of Study Area

Employment Type	Land Area (Gross hectares)	Jobs per Gross Hectare	Total Jobs	Floor Space per Worker (sq.ft.)	Gross Floor Area (sq.ft.)
Light Industrial	19	23.4	441	1,000	441,000
General Industrial	102	13.0	1,331	1,660	2,209,460
Total	**121**	**14.6**	**1,772**	**1,500**	**2,650,460**

2.3 Assessment Assumptions

Assessment (normally referred to as Current Value Assessment) is the basis on which property taxes are calculated and paid to municipal government. As the Study Area develops, the County would receive additional assessment arising from the completion of the non-residential building construction, which will in turn increase the municipality's ability to raise tax revenue. Figure 2-3 provides for the estimated new assessment to be generated from the development of the Study Area, based on the development forecast provided in Figure 2-2.

The assessment assumptions for non-residential development was based on a survey of business parks in other communities, believed to be of comparable type to the anticipated development in the North Caledonia Study Area. Industrial areas/properties within Caledonia, Cainsville (Brant County) and the City of Guelph were surveyed. Based on an analysis of these industrial areas, the average assessment was estimated

[1] Note: this employment density was applied to a gross available area of 121 hectares, which includes the net developable area, stormwater management ponds, and roads. This would exclude areas such as natural features and natural environment setbacks.

at approximately $57/sq.ft. of gross floor area of buildings. This average assessment value has been used to estimate the anticipated assessment in for the Study Area.

Figure 2-3
Haldimand County
Basis of Assessment Estimates

Type Description	Average Assessment per Sq.ft.	Est. GFA	Assessed Value
Light Industrial	$57	441,000	$25,289,287
General Industrial	$57	2,209,460	$126,702,194
Total		**2,650,460**	**$151,991,481**

Chapter 3
Operating Analysis

3. Operating Analysis

3.1 Introduction

This chapter examines the operating impacts with respect to property tax revenues, operating expenditures, and non-tax revenues generated from the development of the Study Area. The detailed calculations are provided in Appendix A, however the overall methodology is described below.

3.2 Operating Expenditure Implications

Figure A-1 summarizes the County's "Revenue Fund" or "Operating Fund" transactions for 2021 (based on the County's Financial Information Return (F.I.R.)). This represents a simple "model" of the County's financial position for the operating fund and provides the structure of the financial impact analysis contained in this chapter.

Figure A-2 modifies the operating expenditures shown in Figure A-1 by netting "Interest on Long Term Debt", "External Transfers", and "Amortization" from the total. The debt charges are for "sunk" investments, unaffected by growth. The external transfers can vary significantly from year to year and relate largely to capital expenditures and general reserves, which are addressed separately in this analysis. Further, amortization is an accounting allocation which seeks to capture annual replacement costs. As this is based on historical costs, a separate analysis of lifecycle expenditures (based on future replacement cost) is conducted later in this report. It is therefore appropriate to remove these three classes of expenditures from the spending base, before determining incremental loss and/or average operating fund spending levels per employee.

Figure A-3a allocates the County's existing operating expenditure components between the needs of residential development and non-residential development (i.e. industrial, commercial, and institutional), based on differences in the amount of such development and the need for particular types of services in each case. The expenditure allocation is then presented on a per capita/per employee basis. The expenditures are divided between residential and non-residential development based on varying proportions for each service. Most expenditures have been shared on a population-to-employment basis. As the 2021 total population is 48,224 and the 2021 employment is 13,839, these costs are allocated 78% to population and 22% to employment. For solid waste

collection, waste diversion, public health, cemeteries, child care, parks and recreation, libraries, museums and cultural services, a minor allocation has been provided to non-residential development which acknowledges some usage by the non-residential sector. Services such as general assistance, assistance to aged persons and social housing are entirely allocated to the residential sector. Roads, water, and wastewater services expenditures (Figure A-3b) have been allocated based on the existing infrastructure; Linear infrastructure (roads, watermains and sanitary sewers) operating expenditures are based on a per km operating cost related to the existing linear infrastructure in the County, whereas water and wastewater treatment operating costs are based on a per cu.m cost.

Figure A-4a assesses each of the County's key service components in relation to the proposed development to determine how the operating costs are likely to be impacted, based on the characteristics and location of the subject development. Roads, water, and wastewater services expenditures have been calculated based on the new infrastructure built as a result of the development of the Study Area. Linear infrastructure (roads, watermains and sanitary sewers) operating expenditures are based on a per km operating cost related to the new linear infrastructure and water and wastewater treatment operating costs are based on the incremental cubic metres of water and wastewater to be treated as a result of development. These expenditures are provided in Figure A-4b

The "Growth Share %" column denotes a particular percentage factor in each case. This factor reflects any variation from the current overall average expenditure level, which is called for in dealing with a development increment. For instance, if the average existing expenditure for a service is $100 per employee, economies of scale or other efficiencies, may indicate that service costs for the growth increment alone are likely to be lower than average, say 90% (or $90 per capita), while being unaltered for the base population. This determination has been based on analysis of the County's budget, measurement of current levels of service, other relevant studies prepared as part of this process, facility configuration, practice elsewhere, and the consultant's experience. The provisions made are considered to be adequate with respect to the proposed development and maintain the existing level of service capacity in the County.

These percentage attributions are used to compute average incremental operating costs on a per employee basis for non-residential (a per capita cost is not shown as the

proposed development only relates to non-residential growth), which is reflected in the "Net Expenditure" column. The per employee expenditure averages are utilized, subsequently, to estimate the incremental expenditure requirement generated by growth.

Based on the analysis provided in Figures A-4a and A-4b, the forecast of annual expenditures has been undertaken. Figures A-5a and A-5b provide for the per capita amount multiplied by the assumed growth take-up/infrastructure constructed. The total line provides for the product of this calculation.

It is noted that this analysis was undertaken utilizing the 2021 F.I.R., and as such, all numbers in this analysis have been provided in 2021 dollars. For consistency in the cashflow analysis discussed in later sections of this report, the results of the operating expenditure and non-tax revenue analysis have been inflated from 2021 dollars to current dollars.

In summary, the total operating cost per capita (for non water, wastewater, and roads services) is $740.30 per capita ($583.05 per capita in 2021 dollars). For water, wastewater, and roads services, the cost per km and per cubic metre are as follows:

- Roadways and Winter Control - $9,031.45 per km ($7,113.06 per km in 2021 dollars)
- Water Distribution/Transmission - $5,237.88 per km ($4,125.29 per km in 2021 dollars)
- Wastewater Collection/Conveyance- $3,773.38 per km ($2,971 per km in 2021 dollars)
- Water Treatment - $1.73 per cu.m ($1.36 per cu.m in 2021 dollars)
- Wastewater Treatment & Disposal - $0.96 per cu.m ($0.75 per cu.m in 2021 dollars)

When applied to the anticipated employment and infrastructure required, the incremental expenditure anticipated at buildout of the Study Area is $1.40 million (2024 dollars), as provided in the following table:

Figure 3-1
Haldimand County
Summary of Operating Expenditures (at Buildout) – 2024$

Operating Expenditure Category	Increment Measure	Cost per Increment	Incremental Employment/ Infrastructure	Incremental Expenditures (2024 $)
Employment-Driven Operating Costs	Employees	740	1,772	1,311,812
Roads Operating Costs	Kilometres of roads	9,031	4.32	39,016
Water Distribution/Transmission Operating Costs	Kilometres of watermains	5,238	5.12	26,792
Wastewater Collection/Conveyance Operating Costs	Kilometres of sanitary sewers	3,773	5.31	20,018
Water Treatment Operating Costs	Cu.m of water treated	1.73	1,020	1,767
Wastewater Treatment Operating Costs	Cu.m of wastewater treated	0.96	600	573
Total				**1,399,977**

3.3 Operating Revenue Implications

Figure A-6 sets out the 2021 non-tax revenues for the County as outlined in Figure A-1. The figure distinguishes the revenues by service specific revenues and those being of a general nature. The user fees, service charges and conditional grant revenue from this table (summarized in the second last column) is pulled forward to Table A-7 to further assess non-tax revenues that future growth may affect.

Figures A-7a and A-7b assess the 2021 non-tax revenues as to those which may be directly affected by growth. Generally, any grants and subsidies have been eliminated and the residual amounts are assessed as to their applicability to growth. The costs are then allocated between the residential population and employees to provide a per capita/per employee revenue.

Figures A-8a and A-8b assesses the estimated proportionate share of growth in a similar manner as provided in Figure A-5. Figure A-9a and A-9b then determine the forecast non-tax revenue to be generated annually based on the growth to buildout provided in Figure 2-1.

In summary, the total operating revenue per capita (for non water and wastewater services) is $280.43 per capita ($220.86 per capita in 2021 dollars). For water and wastewater the revenue per capita is $372.87 per capita ($293.67 in 2021 dollars)

When applied to the anticipated employment, the incremental revenues anticipated at buildout of the Study Area is $1.16 million (2024 dollars), as provided in the following table:

Figure 3-1
Haldimand County
Summary of Operating Revenues (at Buildout) – 2024$

Operating Revenue Category	Increment Measure	Revenue per Employee	Incremental Employment	Incremental Revenues (2024 $)
Tax-Supported Services	Employees	280.43	1,772	496,915
Water and Wastewater Services	Employees	372.87	1,772.00	660,730
Total				**1,157,645**

3.4 Taxation Revenue

Based on the estimated assessment value of the proposed development provided in Figure 2-2, a forecast of the taxation revenue to be generated at buildout was undertaken using the 2023 tax rates. Figure 3-1 provides for this calculation to buildout. In undertaking this calculation, it is recognized that the study area does currently pay property taxes to the County estimated at $96,000. This amount has been netted from the estimated taxation revenue estimate to establish the additional taxation revenue increment. Note: based on a review of similar industrial parks, it is assumed that 17% of the assessment generated in the Study Area would be assessed at a commercial tax rate.

Figure 3-1
Haldimand County
Property Tax Revenue – at Buildout
(Based on 2023 Tax Rates)

Property Tax Classes		Municipal Property Tax Revenue
1. Property Tax		
Non-residential Growth		
Commercial Assessment (CT)		*25,838,552*
Property Tax Revenue	**1.8790%**	485,512
Total Commercial Property Tax Revenue		485,512
Non-residential Growth		
Industrial Assessment (IT)		*126,152,929*
Property Tax Revenue	**2.5833%**	3,258,881
Total Industrial Property Tax Revenue		3,258,881
Less Existing Property Tax Revenue		96,531
TOTAL PROPERTY TAX REVENUE		**3,647,862**

Chapter 4
Capital Expenditures and Funding Sources

4. Capital Expenditures and Funding Sources

It is noted that the Study Area is currently primarily agricultural with some commercial and residential uses along the boundary roads of Highway 6, Greens Road, and Mines Road. The Study Area does not have access to municipal servicing and the existing properties are serviced by private (on-site) systems.

Based on the anticipated development of the Study Area, GM BluePlan has identified recommended site servicing and high-level cost estimates for the infrastructure required for the conceptual subdivision layout of the area.

4.1 Summary of Infrastructure Costs

Infrastructure needs have been identified for roads, water, wastewater, and stormwater services. Figure 4-1 provides a summary of the capital costing based on the servicing needs and infrastructure costs identified by GM BluePlan in the Phase 1 report. Note: costs identified by GM BluePlan were provided in 2020 dollars, however, for the purposes of the financial analysis herein, costs have been inflated to 2024 dollars using a factor of 39% (based on Statistics Canada Non-Residential Building Construction Price Index).

Figure 4-1
Haldimand County
Capital Needs Summary

Service	Total Replacement Cost (2020 $)	Total Capital Cost (2024 $)
External Water Infrastructure Projects	$7,900,000	$10,981,500
Internal Water Infrastructure Projects	14,925,000	20,763,000
External Wastewater Infrastructure Projects	65,970,000	91,792,000
Internal Wastewater Infrastructure Projects	15,420,000	21,455,000
Internal Stormwater Infrastructure Projects	23,155,000	32,220,000
External Roads Infrastructure Projects	11,580,000	16,114,000
Internal Roads Infrastructure Projects	10,300,000	14,335,000
Sub-Total External Infrastructure Project Costs	**$85,450,000**	**$118,887,500**
Sub-Total Internal Infrastructure Project Costs	**$63,800,000**	**$88,773,000**
Total Infrastructure Project Costs	**$149,250,000**	**$207,660,500**

Based on the above, the capital costs associated with servicing the Study Area are approximately $207.66 million in 2024 dollars. A detailed listing of the capital projects for each service is provided in Appendix B.

4.2 Growth-Related Capital Funding Sources

Based on the above, there are significant capital costs associated with accommodating growth within the Study Area. Growth-related works which benefit a broader area, or a municipality as a whole are generally funded by development charges (D.C.s), whereas works which benefit a single landowner/developing area (i.e. local service) are generally considered direct developer responsibility to construct and fund.

The County's local service policy (L.S.P.) sets out the general policy guidelines on D.C. versus local service funding for services related to a highway (roads), stormwater management, parkland development, and underground linear services (i.e. water and wastewater).

The following sections provide a summary of whether the capital works identified would be funded through D.C.s or would be a direct developer responsibility under the L.S.P.

4.2.1 Water and Wastewater Services

The County's L.S.P. (see Appendix E of County of Haldimand 2018 Development Charges Background Study, dated May 2, 2019) states the following with respect to water infrastructure:

> "Water treatment, storage facilities, re-chlorination/sampling stations and upstream capacity improvements associated with one or more basin areas servicing primarily industrial lands shall be included in the D.C."
>
> "external underground services involving trunk infrastructure and pipes shall be paid through development charges"
>
> "providing all underground services internal to the development shall be direct developer responsibilities as a local service"

The following provides the wording in the L.S.P. related to wastewater infrastructure:

"wastewater treatment plants, biosolids, sanitary pumping stations, and downstream capacity improvements servicing one or more basin areas servicing primarily industrial lands shall be included in the D.C."

"external underground services involving trunk infrastructure and pipes shall be paid through development charges"

"providing all underground services internal to the development shall be direct developer responsibilities as a local service"

Based on the above, all external works related to water and wastewater that are required to service the Study Area are anticipated to be funded through D.C.s. whereas the internal works are to be constructed and funded by the developing landowner.

4.2.2 Roads

Under the County's L.S.P., all roads and related infrastructure (e.g. intersection improvements, streetlights, sidewalks, etc.), that are needed to support a specific development area or to link the area to the existing network are considered to be direct developer responsibility. In other words, works that are unrelated to a specific development would be funded through D.C.s, whereas if the works are required to support a specific development area, these would be direct developer responsibility.

Since the works identified in GM BluePlan's report (both internal and external) are all required to support this development area, the projects are considered developer responsibility and would not be funded through D.C.s.

4.2.3 Stormwater

All stormwater works, whether internal to the development or external, that are required for a specific development area are considered to be a direct developer responsibility.

Based on the County's L.S.P. and given that the stormwater projects are all considered internal works, this infrastructure would be considered a direct developer responsibility and would need to be installed and funded by the developing landowner.

4.3 Summary of Capital Funding

Based on the discussion above, a summary of the works and the associated funding source is provided in Figure 4-2 below. Of the water and wastewater projects that are to be D.C. funded, the following should be noted:

- Certain external works that benefit the study area, also benefit other areas across the County (e.g. new wastewater treatment plant). Only the costs of these projects related to the study area have been incorporated into the cashflow analysis identified in later sections of this report. These amounts are identified in the table below under the "Total D.C. Share for Study Area" column.

Figure 4-2
Haldimand County
Capital Cost Funding Summary

Service	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
External Water Infrastructure Projects	$10,981,500	$10,981,500	$6,932,569	$0	$0
Internal Water Infrastructure Projects	20,763,000	-	-	-	20,763,000
External Wastewater Infrastructure Projects	91,792,000	91,792,000	31,490,113	-	-
Internal Wastewater Infrastructure Projects	21,455,000	-	-	-	21,455,000
Internal Stormwater Infrastructure Projects	32,220,000	-	-	-	32,220,000
External Roads Infrastructure Projects	16,114,000	-	-	-	16,114,000
Internal Roads Infrastructure Projects	14,335,000	-	-	-	14,335,000
Sub-Total External Infrastructure Project Costs	**$118,887,500**	**$102,773,500**	**$38,422,682**	**$0**	**$16,114,000**
Sub-Total Internal Infrastructure Project Costs	**$88,773,000**	**$0**	**$0**	**$0**	**$88,773,000**
Total Infrastructure Project Costs	**$207,660,500**	**$102,773,500**	**$38,422,682**	**$0**	**$104,887,000**

The details for the above table are provided in Appendix B.

4.4 Lifecycle Replacement Costs

As per County policy, when new infrastructure is constructed/installed, the County begins to allocate funds, on an annual basis, to replace the infrastructure at the end of its useful life. These annual contributions may be referred to as lifecycle costs. Given the level of investment in infrastructure required to service this Study Area, the County will need to ensure that lifecycle costs for new assets are addressed and incorporated into the budget process.

This analysis identifies a need to increase transfers to capital replacement reserves for new assets once they are constructed and assumed by the County. Lifecycle needs for growth-related assets have been calculated based on average useful lives of similar

existing assets. Transfers to reserves are then anticipated to be a tax levy/rate requirement in the years after the new assets are in service.

There are two types of lifecycle costs that have been considered as part of this analysis:

- **Direct Lifecycle Costs:** this relates to capital infrastructure, both D.C.-related and local service related, that is in place to directly service this development. Given that these costs are a direct result of the development of the Study Area, the full annual lifecycle replacement cost for this infrastructure has been factored into the analysis.
- **Indirect Lifecycle Costs:** this relates to works that have been identified in the County's D.C. study. This also includes broader works that have been identified in this analysis as required for this development, however, this infrastructure also benefit areas outside of the Study Area, and are not included in the County's current D.C. study. The indirect lifecycle costs included in this analysis are based on the proportionate share of growth within the Study Area, relative to the growth identified in the County's D.C. Background Study.

Figure 4-3 provides a summary of the annual lifecycle costs, by service once all of the infrastructure has been installed and assumed by the County. These costs have been factored into the analysis in considering the financial feasibility of developing the Study Area.

Figure 4-3
Haldimand County
Summary of Annual Direct Lifecycle Costs

Service	Annualized Direct Lifecycle Cost (2024 $)
Roads	$421,100
Stormwater	141,400
Wastewater	539,800
Water	522,500
Total Annual Lifecycle Costs	**$1,624,800**

The total annual indirect lifecycle costs at buildout are $396,300. Note, since these costs are based on a per-employee value, the full annual costs related to this infrastructure have been identified at buildout of the Study Area.

Figure 4-4 provides for the annual total lifecycle costs at buildout. These costs have been factored into the financial analysis presented in the next chapter.

Figure 4-4
Haldimand County
Summary of Annual Total Lifecycle Costs at Buildout

Lifecycle Cost	Annualized Cost
Direct Lifecycle Costs	$1,624,800
Indirect Lifecycle Costs	$396,300
Total	**$2,021,100**

Chapter 5
Business Case Analysis

5. Business Case Analysis

Based on the capital and operating budget implications analyzed in earlier chapters of this report, Watson undertook a review of four (4) potential development scenarios of the Study Area as follows:

1. The Study Area is privately developed and traditionally designed and operated;
2. The County invests in conceptual planning, then sells the plans to a developer;
3. The County acts as the land developer in partnership with the private sector; and
4. The County develops, acquires, services, and sells land parcels.

Utilizing the operating and capital analysis discussed in Sections 3 and 4, these four (4) scenarios were analyzed on an annual basis. A cashflow analysis was undertaken to estimate the cumulative and net annual impacts.

Detailed assumptions for this business case were developed by Watson and reviewed with staff prior to finalizing the various scenarios. These assumptions are outlined in Appendix D. The scenarios presented below assume buildout of the Study Area will occur equally over a 20-year period. A sensitivity analysis was undertaken to analyse the cashflow with the assumption that the lands will buildout over 10-years. This is provided at the end of this section.

The cashflow analysis is calculated as follows:

Beginning balance in each year
- Less: Expenditures
  - Capital (D.C., non-D.C., and local service works)
  - Annual lifecycle expenditures
  - Purchase of land (if applicable)
  - Operating related (F.I.R. operating expenditures and debenture payments)
- Plus: Revenues
  - D.C. revenues
  - Non-tax operating revenues
  - Property taxes

- Sale of land (if applicable)

Equals the net cashflow

As part of this analysis, a separate cashflow analysis was undertaken to understand the financial impacts with the exclusion of D.C.-related cashflows. Given that the costs to be funded by D.C.s (i.e. growth-related capital costs) are not borne by existing taxpayers/ratepayers, this separate analysis was undertaken to exclude these costs to understand whether the net financial impacts on the County are positive or negative.

The cashflow analysis excluding D.C. cashflows is calculated as follows:

Beginning balance in each year
- Less: Expenditures
  - Capital (non-D.C. and local service works)
  - Annual lifecycle expenditures
  - Purchase of land (if applicable)
  - Operating related (F.I.R. operating expenditures and non-D.C.-related debenture payments)
- Plus: Revenues
  - Non-tax operating revenues
  - Property taxes
  - Sale of land

Equals the net cashflow

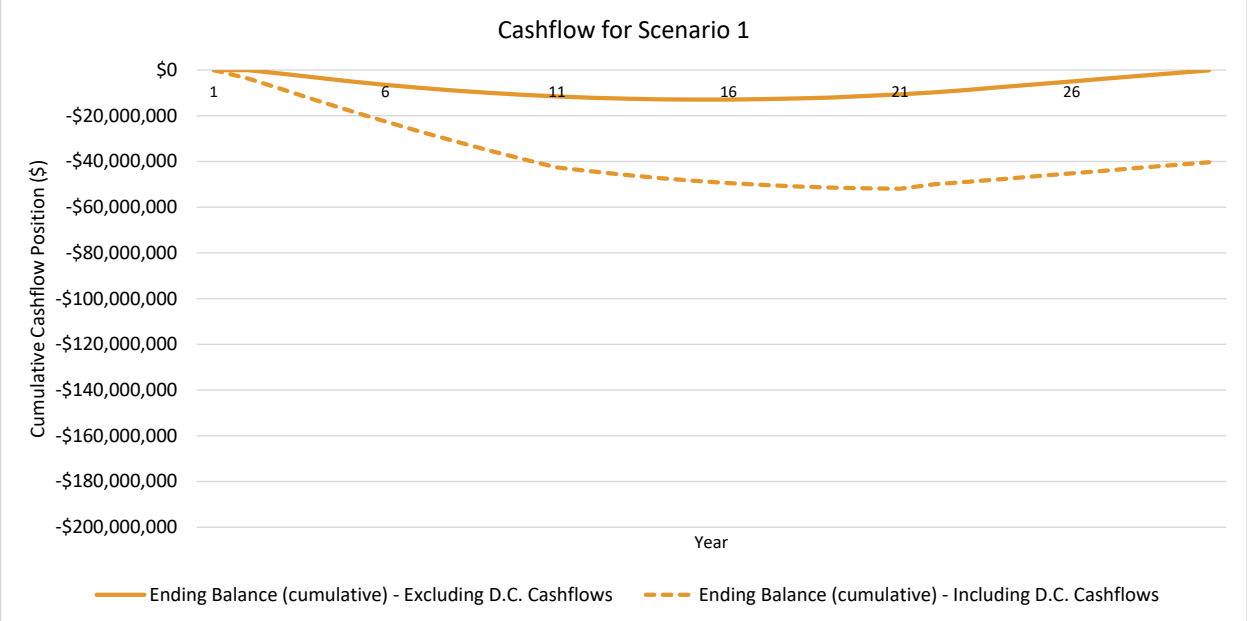
Although D.C.-related works are not directly funded by the County, deficits in D.C. funding would need to be cash-flowed by the County either through other internal sources or through debt financing, which may have impacts on debt capacity. The impacts of debt financing are discussed later in this section.

5.1 Scenario 1: Employment Lands are Privately Developed and Traditionally Designed and Operated

Scenario 1 assumes that the Study Area is privately developed and traditionally designed and operated. This scenario assumes developers will pay D.C.s applicable to their development and install local infrastructure, based on the requirements of the local service policy. Based on the assumptions outlined in Appendix D, a cashflow analysis

was undertaken to determine the net fiscal impacts of the development. The detailed cashflow analysis is provided in Appendix C and summarized in the graph below. The graph provides for the cumulative cashflow position over the 30-year period for the scenario including D.C. cashflows (dashed) and the scenario excluding D.C. cashflows (solid). Given the significant D.C.-related capital investment in this area, the County would not realize a net positive impact over the 30-year horizon analyzed. This is due to the significant costs related to the growth-related infrastructure as the D.C. revenues generated from this area are not sufficient to recover the full costs. When considering only the cashflows excluding D.C.s, the development of the Study Area still provides a negative impact to the County, however, the cashflow position is approaching the breakeven point at the end of the 30-year time horizon. Although there is no initial investment by the County in Scenario 1, given that the infrastructure is either paid for through D.C.s or installed by a private developer, the annual lifecycle replacement costs of the internal infrastructure are higher than the anticipated annual tax revenue until year 15. This is resulting in a negative cashflow position over the forecast period.

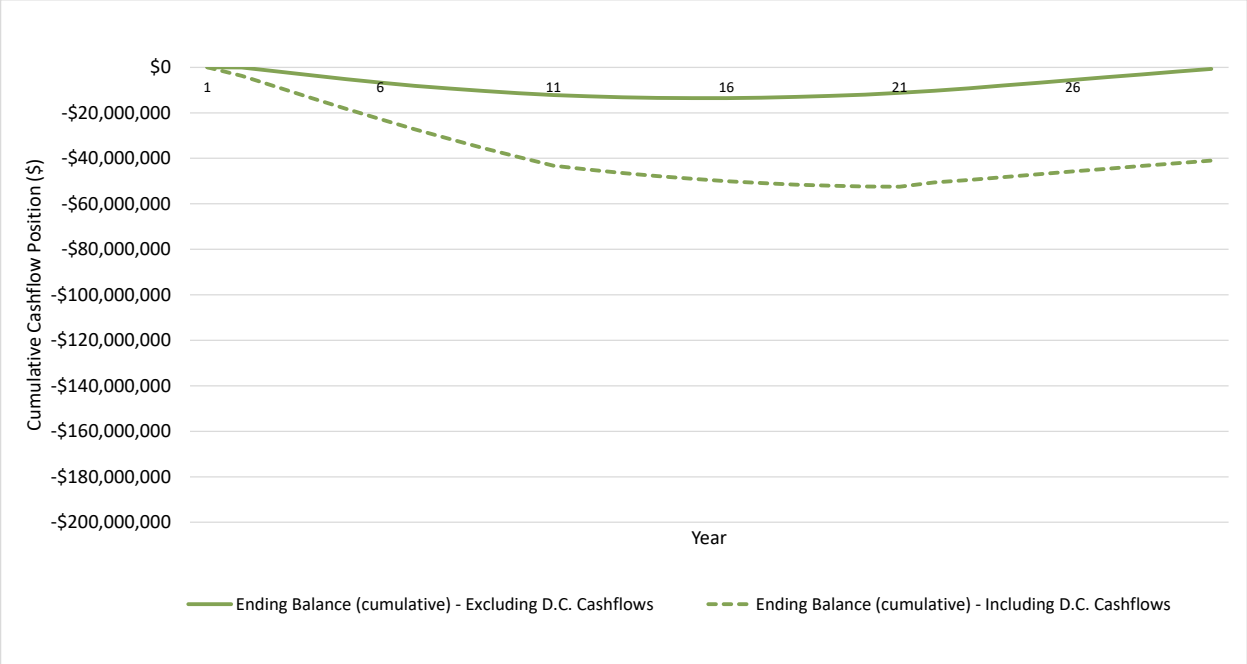
Figure 5-1
Haldimand County
Cashflow for Scenario 1



5.2 Scenario 2: County Invests in Conceptual Planning and Sells to Developer

Under Scenario 2, it is assumed that the County would invest in the conceptual planning of the study area and subsequently sell these plans to a developer. Based on discussions with staff, it is assumed that these planning studies would cost approximately $500,000. This additional cost has been factored into the cashflow scenario graphs presented below. Similar to the discussion provided above for Scenario 1, the graph below provides for the net cashflow position including D.C. cashflows (i.e. D.C. revenues and D.C.-related expenditures required to service the Study Area) and excluding D.C. cashflows:

Figure 5-2
Haldimand County
Cashflow for Scenario 2



Similar to Scenario 1, the development of the Study Area does not provide for a positive financial impact over the 30-year forecast period. It is noted that with the exclusion of D.C. cashflows, the cashflow position is close to the breakeven point at the end of the forecast period given that tax revenues exceed the lifecycle expenditures by year 15.

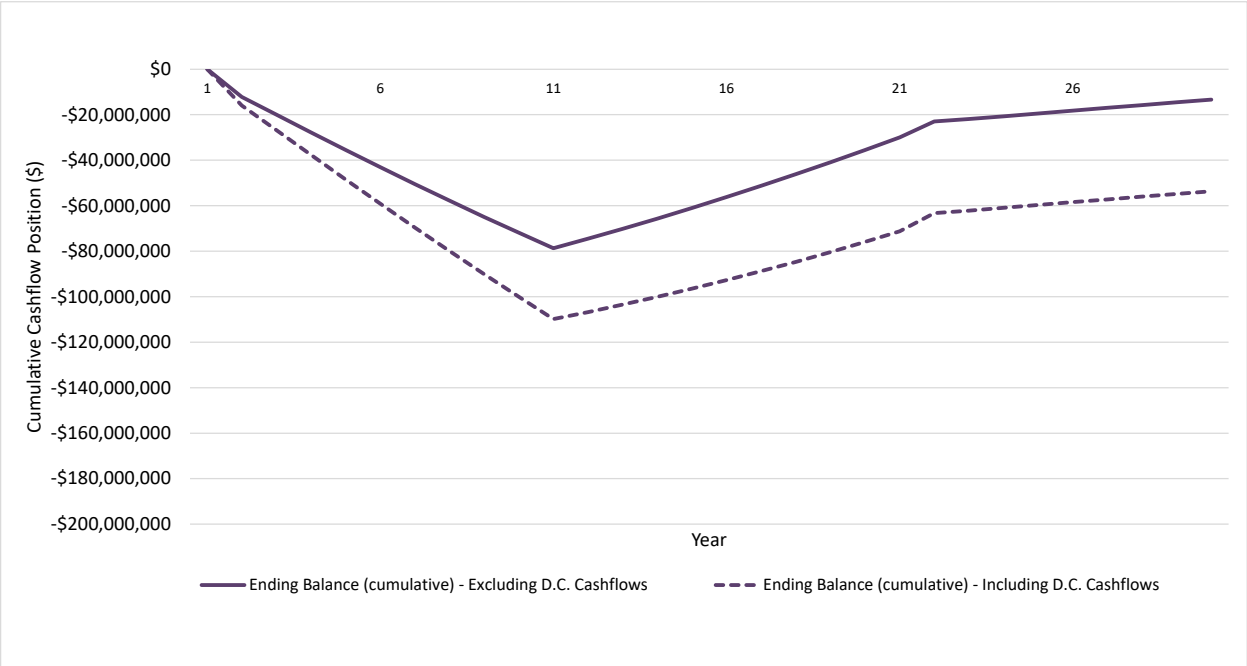
The cashflow impacts are similar to Scenario 1, as the only difference is the assumption of additional costs related to planning studies.

5.3 Scenario 3: County Acts as the Land Developer in Partnership with the Private Sector

Under Scenario 3, it is assumed that the County will act as the land developer in partnership with the private sector. It is assumed that a private entity will purchase the lands and through agreement with the County, the County would service these lands. As a result, no land purchase is assumed in this scenario, however, the County would be responsible for the costs and installation of local service infrastructure. It is assumed that the County will recover these costs when the private developer sells the lands (through partnership agreement the land purchaser would pay back the County for development of the lands when the lands are sold).

Through an analysis of the capital works required, all water and wastewater works are considered to be D.C. funded, however, there are significant local service-related works for stormwater and roads. Under this scenario, these works are assumed to be debt financed by the County. When the private developer sells the land, the cost of the works, in addition to interest costs would be recouped by the County. Figure 5-3 below provides for the cashflow position, including and excluding D.C. cashflows. Similar to Scenarios 1 and 2, Scenario 3 does not provide for a positive cashflow position at the end of thirty years.

Figure 5-3
Haldimand County
Cashflow for Scenario 3



This scenario provides for a larger initial negative cashflow position given that the County is responsible for investing in the local service works. These costs get recouped from the private developer over the forecast period as development occurs so that by the end of the 30 years, the cashflow position is closer to the breakeven point. Similarly, the lifecycle expenditures exceed the tax revenues received from development until year 15 of the development timeframe.

5.4 Scenario 4: County Develops, Acquires, Services, Markets, and Sells the Employment Lands

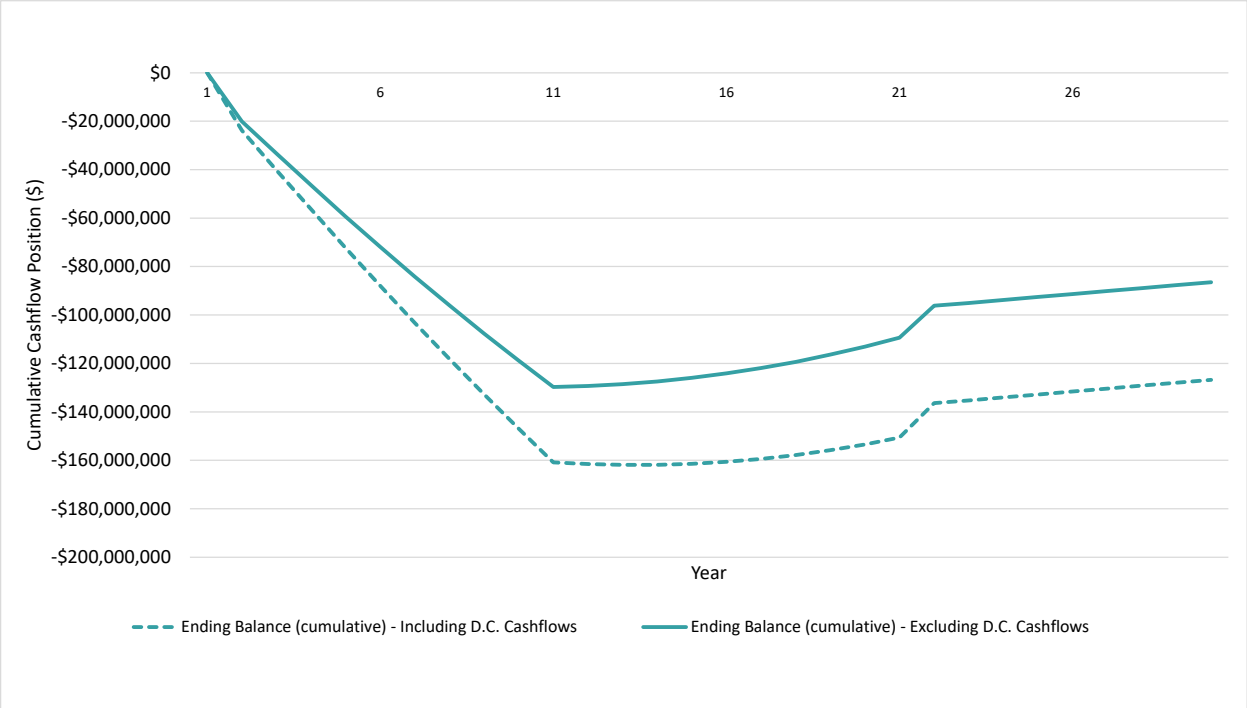
Under this final development scenario, it is assumed that the County would act as the land developer and would purchase the land, develop, service, market, and subsequently sell the land parcels. This scenario requires the County to assume all development-related costs, including the D.C. component of the works.

It is assumed that the County would purchase the unserviced land at an approximate value of $325,000. Per acre. Once the County develops and services these lands, it is

assumed that the land would sell for $650,000 per acre, based on market analysis of the North Caledonia Employment Area.

Figure 5-4 below provides for the cashflow position over 30 years. Similar to the prior scenarios, the cashflow remains in a negative position throughout the full forecast period, however, this scenario provides for the largest negative position, given the significant investment required in purchasing the land and installing the required infrastructure (both local services and D.C.-related).

Figure 5-4
Haldimand County
Cashflow for Scenario 4

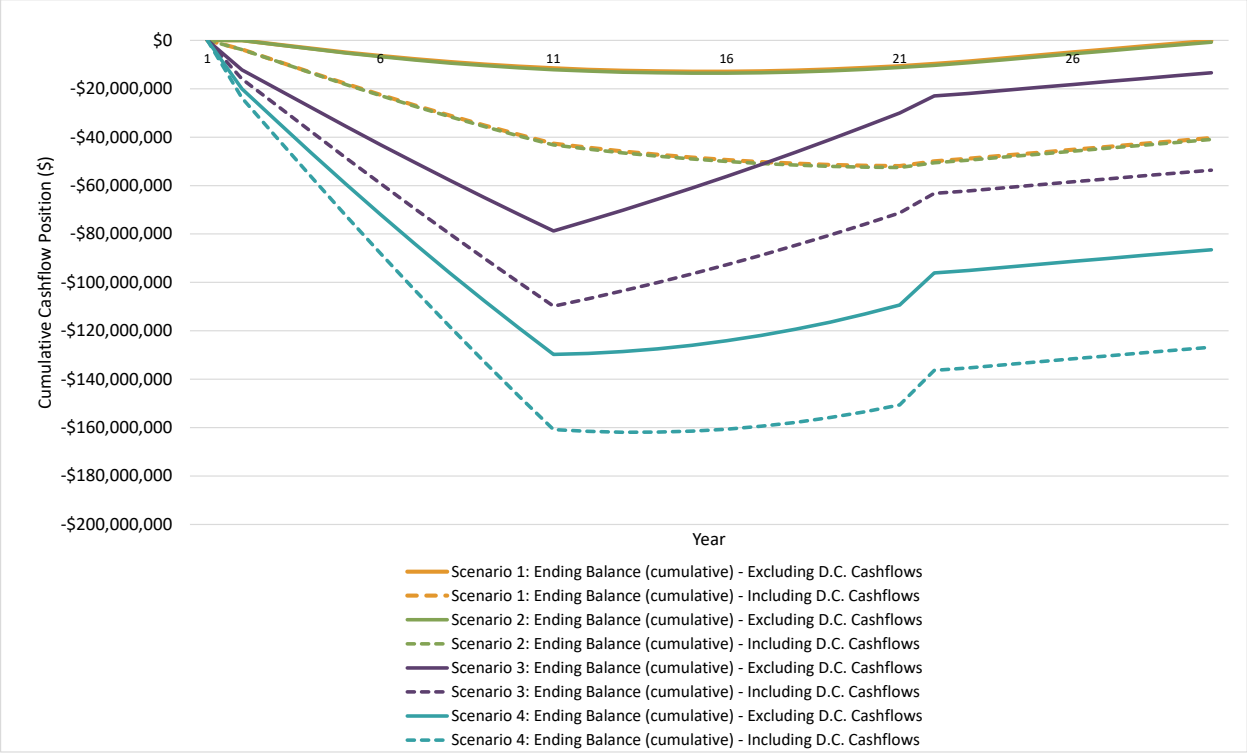


Given the costs to purchase the land and service it, this scenario does not provide the County with a positive cashflow position over the thirty years. There are significant debenture payments related to local services and land for the first twenty years of the forecast. In addition, similar to the other scenarios, lifecycle costs are greater than tax revenues until year 15 of the forecast period. As debt is retired, the cashflow position moves in a positive direction, however, the position is still well below breakeven by year 30.

5.5 Comparison of Scenarios

Figure 5-5 below provides a comparison of the cashflow for all four (4) scenarios, excluding the D.C. cashflows. All four scenarios are in a negative cashflow position by the end of the thirty years, both including and excluding D.C.-related cashflows.

Figure 5-5
Haldimand County
Comparison of Cashflow Scenarios



In order to evaluate the profitability of the investment into these employment lands from a business case lens, the analysis includes an estimated return on investment (R.O.I.) for the County. By year 30, none of the four scenarios provide for a positive R.O.I. given the negative cashflow.

Figure 5-6
Haldimand County
Summary of Return on Investment – Excluding D.C. Cashflows

Summary of Return on Investment Excluding D.C. Cashflows	Scenario 1 - Privately Planned and Developed		Scenario 2 - County Planned with Private Development		Scenario 3 - County Develops with Private Partnership		Scenario 4 - County Plans, Develops, and Sells Land	
Initial Investment	-		500,000		104,887,000		202,559,075	
Breakeven Year	N/A		N/A		N/A		N/A	
Year	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.	Net Cumulative Position	R.O.I.
Year 10	(9,041,185)	n/a	(9,505,424)	-1901%	(60,162,186)	-57%	(99,466,038)	-49%
Year 20	(7,792,237)	n/a	(8,215,391)	-1643%	(24,387,425)	-23%	(77,607,080)	-38%
Year 30	(51,133)	n/a	(398,266)	-80%	(7,532,511)	-7%	(48,714,034)	-24%

5.5.1 Debt Capacity Considerations

The significant investment in capital infrastructure in this area requires debt financing under all four (4) scenarios. The following table provides a summary of the total debt requirements, by scenario:

Figure 5-7
Haldimand County
Summary of Debt Requirements, by Scenario

Scenario	Debt Requirements				
	D.C.	Non-D.C.	Local Service	Land	Total Debt Requirements
Scenario 1	38,422,682	-	-	-	**38,422,682**
Scenario 2	38,422,682	500,000	-	-	**38,922,682**
Scenario 3	38,422,682	-	104,887,000	-	**143,309,682**
Scenario 4	38,422,682	500,000	104,887,000	97,172,075	**240,981,757**

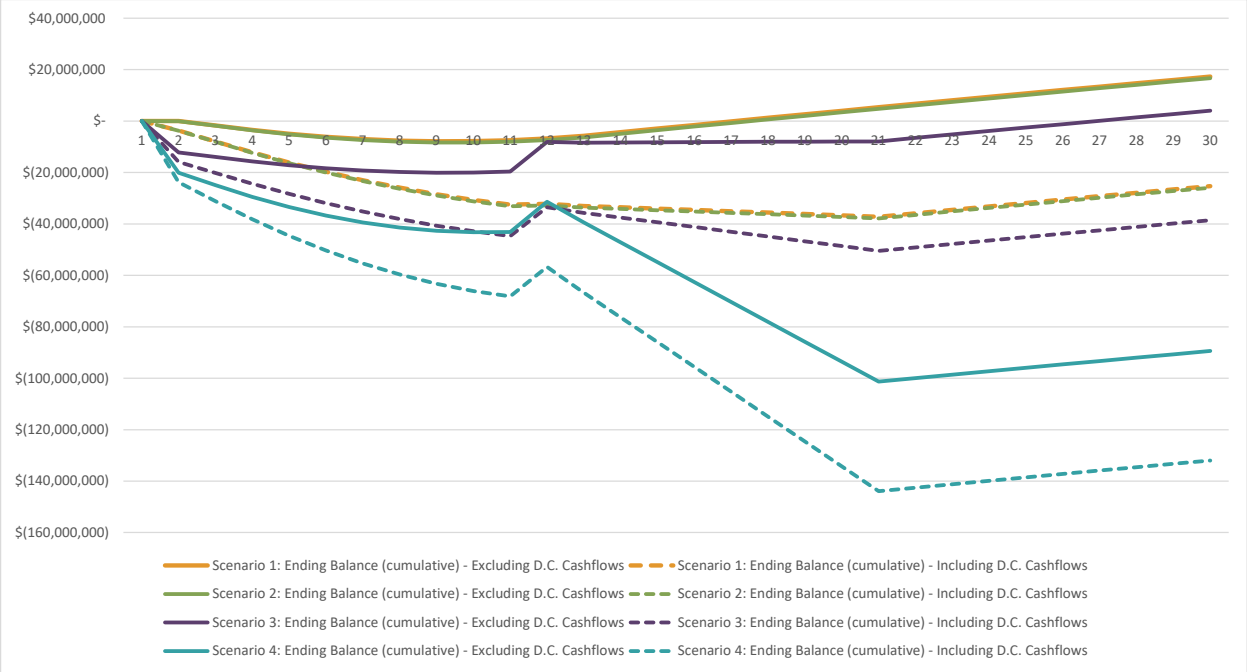
The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act.* Ontario Regulation 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). However, the County has a more conservative debt capacity policy limit set at 10% of own

purpose revenue. It is also important to consider the debt requirements/commitments for other projects required across the County. Through the County's annual budget process, it is anticipated that the County will exceed the 10% debt capacity limit in 2025, based on debt commitments for capital projects required outside of this Study Area. If the County were to proceed with investing in the development of these lands, the debt payments may exceed the provincially imposed 25% cap.

5.6 Analysis of 10-Year Development Timeframe

The four (4) scenarios presented above were also analyzed with the assumption that development would proceed in equal annual increments over a 10-year time horizon. The following graph provides a comparison of the cashflow positions over a 30-year time period.

Figure 5-8
Haldimand County
Comparison of Cashflow Scenarios
10-year Development Timeframe



Note, the fluctuations in Scenario 4 are a result of the timing mismatch between the debt payments associated with purchasing the unserviced land over 20 years and the sale of the serviced land parcels over the 10-year development time frame.

Figure 5-9 provides a summary of the return on investment for the four (4) scenarios:

Figure 5-9
Haldimand County
Summary of Return on Investment – Excluding D.C. Cashflows
10-year Development Timeframe

Summary of Return on Investment Excluding D.C. Cashflows	Scenario 1 - Privately Planned and Developed		Scenario 2 - County Planned with Private Development		Scenario 3 - County Develops with Private Partnership		Scenario 4 - County Plans, Develops, and Sells Land	
Initial Investment	-		500,000		104,887,000		202,559,075	
Breakeven Year	Year 18		Year 18		Year 27		N/A	
Year	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**	**Net Cumulative Position**	**R.O.I.**
Year 10	(6,522,554)	n/a	(6,986,793)	-1397%	(16,746,754)	-16%	(36,170,042)	-18%
Year 20	2,756,807	n/a	2,333,654	467%	(5,450,975)	-5%	(53,741,551)	-27%
Year 30	9,745,575	n/a	9,398,442	1880%	2,264,197	2%	(50,344,451)	-25%

Although the 10-year development scenario provides for an earlier breakeven year for scenarios 1 through 3 (i.e. within the 30-year forecast period), the overall financial impacts are similar compared to the 20-year timeframe and the County will be limited by debt capacity constraints.

Chapter 6
Conclusions

6. Conclusions

This report has provided a financial analysis of the potential development of the North Caledonia Employment Lands. The following conclusionary statements are provided for consideration:

- Investing in industrial lands provides numerous benefits to municipalities including generating employment opportunities, supporting lower property taxes and lower overall operating costs, relative to residential development types. Given these benefits, the County has identified the need to provide for additional employment lands for development. Given relatively low market price of serviced industrial land, there can be limited private-sector development of these lands. As a result, the County is interested in developing and servicing additional employment lands to increase overall supply.
- There are significant capital costs associated with servicing this Study Area. This will impose a financial burden on the County, given the requirement to cashflow any debt payments and the annual lifecycle costs of the internal infrastructure.
- Based on the 20-year development forecast, all four scenarios provide negative cashflows by the end of the 30-year time horizon. This is largely due to the lifecycle replacement costs exceeding tax revenues until year 15 of the forecast period. These negative cashflow positions will impose a financial burden on existing taxpayers/ratepayers as funding will be required to support growth in the Study Area.
- Based on the sensitivity analysis which assumes growth occurs over a 10-year timeframe, the development provides for positive cashflow (excluding D.C. cashflows) under Scenarios 1 and 2, by year 18 and under Scenario 3 by year 27. Due to the accelerated growth, the tax revenues exceed the lifecycle costs earlier in the forecast period.
- The debt requirements would impose a financial risk on the County and limit future financial flexibility, given that a large portion of the County's debt capacity would be allocated to the development of this Study Area. These debt needs would also require the County to revise its existing debt policies. Given other debt requirements, funding the development of this Study Area with debt may put the County over the Provincially mandated debt capacity.

- The analysis has assumed even annual development over 10- and 20-year time horizons. There is a further risk to the County if the Study Area is not built out over the assumed timeframes. The County would be responsible for cashflowing the works over a longer than anticipated timeframe which would impose a negative burden on the County's financial position.
- It is noted that many of the costs identified in the Servicing Plan for the Study Area are not included in the current D.C. background study. Further, the costs that are identified in the D.C. study are significantly lower than current cost estimates. It is important for the County to update its current by-law to incorporate these projects/cost updates to ensure a higher proportion of cost recovery from the development of this area.

Appendices

Appendix A
Operating Budget Analysis – Detailed Calculations

Appendix A: Operating Budget Analysis – Detailed Calculations

Figure A-1
Haldimand County
Summary of Consolidated Expenditures and Revenues
2021 F.I.R. Data ('000's $)

Summary of Consolidated Expenditures and Revenues	General Levy
1. GROSS EXPENDITURES	
1.1 General Government	10,341.6
1.2 Fire	5,167.5
1.3 Police	7,878.7
1.4 Conservation Authority	605.3
1.5 Protective Inspection and Control	1,174.1
1.6 Building Permit and Inspection Services	1,769.7
1.7 Emergency Measures	682.9
1.8 Provincial Offences Act (POA)	357.6
1.9 Roadways & Winter Control	35,084.0
1.10 Street Lighting	845.8
1.11 Other: admin	94.2
1.12 Wastewater Collection/Conveyance	847.3
1.13 Wastewater Treatment & Disposal	5,662.3
1.14 Urban Storm Sewer System	92.4
1.15 Rural Storm Sewer System	655.8
1.16 Water Treatment	5,832.3
1.17 Water Distribution/Transmission	1,464.3
1.18 Solid Waste Collection	1,194.2
1.19 Solid Waste Disposal	3,390.9
1.20 Waste Diversion	1,840.9
1.21 Other: admin	4,681.9
1.22 Public Health Services	1,124.6
1.23 Ambulance Services	7,606.7
1.24 Cemeteries	325.4
1.25 General Assistance	635.3
1.26 Assistance to Aged Persons	12,751.3
1.27 Child Care	143.2
1.28 Public Housing	912.8
1.29 Parks	2,307.7
1.30 Recreation Programs	536.3
1.31 Recreation Facilities	3,450.7
1.32 Libraries	2,255.8
1.33 Museums and Cultural Services	1,236.6
1.34 Other: admin	665.7
1.35 Planning and Zoning	2,098.7
1.36 Commercial and Industrial	1,033.0
1.37 Agricultural and Reforestation	36.3
1.38 Other: admin	0.2
Total Gross Expenditures	**126,783.8**

Figure A-1 (Cont'd)

Summary of Consolidated Expenditures and Revenues	General Levy
2. REVENUES	
2.1 Payment in Lieu of Taxes	1,214.8
2.2 Unconditional Grants	5,064.4
2.3 Specific Grants	18,535.6
2.4 Revenue from Other Municipalities	2,517.2
2.5 Total User Fees and Service Charges	28,261.8
2.6 Licenses, Permits, Rents etc.	4,057.4
2.7 Fines and Penalties	1,827.0
2.8 Investment Income	6,733.1
2.9 Interest Earned on Reserves and Reserve Funds	(613.1)
2.10 Gain/Loss on sale of land & Capital Assets	(554.7)
2.11 Deferred Revenue Earned	4,697.2
2.12 Donations & Donated Tangible Capital Assets	9,963.6
2.13 Sale of Publications, Equipment, etc.	229.6
2.14 Contributions from Non-consolidated Entities	9.7
2.15 Other: capital recoveries	291.1
2.16 Adjustments for properties, shared as if Payment-In-Lieu (Hydro properties RTQ = H, J, K)	117.2
2.17 Total of all supplementary taxes (Supps, Omits, Section 359)	1,892.4
2.18 Business improvement area	88.9
2.19 Railway rights-of-way (RTC = W)	35.0
2.20 Utility transmission and utility corridors (RTC = U)	578.4
2.21 (Surplus) / Deficit	(31,110.4)
Total Revenues	**53,836.2**
NET EXPENDITURES	**72,947.6**
3. PROPERTY TAXATION	**72,947.6**

Figure A-2
Haldimand County
Summary of Net Operating Expenditures for 2021

Category	Total Gross Expenditures	Interest on Long Term Debt	External Transfers	Amortization	Net Operating Expenditures
1.1 General Government	10,341,614	494,206	-	1,164,588	8,682,820
1.2 Fire	5,167,470	61,698	-	1,061,442	4,044,330
1.3 Police	7,878,653	-	400	2,142	7,876,111
1.4 Conservation Authority	605,317	-	605,317	-	-
1.5 Protective Inspection and Control	1,174,103	-	-	38,049	1,136,054
1.6 Building Permit and Inspection Serv	1,769,677	-	-	-	1,769,677
1.7 Emergency Measures	682,880	-	-	6,283	676,597
1.8 Provincial Offences Act (POA)	357,601	-	34,665	-	322,936
1.9 Roadways & Winter Control	35,084,004	-	-	13,787,514	21,296,490
1.10 Street Lighting	845,779	-	-	287,092	558,687
1.11 Other: admin	94,168	-	-	94,168	-
1.12 Wastewater Collection/Conveyance	847,277	-	-	365,834	481,443
1.13 Wastewater Treatment & Disposal	5,662,277	-	-	2,037,453	3,624,824
1.14 Urban Storm Sewer System	92,438	-	-	-	92,438
1.15 Rural Storm Sewer System	655,813	-	-	229,103	426,710
1.16 Water Treatment	5,832,260	-	-	996,738	4,835,522
1.17 Water Distribution/Transmission	1,464,307	-	-	1,249,792	214,515
1.18 Solid Waste Collection	1,194,229	-	-	-	1,194,229
1.19 Solid Waste Disposal	3,390,933	-	-	280,882	3,110,051
1.20 Waste Diversion	1,840,922	-	-	60,675	1,780,247
1.21 Other: admin	4,681,895	409,139	-	-	4,272,756
1.22 Public Health Services	1,124,642	-	-	-	1,124,642
1.23 Ambulance Services	7,606,671	14,559	-	381,486	7,210,626
1.24 Cemeteries	325,353	-	-	11,041	314,312
1.25 General Assistance	635,340	-	-	-	635,340
1.26 Assistance to Aged Persons	12,751,337	335,747	-	656,488	11,759,102
1.27 Child Care	143,155	-	-	-	143,155
1.28 Public Housing	912,793	-	-	-	912,793
1.29 Parks	2,307,652	24,366	225,180	695,279	1,362,827
1.30 Recreation Programs	536,283	-	-	2,024	534,259
1.31 Recreation Facilities	3,450,661	427,527	-	1,143,515	1,879,619
1.32 Libraries	2,255,848	60,722	-	375,553	1,819,573
1.33 Museums and Cultural Services	1,236,556	-	76,450	56,192	1,103,914
1.34 Other: admin	665,742	-	-	40,740	625,002
1.35 Planning and Zoning	2,098,734	-	-	-	2,098,734
1.36 Commercial and Industrial	1,032,996	-	226,744	811	805,441
1.37 Agricultural and Reforestation	36,286	-	-	36,286	-
1.38 Other: admin	160	-	-	160	-
TOTAL	**126,783,826**	**1,827,964**	**1,168,756**	**25,061,330**	**98,725,776**

Source: Haldimand County 2021 Financial Information Return

Figure A-3a
Haldimand County
Operating Expenditure Summary – Services other than Roads, Water, and Wastewater
Average Cost per Capita and Employee

Category		Total Net Operating Expenditure	Residential Share		Cost Per Capita	Non-Residential Share		Cost Per Employee
			%	$		%	$	
1. Expenditures								
1.1	General Government	8,682,820	78%	6,746,664	139.90	22%	1,936,156	139.90
1.2	Fire	4,044,330	78%	3,142,497	65.17	22%	901,833	65.17
1.3	Police	7,876,111	78%	6,119,840	126.91	22%	1,756,271	126.91
1.4	Conservation Authority	0	78%	0	0.00	22%	0	0.00
1.5	Protective Inspection and Control	1,136,054	78%	882,729	18.30	22%	253,325	18.30
1.6	Building Permit and Inspection Servic	1,769,677	78%	1,375,062	28.51	22%	394,615	28.51
1.7	Emergency Measures	676,597	78%	525,725	10.90	22%	150,872	10.90
1.80	Provincial Offences Act (POA)	322,936	78%	250,926	5.20	22%	72,011	5.20
1.10	Street Lighting	558,687	78%	434,107	9.00	22%	124,580	9.00
1.11	Other: admin	0	78%	0	0.00	22%	0	0.00
1.14	Urban Storm Sewer System	92,438	78%	71,826	1.49	22%	20,613	1.49
1.15	Rural Storm Sewer System	426,710	78%	331,559	6.88	22%	95,151	6.88
1.18	Solid Waste Collection	1,194,229	90%	1,074,806	22.29	10%	119,423	8.63
1.19	Solid Waste Disposal	3,110,051	78%	2,416,550	50.11	22%	693,501	50.11
1.20	Waste Diversion	1,780,247	90%	1,602,222	33.22	10%	178,025	12.86
1.21	Other: admin	4,272,756	78%	3,319,987	68.85	22%	952,769	68.85
1.22	Public Health Services	1,124,642	90%	1,012,178	20.99	10%	112,464	8.13
1.23	Ambulance Services	7,210,626	78%	5,602,750	116.18	22%	1,607,876	116.18
1.24	Cemeteries	314,312	95%	298,596	6.19	5%	15,716	1.14
1.25	General Assistance	635,340	100%	635,340	13.17	0%	0	0.00
1.26	Assistance to Aged Persons	11,759,102	100%	11,759,102	243.85	0%	0	0.00
1.27	Child Care	143,155	95%	135,997	2.82	5%	7,158	0.52
1.28	Public Housing	912,793	100%	912,793	18.93	0%	0	0.00
1.29	Parks	1,362,827	95%	1,294,686	26.85	5%	68,141	4.92
1.30	Recreation Programs	534,259	95%	507,546	10.52	5%	26,713	1.93
1.31	Recreation Facilities	1,879,619	95%	1,785,638	37.03	5%	93,981	6.79
1.32	Libraries	1,819,573	95%	1,728,594	35.85	5%	90,979	6.57
1.33	Museums and Cultural Services	1,103,914	95%	1,048,718	21.75	5%	55,196	3.99
1.34	Other: admin	625,002	78%	485,635	10.07	22%	139,367	10.07
1.35	Planning and Zoning	2,098,734	78%	1,630,744	33.82	22%	467,991	33.82
1.36	Commercial and Industrial	805,441	0%	0	0.00	100%	805,441	58.20
1.37	Agricultural and Reforestation	0	78%	0	0.00	22%	0	0.00
1.38	Other: admin	0	78%	0	0.00	22%	0	0.00
TOTAL		**68,272,982**		**57,132,816**	**1,184.75**		**11,140,166**	**804.97**

Figure A-3b
Haldimand County
Operating Expenditure Summary – Water, Wastewater, and Roads
Average Cost per km of Infrastructure/cu.m of Water/Wastewater Treated

Category	Total Net Operating Expenditure	Km of Infrastructure	Cu.m of Capacity	Cost Per km of Infrastructure	Cost per Cu.m of Water/ Wastewater Treated
1. Expenditures					
1.90 Roadways & Winter Control	21,296,490	2,994		7,113.06	
1.12 Wastewater Collection/Conveyance	481,443	162		2,971.87	
1.13 Wastewater Treatment & Disposal	3,624,824		4,815,400		0.75
1.16 Water Treatment	4,835,522		3,545,000		1.36
1.17 Water Distribution/Transmission	214,515	52		4,125.29	
TOTAL	**30,452,794**			**14,210.21**	**2.12**

Figure A-4a
Haldimand County
Operating Expenditures – Growth Sensitivity Analysis – Services other than Roads, Water, and Wastewater

Expenditure Category		NON-RESIDENTIAL		
		Net Expenditure per Employee	Growth Share %	Net Expenditure Recast
1.1	General Government	139.90	25%	34.98
1.2	Protection to Person and Property			
1.2.1	Fire	65.17	100%	65.17
1.2.2	Police	126.91	75%	95.18
1.2.6	Protective Inspection and Control	18.30	100%	18.30
1.2.7	Building Permit and Inspection Service	28.51	100%	28.51
1.2.8	Emergency Measures	10.90	100%	10.90
1.2.9	Provincial Offences Act (POA)	5.20	100%	5.20
1.3	Transportation Services			
1.3.4	Street Lighting	9.00	100%	9.00
1.4	Environmental Services			
1.4.3	Urban Storm Sewer System	1.49	100%	1.49
1.4.4	Rural Storm Sewer System	6.88	100%	6.88
1.4.7	Solid Waste Collection	8.63	100%	8.63
1.4.8	Solid Waste Disposal	50.11	100%	50.11
1.4.9	Waste Diversion	12.86	0%	-
1.4.10	Other: admin	68.85	25%	17.21
1.5	Health Services			
1.5.1	Public Health Services	8.13	100%	8.13
1.5.3	Ambulance Services	116.18	100%	116.18
1.5.5	Cemeteries	1.14	0%	-
1.6	Social and Family Services			
1.6.3	Child Care	0.52	100%	0.52
1.7	Recreation and Cultural Services			
1.7.1	Parks	4.92	50%	2.46
1.7.2	Recreation Programs	1.93	50%	0.97
1.7.3	Recreation Facilities	6.79	50%	3.40
1.7.4	Libraries	6.57	50%	3.29
1.7.5	Museums and Cultural Services	3.99	50%	2.00
1.7.6	Other: admin	10.07	25%	2.52
1.8	Planning and Development			
1.8.1	Planning and Zoning	33.82	100%	33.82
1.8.2	Commercial and Industrial	58.20	100%	58.20
TOTAL		**804.97**		**583.05**

Source: Haldimand County 2021 Financial Information Return

Figure A-4b
Haldimand County
Operating Expenditures – Growth Sensitivity Analysis – Water, Wastewater, and Roads

Expenditure Category	NON-RESIDENTIAL				
	Net Expenditure per Km	Net Expenditure per Cu.m	Growth Share %	Net Expenditure Recast per Km	Net Expenditure Recast per Cu.m
1.9 Roads, Water and Wastewater Services					
1.3.1 Roadways & Winter Control	7,113.06		100%	7,113.06	
1.9.1 Wastewater Collection/Conveyance	2,971.87		100%	2,971.87	
1.9.2 Wastewater Treatment & Disposal		0.75	100%		0.75
1.9.3 Water Treatment		1.36	100%		1.36
1.9.4 Water Distribution/Transmission	4,125.29		100%	4,125.29	
TOTAL	**14,210.21**	**2.12**		**14,210.22**	**2.12**

Source: Haldimand County 2021 Financial Information Return

Figure A-5a
Haldimand County
Operating Expenditures Summary – Services other than Roads, Water, and Wastewater

CATEGORY	Cost Per Employee	Incremental Expenditures (2021$)	Incremental Expenditures (2024$)
1. Expenditures			
1.1 General Government	34.98	61,985	78,702
1.2 Fire	65.17	115,481	146,626
1.3 Police	95.18	168,659	214,146
1.5 Protective Inspection and Control	18.30	32,428	41,173
1.6 Building Permit and Inspection Services	28.51	50,520	64,145
1.7 Emergency Measures	10.90	19,315	24,524
1.8 Provincial Offences Act (POA)	5.20	9,214	11,700
1.10 Street Lighting	9.00	15,948	20,249
1.14 Urban Storm Sewer System	1.49	2,640	3,352
1.15 Rural Storm Sewer System	6.88	12,191	15,479
1.18 Solid Waste Collection	8.63	15,292	19,417
1.19 Solid Waste Disposal	50.11	88,795	112,743
1.21 Other: admin	17.21	30,496	38,721
1.22 Public Health Services	8.13	14,406	18,292
1.23 Ambulance Services	116.18	205,871	261,394
1.27 Child Care	0.52	921	1,170
1.29 Parks	2.46	4,359	5,535
1.30 Recreation Programs	0.97	1,719	2,182
1.31 Recreation Facilities	3.40	6,025	7,650
1.32 Libraries	3.29	5,830	7,402
1.33 Museums and Cultural Services	2.00	3,544	4,500
1.34 Other: admin	2.52	4,465	5,670
1.35 Planning and Zoning	33.82	59,929	76,092
1.36 Commercial and Industrial	58.20	103,130	130,945
TOTAL	**583.05**	**1,033,165**	**1,311,809**

Figure A-5b
Haldimand County
Operating Expenditures Summary – Roads, Water, and Wastewater

CATEGORY	Cost Per Km	Km/Cu.m Required	Incremental Expenditures (2021$)	Incremental Expenditures (2024$)
1. Expenditures				
1.9 Roadways & Winter Control	7,113.06	4.32	30,728	39,016
1.12 Wastewater Collection/Conveyance	2,971.87	5.31	15,766	20,018
1.13 Wastewater Treatment & Disposal	-	600	452	573
1.16 Water Treatment	-	1,020	1,391	1,767
1.17 Water Distribution/Transmission	4,125.29	5.12	21,101	26,792
TOTAL	**14,210.22**	**1,635**	**69,438**	**88,165**

Figure A-6
Haldimand County
Operating Revenue Summary
(2021 $)

CATEGORY	NON-TAX OPERATING REVENUES (2021$)								
	Ontario Conditional Grants	Canada Conditional Grants	Other Municipalities	User Fees and Service Charges	Ontario Grants - Tangible Capital Assets	Canada Grants - Tangible Capital Assets	Other Municipalities - Tangible Capital Assets	User Fees, Service Charges, and Grants	Total Revenue - FIR
2. Revenues									
2.1 Service Specific Non-Tax Revenues									
General Government	185,247	-	47,598	2,161,648	3,247,569	-	-	2,346,895	5,642,062
Fire	-	-	90,682	60,127	3,980	-	-	60,127	154,789
Police	202,221	-	-	4,669	-	-	-	206,890	206,890
Protective Inspection and Control	6,145	-	-	25,237	-	-	-	31,382	31,382
Building Permit and Inspection Services	-	-	-	54,649	-	-	-	54,649	54,649
Roadways & Winter Control	329,982	-	-	156,748	1,005,068	-	-	486,730	1,491,798
Wastewater Collection/Conveyance	-	-	-	8,090,847	-	-	-	8,090,847	8,090,847
Wastewater Treatment & Disposal	-	-	65,754	-	-	-	-	-	65,754
Urban Storm Sewer System	-	-	-	97,967	-	-	-	97,967	97,967
Water Distribution/Transmission	-	-	-	10,134,852	-	38,160	-	10,134,852	10,173,012
Solid Waste Disposal	-	-	1,194,809	-	-	-	180,779	-	1,375,588
Waste Diversion	703,586	-	-	488,915	-	-	-	1,192,501	1,192,501
Other: admin	-	-	592,323	2,063,650	-	-	215,344	2,063,650	2,871,317
Public Health Services	-	-	-	(30)	-	-	-	(30)	(30)
Ambulance Services	3,322,405	-	108,468	462,133	-	-	-	3,784,538	3,893,006
Cemeteries	-	-	-	85,202	-	-	-	85,202	85,202
Assistance to Aged Persons	7,596,955	-	-	2,782,300	620,641	-	-	10,379,255	10,999,896
Recreation Programs	-	-	-	214,072	-	-	-	214,072	214,072
Recreation Facilities	-	-	21,400	563,187	-	-	-	563,187	584,587
Libraries	79,162	5,132	-	10,665	-	-	-	94,959	94,959
Museums and Cultural Services	47,057	89,289	-	4,856	-	-	-	141,202	141,202
Planning and Zoning	-	-	-	798,810	-	-	-	798,810	798,810
Commercial and Industrial	148,123	103,899	-	1,344	-	-	-	253,366	253,366
Other: admin	-	-	-	-	10,000	-	-	-	10,000
2.2 Other Non-Tax Revenues									
Payment in Lieu of Taxes									1,214,843
Unconditional Grants									5,064,448
Specific Grants									18,535,621
Revenue from Other Municipalities									2,517,157
Total User Fees and Service Charges									28,261,848
Licenses, Permits, Rents etc.									4,057,359
Fines and Penalties									1,827,013
Investment Income									6,733,063
Interest Earned on Reserves and Reserve Funds									(613,073)
Gain/Loss on sale of land & Capital Assets									(554,721)
Deferred Revenue Earned									4,697,198
Donations & Donated Tangible Capital Assets									9,963,629
Sale of Publications, Equipment, etc.									229,559
Contributions from Non-consolidated Entities									9,693
Other: capital recoveries									291,135
Adjustments for properties, shared as if Payment-In-Lieu (Hydro properties RTQ = H, J, K)									117,228
Total of all supplementary taxes (Supps, Omits, Section 359)									1,892,355
Business improvement area									88,900
Railway rights-of-way (RTC = W)									34,964
Utility transmission and utility corridors (RTC = U)									578,421
(Surplus) / Deficit									(31,110,419)
TOTAL	**12,620,883**	**198,320**	**2,121,034**	**28,261,848**	**4,887,258**	**38,160**	**396,123**	**41,081,051**	**102,359,847**

Figure A-7a
Haldimand County
Non-Tax Operating Revenue Summary – Tax Supported
Average Revenue Per Employee

CATEGORY	Total Net Operating Revenue and Grants	Non-Residential Share		Revenue Per Employee
		%	$	
2. Revenues				
2 Service Specific Non-Tax Revenues				
General Government	2,346,895	22%	523,327	37.81
Fire	60,127	22%	13,408	0.97
Police	206,890	22%	46,134	3.33
Protective Inspection and Control	31,382	22%	6,998	0.51
Building Permit and Inspection Services	54,649	22%	12,186	0.88
Roadways & Winter Control	486,730	22%	108,534	7.84
Urban Storm Sewer System	97,967	22%	21,845	1.58
Waste Diversion	1,192,501	10%	119,250	8.62
Other: admin	2,063,650	22%	460,167	33.25
Public Health Services	(30)	10%	(3)	-
Ambulance Services	3,784,538	22%	843,903	60.98
Cemeteries	85,202	5%	4,260	0.31
Assistance to Aged Persons	10,379,255	0%	-	-
Recreation Programs	214,072	5%	10,704	0.77
Recreation Facilities	563,187	5%	28,159	2.03
Libraries	94,959	5%	4,748	0.34
Museums and Cultural Services	141,202	5%	7,060	0.51
Planning and Zoning	798,810	22%	178,124	12.87
Commercial and Industrial	253,366	100%	253,366	18.31
2 Other Non-Tax Revenues				
Payment in Lieu of Taxes	1,214,843	22%	270,894	19.57
Unconditional Grants	5,064,448	22%	1,129,306	81.60
Specific Grants[1]	18,535,621	n/a	-	-
Revenue from Other Municipalities	2,517,157	22%	561,293	40.56
Total User Fees and Service Charges[1]	28,261,848	n/a	-	-
Licenses, Permits, Rents etc.	4,057,359	22%	904,738	65.38
Fines and Penalties	1,827,013	22%	407,400	29.44
Investment Income	6,733,063	22%	1,501,386	108.49
Interest Earned on Reserves and Reserve Funds	(613,073)	22%	(136,707)	(9.88)
Gain/Loss on sale of land & Capital Assets	(554,721)	22%	(123,696)	(8.94)
Deferred Revenue Earned	4,697,198	22%	1,047,414	75.68
Donations & Donated Tangible Capital Assets	9,963,629	22%	2,221,760	160.54
Sale of Publications, Equipment, etc.	229,559	22%	51,189	3.70
Contributions from Non-consolidated Entities	9,693	22%	2,161	0.16
Other: capital recoveries	291,135	22%	64,919	4.69
Adjustments for properties, shared as if Payment-In-Lieu (Hydro properties RTQ = H, J, K)	117,228	22%	26,140	1.89
Total of all supplementary taxes (Supps, Omits, Section 359)	1,892,355	22%	421,971	30.49
Business improvement area	88,900	22%	19,824	1.43
Railway rights-of-way (RTC = W)	34,964	22%	7,797	0.56
Utility transmission and utility corridors (RTC = U)	578,421	22%	128,980	9.32
(Surplus) / Deficit	(31,110,419)	22%	(6,937,220)	(501.27)
TOTAL	**76,691,573**	**-**	**4,211,721**	**304.32**

Figure A-7b
Haldimand County
Non-Tax Operating Revenue Summary – Rate Supported
Average Revenue Per Employee

CATEGORY	Total Net Operating Revenue and Grants	Non-Residential Share		Revenue Per Employee
		%	$	
2. Revenues				
2 Service Specific Non-Tax Revenues				
Wastewater Collection/Conveyance	8,090,847	22%	1,804,154	130.37
Water Distribution/Transmission	10,134,852	22%	2,259,941	163.30
TOTAL	**18,225,699**			**293.67**

Figure A-8a
Haldimand County
Non-Tax Operating Revenue – Growth Sensitivity Analysis – Tax Supported
(2021 $)

REVENUE CATEGORY	NON-RESIDENTIAL		
	Net Revenue per Employee	Growth Share %	Net Revenue Recast
2.1 Service Specific Non-Tax Revenues			
General Government	37.81	25%	9.45
Fire	0.97	100%	0.97
Police	3.33	75%	2.50
Protective Inspection and Control	0.51	100%	0.51
Building Permit and Inspection Services	0.88	100%	0.88
Roadways & Winter Control	7.84	100%	7.84
Urban Storm Sewer System	1.58	100%	1.58
Waste Diversion	8.62	0%	-
Other: admin	33.25	25%	8.31
Ambulance Services	60.98	100%	60.98
Cemeteries	0.31	0%	-
Recreation Programs	0.77	50%	0.39
Recreation Facilities	2.03	50%	1.02
Libraries	0.34	50%	0.17
Museums and Cultural Services	0.51	50%	0.26
Planning and Zoning	12.87	100%	12.87
Commercial and Industrial	18.31	100%	18.31
Sub-total	**190.91**		**126.04**
2.2 Other Non-Tax Revenues			
Payment in Lieu of Taxes	19.57	n/a	-
Unconditional Grants	81.60	n/a	-
Revenue from Other Municipalities	40.56	0%	-
Licenses, Permits, Rents etc.	65.38	100%	65.38
Fines and Penalties	29.44	100%	29.44
Investment Income	108.49	0%	-
Interest Earned on Reserves and Reserve Funds	(9.88)	0%	-
Gain/Loss on sale of land & Capital Assets	(8.94)	0%	-
Deferred Revenue Earned	75.68	0%	-
Donations & Donated Tangible Capital Assets	160.54	0%	-
Sale of Publications, Equipment, etc.	3.70	0%	-
Contributions from Non-consolidated Entities	0.16	0%	-
Other: capital recoveries	4.69	0%	-
Adjustments for properties, shared as if Payment-In-Lieu (Hydro properties RTQ = H, J, K)	1.89	n/a	-
Total of all supplementary taxes (Supps, Omits, Section 359)	30.49	n/a	-
Business improvement area	1.43	n/a	-
Railway rights-of-way (RTC = W)	0.56	n/a	-
Utility transmission and utility corridors (RTC = U)	9.32	n/a	-
(Surplus) / Deficit	(501.27)	n/a	-
Sub-total	**113.41**		**94.82**
TOTAL	**304.32**		**220.86**

Figure A-8b
Haldimand County
Non-Tax Operating Revenue – Growth Sensitivity Analysis – Rate Supported
(2021 $)

REVENUE CATEGORY	NON-RESIDENTIAL		
	Net Revenue per Employee	Growth Share %	Net Revenue Recast
2.1 Service Specific Non-Tax Revenues			
Wastewater Collection/Conveyance	130.37	100%	130.37
Water Distribution/Transmission	163.30	100%	163.30
TOTAL	**293.67**		**293.67**

Figure A-9a
Haldimand County
Non-Tax Operating Revenue Summary – Tax Supported

CATEGORY	Revenue Per Employee	Incremental Revenues (2021$)	Incremental Revenues (2024$)
2. Revenues			
2.1 Service Specific Non-Tax Revenues			
General Government	9.45	16,745	21,262
Fire	0.97	1,719	2,182
Police	2.50	4,430	5,625
Protective Inspection and Control	0.51	904	1,147
Building Permit and Inspection Services	0.88	1,559	1,980
Roadways & Winter Control	7.84	13,892	17,639
Urban Storm Sewer System	1.58	2,800	3,555
Waste Diversion	-	-	-
Other: admin	8.31	14,725	18,697
Ambulance Services	60.98	108,057	137,199
Cemeteries	-	-	-
Recreation Programs	0.39	691	877
Recreation Facilities	1.02	1,807	2,295
Libraries	0.17	301	382
Museums and Cultural Services	0.26	461	585
Planning and Zoning	12.87	22,806	28,956
Commercial and Industrial	18.31	32,445	41,196
2.2 Other Non-Tax Revenues		-	-
Licenses, Permits, Rents etc.	65.38	115,853	147,099
Fines and Penalties	29.44	52,168	66,237
Investment Income	-	-	-
Interest Earned on Reserves and Reserve Funds	-	-	-
Gain/Loss on sale of land & Capital Assets	-	-	-
Sale of Publications, Equipment, etc.	-	-	-
Contributions from Non-consolidated Entities	-	-	-
TOTAL	**220.86**	**391,364**	**496,915**

Figure A-9b
Haldimand County
Non-Tax Operating Revenue Summary – Rate Supported

CATEGORY	Revenue Per Employee	Incremental Revenues (2021$)	Incremental Revenues (2024$)
2. Revenues			
2.1 Service Specific Non-Tax Revenues			-
Wastewater Collection/Conveyance	130.37	231,016	293,320
Wastewater Treatment & Disposal	-	-	-
Water Treatment	-	-	-
Water Distribution/Transmission	163.30	289,368	367,410
TOTAL	**293.67**	**520,383**	**660,730**

Note: all revenues are captured under water distribution/transmission and wastewater collection/conveyance.

Appendix B
Capital Costs and Associated Funding Details

Appendix B: Capital Costs and Associated Funding Details

Figure B-1
Haldimand County
Capital Works Related to Water Services

Project ID	Capital Works	Total Capital Cost (2020 $)	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
			Water				
	External Water Infrastructure Projects						
W-WM-1	Expand existing watermain to 600mm along Highway 6	$2,900,000	$1,945,500	1,945,500	413,419	-	-
W-WM-3	Extension of 350 mm Watermain along Greens Rd	2,000,000	2,780,000	2,780,000	2,780,000	-	-
W-S-2	Increase In-Ground Reservoir by 6,502 cu.m (Additional 1,502 cu.m)	7,600,000	3,196,000	3,196,000	679,150	-	-
W-P-1	Upgrade Booster Pumping Station to Supply Peak Hour Demand	2,200,000	3,060,000	3,060,000	3,060,000	-	-
	Internal Water Infrastructure Projects:					-	-
W-1	300mm PVC Watermain Class 150 DR18 (Greenfield installation within Phases 1 & 2)	5,180,000	7,210,000	-	-	-	7,210,000
W-2	300mm PVC Watermain Class 150 DR18 (Tunnelled crossing of retained environmental area adjacent to and within the future Hwy 6 extension, approx. 345 metres north of Haldimand Road 66)	470,000	654,000	-	-	-	654,000
W-3	600mm steel casing for crossing of future Hwy 6 extension	155,000	216,000	-	-	-	216,000
W-4	300mm PVC Watermain Class 150 DR18 (Tunnelled crossing of Hwy 6 & Haldimand Road 66 intersection)	180,000	250,000	-	-	-	250,000
W-5	300mm PVC Watermain Class 150 DR18 (Within existing right-of-way of Mines Road)	1,040,000	1,450,000	-	-	-	1,450,000
W-6	1500mm valve chambers	450,000	626,000	-	-	-	626,000
W-7	1800mm x 2400mm rectangular valve chambers	850,000	1,180,000	-	-	-	1,180,000
W-8	1800mm x 2400mm rectangular valve chambers	285,000	397,000	-	-	-	397,000
W-9	Air release or drain valve chambers	995,000	1,380,000	-	-	-	1,380,000
W-10	Booster Pumping Station for Study Area (~107 L/s firm capacity)	5,320,000	7,400,000	-	-	-	7,400,000
	Total Water	**$29,625,000**	**$31,744,500**	**10,981,500**	**6,932,569**	**-**	**20,763,000**

Figure B-2
Haldimand County
Capital Works Related to Wastewater Services

Project ID	Capital Works	Total Capital Cost (2020 $)	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
	Wastewater						
	External Wastewater Infrastructure Projects:						
NC1.3	North Industrial Lands Collector Sewers (Greens Rd and Highway 66) Reduce pipe diameter to 375mm and revise alignment	17,100,000	23,792,000	23,792,000	23,792,000	-	-
CT-1.1	Schedule C Class EA for New or Expanded Wastewater Treatment Plant New North WWTP (including land acquisition) Build-out design flows increase from existing 3.7 MLD to 13.1 MLD)	91,071,000	68,000,000	68,000,000	7,698,113	-	-
	Internal Wastewater Infrastructure Projects:						
WM-1	375mmø PVC sewer (Deep greenfield installation within Phases 1 & 2)	11,900,000	16,557,000	-	-	-	16,557,000
WM-2	375mmø PVC sewer (Tunnelled crossing of retained environmental area adjacent to and within the future Hwy 6 extension, approx. 345 metres north of Haldimand Road 66)	1,945,000	2,706,000	-	-	-	2,706,000
WM-3	600mmø steel casing for crossing of future Hwy 6 extension	155,000	216,000	-	-	-	216,000
WM-4	1200mmø deep manhole structures	1,420,000	1,976,000	-	-	-	1,976,000
	Total Wastewater	**123,591,000.00**	**113,247,000**	**91,792,000**	**31,490,113**	**-**	**21,455,000**

Figure B-3
Haldimand County
Capital Works Related to Stormwater Services

Project ID	Capital Works	Total Capital Cost (2020 $)	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
Stormwater							
	Internal Stormwater Projects						
SWM-1	SWM block size of 3.8 ha	5,000,000	6,960,000	-	-	-	6,960,000
SWM-2	SWM block size of 1.5 ha	2,300,000	3,200,000	-	-	-	3,200,000
SWM-3	SWM block size of 1.1 ha	1,600,000	2,230,000	-	-	-	2,230,000
SWM-4	SWM block size of 1.1 ha	1,600,000	2,226,000	-	-	-	2,226,000
SWM-5	SWM block size of 1.0 ha	1,400,000	1,950,000	-	-	-	1,950,000
SWM-6	SWM block size of 1.1 ha	1,800,000	2,504,000	-	-	-	2,504,000
SWM-7	SWM block size of 0.9 ha	1,100,000	1,530,000	-	-	-	1,530,000
SWM-8	SWM block size of 1.2 ha	1,900,000	2,640,000	-	-	-	2,640,000
SWM-9	SWM block size of 1.2 ha	2,100,000	2,920,000	-	-	-	2,920,000
SWM-10	Re-aligned municipal drain c/w landscaping	315,000	440,000	-	-	-	440,000
SWM-11	Storm sewers (various sizes)	2,200,000	3,060,000	-	-	-	3,060,000
SWM-12	Manholes (various sizes)	440,000	610,000	-	-	-	610,000
SWM-13	Catch basins	400,000	560,000	-	-	-	560,000
SWM-14	Allowance for conveyance and source controls in Phase 2 local road	1,000,000	1,390,000	-	-	-	1,390,000
	Sub-Total Stormwater	**23,155,000**	**32,220,000**	**-**	**-**	**-**	**32,220,000**

Figure B-4
Haldimand County
Capital Works Related to Roads Services

Project ID	Capital Works	Total Capital Cost (2020 $)	Total Capital Cost (2024 $)	Total D.C. Related Cost	Total D.C. Share for Study Area	Benefit to Existing Development Cost	Local Service Costs
	Roads						
	External Road Infrastructure Projects						
T-1	New 3-leg signalized intersection (local road connections to boundary roads)	2,300,000	3,200,000	-	-	-	3,200,000
T-2	Re-construction of 3-leg stop-control intersection (Mines Road & Greens Road) to 3-leg signalized intersection	680,000	950,000	-	-	-	950,000
T-3	Re-construction of existing 2-lane Mines Road to 4-lane urban cross-section	3,300,000	4,590,000	-	-	-	4,590,000
T-4	Re-constructoin of existing 2-lane Greens Road to 4-lane urban cross-section	5,300,000	7,374,000	-	-	-	7,374,000
	Internal Road Infrastructure Projects						
T-5	Local 20m width road extension in Phase 1 c/w surface works (granular base, asphalt, curb & gutter, sidewalk, utilities, landscaping, street lighting)	6,300,000	8,770,000	-	-	-	8,770,000
T-6	Local 20m width road extension in Phase 2 c/w surface works (granular base, asphalt, curb & gutter, sidewalk, utilities, landscaping, street lighting)	4,000,000	5,565,000	-	-	-	5,565,000
	Sub-Total Roads	**21,880,000**	**30,449,000**	**-**	**-**	**-**	**30,449,000**

Appendix C
Details for Cashflow Analysis

Appendix C: Details for Cashflow Analysis

Figure C-1
Haldimand County
Scenario 1: 20-Year Development Timeframe

Cash Flow Analysis - Employment Lands Privately Developed

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21								
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66								
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	-	-	-	-	-	-	-	-
General Industrial	-	-	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**594,711**	**612,552**	**630,929**	**649,857**	**669,353**	**689,433**	**710,116**	**731,420**	**753,362**	**775,963**	**799,242**	**823,219**	**847,916**	**873,353**	**899,554**	**926,541**	**954,337**	**982,967**	**1,012,456**	**1,042,830**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	19,905	39,810	59,715	79,619	99,524	119,429	139,334	159,239	179,144	199,049	218,953	238,858	258,763	278,668	298,573	318,478	337,935	357,393	376,850	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,422,682**	**-**	**1,644,705**	**1,664,610**	**1,684,515**	**1,704,419**	**1,724,324**	**1,744,229**	**1,764,134**	**1,784,039**	**1,803,944**	**1,823,849**	**1,843,753**	**1,863,658**	**1,883,563**	**1,903,468**	**1,923,373**	**1,943,278**	**1,962,735**	**1,982,193**	**2,001,650**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-1 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	-	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,712,962	3,781,511	3,852,801	4,022,349	4,101,281	4,183,246	4,268,335	4,356,639	4,448,254	4,543,275	2,837,973	2,940,110	3,045,961	3,155,633	3,269,238	3,386,889	3,508,701	3,632,680	3,760,979	3,893,720	2,121,898	2,164,336	2,207,623	2,251,775	2,296,811	2,342,747	2,389,602	2,437,394	2,486,142
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)						-	-	-	-	-	-	-	-																	
Beginning Balance	-	-	(3,712,962)	(8,483,974)	(13,265,427)	(17,970,159)	(22,504,435)	(26,868,077)	(31,060,904)	(35,082,723)	(38,933,342)	(42,612,555)	(44,316,325)	(45,848,266)	(47,208,154)	(48,395,760)	(49,410,843)	(50,253,157)	(50,922,448)	(51,417,756)	(51,738,800)	(51,885,285)	(49,947,779)	(48,878,054)	(47,633,429)	(46,396,447)	(45,167,260)	(43,946,025)	(42,732,899)	(41,528,047)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,422,682																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,712,962)	(8,483,974)	(13,265,427)	(17,970,159)	(22,504,435)	(26,868,077)	(31,060,904)	(35,082,723)	(38,933,342)	(42,612,555)	(44,316,325)	(45,848,266)	(47,208,154)	(48,395,760)	(49,410,843)	(50,253,157)	(50,922,448)	(51,417,756)	(51,738,800)	(51,885,285)	(49,947,779)	(48,878,054)	(47,633,429)	(46,396,447)	(45,167,260)	(43,946,025)	(42,732,899)	(41,528,047)	(40,331,632)
Net Annual Position	-	(3,712,962)	(4,771,012)	(4,781,453)	(4,704,731)	(4,534,276)	(4,363,642)	(4,192,826)	(4,021,820)	(3,850,618)	(3,679,214)	(1,703,770)	(1,531,941)	(1,359,888)	(1,187,606)	(1,015,083)	(842,314)	(669,291)	(495,308)	(321,043)	(146,485)	1,937,506	1,069,724	1,244,625	1,236,982	1,229,187	1,221,236	1,213,125	1,204,853	1,196,415
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(1,652,761)	(3,333,804)	(4,956,502)	(6,427,673)	(7,747,706)	(8,917,003)	(9,935,977)	(10,805,053)	(11,524,667)	(12,095,268)	(12,517,319)	(12,791,295)	(12,917,685)	(12,896,989)	(12,729,726)	(12,416,426)	(11,956,940)	(11,351,818)	(10,601,628)	(9,706,951)	(8,637,227)	(7,392,602)	(6,155,620)	(4,926,433)	(3,705,197)	(2,492,072)	(1,287,219)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(1,652,761)	(3,333,804)	(4,956,502)	(6,427,673)	(7,747,706)	(8,917,003)	(9,935,977)	(10,805,053)	(11,524,667)	(12,095,268)	(12,517,319)	(12,791,295)	(12,917,685)	(12,896,989)	(12,729,726)	(12,416,426)	(11,956,940)	(11,351,818)	(10,601,628)	(9,706,951)	(8,637,227)	(7,392,602)	(6,155,620)	(4,926,433)	(3,705,197)	(2,492,072)	(1,287,219)	(90,805)
Net Annual Position	-	-	(1,652,761)	(1,681,044)	(1,622,698)	(1,471,171)	(1,320,033)	(1,169,297)	(1,018,974)	(869,076)	(719,614)	(570,601)	(422,051)	(273,976)	(126,390)	20,696	167,264	313,300	459,487	605,121	750,191	894,677	1,069,724	1,244,625	1,236,982	1,229,187	1,221,236	1,213,125	1,204,853	1,196,415

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-2
Haldimand County
Scenario 2: 20-Year Development Timeframe

Cash Flow Analysis - County Invests in Conceptual Planning and Sells to Developer

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21		-	-	-	-	-	-	-
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66		-	-	-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	-	-	-	-	-	-	-	-
General Industrial	-	-	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**594,711**	**612,552**	**630,929**	**649,857**	**669,353**	**689,433**	**710,116**	**731,420**	**753,362**	**775,963**	**799,242**	**823,219**	**847,916**	**873,353**	**899,554**	**926,541**	**954,337**	**982,967**	**1,012,456**	**1,042,830**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC	-																												-	-
DC (Debenture)																														
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC	500,000																													
Non-DC (Debenture)	-	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	19,905	39,810	59,715	79,619	99,524	119,429	139,334	159,239	179,144	199,049	218,953	238,858	258,763	278,668	298,573	318,478	337,935	357,393	376,850	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,922,682**	**-**	**1,644,705**	**1,664,610**	**1,684,515**	**1,704,419**	**1,724,324**	**1,744,229**	**1,764,134**	**1,784,039**	**1,803,944**	**1,823,849**	**1,843,753**	**1,863,658**	**1,883,563**	**1,903,468**	**1,923,373**	**1,943,278**	**1,962,735**	**1,982,193**	**2,001,650**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-2 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	-	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,774,608	3,843,156	3,914,447	4,083,994	4,162,926	4,244,892	4,329,981	4,418,285	4,509,899	4,604,921	2,837,973	2,940,110	3,045,961	3,155,633	3,269,238	3,386,889	3,508,701	3,632,680	3,760,979	3,893,720	2,121,898	2,164,336	2,207,623	2,251,775	2,296,811	2,342,747	2,389,602	2,437,394	2,486,142
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)						-	-	-	-	-	-	-	-																	
Beginning Balance	-	-	(3,774,608)	(8,607,265)	(13,450,364)	(18,216,740)	(22,812,662)	(27,237,950)	(31,492,422)	(35,575,887)	(39,488,151)	(43,229,010)	(44,932,780)	(46,464,721)	(47,824,609)	(49,012,215)	(50,027,297)	(50,869,611)	(51,538,903)	(52,034,211)	(52,355,254)	(52,501,740)	(50,564,233)	(49,494,509)	(48,249,884)	(47,012,902)	(45,783,715)	(44,562,479)	(43,349,354)	(42,144,501)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,922,682																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,774,608)	(8,607,265)	(13,450,364)	(18,216,740)	(22,812,662)	(27,237,950)	(31,492,422)	(35,575,887)	(39,488,151)	(43,229,010)	(44,932,780)	(46,464,721)	(47,824,609)	(49,012,215)	(50,027,297)	(50,869,611)	(51,538,903)	(52,034,211)	(52,355,254)	(52,501,740)	(50,564,233)	(49,494,509)	(48,249,884)	(47,012,902)	(45,783,715)	(44,562,479)	(43,349,354)	(42,144,501)	(40,948,087)
Net Annual Position	-	(3,774,608)	(4,832,657)	(4,843,099)	(4,766,377)	(4,595,922)	(4,425,288)	(4,254,472)	(4,083,465)	(3,912,264)	(3,740,859)	(3,703,770)	(1,531,941)	(1,359,888)	(1,187,606)	(1,015,083)	(842,314)	(669,291)	(495,308)	(321,043)	(146,485)	1,937,506	1,069,724	1,244,625	1,236,982	1,229,187	1,221,236	1,213,125	1,204,853	1,196,415
Non-DC Related Expenditures and Revenues																														
Beginning Balance	-	-	(61,645)	(1,776,052)	(3,518,741)	(5,203,084)	(6,735,900)	(8,117,579)	(9,348,522)	(10,429,141)	(11,359,862)	(12,141,121)	(12,711,722)	(13,133,774)	(13,407,750)	(13,534,140)	(13,513,444)	(13,346,181)	(13,032,881)	(12,573,394)	(11,968,273)	(11,218,082)	(10,323,406)	(9,253,682)	(8,009,057)	(6,772,074)	(5,542,887)	(4,321,652)	(3,108,527)	(1,903,674)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	500,000																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Net Cashflow (cumulative)	-	(61,645)	(1,776,052)	(3,518,741)	(5,203,084)	(6,735,900)	(8,117,579)	(9,348,522)	(10,429,141)	(11,359,862)	(12,141,121)	(12,711,722)	(13,133,774)	(13,407,750)	(13,534,140)	(13,513,444)	(13,346,181)	(13,032,881)	(12,573,394)	(11,968,273)	(11,218,082)	(10,323,406)	(9,253,682)	(8,009,057)	(6,772,074)	(5,542,887)	(4,321,652)	(3,108,527)	(1,903,674)	(707,259)
Net Annual Position	-	(61,645)	(1,714,406)	(1,742,689)	(1,684,343)	(1,532,816)	(1,381,678)	(1,230,943)	(1,080,619)	(930,721)	(781,259)	(570,601)	(422,051)	(273,976)	(126,390)	20,696	167,264	313,300	459,487	605,121	750,191	894,677	1,069,724	1,244,625	1,236,982	1,229,187	1,221,236	1,213,125	1,204,853	1,196,415

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-3
Haldimand County
Scenario 3: 20-Year Development Timeframe

Cash Flow Analysis - County Acts as the Land Developer in Partnership with the Private Sector

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	-	-	-	-	-	-	-	-
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66	-	-	-	-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*								
General Industrial	-	-	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*								
DC Revenue - Non-residential (inflated)	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830								
Total DC Revenues	**-**	**-**	**594,711**	**612,552**	**630,929**	**649,857**	**669,353**	**689,433**	**710,116**	**731,420**	**753,362**	**775,963**	**799,242**	**823,219**	**847,916**	**873,353**	**899,554**	**926,541**	**954,337**	**982,967**	**1,012,456**	**1,042,830**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)	-																													
Non-DC																														
Non-DC (Debenture)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	30,449,000																												-	-
Local Service (Debenture)	-	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	20,763,000																													
Local Service (Debenture)		2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	21,455,000																													
Local Service (Debenture)		1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	-	-	-	-	-	-	-	-	-	-
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service	32,220,000																													
Local Service (Debenture)		3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC																														
Non-DC (Debenture)	-																													
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	19,905	39,810	59,715	79,619	99,524	119,429	139,334	159,239	179,144	199,049	218,953	238,858	258,763	278,668	298,573	318,478	337,935	357,393	376,850	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**143,309,682**	**-**	**1,644,705**	**1,664,610**	**1,684,515**	**1,704,419**	**1,724,324**	**1,744,229**	**1,764,134**	**1,784,039**	**1,803,944**	**1,823,849**	**1,843,753**	**1,863,658**	**1,883,563**	**1,903,468**	**1,923,373**	**1,943,278**	**1,962,735**	**1,982,193**	**2,001,650**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-3 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	0	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	**0**	**15,931,828**	**16,000,376**	**16,071,667**	**16,241,215**	**16,320,147**	**16,402,112**	**16,487,201**	**16,575,505**	**16,667,119**	**16,762,141**	**4,166,549**	**4,268,686**	**4,374,537**	**4,484,210**	**4,597,815**	**4,715,465**	**4,837,278**	**4,961,257**	**5,089,555**	**5,222,296**	**2,121,898**	**2,164,336**	**2,207,623**	**2,251,775**	**2,296,811**	**2,342,747**	**2,389,602**	**2,437,394**	**2,486,142**
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	**-**	**-**	**60,493**	**123,405**	**188,810**	**256,781**	**327,396**	**400,733**	**476,872**	**555,897**	**637,892**	**722,944**	**811,143**	**902,581**	**997,352**	**1,095,553**	**1,197,283**	**1,302,643**	**1,409,874**	**1,520,872**	**1,635,746**	**1,754,608**	**1,789,700**	**1,825,494**	**1,862,004**	**1,899,244**	**1,937,228**	**1,975,973**	**2,015,492**	**2,055,802**
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	**-**	**-**	**-**	**-**	**182,393**	**364,786**	**547,179**	**729,572**	**911,965**	**1,094,358**	**1,276,751**	**1,459,145**	**1,641,537**	**1,823,930**	**2,006,323**	**2,188,717**	**2,371,111**	**2,553,503**	**2,735,897**	**2,918,289**	**3,100,683**	**3,283,075**	**3,465,468**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**
Sale of Land (inflated) - Recoup Local Service C	**-**	**-**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**6,109,433**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Beginning Balance	-	-	(15,931,828)	(26,812,272)	(37,703,159)	(48,517,323)	(59,161,032)	(69,634,107)	(79,936,366)	(90,067,619)	(100,027,670)	(109,816,316)	(106,739,230)	(103,490,314)	(100,069,346)	(96,476,096)	(92,710,322)	(88,771,780)	(84,660,215)	(80,374,667)	(75,914,854)	(71,280,483)	(63,233,544)	(62,163,820)	(60,919,195)	(59,682,212)	(58,453,025)	(57,231,790)	(56,018,665)	(54,813,812)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	143,309,682																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated) - Recoup Local Service Cos	-	-	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	**-**	**(15,931,828)**	**(26,812,272)**	**(37,703,159)**	**(48,517,323)**	**(59,161,032)**	**(69,634,107)**	**(79,936,366)**	**(90,067,619)**	**(100,027,670)**	**(109,816,316)**	**(106,739,230)**	**(103,490,314)**	**(100,069,346)**	**(96,476,096)**	**(92,710,322)**	**(88,771,780)**	**(84,660,215)**	**(80,374,667)**	**(75,914,854)**	**(71,280,483)**	**(63,233,544)**	**(62,163,820)**	**(60,919,195)**	**(59,682,212)**	**(58,453,025)**	**(57,231,790)**	**(56,018,665)**	**(54,813,812)**	**(53,617,397)**
Net Annual Position	**-**	**(15,931,828)**	**(10,880,445)**	**(10,890,886)**	**(10,814,164)**	**(10,643,709)**	**(10,473,075)**	**(10,302,259)**	**(10,131,253)**	**(9,960,051)**	**(9,788,647)**	**3,077,087**	**3,248,915**	**3,420,968**	**3,593,251**	**3,765,774**	**3,938,542**	**4,111,565**	**4,285,548**	**4,459,813**	**4,634,371**	**8,046,939**	**1,069,724**	**1,244,625**	**1,236,982**	**1,229,187**	**1,221,236**	**1,213,125**	**1,204,853**	**1,196,415**
Non-DC Related Expenditures and Revenues																														
Beginning Balance	-	-	(12,218,866)	(19,981,059)	(27,771,535)	(35,503,666)	(43,084,270)	(50,513,736)	(57,792,466)	(64,920,872)	(71,899,381)	(78,728,428)	(74,518,172)	(70,159,367)	(65,652,487)	(60,998,021)	(56,196,469)	(51,248,349)	(46,154,193)	(40,913,850)	(35,527,873)	(29,996,826)	(22,992,716)	(21,922,992)	(20,678,367)	(19,441,385)	(18,212,198)	(16,990,962)	(15,777,837)	(14,572,984)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Land (inflated) - Recoup Local Service Cos	-	-	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	6,109,433	-	-	-	-	-	-	-	-
Debenture Issuance	104,887,000																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Net Cashflow (cumulative)	**-**	**(12,218,866)**	**(19,981,059)**	**(27,771,535)**	**(35,503,666)**	**(43,084,270)**	**(50,513,736)**	**(57,792,466)**	**(64,920,872)**	**(71,899,381)**	**(78,728,428)**	**(74,518,172)**	**(70,159,367)**	**(65,652,487)**	**(60,998,021)**	**(56,196,469)**	**(51,248,349)**	**(46,154,193)**	**(40,913,850)**	**(35,527,873)**	**(29,996,826)**	**(22,992,716)**	**(21,922,992)**	**(20,678,367)**	**(19,441,385)**	**(18,212,198)**	**(16,990,962)**	**(15,777,837)**	**(14,572,984)**	**(13,376,570)**
Net Annual Position	**-**	**(12,218,866)**	**(7,762,193)**	**(7,790,476)**	**(7,732,131)**	**(7,580,604)**	**(7,429,466)**	**(7,278,730)**	**(7,128,407)**	**(6,978,509)**	**(6,829,047)**	**4,210,255**	**4,358,805**	**4,506,880**	**4,654,466**	**4,801,552**	**4,948,120**	**5,094,156**	**5,240,343**	**5,385,978**	**5,531,047**	**7,004,109**	**1,069,724**	**1,244,625**	**1,236,982**	**1,229,187**	**1,221,236**	**1,213,125**	**1,204,853**	**1,196,415**

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-4
Haldimand County
Scenario 4: 20-Year Development Timeframe

Cash Flow Analysis - County to Develop, Acquire, Service, and Sell Land Parcels

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050	22,050								
General Industrial	-	-	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473	110,473								
Total Employment (cumulative)	**-**	**-**	**132,523**	**265,046**	**397,569**	**530,092**	**662,615**	**795,138**	**927,661**	**1,060,184**	**1,192,707**	**1,325,230**	**1,457,753**	**1,590,276**	**1,722,799**	**1,855,322**	**1,987,845**	**2,120,368**	**2,252,891**	**2,385,414**	**2,517,937**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21			-	-	-	-	-	-
General Industrial	-	-	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66			-	-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**89**	**178**	**267**	**356**	**445**	**534**	**623**	**712**	**801**	**890**	**979**	**1,068**	**1,157**	**1,246**	**1,335**	**1,424**	**1,511**	**1,598**	**1,685**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	*93,272*	-	-	-	-	-	-	-	-
General Industrial	-	-	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	*467,301*	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**594,711**	**612,552**	**630,929**	**649,857**	**669,353**	**689,433**	**710,116**	**731,420**	**753,362**	**775,963**	**799,242**	**823,219**	**847,916**	**873,353**	**899,554**	**926,541**	**954,337**	**982,967**	**1,012,456**	**1,042,830**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service	30,449,000																												-	-
Local Service (Debenture)	-	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	20,763,000																													
Local Service (Debenture)		2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	21,455,000																													
Local Service (Debenture)		1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	-	-	-	-	-	-	-	-	-
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service	32,220,000																													
Local Service (Debenture)		3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC	500,000																													
Non-DC (Debenture)	-	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	19,905	39,810	59,715	79,619	99,524	119,429	139,334	159,239	179,144	199,049	218,953	238,858	258,763	278,668	298,573	318,478	337,935	357,393	376,850	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**143,809,682**	**-**	**1,644,705**	**1,664,610**	**1,684,515**	**1,704,419**	**1,724,324**	**1,744,229**	**1,764,134**	**1,784,039**	**1,803,944**	**1,823,849**	**1,843,753**	**1,863,658**	**1,883,563**	**1,903,468**	**1,923,373**	**1,943,278**	**1,962,735**	**1,982,193**	**2,001,650**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-4 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	**97,172,075**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Land Purchase (Debt Debenture)	-	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-	-	68,549	139,839	213,954	290,977	370,996	454,099	540,377	629,926	722,840	819,218	919,163	1,022,778	1,130,169	1,241,448	1,356,725	1,476,117	1,597,627	1,723,407	1,853,579	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	0	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	**0**	**23,790,812**	**23,859,361**	**23,930,651**	**24,100,199**	**24,179,131**	**24,261,096**	**24,346,185**	**24,434,489**	**24,526,104**	**24,621,125**	**11,963,888**	**12,066,025**	**12,171,876**	**12,281,549**	**12,395,153**	**12,512,804**	**12,634,616**	**12,758,595**	**12,886,894**	**13,019,635**	**2,121,898**	**2,164,336**	**2,207,623**	**2,251,775**	**2,296,811**	**2,342,747**	**2,389,602**	**2,437,394**	**2,486,142**
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	**-**	**-**	**60,493**	**123,405**	**188,810**	**256,781**	**327,396**	**400,733**	**476,872**	**555,897**	**637,892**	**722,944**	**811,143**	**902,581**	**997,352**	**1,095,553**	**1,197,283**	**1,302,643**	**1,409,874**	**1,520,872**	**1,635,746**	**1,754,608**	**1,789,700**	**1,825,494**	**1,862,004**	**1,899,244**	**1,937,228**	**1,975,973**	**2,015,492**	**2,055,802**
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sub-total Taxation Revenues	**-**	**-**	**-**	**-**	**182,393**	**364,786**	**547,179**	**729,572**	**911,965**	**1,094,358**	**1,276,751**	**1,459,145**	**1,641,537**	**1,823,930**	**2,006,323**	**2,188,717**	**2,371,111**	**2,553,503**	**2,735,897**	**2,918,289**	**3,100,683**	**3,283,075**	**3,465,468**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**	**3,647,862**
Sale of Land (inflated)			**8,462,640**	**8,631,893**	**8,804,531**	**8,980,621**	**9,160,234**	**9,343,438**	**9,530,307**	**9,720,913**	**9,915,332**	**10,113,638**	**10,315,911**	**10,522,229**	**10,732,674**	**10,947,327**	**11,166,274**	**11,389,599**	**11,617,391**	**11,849,739**	**12,086,734**	**12,328,469**									
Beginning Balance	-	-	(23,790,812)	(40,177,034)	(56,404,444)	(72,382,494)	(88,013,999)	(103,295,257)	(118,222,495)	(132,791,857)	(146,999,412)	(160,841,144)	(161,557,190)	(161,899,136)	(161,862,710)	(161,443,557)	(160,637,228)	(159,439,183)	(157,844,790)	(155,848,623)	(153,445,842)	(150,631,508)	(136,365,534)	(135,295,809)	(134,051,184)	(132,814,202)	(131,585,015)	(130,363,779)	(129,150,654)	(127,945,802)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	(97,172,075)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	-	-	-	-	-	-	-	-	-
Debenture Issuance	240,981,757																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	594,711	612,552	630,929	649,857	669,353	689,433	710,116	731,420	753,362	775,963	799,242	823,219	847,916	873,353	899,554	926,541	954,337	982,967	1,012,456	1,042,830	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Sale of Land (inflated)	-	-	8,462,640	8,631,893	8,804,531	8,980,621	9,160,234	9,343,438	9,530,307	9,720,913	9,915,332	10,113,638	10,315,911	10,522,229	10,732,674	10,947,327	11,166,274	11,389,599	11,617,391	11,849,739	12,086,734	12,328,469	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	**-**	**(23,790,812)**	**(40,177,034)**	**(56,404,444)**	**(72,382,494)**	**(88,013,999)**	**(103,295,257)**	**(118,222,495)**	**(132,791,857)**	**(146,999,412)**	**(160,841,144)**	**(161,557,190)**	**(161,899,136)**	**(161,862,710)**	**(161,443,557)**	**(160,637,228)**	**(159,439,183)**	**(157,844,790)**	**(155,848,623)**	**(153,445,842)**	**(150,631,508)**	**(136,365,534)**	**(135,295,809)**	**(134,051,184)**	**(132,814,202)**	**(131,585,015)**	**(130,363,779)**	**(129,150,654)**	**(127,945,802)**	**(126,749,387)**
Net Annual Position	**-**	**(23,790,812)**	**(16,386,221)**	**(16,227,410)**	**(15,978,050)**	**(15,631,505)**	**(15,281,259)**	**(14,927,238)**	**(14,569,362)**	**(14,207,555)**	**(13,841,732)**	**(716,046)**	**(341,945)**	**36,426**	**419,153**	**806,329**	**1,198,045**	**1,594,393**	**1,996,168**	**2,402,781**	**2,814,334**	**14,265,975**	**1,069,724**	**1,244,625**	**1,236,982**	**1,229,187**	**1,221,236**	**1,213,125**	**1,204,853**	**1,196,415**
Non-DC Related Expenditures and Revenues																														
Beginning Balance	-	-	(20,077,850)	(33,345,820)	(46,472,821)	(59,368,838)	(71,937,237)	(84,174,886)	(96,078,595)	(107,645,111)	(118,871,123)	(129,753,255)	(129,336,133)	(128,568,189)	(127,445,851)	(125,965,482)	(124,123,374)	(121,915,752)	(119,338,769)	(116,387,806)	(113,058,861)	(109,347,851)	(96,124,706)	(95,054,982)	(93,810,357)	(92,573,374)	(91,344,188)	(90,122,952)	(88,909,827)	(87,704,974)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,644,705)	(1,664,610)	(1,684,515)	(1,704,419)	(1,724,324)	(1,744,229)	(1,764,134)	(1,784,039)	(1,803,944)	(1,823,849)	(1,843,753)	(1,863,658)	(1,883,563)	(1,903,468)	(1,923,373)	(1,943,278)	(1,962,735)	(1,982,193)	(2,001,650)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(68,549)	(139,839)	(309,387)	(388,319)	(470,284)	(555,373)	(643,677)	(735,291)	(830,313)	(928,841)	(1,030,978)	(1,136,829)	(1,246,502)	(1,360,107)	(1,477,757)	(1,599,569)	(1,723,549)	(1,851,847)	(1,984,588)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	(97,172,075)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	-	-	-	-	-	-	-	-	-
Sale of Land (inflated)	-	-	8,462,640	8,631,893	8,804,531	8,980,621	9,160,234	9,343,438	9,530,307	9,720,913	9,915,332	10,113,638	10,315,911	10,522,229	10,732,674	10,947,327	11,166,274	11,389,599	11,617,391	11,849,739	12,086,734	12,328,469	-	-	-	-	-	-	-	-
Debenture Issuance	202,559,075																													
Operating Revenues	-	-	60,493	123,405	188,810	256,781	327,396	400,733	476,872	555,897	637,892	722,944	811,143	902,581	997,352	1,095,553	1,197,283	1,302,643	1,409,874	1,520,872	1,635,746	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	182,393	364,786	547,179	729,572	911,965	1,094,358	1,276,751	1,459,145	1,641,537	1,823,930	2,006,323	2,188,717	2,371,111	2,553,503	2,735,897	2,918,289	3,100,683	3,283,075	3,465,468	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862	3,647,862
Net Cashflow (cumulative)	**-**	**(20,077,850)**	**(33,345,820)**	**(46,472,821)**	**(59,368,838)**	**(71,937,237)**	**(84,174,886)**	**(96,078,595)**	**(107,645,111)**	**(118,871,123)**	**(129,753,255)**	**(129,336,133)**	**(128,568,189)**	**(127,445,851)**	**(125,965,482)**	**(124,123,374)**	**(121,915,752)**	**(119,338,769)**	**(116,387,806)**	**(113,058,861)**	**(109,347,851)**	**(96,124,706)**	**(95,054,982)**	**(93,810,357)**	**(92,573,374)**	**(91,344,188)**	**(90,122,952)**	**(88,909,827)**	**(87,704,974)**	**(86,508,559)**
Net Annual Position	**-**	**(20,077,850)**	**(13,267,970)**	**(13,127,000)**	**(12,896,017)**	**(12,568,399)**	**(12,237,649)**	**(11,903,709)**	**(11,566,516)**	**(11,226,012)**	**(10,882,132)**	**417,122**	**767,944**	**1,122,338**	**1,480,369**	**1,842,108**	**2,207,622**	**2,576,984**	**2,950,963**	**3,328,945**	**3,711,009**	**13,223,145**	**1,069,724**	**1,244,625**	**1,236,982**	**1,229,187**	**1,221,236**	**1,213,125**	**1,204,853**	**1,196,415**

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-5
Haldimand County
Scenario 1: 10-Year Development Timeframe

Cash Flow Analysis - Employment Lands Privately Developed

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100																		
General Industrial	-	-	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946																		
Total Employment (cumulative)	**-**	**-**	**265,046**	**530,092**	**795,138**	**1,060,184**	**1,325,230**	**1,590,276**	**1,855,322**	**2,120,368**	**2,385,414**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	44	44	44	44	44	44	44	44	44	45																		
General Industrial	-	-	133	133	133	133	133	133	133	133	133	134																		
Total Employment (cumulative)	**-**	**-**	**177**	**354**	**531**	**708**	**885**	**1,062**	**1,239**	**1,416**	**1,593**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*																		
General Industrial	-	-	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*																		
DC Revenue - Non-residential (inflated)	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926																		
Total DC Revenues	**-**	**-**	**1,189,422**	**1,225,105**	**1,261,858**	**1,299,714**	**1,338,705**	**1,378,866**	**1,420,232**	**1,462,839**	**1,506,725**	**1,551,926**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC	-																												-	-
DC (Debenture)																														
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-																			
Local Service																														
Local Service (Debenture)																														
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	39,586	79,172	118,758	158,344	197,930	237,516	277,102	316,688	356,274	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,422,682**	**-**	**1,664,386**	**1,703,972**	**1,743,558**	**1,783,144**	**1,822,730**	**1,862,316**	**1,901,902**	**1,941,488**	**1,981,074**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-5 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		136,327	278,107	425,503	578,685	737,823	903,095	1,074,683	1,252,773	1,437,558	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	-	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	3,712,962	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,712,962	3,849,289	3,991,069	4,233,899	4,388,989	4,550,074	4,717,332	4,890,945	5,071,102	5,257,993	3,649,827	3,684,641	3,720,151	3,756,372	3,793,316	3,831,000	3,869,437	3,908,644	3,948,634	3,989,424	2,121,898	2,164,336	2,207,623	2,251,775	2,296,811	2,342,747	2,389,602	2,437,394	2,486,142
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sub-total Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)						-	-	-	-	-	-	-	-																	
Beginning Balance	-	-	(3,712,962)	(7,916,909)	(12,141,422)	(16,107,032)	(19,719,845)	(22,979,461)	(25,885,472)	(28,437,455)	(30,634,973)	(32,477,575)	(32,161,630)	(33,029,199)	(33,528,475)	(34,033,020)	(34,545,959)	(35,064,422)	(35,589,538)	(36,121,441)	(36,660,266)	(37,206,151)	(35,850,106)	(34,501,407)	(33,160,201)	(31,826,638)	(30,500,870)	(29,183,053)	(27,873,347)	(26,571,913)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,422,682																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,712,962)	(7,916,909)	(12,141,422)	(16,107,032)	(19,719,845)	(22,979,461)	(25,885,472)	(28,437,455)	(30,634,973)	(32,477,575)	(32,161,630)	(33,029,199)	(33,528,475)	(34,034,020)	(34,545,959)	(35,064,422)	(35,589,538)	(36,121,441)	(36,660,266)	(37,206,151)	(35,850,106)	(34,501,407)	(33,160,201)	(31,826,638)	(30,500,870)	(29,183,053)	(27,873,347)	(26,571,913)	(25,278,917)
Net Annual Position	-	(3,712,962)	(4,203,947)	(4,224,512)	(3,965,610)	(3,612,812)	(3,259,617)	(2,906,011)	(2,551,983)	(2,197,518)	(1,842,602)	315,945	(867,569)	(499,275)	(505,545)	(511,940)	(518,463)	(525,116)	(531,903)	(538,825)	(545,885)	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996
Non DC Related Cashflow																														
Beginning Balance	-	-	-	(1,680,407)	(3,417,062)	(4,931,569)	(6,131,133)	(7,016,492)	(7,588,408)	(7,847,661)	(7,795,056)	(7,431,420)	(6,758,270)	(5,716,707)	(4,306,851)	(2,903,264)	(1,506,073)	(115,404)	1,268,612	2,645,841	4,016,148	5,379,394	6,735,439	8,084,138	9,425,344	10,758,907	12,084,675	13,402,492	14,712,198	16,013,632
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	-																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	-	(1,680,407)	(3,417,062)	(4,931,569)	(6,131,133)	(7,016,492)	(7,588,408)	(7,847,661)	(7,795,056)	(7,431,420)	(6,758,270)	(5,716,707)	(4,306,851)	(2,903,264)	(1,506,073)	(115,404)	1,268,612	2,645,841	4,016,148	5,379,394	6,735,439	8,084,138	9,425,344	10,758,907	12,084,675	13,402,492	14,712,198	16,013,632	17,306,628
Net Annual Position	-	-	(1,680,407)	(1,736,655)	(1,514,506)	(1,199,564)	(885,360)	(571,915)	(259,253)	52,605	363,636	673,150	1,041,563	1,409,856	1,403,587	1,397,192	1,390,669	1,384,015	1,377,229	1,370,307	1,363,246	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-6
Haldimand County
Scenario 2: 10-Year Development Timeframe

Cash Flow Analysis - County Invests in Conceptual Planning and Sells to Developer

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100																		
General Industrial	-	-	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946																		
Total Employment (cumulative)	**-**	**-**	**265,046**	**530,092**	**795,138**	**1,060,184**	**1,325,230**	**1,590,276**	**1,855,322**	**2,120,368**	**2,385,414**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	44	44	44	44	44	44	44	44	44	45												-	-	-	-	-	-	-
General Industrial	-	-	133	133	133	133	133	133	133	133	133	134												-	-	-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**177**	**354**	**531**	**708**	**885**	**1,062**	**1,239**	**1,416**	**1,593**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*											-	-	-	-	-	-	-	-
General Industrial	-	-	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*											-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**1,189,422**	**1,225,105**	**1,261,858**	**1,299,714**	**1,338,705**	**1,378,866**	**1,420,232**	**1,462,839**	**1,506,725**	**1,551,926**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC	-																												-	-
DC (Debenture)																														
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																													-	-
Local Service (Debenture)																														
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service																														
Local Service (Debenture)																														
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC	500,000																													
Non-DC (Debenture)	-	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	39,586	79,172	118,758	158,344	197,930	237,516	277,102	316,688	356,274	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**38,922,682**	**-**	**1,664,386**	**1,703,972**	**1,743,558**	**1,783,144**	**1,822,730**	**1,862,316**	**1,901,902**	**1,941,488**	**1,981,074**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-6 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		136,327	278,107	425,503	578,685	737,823	903,095	1,074,683	1,252,773	1,437,558	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	-	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	3,774,608	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	-	3,774,608	3,910,935	4,052,714	4,295,544	4,450,634	4,611,719	4,778,977	4,952,591	5,132,747	5,319,638	3,649,827	3,684,641	3,720,151	3,756,372	3,793,316	3,831,000	3,869,437	3,908,644	3,948,634	3,989,424	2,121,898	2,164,336	2,207,623	2,251,775	2,296,811	2,342,747	2,389,602	2,437,394	2,486,142
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues																														
Non-residential (cumulative)	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sub-total Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)						-	-	-	-	-	-	-	-																	
Beginning Balance	-	-	(3,774,608)	(8,040,200)	(12,326,358)	(16,353,614)	(20,028,072)	(23,349,334)	(26,316,991)	(28,930,619)	(31,189,782)	(33,094,030)	(32,778,085)	(33,645,654)	(34,144,929)	(34,650,474)	(35,162,414)	(35,680,877)	(36,205,993)	(36,737,896)	(37,276,720)	(37,822,606)	(36,466,561)	(35,117,862)	(33,776,656)	(32,443,093)	(31,117,324)	(29,799,508)	(28,489,801)	(27,188,368)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	38,922,682																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	-	(3,774,608)	(8,040,200)	(12,326,358)	(16,353,614)	(20,028,072)	(23,349,334)	(26,316,991)	(28,930,619)	(31,189,782)	(33,094,030)	(32,778,085)	(33,645,654)	(34,144,929)	(34,650,474)	(35,162,414)	(35,680,877)	(36,205,993)	(36,737,896)	(37,276,720)	(37,822,606)	(36,466,561)	(35,117,862)	(33,776,656)	(32,443,093)	(31,117,324)	(29,799,508)	(28,489,801)	(27,188,368)	(25,895,372)
Net Annual Position	-	(3,774,608)	(4,265,593)	(4,286,158)	(4,027,256)	(3,674,458)	(3,321,262)	(2,967,657)	(2,613,628)	(2,259,163)	(1,904,247)	315,945	(867,569)	(499,275)	(505,545)	(511,940)	(518,463)	(525,116)	(531,903)	(538,825)	(545,885)	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996
Non-DC Related Expenditures and Revenues																														
Beginning Balance	-	-	(61,645)	(1,803,698)	(3,601,999)	(5,178,151)	(6,439,360)	(7,386,365)	(8,019,926)	(8,340,824)	(8,349,865)	(8,047,875)	(7,374,725)	(6,333,162)	(4,923,306)	(3,519,719)	(2,122,527)	(731,858)	652,157	2,029,386	3,399,693	4,762,940	6,118,984	7,467,683	8,808,889	10,142,453	11,468,221	12,786,037	14,095,744	15,397,178
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Expenditures	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Land (inflated)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	500,000																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Net Cashflow (cumulative)	-	(61,645)	(1,803,698)	(3,601,999)	(5,178,151)	(6,439,360)	(7,386,365)	(8,019,926)	(8,340,824)	(8,349,865)	(8,047,875)	(7,374,725)	(6,333,162)	(4,923,306)	(3,519,719)	(2,122,527)	(731,858)	652,157	2,029,386	3,399,693	4,762,940	6,118,984	7,467,683	8,808,889	10,142,453	11,468,221	12,786,037	14,095,744	15,397,178	16,690,173
Net Annual Position	-	(61,645)	(1,742,053)	(1,798,301)	(1,576,152)	(1,261,209)	(947,005)	(633,561)	(320,898)	(9,041)	301,990	673,150	1,041,563	1,409,856	1,403,587	1,397,192	1,390,669	1,384,015	1,377,229	1,370,307	1,363,246	1,356,045	1,348,699	1,341,206	1,333,564	1,325,768	1,317,817	1,309,706	1,301,434	1,292,996

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-7
Haldimand County
Scenario 3: 10-Year Development Timeframe

Cash Flow Analysis - County Acts as the Land Developer in Partnership with the Private Sector

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100																		
General Industrial	-	-	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946																		
Total Employment (cumulative)	**-**	**-**	**265,046**	**530,092**	**795,138**	**1,060,184**	**1,325,230**	**1,590,276**	**1,855,322**	**2,120,368**	**2,385,414**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	44	44	44	44	44	44	44	44	44	45											-	-	-	-	-	-	-	-
General Industrial	-	-	133	133	133	133	133	133	133	133	133	134											-	-	-	-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**177**	**354**	**531**	**708**	**885**	**1,062**	**1,239**	**1,416**	**1,593**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Industrial	-	-	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**1,189,422**	**1,225,105**	**1,261,858**	**1,299,714**	**1,338,705**	**1,378,866**	**1,420,232**	**1,462,839**	**1,506,725**	**1,551,926**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)	-																													
Non-DC																														
Non-DC (Debenture)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	30,449,000																												-	-
Local Service (Debenture)	-	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	20,763,000																													
Local Service (Debenture)		2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	21,455,000																													
Local Service (Debenture)		1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	-	-	-	-	-	-	-	-	-
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service	32,220,000																													
Local Service (Debenture)		3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC																														
Non-DC (Debenture)	-																													
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	39,586	79,172	118,758	158,344	197,930	237,516	277,102	316,688	356,274	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**143,309,682**	**-**	**1,664,386**	**1,703,972**	**1,743,558**	**1,783,144**	**1,822,730**	**1,862,316**	**1,901,902**	**1,941,488**	**1,981,074**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-7 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-		136,327	278,107	425,503	578,685	737,823	903,095	1,074,683	1,252,773	1,437,558	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	0	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	15,931,828	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	3,237,708	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	**0**	**15,931,828**	**16,068,155**	**16,209,935**	**16,452,764**	**16,607,854**	**16,768,939**	**16,936,197**	**17,109,811**	**17,289,967**	**17,476,859**	**4,978,404**	**5,013,218**	**5,048,728**	**5,084,948**	**5,121,893**	**5,159,577**	**5,198,014**	**5,237,220**	**5,277,210**	**5,318,000**	**2,121,898**	**2,164,336**	**2,207,623**	**2,251,775**	**2,296,811**	**2,342,747**	**2,389,602**	**2,437,394**	**2,486,142**
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	**-**	**-**	**120,306**	**245,424**	**375,498**	**510,678**	**651,114**	**796,963**	**948,386**	**1,105,548**	**1,268,616**	**1,439,389**	**1,468,177**	**1,497,541**	**1,527,491**	**1,558,041**	**1,589,202**	**1,620,986**	**1,653,406**	**1,686,474**	**1,720,203**	**1,754,608**	**1,789,700**	**1,825,494**	**1,862,004**	**1,899,244**	**1,937,228**	**1,975,973**	**2,015,492**	**2,055,802**
Taxation Revenues																														
Light Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-residential (cumulative)	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sub-total Taxation Revenues	**-**	**-**	**-**	**-**	**374,490**	**748,929**	**1,123,368**	**1,497,807**	**1,872,246**	**2,246,685**	**2,621,125**	**2,995,564**	**3,370,003**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**
Sale of Land (inflated) - Recoup Local Service	**-**	**-**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**12,218,866**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Beginning Balance	-	-	(15,931,828)	(20,135,775)	(24,360,287)	(28,325,898)	(31,938,710)	(35,198,327)	(38,104,338)	(40,656,321)	(42,853,839)	(44,696,441)	(33,490,207)	(35,686,352)	(37,514,204)	(39,348,326)	(41,188,842)	(43,035,881)	(44,889,574)	(46,750,053)	(48,617,454)	(50,491,916)	(49,135,871)	(47,787,173)	(46,445,967)	(45,112,403)	(43,786,635)	(42,468,818)	(41,159,112)	(39,857,678)
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	143,309,682																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated) - Recoup Local Service Co	-	-	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	**-**	**(15,931,828)**	**(20,135,775)**	**(24,360,287)**	**(28,325,898)**	**(31,938,710)**	**(35,198,327)**	**(38,104,338)**	**(40,656,321)**	**(42,853,839)**	**(44,696,441)**	**(33,490,207)**	**(35,686,352)**	**(37,514,204)**	**(39,348,326)**	**(41,188,842)**	**(43,035,881)**	**(44,889,574)**	**(46,750,053)**	**(48,617,454)**	**(50,491,916)**	**(49,135,871)**	**(47,787,173)**	**(46,445,967)**	**(45,112,403)**	**(43,786,635)**	**(42,468,818)**	**(41,159,112)**	**(39,857,678)**	**(38,564,682)**
Net Annual Position	**-**	**(15,931,828)**	**(4,203,947)**	**(4,224,512)**	**(3,965,610)**	**(3,612,812)**	**(3,259,617)**	**(2,906,011)**	**(2,551,983)**	**(2,197,518)**	**(1,842,602)**	**11,206,234**	**(2,196,145)**	**(1,827,852)**	**(1,834,121)**	**(1,840,516)**	**(1,847,039)**	**(1,853,693)**	**(1,860,479)**	**(1,867,401)**	**(1,874,462)**	**1,356,045**	**1,348,699**	**1,341,206**	**1,333,564**	**1,325,768**	**1,317,817**	**1,309,706**	**1,301,434**	**1,292,996**

Non-DC Related Expenditures and Revenues

Beginning Balance	-	-	(12,218,866)	(13,899,273)	(15,635,928)	(17,150,434)	(18,349,998)	(19,235,358)	(19,807,273)	(20,066,526)	(20,013,921)	(19,650,286)	(8,086,846)	(8,373,860)	(8,292,580)	(8,217,570)	(8,148,955)	(8,086,863)	(8,031,424)	(7,982,771)	(7,941,041)	(7,906,371)	(6,550,326)	(5,201,627)	(3,860,421)	(2,526,858)	(1,201,090)	116,727	1,426,433	2,727,867
Non-DC Capital Expenditures (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Land (inflated) - Recoup Local Service Co	-	-	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	12,218,866	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	104,887,000																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Net Cashflow (cumulative)	**-**	**(12,218,866)**	**(13,899,273)**	**(15,635,928)**	**(17,150,434)**	**(18,349,998)**	**(19,235,358)**	**(19,807,273)**	**(20,066,526)**	**(20,013,921)**	**(19,650,286)**	**(8,086,846)**	**(8,373,860)**	**(8,292,580)**	**(8,217,570)**	**(8,148,955)**	**(8,086,863)**	**(8,031,424)**	**(7,982,771)**	**(7,941,041)**	**(7,906,371)**	**(6,550,326)**	**(5,201,627)**	**(3,860,421)**	**(2,526,858)**	**(1,201,090)**	**116,727**	**1,426,433**	**2,727,867**	**4,020,863**
Net Annual Position	**-**	**(12,218,866)**	**(1,680,407)**	**(1,736,655)**	**(1,514,506)**	**(1,199,564)**	**(885,360)**	**(571,915)**	**(259,253)**	**52,605**	**363,636**	**11,563,439**	**(287,014)**	**81,280**	**75,010**	**68,615**	**62,092**	**55,439**	**48,653**	**41,730**	**34,670**	**1,356,045**	**1,348,699**	**1,341,206**	**1,333,564**	**1,325,768**	**1,317,817**	**1,309,706**	**1,301,434**	**1,292,996**

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Figure C-8
Haldimand County
Scenario 4: 10-Year Development Timeframe

Cash Flow Analysis - County to Develop, Acquire, Service, and Sell Land Parcels

Development Forecast	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Non-residential Development (GFA)																														
Light Industrial	-	-	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	44,100	-																	
General Industrial	-	-	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	220,946	-																	
Total Employment (cumulative)	**-**	**-**	**265,046**	**530,092**	**795,138**	**1,060,184**	**1,325,230**	**1,590,276**	**1,855,322**	**2,120,368**	**2,385,414**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**	**2,650,460**

Development Forecast	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Non-residential Development (Employees)																														
Light Industrial	-	-	44	44	44	44	44	44	44	44	44	45														-	-	-	-	-
General Industrial	-	-	133	133	133	133	133	133	133	133	133	134														-	-	-	-	-
Total Employment (cumulative)	**-**	**-**	**177**	**354**	**531**	**708**	**885**	**1,062**	**1,239**	**1,416**	**1,593**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**	**1,772**

Revenues, Expenditures, and Impact	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
DC Revenues																														
Light Industrial	-	-	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*	*186,543*											-	-	-	-	-	-	-	-
General Industrial	-	-	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*	*934,602*											-	-	-	-	-	-	-	-
DC Revenue - Non-residential (inflated)	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DC Revenues	**-**	**-**	**1,189,422**	**1,225,105**	**1,261,858**	**1,299,714**	**1,338,705**	**1,378,866**	**1,420,232**	**1,462,839**	**1,506,725**	**1,551,926**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Capital Expenditures																														
Roads																														
DC																													-	-
DC (Debenture)	-																													
Non-DC																														
Non-DC (Debenture)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	30,449,000																												-	-
Local Service (Debenture)	-	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	3,754,086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100	421,100
Water																														
DC	6,932,569																													
DC (Debenture)		854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	854,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	20,763,000																													
Local Service (Debenture)		2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	2,559,890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500	522,500
Wastewater																														
DC	31,490,113																													
DC (Debenture)		2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	2,858,239	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	1,909,132	-	-	-	-	-	-	-	-	-
Non-DC	-																													
Non-DC (Debenture)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service	21,455,000																													
Local Service (Debenture)		1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,932,456	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	1,328,577	-	-	-	-	-	-	-	-	-	-
Lifecycle			539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800	539,800
Stormwater																														
DC																														
DC (Debenture)																														
Non-DC																														
Non-DC (Debenture)																														
Local Service	32,220,000																													
Local Service (Debenture)		3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	3,972,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle			141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400	141,400
Studies																														
DC																														
DC (Debenture)	-																													
Non-DC	500,000																													
Non-DC (Debenture)	-	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	61,645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service																														
Local Service (Debenture)																														
Lifecycle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Broader Lifecycle Costs	-	-	39,586	79,172	118,758	158,344	197,930	237,516	277,102	316,688	356,274	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308	396,308
Sub-total Capital Expenditures	**143,809,682**	**-**	**1,664,386**	**1,703,972**	**1,743,558**	**1,783,144**	**1,822,730**	**1,862,316**	**1,901,902**	**1,941,488**	**1,981,074**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**	**2,021,108**

Figure C-8 (Cont'd)

Revenues, Expenditures, and Impact	2024 Year 1	2025 Year 2	2026 Year 3	2027 Year 4	2028 Year 5	2029 Year 6	2030 Year 7	2031 Year 8	2032 Year 9	2033 Year 10	2034 Year 11	2035 Year 12	2036 Year 13	2037 Year 14	2038 Year 15	2039 Year 16	2040 Year 17	2041 Year 18	2042 Year 19	2043 Year 20	2044 Year 21	2045 Year 22	2046 Year 23	2047 Year 24	2048 Year 25	2049 Year 26	2050 Year 27	2051 Year 28	2052 Year 29	2053 Year 30
Purchase of Land	**97,172,075**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Land Purchase (Debt Debenture)	-	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	7,797,339	-	-	-	-	-	-	-	-	-
Operating Expenditures																														
Per Employee (inflated) X 740.30	-	-	136,327	278,107	425,503	578,685	737,823	903,095	1,074,683	1,252,773	1,437,558	1,631,073	1,663,694	1,696,968	1,730,908	1,765,526	1,800,836	1,836,853	1,873,590	1,911,062	1,949,283	1,988,269	2,028,034	2,068,595	2,109,967	2,152,166	2,195,209	2,239,113	2,283,896	2,329,574
Operating Costs Related to New Infrastructure (inflated)					95,433	97,342	99,289	101,274	103,300	105,366	107,473	109,623	111,815	114,051	116,332	118,659	121,032	123,453	125,922	128,440	131,009	133,629	136,302	139,028	141,809	144,645	147,538	150,488	153,498	156,568
Debenture Payments (capital + land)	0	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	23,790,812	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	11,035,047	-	-	-	-	-	-	-	-	-
Sub-total Operating Expenditures	**0**	**23,790,812**	**23,927,139**	**24,068,919**	**24,311,748**	**24,466,838**	**24,627,923**	**24,795,181**	**24,968,795**	**25,148,951**	**25,335,843**	**12,775,742**	**12,810,556**	**12,846,066**	**12,882,287**	**12,919,232**	**12,956,915**	**12,995,353**	**13,034,559**	**13,074,549**	**13,115,339**	**2,121,898**	**2,164,336**	**2,207,623**	**2,251,775**	**2,296,811**	**2,342,747**	**2,389,602**	**2,437,394**	**2,486,142**
Operating Revenues																														
Per Employee (inflated) X 653.30	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Sub-total Operating Revenues	**-**	**-**	**120,306**	**245,424**	**375,498**	**510,678**	**651,114**	**796,963**	**948,386**	**1,105,548**	**1,268,616**	**1,439,389**	**1,468,177**	**1,497,541**	**1,527,491**	**1,558,041**	**1,589,202**	**1,620,986**	**1,653,406**	**1,686,474**	**1,720,203**	**1,754,608**	**1,789,700**	**1,825,494**	**1,862,004**	**1,899,244**	**1,937,228**	**1,975,973**	**2,015,492**	**2,055,802**
Taxation Revenues																														
Light Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-residential (cumulative)	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sub-total Taxation Revenues	**-**	**-**	**-**	**-**	**374,490**	**748,929**	**1,123,368**	**1,497,807**	**1,872,246**	**2,246,685**	**2,621,125**	**2,995,564**	**3,370,003**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**	**3,744,443**
Sale of Land (inflated)			**16,925,280**	**17,263,786**	**17,609,061**	**17,961,243**	**18,320,468**	**18,686,877**	**19,060,614**	**19,441,827**	**19,830,663**	**20,227,277**	**-**	**-**																	
Beginning Balance	-	-	(23,790,812)	(31,147,329)	(38,185,905)	(44,620,304)	(50,349,724)	(55,366,723)	(59,663,707)	(63,232,925)	(66,066,466)	(68,156,254)	(56,738,948)	(66,732,432)	(76,357,623)	(85,989,083)	(95,626,938)	(105,271,316)	(114,922,348)	(124,580,165)	(134,244,905)	(143,916,706)	(142,560,661)	(141,211,962)	(139,870,756)	(138,537,193)	(137,211,425)	(135,893,608)	(134,583,901)	(133,282,468)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC Capital Expenditures (inc. interest cost)	(38,422,682)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(3,712,962)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	(1,909,132)	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	(97,172,075)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	-	-	-	-	-	-	-	-	-
Debenture Issuance	240,981,757																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
DC Revenues	-	-	1,189,422	1,225,105	1,261,858	1,299,714	1,338,705	1,378,866	1,420,232	1,462,839	1,506,725	1,551,926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Sale of Land (inflated)	-	-	16,925,280	17,263,786	17,609,061	17,961,243	18,320,468	18,686,877	19,060,614	19,441,827	19,830,663	20,227,277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cashflow (cumulative)	**-**	**(23,790,812)**	**(31,147,329)**	**(38,185,905)**	**(44,620,304)**	**(50,349,724)**	**(55,366,723)**	**(59,663,707)**	**(63,232,925)**	**(66,066,466)**	**(68,156,254)**	**(56,738,948)**	**(66,732,432)**	**(76,357,623)**	**(85,989,083)**	**(95,626,938)**	**(105,271,316)**	**(114,922,348)**	**(124,580,165)**	**(134,244,905)**	**(143,916,706)**	**(142,560,661)**	**(141,211,962)**	**(139,870,756)**	**(138,537,193)**	**(137,211,425)**	**(135,893,608)**	**(134,583,901)**	**(133,282,468)**	**(131,989,472)**
Net Annual Position	**-**	**(23,790,812)**	**(7,356,517)**	**(7,038,577)**	**(6,434,399)**	**(5,729,419)**	**(5,016,999)**	**(4,296,984)**	**(3,569,218)**	**(2,833,541)**	**(2,089,788)**	**11,417,306**	**(9,993,484)**	**(9,625,191)**	**(9,631,460)**	**(9,637,855)**	**(9,644,378)**	**(9,651,031)**	**(9,657,818)**	**(9,664,740)**	**(9,671,800)**	**1,356,045**	**1,348,699**	**1,341,206**	**1,333,564**	**1,325,768**	**1,317,817**	**1,309,706**	**1,301,434**	**1,292,996**

Non-DC Related Expenditures and Revenues

Beginning Balance	-	-	(20,077,850)	(24,910,827)	(29,461,546)	(33,444,841)	(36,761,012)	(39,403,754)	(41,366,642)	(42,643,130)	(43,226,548)	(43,110,099)	(31,335,588)	(39,419,940)	(47,135,999)	(54,858,328)	(62,587,051)	(70,322,298)	(78,064,197)	(85,812,883)	(93,568,492)	(101,331,161)	(99,975,116)	(98,626,417)	(97,285,211)	(95,951,647)	(94,625,879)	(93,308,063)	(91,998,356)	(90,696,923)
Non-DC Capital Expenditures (inc. interest cost)	(500,000)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	(61,645)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Service Capital Cost (inc. interest cost)	(104,887,000)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(12,218,866)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	(1,328,577)	-	-	-	-	-	-	-	-	-
Lifecycle Costs	-	-	(1,664,386)	(1,703,972)	(1,743,558)	(1,783,144)	(1,822,730)	(1,862,316)	(1,901,902)	(1,941,488)	(1,981,074)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)	(2,021,108)
Operating Expenditures	-	-	(136,327)	(278,107)	(520,936)	(676,026)	(837,111)	(1,004,369)	(1,177,983)	(1,358,139)	(1,545,031)	(1,740,695)	(1,775,509)	(1,811,020)	(1,847,240)	(1,884,185)	(1,921,868)	(1,960,306)	(1,999,512)	(2,039,502)	(2,080,292)	(2,121,898)	(2,164,336)	(2,207,623)	(2,251,775)	(2,296,811)	(2,342,747)	(2,389,602)	(2,437,394)	(2,486,142)
Purchase of Land (inc. interest cost)	(97,172,075)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	(7,797,339)	-	-	-	-	-	-	-	-	-
Sale of Land (inflated)	-	-	16,925,280	17,263,786	17,609,061	17,961,243	18,320,468	18,686,877	19,060,614	19,441,827	19,830,663	20,227,277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debenture Issuance	202,559,075																													
Operating Revenues	-	-	120,306	245,424	375,498	510,678	651,114	796,963	948,386	1,105,548	1,268,616	1,439,389	1,468,177	1,497,541	1,527,491	1,558,041	1,589,202	1,620,986	1,653,406	1,686,474	1,720,203	1,754,608	1,789,700	1,825,494	1,862,004	1,899,244	1,937,228	1,975,973	2,015,492	2,055,802
Taxation Revenues	-	-	-	-	374,490	748,929	1,123,368	1,497,807	1,872,246	2,246,685	2,621,125	2,995,564	3,370,003	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443	3,744,443
Net Cashflow (cumulative)	**-**	**(20,077,850)**	**(24,910,827)**	**(29,461,546)**	**(33,444,841)**	**(36,761,012)**	**(39,403,754)**	**(41,366,642)**	**(42,643,130)**	**(43,226,548)**	**(43,110,099)**	**(31,335,588)**	**(39,419,940)**	**(47,135,999)**	**(54,858,328)**	**(62,587,051)**	**(70,322,298)**	**(78,064,197)**	**(85,812,883)**	**(93,568,492)**	**(101,331,161)**	**(99,975,116)**	**(98,626,417)**	**(97,285,211)**	**(95,951,647)**	**(94,625,879)**	**(93,308,063)**	**(91,998,356)**	**(90,696,923)**	**(89,403,927)**
Net Annual Position	**-**	**(20,077,850)**	**(4,832,977)**	**(4,550,719)**	**(3,983,295)**	**(3,316,171)**	**(2,642,742)**	**(1,962,888)**	**(1,276,488)**	**(583,418)**	**116,449**	**11,774,511**	**(8,084,352)**	**(7,716,059)**	**(7,722,329)**	**(7,728,724)**	**(7,735,246)**	**(7,741,900)**	**(7,748,686)**	**(7,755,608)**	**(7,762,669)**	**1,356,045**	**1,348,699**	**1,341,206**	**1,333,564**	**1,325,768**	**1,317,817**	**1,309,706**	**1,301,434**	**1,292,996**

Development/construction will occur in 2026
Tax revenues - 2 year lag (i.e. start in 2028)
DC revenues have only been applied to DC-related expenditures.
Operating Revenues and expenditures inflated at 2% per year.
DC Revenues inflated at 3% per year
Operating expenditures for infrastructure have been assumed four years after anticipated construction.

Appendix D
Assumptions for Business Case Analysis

Appendix D: Assumptions for Business Case Analysis

Scope of the Assignment

To assist the County in their goals of developing and servicing employment lands, Watson & Associates Economists Ltd. (Watson) is preparing a detailed financial analysis and business case that incorporates the findings from Phase 1 of the study (Location analysis, market research and analysis, and functional servicing design) so as to quantify the impact to the County. As part of this work, the development of a financial model that incorporates the necessary components of a financial analysis is being prepared. Essentially, the methodology involves an operating and capital cost analysis. The operating cost analysis includes revenues and expenditures attributable to the proposed development which are estimated on a proportionate basis. That is, operating revenue and expenditure dollars are assigned by distributing the operating cost and revenues on a per capita and per employee basis. Tax revenue is calculated based on the total tax rate applicable to the subject area and development types. The assessment assumptions are based on a survey of assessment of similar industrial parks within surrounding market areas.

The analysis examines:

- Operating expenditures and revenues;
- Direct and indirect capital expenditures (including an annual lifecycle cost analysis and debt requirements);
- Anticipated assessment and associated tax revenues; and
- Over net financial impact (on an annual cashflow basis) and the net present value.

The financial model and business case will analyze four (4) different scenarios, as listed below:

1. Lands are privately developed;
2. County invests in conceptual planning then sells plans to developer;
3. County acts as the land developer in partnership with private sector; and

4. County develops, acquires, services, and sells land parcels.

Within each scenario, two (2) development absorption scenarios will be utilized:

1. The buildout of the development land occurs equally over a 10-year period; and
2. The buildout of the development land occurs equally over a 20-year period.

The model has been created to identify the County's cashflow and reserve requirements for these four (4) scenarios.

The following provides a summary of the assumptions utilized for each of the four (4) scenarios discussed above.

Scenarios

Scenario 1: Privately Developed

Assumptions:

1. **Anticipated Development** – will begin in year 3 and equal gross floor area (G.F.A.) development and employment will be assumed from years 3 to 12 or years 3 to 22 based on the absorption scenarios noted in the previous section.
2. **Development Charges (D.C.) Revenue** – based on the development timing, the associated D.C. revenues will be estimated. The D.C. revenues are based on the County's published 2023/2024 rates, indexed at 3% per year for the forecast period. Although the County is currently undertaking a D.C. study process, the estimated rates will not be available prior to completion of this financial analysis and business case.
3. **Capital Expenditures (non-local service)** – if the lands are privately developed then the County will only pay for growth-related works through D.C.s. Should there be a non-growth portion of upgrades, the County would fund this through tax-supported or rate-supported debt. It is anticipated that capital expenditures will be incurred in year 1, with annual debt payment assumptions as follows:

    - Projects less than $10 million: 10-year payment term at 4% interest; and
    - Projects greater than $10 million: 20-year payment term at 5% interest.

4. **Capital Expenditures (local service)** – these needs will be paid for by the developer and construction would be anticipated in year 1. Annual lifecycle costs will be identified beginning in year 3 onwards.

5. **Direct Lifecycle Costs** – lifecycle costs for all capital expenditures directly required for this development and not identified in the D.C. background study (including local service works) will be assessed an annual lifecycle cost to incorporate into the calculations. This will be included in year 3.

6. **Broader Lifecycle Costs** – which relate to the capital needs identified in the D.C. study, will be identified with actual building activity, which is assumed to begin in year 3, after the local service capital infrastructure has been constructed.

7. **Land Purchases** – since this scenario examines lands being privately developed, the County will not incur land purchase costs.

8. **Land Sales** – since the County would not purchase the lands, no assumptions on land sales are applicable.

9. **Operating Expenditures/Costs** – based on the financial model/analysis, the operating expenditures are based on the incremental employees added. The additional operating costs per employee are added as the employees are identified. Operating expenditures are assumed to begin in year 3.

10. **Operating Revenues** – are based on user fees collected by the County for services it provides (e.g. water, wastewater, etc.). For the purposes of the analysis, operating revenues will follow the anticipated development, therefore revenues will be assumed to begin in year 3.

11. **Taxation Revenues** – in addition to the operating revenues, the County would receive property tax revenue from each property developed. The collection of tax revenues is assumed to lag 2 years after development for non-residential development. Therefore incremental tax revenue will be assumed to begin in year 5. The anticipated assessment is based on a review of similar business parks in Brant and Guelph.

12. **Inflation** - Revenues and expenditures are assumed to inflate at a rate of 2% annually.

13. **Additional Operating Costs for Studies** – These costs are not applicable in this scenario.

Scenario 2: County Invests in Conceptual Planning and Sells to Developer

1. **Anticipated Development** – will begin in year 3 and equal G.F.A. development and employment will be assumed from years 3 to 12 or years 3 to 22 based on the absorption.

2. **Development Charges (D.C.) revenue** – based on the development timing, the associated D.C. revenues will be estimated. The D.C. revenues are based on the County's published 2023/2024 rates, indexed at 3% per year for the forecast period. Although the County is currently undertaking a D.C. study process, the estimated rates will not be available prior to completion of this financial analysis and business case.

3. **Capital Expenditures (non-local service)** – if the lands are privately developed then the County will only pay for growth-related works through D.C.s. Should there be a non-growth portion of upgrades, the County would fund this through tax-supported or rate-supported debt. It is anticipated that capital expenditures will be incurred in year 1, with annual debt payment assumptions as follows:

    - Projects less than $10 million: 10-year payment term at 4% interest; and
    - Projects greater than $10 million: 20-year payment term at 5% interest.

4. **Capital Expenditures (local service)** – these needs will be paid for by the developer and constructed would be anticipated in year 2. Annual lifecycle costs will be identified beginning in year 3 onwards.

5. **Direct Lifecycle Costs** – lifecycle costs for all capital expenditures directly required for this development and not identified in the D.C. background study (including local service works) will be assessed an annual lifecycle cost to incorporate into the calculations. This will be included in the year 3.

6. **Broader Lifecycle Costs** – which relate to the capital needs identified in the D.C. study, will be identified with actual building activity, which is assumed to begin in year 3, after the local service capital infrastructure has been constructed.

7. **Land Purchases** – since this scenario examines lands being privately developed, the County will not incur land purchase costs.

8. **Land Sales** – since the County would not purchase the lands, no assumptions on land sales are applicable.

9. **Operating Expenditures/Costs** – based on the financial model/analysis, the operating expenditures are based on the incremental employees added. The additional operating costs per employee are added as the employees are identified. Operating expenditures are assumed to begin in year 3.

10. **Operating Revenues** – are based on user fees collected by the County for services it provides (e.g. water, wastewater, etc.). For the purposes of the analysis, operating revenues will follow the anticipated development, therefore revenues will be assumed to begin in year 3.

11. **Taxation Revenues** – in addition to the operating revenues, the County would receive property tax revenue from each property developed. The collection of tax revenues is assumed to lag 2 years after development for non-residential development. Therefore incremental tax revenue will be assumed to begin in year 5. The anticipated assessment is based on a review of similar business parks in Brant and Guelph.

12. **Inflation** - Revenues and expenditures are assumed to inflate at a rate of 2% annually.

13. **Additional Operating Cost for Studies** – since the County will be responsible for the planning, there will be an additional cost of $500,000 assumed to occur in year 1 to complete the required planning studies.

Scenario 3: County Acts as the Land Developer in Partnership with the Private Sector

1. **Anticipated Development** – will begin in year 3 and equal G.F.A. development and employment will be assumed from years 3 to 12 or years 3 to 22 based on the absorption.

2. **Development Charges (D.C.) Revenue** – based on the development timing, the associated D.C. revenues will be estimated. The D.C. revenues are based on the County's published 2023/2024 rates, indexed at 3% per year for the forecast period. Although the County is currently undertaking a D.C. study process, the estimated rates will not be available prior to completion of this financial analysis and business case.

3. **Capital Expenditures (non-local service)** – For growth-related capital needs, the County would fund the works using D.C.s. Should there be a non-growth portion of upgrades, the County would fund this through tax-supported or rate-supported debt. It is anticipated that capital expenditures will be incurred in year 1, with annual debt payment assumptions as follows:

    - Projects less than $10 million: 10-year payment term at 4% interest; and
    - Projects greater than $10 million: 20-year payment term at 5% interest.

4. **Capital Expenditures (local service)** – since the County is the land developer, they will be responsible for paying for the local service works/infrastructure. As such, it is assumed there will be debt associated with these infrastructure works, which will be calculated utilizing the same debt assumptions noted above. It will be assumed that the County will recover these costs when the private developer sells the lands (through partnership agreement, the land purchaser would pay back the County for development of the lands when the lands are sold).

5. **Direct Lifecycle Costs** – lifecycle costs for all capital expenditures directly required for this development and not identified in the D.C. background study (including local service works) will be assessed an annual lifecycle cost to incorporate into the calculations. This will be included in the year 3.

6. **Broader Lifecycle Costs** – which relate to the capital needs identified in the D.C. study, will be identified with actual building activity, which is assumed to begin in year 3, after the local service capital infrastructure has been constructed.

7. **Land Purchases** – It is assumed that a private entity will purchase the lands and through agreement with the County, the County would service the lands, hence no purchase assumptions have been identified.

8. **Land Sales** – Through a partnership agreement with the private landowner, it is assumed the County would recoup the costs of constructing the local service

capital needs when the lands are sold. The value of the lands will be based on a review of market values of similar business parks (based on available sales data). Land sales will be prorated to align with the development forecast and would be assumed to occur in the year in which development occurs.

9. **Operating Expenditures/Costs** – based on the financial model/analysis, the operating expenditures are based on the incremental employees added. The additional operating costs per employee are added as the employees are identified. Operating expenditures are assumed to begin in year 3.

10. **Operating Revenues** – are based on user fees collected by the County for services it provides (e.g. water, wastewater, etc.). For the purposes of the analysis, operating revenues will follow the anticipated development, therefore revenues will be assumed to begin in year 3.

11. **Taxation Revenues** – in addition to the operating revenues, the County would receive property tax revenue from each property developed. The collection of tax revenues is assumed to lag 2 years after development for non-residential development. Therefore incremental tax revenue will be assumed to begin in year 5. The anticipated assessment is based on a review of similar business parks in Brant and Guelph.

12. **Inflation** - Revenues and expenditures are assumed to inflate at a rate of 2% annually.

13. **Additional Operating Costs for Studies** – These costs are not applicable in this scenario.

Scenario 4: County to Develop, Acquire, Service, and Sell Land Parcels

1. **Anticipated Development** – will begin in year 3 and equal gross floor area (G.F.A.) development and employment will be assumed from years 3 to 12 or years 3 to 22 based on the absorption scenarios noted in the previous section.

2. **Development Charges (D.C.) Revenue** – based on the development timing, the associated D.C. revenues will be estimated. The D.C. revenues are based on the County's published 2023/2024 rates, indexed at 3% per year for the forecast

period. Although the County is currently undertaking a D.C. study process, the estimated rates will not be available prior to completion of this financial analysis and business case.

3. **Capital Expenditures (non-local service)** – For growth-related capital needs, the County would fund the works using D.C.s. Should there be a non-growth portion of upgrades, the County would fund this through tax-supported or rate-supported debt. It is anticipated that capital expenditures will be incurred in year 1, with annual debt payment assumptions as follows:

    - Projects less than $10 million: 10-year payment term at 4% interest; and
    - Projects greater than $10 million: 20-year payment term at 5% interest.

4. **Capital Expenditures (local service)** – since the County is the land developer, they will be responsible for paying for the local service works/infrastructure. As such, it is assumed there will be debt associated with these infrastructure works, which will be calculated utilizing the same debt assumptions noted above. It will be assumed that the County will recover these costs when the lands are sold.

5. **Direct Lifecycle Costs** – lifecycle costs for all capital expenditures directly required for this development and not identified in the D.C. background study (including local service works) will be assessed an annual lifecycle cost to incorporate into the calculations. This will be included in the year 3.

6. **Broader Lifecycle Costs** – which relate to the capital needs identified in the D.C. study, will begin occurring with actual building activity, which is assumed to occur in year 3, after the local service capital infrastructure/needs have been identified and constructed.

7. **Land Purchases** – in this scenario it is assumed that the County would purchase the unserviced land, develop the infrastructure, and sell the serviced land. The unserviced land value will be estimated based on a review of available purchase price information in similar municipalities. Land purchase would be assumed to occur in year 1.

8. **Land Sales -** The value of the lands will be based on a review of market values of similar business parks (based on available sales data). Land sales will be prorated to align with the development forecast and would be assumed to occur in the year in which development occurs.

9. **Operating Expenditures/Costs** – based on the financial model/analysis, the operating expenditures are based on the incremental employees added. The additional operating costs per employee are added as the employees are identified. Operating expenditures are assumed to begin in year 3.

10. **Operating Revenues** – are based on user fees collected by the County for services it provides (e.g. water, wastewater, etc.). For the purposes of the analysis, operating revenues will follow the anticipated development, therefore revenues will be assumed to begin in year 3.

11. **Taxation Revenues** – in addition to the operating revenues, the County would receive property tax revenue from each property developed. The collection of tax revenues is assumed to lag 2 years after development for non-residential development. Therefore incremental tax revenue will be assumed to begin in year 5. The anticipated assessment is based on a review of similar business parks in Brant and Guelph.

12. **Inflation** - Revenues and expenditures are assumed to inflate at a rate of 2% annually.

13. **Additional Operating Cost for Studies** – since the County will be responsible for the planning, there will be an additional cost of $500,000 assumed to occur in year 1 to complete the required planning studies.

Summary

Assumption	Scenario 1 Private Developer	Scenario 2 County Undertakes Planning	Scenario 3 County acts as Land Developer in Partnership	Scenario 4 County Acts as Developer
Anticipated Development	begin in year 3 with equal G.F.A. and employment over forecast	begin in year 3 with equal G.F.A. and employment over forecast	begin in year 3 with equal G.F.A. and employment over forecast	begin in year 3 with equal G.F.A. and employment over forecast
D.C. Revenue	Based on current rates (2024) and indexed at 3% annually over forecast	Based on current rates (2024) and indexed at 3% annually over forecast	Based on current rates (2024) and indexed at 3% annually over forecast	Based on current rates (2024) and indexed at 3% annually over forecast
Capital Expenditures (non-local service)	Incurred in year 1, with annual debt payments calculated for projects less than $10 million: 10-year payment term at 4% interest; and projects greater than $10 million: 20-year payment term at 5% interest.	Incurred in year 1, with annual debt payments calculated for projects less than $10 million: 10-year payment term at 4% interest; and projects greater than $10 million: 20-year payment term at 5% interest.	Incurred in year 1, with annual debt payments calculated for projects less than $10 million: 10-year payment term at 4% interest; and projects greater than $10 million: 20-year payment term at 5% interest.	Incurred in year 1, with annual debt payments calculated for projects less than $10 million: 10-year payment term at 4% interest; and projects greater than $10 million: 20-year payment term at 5% interest.
Capital Expenditures (local service)	Paid by developer with construction in year 2	Paid by developer with construction in year 2	County pays for infrastructure with debt calculated using same assumptions noted above. Costs recouped through sale of lands (agreement)	County pays for infrastructure with debt calculated using same assumptions noted above.
Direct Lifecycle Costs	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)
Broader Lifecycle Costs	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)	Annual amount to begin in year after construction (year 3)
Land Purchases	N/A	N/A	N/A	Occur in year 1
Land Sales	N/A	N/A	County to recoup local service cost at time lands are sold. Prorated to align with development forecast and occur in year of development	Prorated to align with development forecast and occur in year of development
Operating Expenditures/Costs	Begin in year 3, based on incremental employees added	Begin in year 3, based on incremental employees added	Begin in year 3, based on incremental employees added	Begin in year 3, based on incremental employees added
Operating Revenues	Begin in year 3 and based on employees added	Begin in year 3 and based on employees added	Begin in year 3 and based on employees added	Begin in year 3 and based on employees added
Taxation Revenues	2-year lag after development. Begin in year 5	2-year lag after development. Begin in year 5	2-year lag after development. Begin in year 5	2-year lag after development. Begin in year 5
Inflation	2% annually	2% annually	2% annually	2% annually
Additional Operating Costs for Studies	N/A	$500,000 in year 1	N/A	$500,000 in year 1