Water and Wastewater Master Plan Review

Prepared for:

Chatham-Kent Public Utilities Commission

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Published:

2025-06-03

Executive Summary

Municipal VU Consulting Inc. (MVU) was commissioned by the Chatham-Kent Public Utility Commission (PUC) to review and potentially prioritize the projects in the Water and Wastewater Master Plan (WWWMP) and to assess the alignment of the WWWMP with Council's growth priorities and service expectations. The review quickly revealed a broader set of issues requiring deeper investigation. As a result, our focus expanded to include servicing gaps in Southwest Chatham, organizational coordination gaps between the Municipality and the PUC, infrastructure planning methodology, and operational vulnerabilities.

One of the principal findings of this review is that the current WWWMP does not fully align with Chatham-Kent's most pressing growth and development priorities. Most notably, the Southwest Chatham area, identified by the Mayor and Council as a strategic growth zone, was not considered in the plan despite being poised for near-term residential and employment expansion. The lack of consideration of the SW Chatham growth area needs from formal servicing plans significantly limits the municipality's ability to respond to development interest, attract investment, and meet long-range housing and employment targets.

Beyond this, the review identified broader misalignment between land use planning and infrastructure delivery. The PUC and municipal administration operate under distinct mandates, without a shared capital prioritization framework, unified servicing strategy, or integrated decision-making process. As a result, **infrastructure investments are being planned and sequenced without a coordinated strategy to balance service levels, growth pressures, fiscal impact, and risk.**

One significant issue is the identification of the Wallaceburg Water Treatment Plant (WTP) and associated projects as one of the most pressing and expensive projects identified in the near term of the WWWMP, whereas the Municipality see the servicing to Southwest Chatham as the immediate priority. The SW Chatham servicing was not reviewed or considered in the WWWMP process.

From a technical standpoint, this review draws on new analysis from the 2024 Southwest Chatham Servicing Study (AECOM), which lays out the infrastructure requirements for enabling phased growth across over 860 hectares of land. This includes substantial upgrades to water treatment, storage, pumping, sanitary conveyance, stormwater management, and overall system coordination. The projected infrastructure needs for full buildout of the Southwest Chatham area total over $780 million (storm included in this estimate, but not part of the WWWMP). This is in addition to the over $975 M identified in the WWWMP, not including the State of Good Repair (SOGR) requirements that have not been fully costed or flushed out, **underscoring the urgency of coordinated planning and financial strategy development.**

Operationally, the water and wastewater systems face mounting risks due to aging infrastructure, high non-revenue water levels, infiltration and inflow (I&I), and incomplete

implementation of combined sewer separation plans. These issues compound the need for improved asset management planning, capital forecasting, and service level tracking.

To address these findings, the report provides a series of structured recommendations. They are categorized into an Implementation Plan that includes Immediate, Short-term, Medium-term and Foundational (longer term) actions.

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1. Introduction

The Chatham-Kent (CK) Public Utilities Commission (PUC) was challenged with addressing the municipal pressures of upgrading numerous water and wastewater facilities for capacity and the impacts of Bill 23 on growth plans. Municipal VU Consulting Inc. (MVU) was engaged to assist PUC with a review of its Water and Wastewater Master Plan. The goal was to support the PUC in efforts to optimize infrastructure investment priorities to support long-term service delivery and encourage growth in the community.

The project objectives included:

- Review the Master Plan and other key documentation.
- Develop actionable recommendations and risk observations.
- Identify constraints, risks and opportunities.
- Develop high-level alternatives and phasing options.

However, as the review progressed, it became clear that the scope of issues extended beyond the content of the WWWMP. The servicing needs of major growth areas were not fully captured; capital planning lacked integration with financial policy; and the organizational relationship between the Municipality of Chatham-Kent and the Public Utilities Commission (PUC) was inhibiting coordinated decision-making. Given these findings, the review's focus was expanded to include broader infrastructure planning gaps, operational limitations, and structural governance issues.

2. Background

2.1. Growth Trends

CK has historically made limited growth-related capital investment since amalgamation. Infrastructure investments made in the 1990s have largely sustained the existing water and wastewater capacity. However, CK planning team indicated that Chatham is now experiencing a modest housing growth rate of approximately 1% annually and is planning more aggressive growth specifically in the SW Chatham area. While this represents a shift from previous trends, where population decline was followed by a period of stagnation, the overall growth currently remains slow. Despite this gradual increase, the financial resources required to support the current growth rate, and the projected rate are significant.

While residential growth remains steady, the most pressing land development needs are emerging in the industrial and commercial sectors. These sectors require targeted infrastructure planning to support economic development and attract new businesses.

2.2. Greenhouse Expansion and Water Demand

Chatham-Kent has seen some growth in the greenhouse sector, the CK planning team indicated that approximately 600 to 700 acres of land is already dedicated to existing greenhouse operations. This level of development represents a scale that far exceeds historical demands. Supporting the continued expansion of greenhouse operations presents a major challenge for both the PUC and CK.

The Water and Wastewater Master Plan initially estimated a future water demand increase of 29 million litres per day (MLD)[1]. However, revised projections from the CK planning team suggest that the demand could reach 90-100 MLD, a demand three times higher than originally anticipated. This disparity underscores the need for a reassessment of infrastructure capacity and investment priorities as well as a review of policies around this growing agricultural sector.

2.3. Historical Water Servicing Trends

Following amalgamation, CK PUC's mandate focused on extending water service to un-serviced rural areas through waterline petitions. This initiative was largely driven by widespread well failures, which left rural residents without reliable water sources. Some areas, such as Ridgetown, had sufficient well capacity at the time, while other former townships were reluctant to extend municipal water services to rural communities.

The waterline petition system led to the rapid expansion of the municipal water network, with up to 100 kilometers of new waterlines constructed annually. These pipelines, typically 2 to 4 inches in diameter, were often extended down rural roads without looping, resulting in numerous dead-end segments that require regular flushing to maintain water quality. In some cases, isolated properties were connected to non-looped waterlines, requiring blow-off valves at the end of the line to manage stagnant water.

Over time, the financial feasibility of waterline petitions has declined. Whereas early connections were available for approximately $3,000 per property, mainly due to these being located adjacent to the existing WDS boundary. Current costs have surged to around $60,000 per connection due to the requested service areas far away from the WDS boundary and inflation. This cost escalation has made further expansion through the petition system increasingly impractical, highlighting the need for alternative strategies to balance service expansion with financial sustainability.

[1] Table 5-2: Future Greenhouses in Chatham-Kent from the 2024 PUC Water and Wastewater Master Plan

3. Approach

The overall objective of this project was to conduct a review of the Water and Wastewater Master Plan and develop actionable recommendations as well as identify key risks and challenges. The project was structured into three distinct phases to ensure a thorough and collaborative process:

1. **Discover and Consult** – In this phase, MVU engaged in data collection and internal stakeholder consultation. The team gathered and reviewed background documents, facilitated workshops with PUC and municipal staff, conducted internal stakeholder meetings, and held interviews with key staff and council members. This phase focused on learning from stakeholders, understanding the current state, and identifying immediate concerns and opportunities.
2. **Diagnose and Analyze** – Building on the insights gained from the Discovery and Consult phase, MVU consolidated observations, identified root causes, and analyzed key challenges. During this phase, we conducted a thorough review of the findings, identified gaps, and highlighted areas for improvement. Additionally, actionable recommendations were developed and shared in workshops with PUC and municipal staff, allowing for feedback and collaboration to refine the proposed solutions.
3. **Final Report:** The final phase involved the preparation of a draft and final report, which outlined the project findings, identified opportunities for enhanced collaboration between CK and PUC, and provided a set of actionable recommendations for addressing the observed challenges. This report serves as a roadmap for future decision-making and improvements in the water and wastewater systems.

Structure of the Report

While the primary focus of this review was the Water and Wastewater Master Plan and its recommended projects, as stated earlier, additional opportunities were identified during the course of the project. The recommendations presented in this report will address these opportunities and are organized into sections as shown in Figure 1 below.

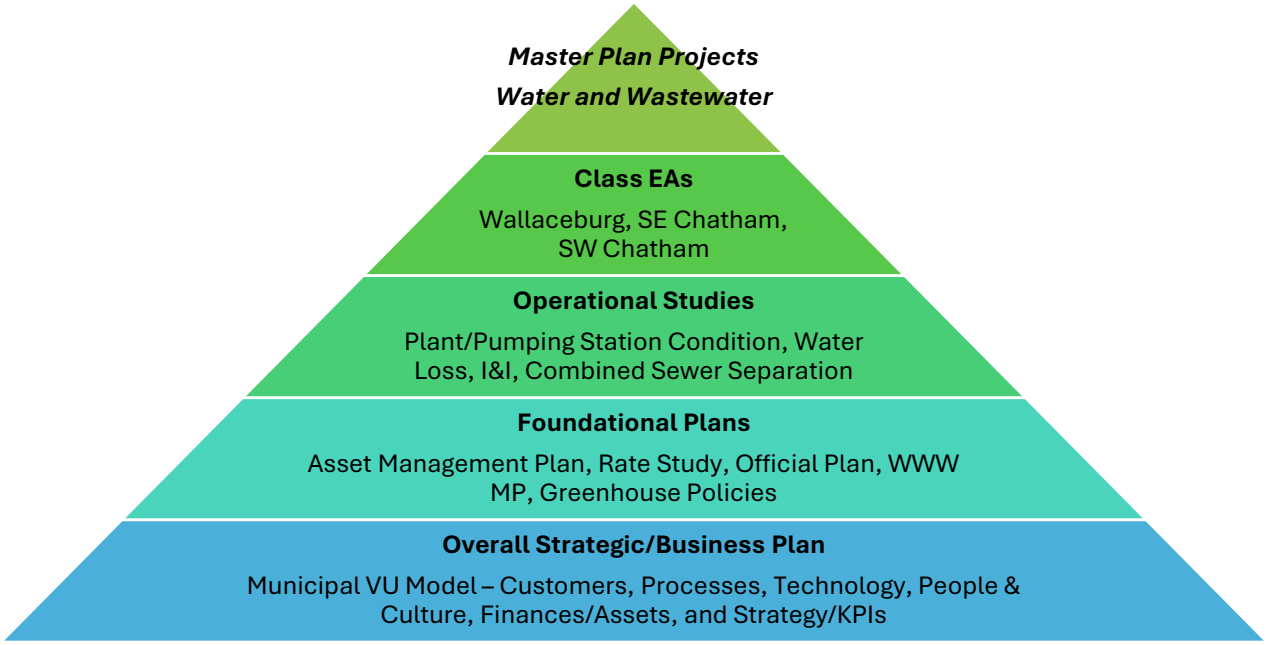

Figure 1: Hierarchy of Plans and Studies

4. Observations

The review of CK's water and wastewater infrastructure planning highlights gaps in alignment, coordination, and strategic decision-making. The existing Master Plan Project did not fully address all of the Municipality's long-term needs to the satisfaction of the Chatham Kent senior staff, it was not in MVU's scope to review the Terms of Reference that the consultant was working under nor the direction that PUC staff may have given the consultant throughout the assignment, particularly in integrating growth projections, exploring alternative servicing options, and prioritizing investments based on risk and level-of-service expectations. There were some communication breakdowns, throughout the project between CK and PUC that limited the effectiveness of growth planning efforts. Additionally, infrastructure planning and financial strategies require refinement to ensure sustainable service delivery, better risk management, and maximized funding opportunities. The following observations outline key areas where improvements can be made to enhance future planning and decision-making.

4.1. Master Plan Limitations

The existing Master Plan does not adequately address CK's current and future needs, as stated by the senior staff at CK. It lacks a comprehensive framework for integrating financial constraints, growth demands, and infrastructure lifecycle management. Additionally, the plan does not sufficiently explore several alternative servicing options, missing opportunities to optimize costs, operational efficiency, and construction staging to minimize service disruptions. Again, MVU was not privy to directions that may have been given to the consultant during the assignment.

The following outlines some of the issues observed as part of this review:

Alignment with Growth Priorities

The 2023 WWWMP does not reflect the municipality's most important growth objectives while technically structured, failed to include servicing strategies for Southwest Chatham, an area that is partially outside the Urban Boundary, but has been clearly identified by Council as a strategic priority for residential and employment growth. The WWWMP did not consider the area, as it was outside of the Urban Boundary, creating a major disconnect between political direction and infrastructure planning.

Without a servicing plan, development in Southwest Chatham is effectively stalled, despite mounting interest from the private sector and its strategic location along Highway 401. The absence of integrated infrastructure guidance creates uncertainty for developers and weakens the municipality's ability to support job creation and housing growth.

The growth and intensification of Southwest Chatham has emerged as a clear political priority within the CK. The Mayor and Council have expressed strong support for developing the area's residential, industrial, and commercial potential. Southwest Chatham encompasses approximately 860 hectares of largely undeveloped land positioned north of Highway 401 and west of Bloomfield Road. Its location near major transportation routes makes it attractive for a variety of land uses, including housing, employment lands, highway commercial, and greenhouse operations. The scale of the land and its adjacency to existing services make it a logical extension of Chatham's urban footprint, and staff have confirmed that the next Official Plan update is expected to incorporate many of the lands into the urban boundary.

Collaboration Between CK and PUC on Growth Strategy

Throughout the review, it became clear that CK's municipal administration and the PUC operate under distinct mandates with limited structural coordination. There is not a joint servicing strategy that spans the functions of land use planning, engineering design, asset management, or capital finance. Instead, the two entities plan, budget, and execute projects largely in parallel. This lack of alignment leads to missed opportunities for collaboration, inefficient sequencing of investments, and inconsistent messaging to Council and the development community.

The division of responsibilities between CK and the PUC is further complicated by the absence of a shared governance framework or formalized capital coordination process. Major decisions about infrastructure timing, funding, and prioritization are not reviewed in a unified forum, which increases the risk of duplication, delay, or strategic missteps.

Communication and Awareness of Growth Needs

There has been a recent effort to improve proactive communication and strategic planning around growth-related infrastructure requirements. Several key areas of focus are:

- **Greenhouse Strategy** – Agricultural and greenhouse industries are major water users, but their growth demands may be larger than what was accounted for in long-term planning. The exponential increase in demand could have been triggered due to neighbouring municipalities closing the door to the greenhouse industry just before the impacts of COVID-19.
- **Industrial, Commercial, and Institutional Demand** – Expansion in these sectors requires a clearer understanding of future water and wastewater needs, ensuring that capacity is aligned with projected growth.
- **Southwest Servicing Plan** – Growth in the southwest quadrant, including employment lands outside the current urban boundary, is a priority for CK. The PUC needs to be involved in the planning process.
- **Southeast Servicing Plan** – Initiated to address water supply and infrastructure challenges in the region.

Exploration of Alternative Options in the Master Plan

A central function of any master plan is to explore alternatives and assess their relative benefits, risks, and costs. In this respect, the WWWMP does have some gaps, but it is difficult to know what direction the consultant was given during the life of the project. In several key areas, preferred options were selected based on the fact that Schedule C EA was completed, for example, the plan defaults to constructing a new $150 million water treatment plant and intake in Wallaceburg, despite previous Environmental Assessments having considered a much lower-cost option involving a transmission main from Chatham.

Similarly, in Blenheim and Ridgetown, transmission upgrades[2] are recommended without any condition-based assessment of the existing infrastructure or an evaluation of alternative methods such as boosting or decentralized storage.

The lack of comparative analysis creates difficulties for decision-makers tasked with approving or funding these investments. Without a clear understanding of trade-offs, it is difficult to defend project prioritization or budget allocations.

The Master Plan does not fully explore all available servicing options, missing opportunities to optimize investment decisions, it was not in MVU's scope to determine what direction or scope was given to the consultant during this assignment. Key areas that require further analysis include:

[2] Project ID RH-W1 in Table 10-1: Recommended Projects for the Chatham-Kent Water System from the 2024 PUC Water and Wastewater Master Plan

- **Viability and Cost Comparisons** – Assessing the feasibility of various infrastructure solutions, including decentralized versus centralized servicing models.
- **Affordability** – Ensuring that planned investments remain financially viable and sustainable for ratepayers.
- **Operational Considerations** – Evaluating the long-term operational impacts of different servicing approaches, including staffing, maintenance, and energy efficiency.
- **Construction Staging** – Considering phased implementation plans to minimize disruptions while efficiently delivering required infrastructure.

Framework to Prioritize Infrastructure Needs Based on Risk and Level of Service Expectations

Another gap, not necessarily in the WWWMP itself, but in the overall capital planning process, is the absence of a structured prioritization framework. While the plan identifies nearly $1 billion in recommended projects, it does not provide a methodology to rank or sequence these investments based on risk to service levels, cost-efficiency, growth enablement, or regulatory compliance. Instead, projects are presented as a list, leaving Council and staff without the tools needed to make informed trade-offs between competing capital needs.

In today's fiscal environment, infrastructure spending must be guided by a clear, risk-based methodology that considers asset condition, population and employment growth, affordability, and environmental protection. The absence of such a framework significantly reduces the usefulness of the WWWMP as a capital planning document.

Organizational Capacity and Resource Optimization

Finally, the review identified systemic capacity issues across both organizations. Staff on both sides reported difficulty maintaining service levels, completing technical studies, or advancing capital projects on pace with development demand. The existing organizational structure does not appear to support the scale and complexity of the water and wastewater system, especially as expectations for growth, risk management, and service quality continue to rise.

The combination of fragmented planning, technical gaps, and **organizational strain suggests the need for a new governance approach**, one that enables joint planning, improves transparency, and aligns decisions with community priorities.

However, that being said, there are several underutilized opportunities to optimize financial and operational resources, including:

- **Development Charges (DCs) and DC Discounting** – Ensuring that growth-related infrastructure costs are appropriately recovered through DCs while balancing affordability for developers.
- **Rate Structure Adjustments** – The recent rate study was a good opportunity to refine cost recovery mechanisms to improve financial sustainability.

- **Organizational Capacity** – Strengthening collaboration between PUC and CK staff to improve efficiency and optimize available expertise.
- **System Capacity Optimization** – Addressing non-revenue water losses, inflow and infiltration (I/I) issues, and energy inefficiencies in pumping and treatment systems to reduce operational costs and extend asset lifespans.

4.2. Challenges

Numerous challenges were observed through the review of this project for both the PUC and CK. These challenges range from financial constraints and capital planning to governance, operational capacity, and the alignment of infrastructure with future growth. The following section outlines key issues faced by both the PUC and CK, highlighting areas where strategic action is needed to ensure sustainable service delivery, effective growth management, and improved coordination between stakeholders.

PUC Challenges

- **Unaffordable Master Plan Capital Forecast**: The projected costs for capital projects outlined in the Master Plan exceed financial capacity.
- **Competing Investment Needs**: Water and wastewater facilities have competing investment needs between Growth vs State of Good Repair (SOGR).
- **Impact of Bill 23 and Growth Plans**: Further assessment is needed to determine the full impact of new legislative changes on infrastructure planning.
- **Wallaceburg Treatment Plant Evaluation**: A cost-benefit analysis is required to determine the best course of action for this facility.
- **LAWSS System Connection**: The cost of connecting to the LAWSS system has been assessed and deemed cost prohibitive.
- **Agricultural and Greenhouse Demands**: Increasing demands from the agricultural sector, coupled with development charge (DC) discounts, pose financial and operational challenges.
- **Non-Revenue Water**: Significant non-revenue water loss in the system needs further investigation and mitigation strategies.
- **State of Good Repair vs. Growth**: Balancing ongoing maintenance with necessary growth-related upgrades remains a challenge.
- **PUC's Isolation from Municipal Challenges**: Limited integration between PUC planning and broader municipal infrastructure and service planning efforts.

CK Challenges Related to PUC

- **Growth in SW Quadrant**: The employment area is currently outside the urban boundary, creating challenges in servicing accelerated housing development driven by provincial legislative changes and commitments.
- **Limited PUC Involvement in Land-Use Planning**: PUC has had minimal participation in municipal land-use planning and priority setting, particularly in the Master Planning process.
- **Service Level Agreements (SLA) Require Updates**: SLA agreements for water distribution, wastewater collection, and engineering services need revisions to better define roles and expectations.
- **Unclear Responsibilities and Accountabilities**: Further clarity is needed to define and align the responsibilities between PUC and municipal stakeholders.
- **Insufficient Funding for Maintenance**: Existing funding levels are inadequate to properly maintain water distribution and wastewater collection systems in a state of good repair (SOGR).
- **Greenhouse Water Demand**: The expanding greenhouse sector requires additional water supply, creating capacity and financial pressures.
- **Coordination of Capital Programs**: There is a lack of synchronization between the municipal capital program and the PUC capital program, leading to inefficiencies in infrastructure planning and investment.

5. Master Plan Projects

As stated earlier in this report, one of the main goals of this study was to review the Master Plan projects, complete a comprehensive assessment of each project's rationale and key considerations, and consider potential alternatives that could be further explored to optimize their implementation. Section 5.1 to 5.3 has a series of colour-coded tables for both water and wastewater projects to provide clear guidance on their viability.

The following legend describes the prioritization of the projects:

Projects deemed ready to proceed, either because they offer a strong return on investment or were already underway. These projects have sufficient budget and timelines.

Projects to proceed after further investigation, they are likely to move forward in some form but require additional information or operation studies to ensure value for money.

Projects that should be halted until an extensive study or strategies have been conducted/prioritized, to fully assess their viability and ensure alignment with broader objectives. These project's needs may be fulfilled by some other solution.

This categorization helps prioritize resources and can ensure that only the most strategic projects are pursued with confidence.

5.1. Water Projects

System	Project Description	Purpose	Implementation Timing	Cost	MVU Rationale
Raw Water Pumping Station	Increase pumping capacity by replacing existing Pump No.3 (267L/s) to larger capacity (527L/s).	Increase South Chatham-Kent Water Treatment Plant High lift pump capacity to meet future greenhouse demands.	Long Term (2035-2051)	$3,557,250	Develop a Greenhouse Servicing Plan and OP Policies.
Chatham	11 kms of new 600mm transmission main from existing Water Treatment Plant High lift pumping station to the Southwest area of Chatham Water System (Partial Ring TM). **Refer to Figure 10-1**	Improves system pressures.	Long Term (2035-2051)	$38,208,788	Revisit after Other Master Plan Policy issues resolved. Also look to Water Loss issues to recover capacity.
Chatham	Increase storage capacity at the existing Chatham Water Treatment Plant. Refer to **Figure 7-4**	To increase to the required storage capacity.	Short Term (2025-2029)	$19,400,000	Proceed due to security of supply for Chatham.
Chatham	Increase treatment capacity at the existing Chatham Water Treatment Plant. Refer to **Figure 7-1**	To meet future water demands.	Interim Term (2030-2034)	$206,700,000	Carry out a new Treatment Supply Study after Wallaceburg decisions are finalized.
Chatham	Increase pumping capacity at the existing Chatham Water Treatment Plant High lift Pumping Station.	To meet future water demands.	Interim Term (2030-2034)	$3,091,500	Carry out a new Treatment Supply Study after Wallaceburg decisions are finalized.
Chatham	Conduct condition assessment for existing raw water transmission main.	To ensure watermain capacity is maintained at design level.	Short Term (2025-2029)	$1,500,000	Tendered and underway.

System	Project Description	Purpose	Implementation Timing	Cost	MVU Rationale
Chatham /Bothwell	300mm watermain from Thamesville Elevated Tank to Zone 6 Rd. Refer to **Figure 10-2**	To service future growth east of Thamesville.	Interim Term (2030-2034)	$7,200,000	Could proceed independent of other studies. Revisit next Master Plan
Chatham /Bothwell	Zone 6 Road to Delaware Nation 200mm watermain Refer to **Figure 10-2**	To provide treated water to Delaware Nation	Interim Term (2030-2034)	$1,150,000	Could proceed independent of other studies. Revisit next Master Plan
Chatham /Bothwell	New Booster Pump Station at the Northeast corner of Zone 5 Road and Baseline. Refer to **Figure 10-2**	To provide adequate pressure for Northeast Water Distribution system.	Interim Term (2030-2034)	$300,000	Could proceed independent of other studies. Revisit next Master Plan
Chatham /Bothwell	New 300mm watermain from Zone 6 Rd and Baseline to Bothwell. Refer to **Figure 10-2**	To service future growth east of Thamesville and provide water to Bothwell.	Long Term (2035-2051)	$9,720,000	Could proceed independent of other studies. Revisit next Master Plan
Chatham /Bothwell	Replace the Thamesville Standpipe with a 2.3ML Standpipe. Refer to **Figure 10-2**	To increase top water levels and provide adequate pressure to Kent-Bridge	Interim Term (2030-2034)	$5,000,000	Could proceed independent of other studies. Revisit next Master Plan
Ridgetown / Highgate	300mm Integration Transmission Main for Blenheim and Ridgetown. Refer to **Figure 10-3**	Deliver water supply from South Chatham-Kent Water System to Ridgetown-Highgate Water System	Interim Term (2030-2034)	$24,425,625	Long standing Water Quality issues in Ridgetown. EA underway.
Ridgetown / Highgate	Retrofitting existing water treatment plant as pumping station for Ridgetown.	Utilize existing Ridgetown Water Treatment Plant for receiving treated water from South Chatham-Kent Water System and deliver treated water to Ridgetown-Highgate Water Systems	Interim Term (2030-2034)	$5,070,000	Long standing Water Quality issues in Ridgetown. EA underway.
Ridgetown / Highgate	Replacement / Rehabilitation of the existing Ridgetown Elevated Tank.	Ensure the existing elevated tank will be functioning properly for future.	Interim Term (2030-2034)	$ 2,000,000	Long standing Water Quality issues in Ridgetown. EA underway.

System	Project Description	Purpose	Implementation Timing	Cost	MVU Rationale
Wallaceburg	New Water Treatment Plant for Wallaceburg-Dresden Integrated Water System.	To replace existing Wallaceburg WTP.	Short Term (2025-2029)	$ 39,300,000	Complete a new Servicing Options Study for Wallaceburg.
Wallaceburg	New storage reservoir (56ML).	On-site storage facility for new Wallaceburg WTP.	Short Term (2025-2029)	$27,600,000	Complete a new Servicing Options Study for Wallaceburg.
Wallaceburg	New intake and low lift pumping station for new Wallaceburg Water Treatment Plant.	Withdraw raw water for new Wallaceburg WTP.	Short Term (2025-2029)	$ 7,900,000	Complete a new Servicing Options Study for Wallaceburg.
Wallaceburg	New raw water transmission main.	Deliver raw water to new Wallaceburg WTP.	Short Term (2025-2029)	$9,500,000	Complete a new Servicing Options Study for Wallaceburg.
Wallaceburg	600mm Treated water transmission main. Refer to **Figure 10-4**	Deliver treated water from Wallaceburg WS to Dresden WS.	Interim Term (2030-2034)	$32,800,000	Complete a new Servicing Options Study for Wallaceburg.
South Chatham-Kent	2.6 km New Charing Cross Road 600mm transmission main. Refer to **Figure 10-5**	To increase transfer capacity for filling Blenheim Reservoir	Interim Term (2030-2034)	$7,730,600	Part of solution for Ridgetown. SE Chatham EA underway.
South Chatham-Kent	5.6 km of new 200mm local distribution system Looping. Refer to **Figure 10-6**	To improve the overall system pressures	Interim Term (2030-2034)	$7,214,063	Part of solution for Ridgetown. SE Chatham EA underway.
South Chatham-Kent	Increase pumping capacity at the existing South Chatham-Kent Water Treatment Plant High lift Pumping Station.	To meet the future water demands	Interim Term (2030-2034)	$1,113,005	Proceed for future growth and system capacity.

System	Project Description	Purpose	Implementation Timing	Cost	MVU Rationale
Wheatley / Tilbury	New Booster Pumping Station to transfer water supply from Wheatley WS to Tilbury WS. Refer to **Figure 10-7**	To increase transfer capacity for filling Tilbury Elevated Tank	Interim Term (2030-2034)	$ 2,410,250	Security of supply.
Wheatley / Tilbury	New local booster pumping station for east of Wheatley WS. Refer to **Figure 10-7**	To improve the local system pressures	Short Term (2025-2029)	$1,951,250	Improve local pressures.
Wheatley / Tilbury	Decommissioning of Tilbury inground reservoir and pumping station.	To minimize the overall operational complexity and reduce the long term O&M costs	Interim Term (2030-2034)	$ 2,025,000	Good return on investment.
All Systems	Various Investigative Studies -PFAS Presence and Baseline Removal (WTPs Only) and response plan -Source water algae monitoring and response plans -Distribution system biological stability study to assess potential regrowth in the system -Emerging contaminants monitoring including 1,4-dioxane, VOCs, trace metals -Manganese removal assessment study for Surface Water and Ground Water systems to meet new HC guidelines	To meet changing water quality demands and operational improvements	Short Term (2025-2029)	$750,000	Good return on investment.
All Systems	Preventative Maintenance of the Composite Elevated Tanks, Stand Pipes and Spheroid Tanks, and their replacement.	To meet and maintain the required local system pressures.	On an individual system basis	On an individual system basis	Focus Additional Budget in the short Term (0-5 Years) on SOGR

5.2. Wastewater Projects

System	Project Description	Implementation Timing	Cost	MVU Rationale
Chatham Collection System	**Pumping Station Upgrades to Chatham SPS-103 (Campus Parkway/Grand Ave Area) (Figure 10-14)** · Short Term Additional Pumping Capacity · Twin Force main to Water Pollution Control Plant · Long Term Complete Station Upgrade	Short Term (2025-2029)	$300,000	Accelerate and complete overall Facility Plan/BCA[3] to ensure all works in the facility are addressed at one time.
		Interim Term (2030-2034)	$5,000,000	
		Long Term (2035-2051)	$1,700,000	
	Pumping station upgrades to Chatham main lift station to WPCP (Figure 10-15) · Pumping Upgrades, increasing firm capacity to 800L/s · Twin 750mm Force main Section	Short Term (2025-2029)	$1,700,000	Accelerate and complete overall Facility Plan/BCA to ensure all works in the facility are addressed at one time.
		Interim Term (2030-2034)	$900,000	
Wallaceburg	**Pumping station upgrades to Wallaceburg SPS-405 (Dundas St/ Thomas Ave Area)** · **Upsizing Pumps to 185 L/s Firm Capacity** · **Twin 250mm Force main**	Interim Term (2030-2034)	$500,000	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed at one time.
		Long Term (2035-2051)	$1,000,000	
	Pumping station upgrades to Wallaceburg SPS-402 (Arnold St / Biden St Area) · **Upsizing Pumps to 140 L/s Firm Capacity**	Interim Term (2030-2034)	$500,000	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed at one time.
	Pumping station upgrades to Wallaceburg SPS-401 (Bill McDougall Park) · **Upsizing Pumps to 240 L/s** · **Twin 350mm Force main**	Interim Term (2030-2034)	$400,000	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed at one time.
		Long Term (2035-2051)	$3,000,000	
System	**Project Description**	**Implementation Timing**	**Cost**	**MVU Rationale**

[3] Building Condition Assessment

Ridgetown	Erie Street / Tecumseh Street 600mm (Figure 10-8)	Long Term (2035-2051)	$1,600,000	Complete Inflow & Infiltration Assessments/Studies first
Ridgetown	West Street 300mm (Figure 10-8)	Long Term (2035-2051)	$450,000	Complete Inflow & Infiltration Assessments/Studies first
Blenheim	Marlborough Street / Industrial Avenue 525mm (Figure 10-9)	Long Term (2035-2051)	$4,000,000	Complete Inflow & Infiltration Assessments/Studies first
Wallaceburg	Elgin Street 450mm (Figure 10-10)	Long Term (2035-2051)	$1,400,000	Complete Inflow & Infiltration Assessments/Studies first
Dresden	Brown Street / Main Street / Tecumseh Street 600mm (Figure 10-11 and 10-12)	Long Term (2035-2051)	$4,000,000	Complete Inflow & Infiltration Assessments/Studies first
Dresden	Lorne Avenue / Holden Street / Fuller Street 600mm (Figure 10-11 and 10-12)	Long Term (2035-2051)	$3,000,000	Complete Inflow & Infiltration Assessments/Studies first
Tilbury	Pearl Street / Queen Street N / Centre Street E / Dufferin Street N 750mm (Figure 10-13)	Long Term (2035-2051)	$3,600,000	Complete Inflow & Infiltration Assessments/Studies first
Tilbury	Lyon Avenue 900mm (Figure 10-13)	Long Term (2035-2051)	$4,000,000	Complete Inflow & Infiltration Assessments/Studies first
Wheatley	SPS – 602 Pumping Upgrade (Figure 6-9)	Interim Term (2030-2034)	$400,000	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed at one time.
Mitchell's Bay	Decommissioning of Mitchell's Bay Lagoon, Pumping and Force main to Chatham Water Pollution Control Plant	Long Term (2035-2051)	$9,250,000	Unable to determine the issue here

System	Project Description	Implementation Timing	Cost	MVU Rationale
Tilbury	Inflow and Infiltration Reduction Study	Short Term (2025-2029)	$300,000	May eliminate some of the storm upgrades above
Dresden	Inflow and Infiltration Study	Short Term (2025-2029)	$300,000	May eliminate some of the storm upgrades above
Chatham	Optimizing capacity of the combined sewer trunks / interceptors	On an individual system basis	$75,000,000	Develop a comprehensive 10-year capital plan to ensure best return
Chatham	Continuing Sewer Separation Program for Chatham Targeting largest Downstream Sewers Feeding the Trunk / Interceptor	On an individual system basis	$150,000,000	Develop a comprehensive 10-year capital plan to ensure best return
Chatham Water Pollution Control Plant	Improve effluent quality with better disinfection & better regional sludge management system. Operational improvements as part of State of Good Repair and preventative maintenance. State of Good Repair due to age of the infrastructure including major process equipment.	Short Term (2025-2029)	$19,405,100	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Chatham Water Pollution Control Plant	Improve effluent quality with better disinfection & better regional sludge management system. Operational improvements as part of State of Good Repair and preventative maintenance. State of Good Repair due to age of the infrastructure including major process equipment.	Interim Term (2030-2034)	$4,481,300	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Chatham Water Pollution Control Plant	Improve effluent quality with better disinfection & better regional sludge management system. Operational improvements as part of State of Good Repair and preventative maintenance. State of Good Repair due to age of the infrastructure including major process equipment.	Long Term (2035-2051)	$76,880,400	Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan

System	Project Description	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	MVU Rationale
Wallaceburg Water Pollution Control Plant	Operational improvements through Instrumentation & Control. Operational improvements as part of State of Good Repair and investigative studies. State of Good Repair due to age of the infrastructure including major process equipment.	$419,350	$1,912,600	$48,841,650	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Blenheim Water Pollution Control Plant	Operational improvements through Instrumentation & Control. Operational improvements as part of State of Good Repair and investigative studies. State of Good Repair due to age of the infrastructure including major process equipment.	$2,343,400	$4,277,527	$9,044,750	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Dresden Water Pollution Control Plant	Operational improvements through Instrumentation & Control. Operational improvements as part of State of Good Repair and investigative studies. State of Good Repair due to age of the infrastructure including major process equipment.	$657,800	$4,277,527	$9,044,750	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Merlin Water Pollution Control Plant	Operational improvements as part of State of Good Repair and preventative maintenance. Implementation of a Mechanical treatment facility to improve effluent quality.	$32,890	$0	$13,088,600	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan

System	Project Description	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	MVU Rationale
Mitchell's Bay Water Pollution Control Plant	Operational improvements as part of State of Good Repair and preventative maintenance. Decommissioning of Mitchell's Bay Lagoon, Pumping and force main to Chatham WPCP	$32,900	$82,200	$0	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Ridgetown Water Pollution Control Plant	Operational improvements as part of State of Good Repair and Investigative studies. Operational improvements as part of State of Good Repair. State of Good Repair due to age of the infrastructure including major process equipment.	$246,700	$65,800	$9,949,200	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Tilbury Water Pollution Control Plant	Operational improvements as part of State of Good Repair and Investigative studies. Operational improvements as part of State of Good Repair and preventative maintenance. State of Good Repair due to age of the infrastructure including major process equipment.	$263,100	$6,199,800	$9,886,700	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan
Wheatley Water Pollution Control Plant	Operational improvements as part of State of Good Repair and Investigative studies. Operational improvements as part of State of Good Repair and preventative maintenance. State of Good Repair due to age of the infrastructure including major process equipment.	$235,000	$1,248,000	$6,325,000	Proceed with short-term planned work. Complete overall Facility Plan/BCA to ensure all works in the facility are addressed and each Plant has a short, medium and long term plan

5.3. Additional Recommended Projects

System	Project Description	Purpose	Implementation Timing	Cost	MVU Rationale
All Water Systems	Investigate water loss in the system through studies and leak detection program	To recover capacity from the system.	Short Term (2025-2029)	$2,250,000	Good return on investment.
			Interim Term (2030-2034)	$2,250,000	Review success of short-term program and proceed if good return on investment is achieved.
Chatham Wastewater	Inflow and Infiltration Reduction Study	To recover capacity from the system.	Short Term (2025-2029)	$600,000	May eliminate some of the storm upgrades.
Wallaceburg Wastewater			Short Term (2025-2029)	$300,000	
All Others Wastewater			Short Term (2025-2029)	$300,000	
Chatham Water	Option 1 of the Chatham WTP Capacity Review	To recover design capacity at the Chatham treatment plant	Short Term (2025-2029)	$950,000	Provided capacity back to Chatham for reasonably low effort

5.4. Summary of Master Plan Recommendations

A summary of the recommendations tables was developed to provide a high-level overview of the financial implications of the Master Plan projects over the short, interim, and long term. This analysis categorized planned investments based on the previously established green, yellow, and red classifications, offering a clear picture of where funding is currently allocated and where adjustments may be required. This breakdown provides insights into the distribution of capital investments and enables funding to be aligned with priority projects that deliver the greatest value. The summaries are provided in Table 1 to 3. Nb. Some totals are rounded.

Table 1: Summary of Master Plan Projects to Proceed

System	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	On an individual system basis	Grand Total
Water	$26.8 M	$52.0 M	$0 M	$0 M	$79 M
Wastewater	$6.0 M	$5.9 M	$1.7 M	$0 M	$14 M
Total	**$32.8 M**	**$57.9 M**	**$1.7 M**	**$0.0 M**	**$92 M**

Table 2: Summary of Master Plan Projects to Proceed after Investigation

System	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	On an individual system basis	Grand Total
Water	$0.0 M	$15.9 M	$9.7 M	$0.0 M	$26 M
Wastewater	$19.4 M	$24.3 M	$218.4 M	$0.0 M	$262 M
Total	**$19.4 M**	**$40.2 M**	**$228.1 M**	**$0.0 M**	**$288 M**

Table 3: Stop, study and potential different solution:

System	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	On an individual system basis	Grand Total
Water	$84.3 M	$242.6 M	$41.8 M	$0.0 M	$369 M
Wastewater	$0.0 M	$0.0 M	$0.0 M	$225.0 M	$225 M
Total	**$84.3 M**	**$242.6 M**	**$41.8 M**	**$225.0 M**	**$594 M**

6. Class Environmental Assessment Studies

Class Environmental Assessment (EA) studies[4] are a structured decision-making process used to assess the potential environmental, social, and economic impacts of municipal infrastructure projects. These studies are required under the Environmental Assessment Act and provide a standardized approach for evaluating projects such as water and wastewater system expansions, road improvements, and stormwater management upgrades. Class EAs ensure that projects are planned in a way that minimizes negative impacts while considering technical feasibility, financial sustainability, and stakeholder concerns. Class EA studies follow a phased approach, which includes problem identification, evaluation of alternative solutions, impact assessment, and consultation with the public and regulatory agencies. They help municipalities identify the most appropriate solutions for infrastructure needs while complying with environmental regulations and securing necessary approvals. In the context of this project, Class EA studies serve as the next level of detailed assessment following the high-level recommendations of the Master Plan, focusing on specific geographic areas or system components to refine project scope, costs, and implementation strategies.

Several Class Environmental Assessment (EA) studies are relevant to this review, each addressing specific geographic areas and infrastructure needs within CK. The first is the Wallaceburg Water Supply EA, which has been completed through a series of projects over time, ensuring a secure and sustainable water supply for the community. The second is the Chatham Southeast EA, which is nearing completion, with identified projects now in the implementation phase to support growth and system improvements in that region. The third is the Chatham Southwest EA, which is currently underway, evaluating servicing options for future development in the southwest quadrant of Chatham. The following subsections will provide further details on each of these studies, their outcomes, and their implications for long-term infrastructure planning.

6.1. Wallaceburg EA

Background

As part of the broader review of Chatham-Kent's water and wastewater infrastructure planning, particular attention has been given to the 2023 Wallaceburg Water Treatment Plant (WTP) Class EA led by Jacobs. This EA, which proposes the redevelopment and expansion of the Wallaceburg WTP and associated transmission and storage infrastructure, represents one of the most significant capital undertakings identified in the 2023 Water and Wastewater Master Plan. However, an evaluation of this investment, when considered against historical alternatives, population projections, and the municipality's clearly defined growth priorities, reveals that the proposed solution may not represent the best value for money.

[4] It should be noted that as of March 2025, the Class EA process in Ontario is undergoing significant changes due to the Environmental Assessment Act modernization efforts led by the MECP.

The Wallaceburg Water Supply Class EA has undergone significant evolution over the past decade, with multiple studies assessing the best long-term solution for water supply to the community. The 2012 Water/Wastewater Master Plan (Dillon) initially identified a transmission pipe from Chatham as the preferred solution. However, the 2016 Class EA (Stantec) revisited this recommendation, ultimately **rejecting the pipeline due to community concerns** and instead identifying an upgrade to the existing Wallaceburg Water Treatment Plant as the preferred option. At the time, the pipeline was estimated to cost $11.9M (now likely closer to $20M with inflation), while the Wallaceburg Water Supply Class EA estimated the plant upgrade at $26M, with an additional $10M for a new intake, bringing the total to $36M.

By 2023, the Wallaceburg WTP Class EA proposed a more extensive solution, a multi-phase, capital-intensive solution that includes the construction of a new 28 million litre per day treatment facility, a new raw water intake from the Snye River, a new low-lift pump station, a 56 million litre storage reservoir, and several new transmission mains extending toward Dresden and greenhouse zones.

This proposal significantly increased the projected cost to $117M (see Figure 2 below), which, when adjusted for inflation, is now estimated at approximately $150M and may be even higher at the actual time of construction. The substantial cost escalation and evolving service needs highlight the complexity of determining the most viable long-term water supply strategy for Wallaceburg.

Table 13-2. Overall Cost Estimate for Preferred Solution and Design Concepts

Component	Capital Cost Estimate
Wallaceburg WTP	$39,300,000
Storage Reservoir (56 megalitres)	$27,600,000
LLPS and Intake	$7,900,000
Raw Watermain	$9,500,000
Treated Water Transmission Main	$32,800,000
Total	$117,100,000

Figure 2: Preferred Solution from the 2023 Wallaceburg WTP Class EA

In contrast, a 2013 alternative developed in the 2012 Water and Wastewater Master Plan proposed a 400 mm water transmission main from Chatham to Wallaceburg. At the time, this option was recommended due to both cost and operational resilience benefits. The 2012 capital estimate for this main was $11.9 million; adjusted for inflation and updated to 2024 construction costs, the total would be in the range of $18 - $20 million. This solution would allow Wallaceburg to be supplied directly from the Chatham system, an approach with lower capital cost, reduced operational complexity, and fewer long-term environmental risks.

There are also substantial questions regarding the demand drivers underpinning the new Wallaceburg plant. Wallaceburg's population is forecast to remain unchanged over the next two

decades. The most recent planning documents project an increase of just 1,000 people between 2021 and 2051, from approximately 10,600 to 11,600 residents. The existing plant has a rated capacity of 13.6 ML/d and operates well below that on average days. No residential or industrial growth has been formally committed in the Wallaceburg area that would justify doubling its treatment capacity. The only identified growth drivers are speculative greenhouse developments along Base Line and in Dresden, yet there are no approved servicing agreements or financial contributions confirmed from the agricultural sector. There is a material risk that the infrastructure will be underutilized for much of its lifespan.

By comparison, CK has made it clear through Council direction, servicing studies, and the 2023 Master Plan that the strategic focus for growth is Southwest Chatham. That area is expected to support over 860 hectares of new mixed-use development and has developers actively pursuing approvals. Population in the Chatham urban area is projected to grow from 47,100 to 58,100 by 2051. The servicing strategy for this area is well defined, and the infrastructure investments required, primarily water storage expansion, high-lift pumping upgrades, and a 600 mm transmission main, are both lower in cost and higher in value relative to the Wallaceburg proposal. In short, Southwest Chatham requires capacity now, with a clear development pipeline and a strong return on investment.

Operational considerations further challenge the Wallaceburg proposal. The existing intake is located on the Chenal Ecarté (Snye River), which has been flagged for decades as a source of poor raw water quality. The intake is subject to turbidity, agricultural runoff, ammonia, and upstream industrial contaminants, including petroleum hydrocarbons. Water quality degradation results in operational disruptions up to 35 days per year. The EA proposes maintaining this intake or relocating it upstream within the same water body, neither of which fundamentally resolves the source water vulnerability. In contrast, the Chatham and South Kent WTPs draw from more stable Lake Erie sources with fewer reported water quality concerns.

The Wallaceburg WTP EA acknowledges that the Wallaceburg system will require extensive investment in residuals management, filtration, chemical systems, and backup power. These are necessary to manage water quality risks that the Chatham system does not currently face at the same level. The long-term operational costs, energy intensity, and staffing needs of a second large plant must also be considered in any value-for-money assessment.

The current Wallaceburg WTP Class EA and its associated recommendations do not align with CK's long-term infrastructure needs, growth management strategy, or financial sustainability objectives. The proposal directs significant public capital to a region with flat population growth and speculative industrial demand, while the municipality's most urgent needs, servicing Southwest Chatham, remain partially unaddressed.

Given the availability of a lower-cost, previously recommended transmission main alternative, and the robust projected development in Chatham, it would be fiscally and strategically prudent to pause the current Wallaceburg WTP plan and reinitiate a joint servicing review. This review should re-evaluate the feasibility of supplying Wallaceburg from the Chatham system, using

updated hydraulic modelling, lifecycle costing, and **integrated environmental assessment processes**.

This approach would allow CK to refocus its capital investments on the areas of greatest need, reduce duplication in treatment infrastructure, and improve alignment between infrastructure investment and growth outcomes.

Recommendation

Given the complexity of water supply challenges in Wallaceburg, a phased and strategic approach is recommended. In the immediate term, repairs should be made to address existing concerns at the Wallaceburg WTP. The 2016 Class EA previously estimated these repairs at $3.4M, which, with inflation, is now likely closer to $6M.

A feasibility study should also be initiated immediately to reassess alternative solutions. One study should evaluate the feasibility of constructing a transmission pipe from Chatham, which was previously considered but not pursued. Another study should explore repurposing the existing Wallaceburg Water Treatment Plant as a raw water pumping station dedicated to supporting greenhouse operations. If pursued, this solution **could and should be fully funded by greenhouse growers or through provincial grants**.

As a fallback position, should alternative solutions prove unfeasible, the existing Wallaceburg Water Treatment Plant and intake should be upgraded to meet the community's current needs of 14 MLD. The 2016 Class EA estimated this upgrade at $26M for the plant and an additional $10M for the intake.

To ensure long-term alignment between water servicing and economic development, a **Greenhouse Official Plan Policy** should be developed to clearly define servicing expectations and cost responsibilities. Additionally, with changes expected to provincial EA requirements, there may be an opportunity to streamline planning processes. Depending on the timing of these regulatory changes, it may be beneficial to initiate a new EA that considers Wallaceburg and Chatham's servicing needs together as a single, integrated solution.

6.2. Chatham Southeast (Ridgetown/Blenheim)

Background

The Chatham Southeast EA was initiated to address water supply and infrastructure challenges in the region. The Ridgetown-Highgate groundwater system has struggled to consistently produce aesthetically pleasing water while also meeting future demand. Additionally, key infrastructure components in the system are aging, requiring near-term action. The Blenheim inground reservoir, now approximately 56 years old, and the Ridgetown Elevated Tank, at around 55 years old, are nearing the end of their service life and will require rehabilitation or replacement.

Another notable issue is the insufficient transmission capacity to supply the Blenheim inground reservoir. The existing South Chatham-Kent water transmission system lacks the necessary capacity, limiting the ability to fill the reservoir efficiently. The 2024 Water Master Plan recommended constructing a new 600mm Charing Cross Road Transmission Main from the South Chatham-Kent Water Treatment Plant to Talbot Trail. This upgrade would increase transfer capacity, improving the reliability of the system.

Recommendation

The recommended approach is to proceed with the Environmental Assessment and ensure the preferred solution is incorporated into the future Chatham Water Treatment Plant Expansion EA. This integrated planning approach will help align infrastructure upgrades with long-term system needs and growth projections.

6.3. Chatham Southwest Growth and Servicing Study

The Southwest EA is a critical study aimed at supporting growth and development in the southwest area of Chatham. The Mayor and Council have expressed strong interest in expanding this area, highlighting its potential for industrial, commercial, and residential development. However, much of the land is currently outside the urban boundary, which presents challenges for planning and infrastructure investment. Despite this, the area is recognized as a key future growth zone for Chatham-Kent.

The servicing study for this area was initiated before the 2024 Water and Wastewater Master Plan but was paused to allow for alignment with the plan's recommendations. However, the Master Plan ultimately did not include considerations for Southwest Chatham, creating a gap in infrastructure planning, this was mainly due to the fact that much of the area was outside of the Urban Boundary and was not fully known or formally approved by Council at the time of completion of the Master Plan. Given the significance of this area for future expansion, it is expected that the next Official Plan update will formally incorporate Southwest Chatham into the municipality's long-term growth strategy.

The draft phasing of the Southwest area is provided below in Figure 3.

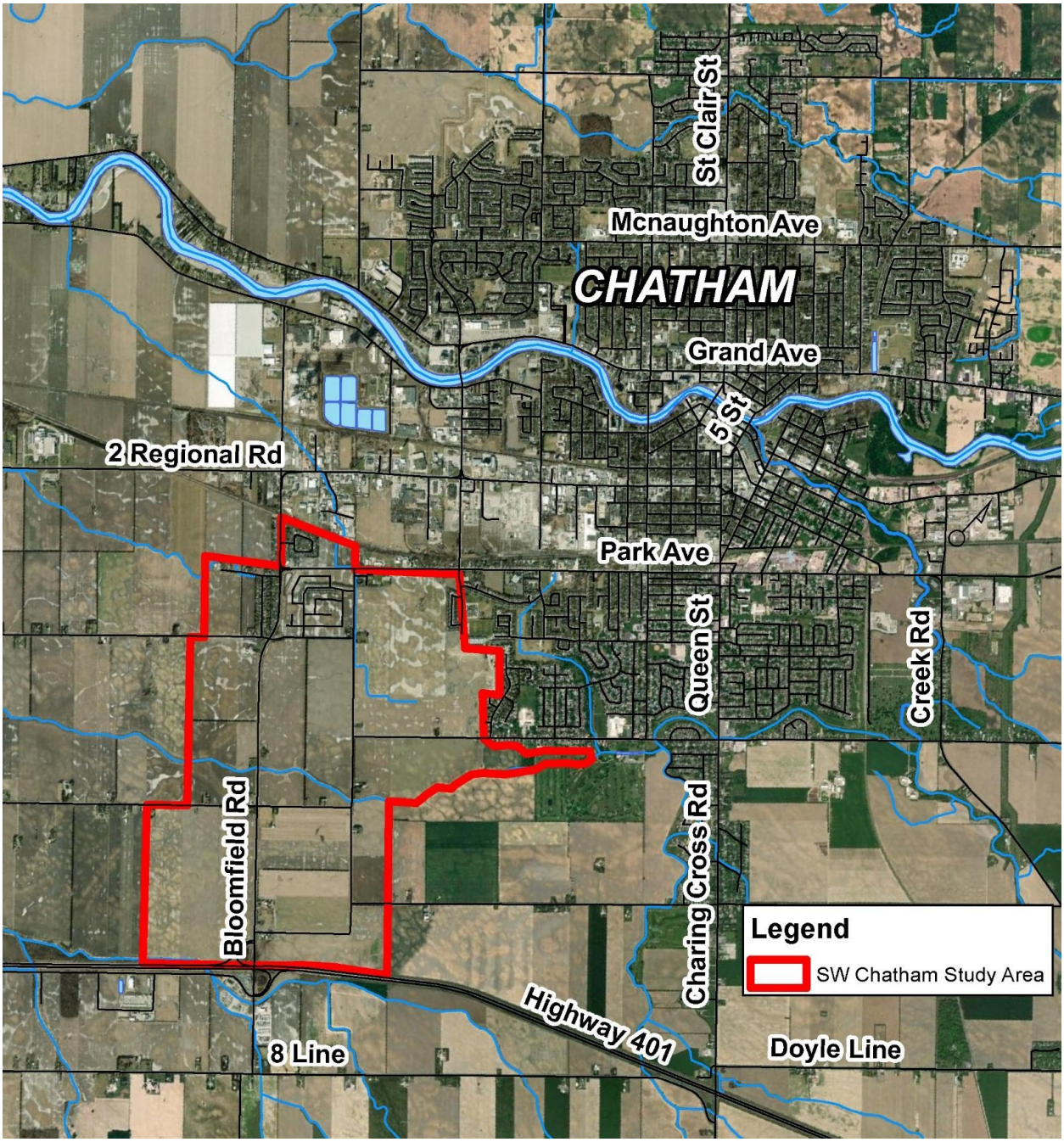

Figure 3 Southwest Servicing Study Phasing

Recommendation

Ongoing communication and coordination between PUC and CK are essential to support this development. The scale of investment required is substantial, with projected water and wastewater infrastructure costs reaching potentially, upwards of $500 million by 2051, as shown in Table 6 (these costs are initial draft for water and wastewater infrastructure only). Ensuring that planning efforts are aligned with growth expectations and financial strategies will be important for the successful servicing of this area.

Table 4: Summary of Southwest Servicing Projects to Proceed

System	Short Term (2025-2029)	Interim Term (2030-2034)	Long Term (2035-2051)	Grand Total
Water	$59.5 M	$136.4 M	$12.7 M	$209 M
Wastewater	$55.5 M	$31.4 M	$248.9 M	$336 M
Total	**$115.0 M**	**$167.8 M**	**$261.6 M**	**$544 M**

7. Operational Studies

Operational studies play an important role in supporting the effective management of water and wastewater infrastructure by providing detailed assessments of system performance, condition, and efficiency. These studies focus on key operational aspects such as asset performance assessments, water loss management, inflow and infiltration reduction, and system optimization. Unlike Master Plan and Class Environmental Assessment (EA) studies, which guide long-term infrastructure planning and major capital investments, operational studies address immediate and ongoing challenges, with objectives of ensuring that existing assets are functioning optimally and that future investments are well-informed.

The findings from these studies directly influence infrastructure renewal decisions, operational efficiencies, and regulatory compliance. Several operational studies have been conducted and are needed to support evidence-based decision-making. These include facility condition assessments, water loss studies, inflow and infiltration reduction initiatives, and combined sewer separation strategies. The results of these studies help refine capital planning, improve service reliability, and optimize costs while aligning with broader CK and PUC objectives. The following subsections provide an overview of key operational studies relevant to the water and wastewater systems.

7.1. Water and Wastewater Facilities Plans

The WWWMP provides broad infrastructure recommendations, but they are not clearly underpinned by a comprehensive inventory of asset condition across key facilities (water towers

assessments have been completed). Most notably, there is no current, facility-level assessment of:

- Water and wastewater treatment plants
- Water reservoirs facilities
- Pumping stations and control buildings
- SCADA, process control, and mechanical systems

Without this data, it is difficult for CK or the PUC to determine the full scope of renewal needs, schedule lifecycle investments, or prioritize risk-based maintenance. As a result, capital plans are built on assumptions rather than measured performance, and major renewal projects may be delayed until failure or near-failure conditions emerge. This is a large undertaking and with the current staff levels at the PUC, this may be a challenge to complete.

A comprehensive assessment of water and wastewater facilities is essential to ensure infrastructure reliability, optimize investments, and maintain the required levels of service. A structured approach to asset evaluation is necessary to assess the current state of facilities, identify risks to service levels, and establish clear priorities for investment.

Recommendations

To close this gap, the Municipality should develop a comprehensive 10-year Water and Wastewater Facility Plan. This plan should be informed by detailed condition and performance assessments and aligned with the next Asset Management Plan update required under O. Reg. 588/17.

The PUC should immediately initiate detailed condition assessments for all pumping stations and treatment facilities, covering both water and wastewater assets. These assessments should encompass both the building envelope and process equipment to provide a complete understanding of asset health and performance.

To enhance long-term planning, the PUC should develop detailed 10-year facility plans for each major asset, outlining the estimated cash flow required for maintenance, renewal, and upgrades. BCAs and process equipment evaluations can enable the best use of available funds. These assessments will also serve as the foundation for a comprehensive Asset Management Plan, aligning future investments with actual infrastructure needs and minimizing financial uncertainty.

These studies will require dedicated infrastructure planning resources in the PUC to ensure that this important work is well thought out and coordinated with the CK staff.

7.2. Water Loss and Inflow & Infiltration Studies

Water loss is a significant issue across many of CK's systems, with losses ranging from 15% to 55%. This inefficiency is exacerbated by historically underfunded distribution system

maintenance, leading to high rates of system deterioration. While some of the water loss can be attributed to leaks, it is also likely related to unaccounted operational flushing and other factors.

The Master Plan has identified areas where upsizing of the wastewater collection system is necessary to accommodate the increasing severity of storm events, which could cost $20 to $25 million. However, focusing on addressing I&I offers a more cost-effective solution. The return on investment for tackling I&I is typically significantly higher compared to investing in system upsizing or expanding treatment capacity.

Recommendation

To address the water loss in the system, it is strongly recommended that the PUC conduct a water loss audit. This audit would provide a detailed analysis of the current water loss levels across the distribution system, identifying both physical losses (such as leaks and breaks) and apparent losses (such as unauthorized consumption or inaccuracies in metering). The audit should include a review of all water distribution assets, including pipelines, valves, hydrants, and connections, to pinpoint areas where losses are most significant. Implementing a water loss audit will help to develop targeted strategies for leak detection, repair prioritization, and system optimization.

It is recommended that the PUC also conduct an I&I study to assess and address the I&I challenges within the wastewater collection system. This study should focus on identifying the sources of I&I, including leaks in the sewer system, improper connections, and stormwater entering the sanitary system. It is important to develop a strategy for locating and addressing these issues, which may involve the implementation of targeted programs such as relining, disconnecting downspouts, and installing backwater valves in affected areas. The I&I study will provide important data for improving system performance, reducing treatment costs, and preventing overflows during heavy rainfall events.

7.3. Combined Sewer Separation Study

The PUC previously commissioned a Combined Sewer Separation Study (Andrews Engineering, 2021) and a Pollution Prevention and Control Plan (2024), both of which identified over **$225 million in separation and interceptor upgrades**. These projects can protect surface water quality and reduce bypass events at the Chatham Pollution Control Plant (WPCP).

Despite these studies, no coordinated implementation plan between CK and the PUC has been established. Separation work is occurring often bundled with road reconstruction projects but without a clear prioritization method.

Recommendation

Given the cost and scale of the required separation work, CK and PUC should adopt a formal Combined Sewer Separation Capital Plan that incorporates risk assessment, cost-benefit analysis, and bundling opportunities with other asset renewal or growth projects. It should develop a detailed 10-year plan that outlines the specific actions, timelines, and resource

allocations necessary to meet the goals of the sewer separation program to ensure the effective and efficient implementation. It is also prudent to balance the funding for sewer separation projects with the ongoing need to maintain existing infrastructure in a SOGR. Prioritizing these efforts in a coordinated manner will help optimize resources, reduce long-term risks, and support the sustainability of the municipal sewer system.

8. Foundational Plans

Foundational Plans are frameworks that guide the long-term strategic direction for infrastructure development, growth management, and legislative compliance. These plans provide the necessary structure for municipalities to align their infrastructure needs with future growth and ensure the sustainability of services. They include critical documents like the Official Plan (OP), Development Charges (DC) Background Studies, Master Plans, Asset Management Plans, and Rate Studies, all of which help inform decisions on capital investments, policy development, and financial planning. The role of Foundational Plans is to create a cohesive roadmap that addresses current challenges while setting clear expectations for future demands and service levels. Properly executed, these plans ensure that municipalities can effectively balance operational needs, growth projections, and resource allocation to meet the evolving needs of their communities.

8.1. Official Plan

The upcoming OP update is expected to include some of the phasing in the Chatham Southwest Serving Plan, which is vital for growth and development. Other key OP considerations should include a Greenhouse Policy and review of the Waterline Petition Policy.

8.2. DC Background Study

The DC By-law is set to expire at the end of 2027, necessitating a new DC Background Study in 2026 or 2027 to incorporate growth projects and ensure adequate funding for infrastructure improvements. The study will need to focus on critical areas such as Southwest Chatham, Chatham's supply and storage capacity, and the EAs for Wallaceburg and Chatham servicing solutions. And whether to continue the discounting of Greenhouse DCs.

8.3. Water Rate Study

While a rate study has already been completed, it should be revisited in five years to ensure that rates remain in line with future needs and financial realities.

8.4. Water and Wastewater Master Plan

Following the completion of the operational studies and the adoption of a Greenhouse Policy, it may be advisable to conduct a new Water and Wastewater Master Plan study to better align future infrastructure requirements with the evolving needs of the community.

8.5. Asset Management Plan

Chatham-Kent is preparing to update its legislated Asset Management Plan in 2025 to meet the service level requirements of Ontario Regulation 588/17. However, the current state of asset management integration for water and wastewater services is limited.

Capital projects identified in the WWWMP and servicing studies have not been fully incorporated into lifecycle planning, and service levels have not been clearly defined in operational or financial terms. Moreover, there is no consistent process for integrating facility condition data, operational risk, or customer impact into long-range capital prioritization.

To address this, a joint working group between CK and the PUC should be established to guide integration of planning documents, capital forecasts, and service level frameworks into asset forecasting activities and into the next AMP. The AMP should also serve as an important input into long-term financial planning, rate modelling, and DC background study updates.

9. Strategic Business Plan

The PUC currently lacks a long term comprehensive Strategic Business Plan that clearly outlines its mandate, goals, and operational strategy. A well-defined plan is important to align the PUC's operations with its long-term vision and ensure that resources are allocated efficiently to meet the needs of the municipality. Key elements of an effective strategic business plan include establishing documented LOS and KPIs, which provide measurable benchmarks for success and help prioritize tasks. Additionally, a Stakeholder Management Strategy should be developed to guide communication and ensure alignment with the needs and expectations of both internal and external stakeholders.

9.1. MVU Municipal Model

Given the limited resources available, the PUC should adopt a prioritization process to balance the various aspects of its business and ensure that the most pressing needs are addressed first. Utilizing frameworks such as the Municipal VU Model or a Balanced Scorecard Approach can provide a structured way to set objectives, measure performance, and enable the PUC to consistently work toward its goals while managing competing demands.

The Municipal VU Model, developed by our firm and provided in Figure 4 is a comprehensive framework used to assess the current state of an organization and work towards achieving its desired future state. The model categorizes an organization into six key areas: Customers, Processes, Technology, People & Culture, Finances/Assets, and Strategy/KPIs. When used, each category is evaluated to identify strengths, weaknesses, opportunities, and areas for improvement.

This approach allows for a holistic view of the organization, enabling targeted actions that align with strategic goals. Similar to other business management models, the Municipal VU Model

emphasizes the importance of balancing all elements of a municipality to optimize performance and achieve long-term success.

Customers & Services
- Customer satisfaction & Stakeholder relationship management
- Defined Service Levels

Operations & Processes
- Efficiency and Effectiveness
- Day to Day Operations

Technology & Information
- Data, Information, Knowledge, Decisions
- Technology Solutions
- Document & records control

People & Culture
- Structure, Training, Compensation
- Communication, Teamwork, engagement
- Leadership

Finances & Assets
- Infrastructure and Assets
- Financial and Commercial Management

Strategy & Tracking
- Mission, Vision and Priorities
- Key Performance Indicators
- Risk Management
- Governance

Systematic Approach to balancing all aspects of the Utility

Figure 4 The Municipal VU Model

10. Implementation Roadmap and Phasing

To support the execution of this report's recommendations, this section outlines a phased implementation roadmap that aligns strategic and tactical actions with achievable timelines.

10.1. Immediate Priorities (0–12 Months)

1. **Chatham WTP Capacity Bottlenecks –** Immediately begin the design and implementation of the recommendations identified in the Chatham WTP Capacity Review (also completed by MVU).
2. **Wallaceburg WTP Immediate Condition Assessment –** Conduct detailed condition assessment of the Wallaceburg WTP to establish the existing condition of each process to better understand the asset needs and risk level that exists.
3. **Wallaceburg's Immediate Needs -** Begin necessary repairs for the existing Wallaceburg plant and infrastructure to address immediate concerns.
4. **Chatham Southeast and Southwest EAs -** Move forward with the Chatham Southeast and Southwest EAs, ensuring that the preferred strategies and capacity expansion plans are incorporated into future infrastructure development. This will allow the municipality to be positioned to accommodate growth in these key areas while maintaining efficient water and wastewater services

5. **Joint Capital Coordination Committee -** A committee should be formalized between CK and the PUC. This committee will align annual capital programs across water, wastewater, roads, and development projects, ensuring efficient project bundling, minimizing road cuts, and supporting joint applications for provincial and federal funding.
6. **Joint Strategic Business Plan process -** A process should be established, led by a dedicated cross-functional team with representatives from Public Works, Finance, Planning, and PUC operations. The plan could apply the MVU Municipal Model or a Balanced Scorecard Framework to define shared strategic outcomes and establish a common vision for service levels and growth.

10.2. Short-Term Actions (1–2 Years)

Within the next one to two years, Chatham-Kent should shift focus to operational readiness and integrated capital planning by doing the following activities.

1. **Chatham WTP/Wallaceburg Servicing /SW and SE Chatham Servicing –** Complete a coordinated base strategy for how to service Wallaceburg and the SW Chatham growth area. Utilize a cost/benefit, Risk and LOS decision making framework to determine how and when these projects move forward and what projects need to be prioritized at the Chatham WTP and Intake.
2. **Southwest Chatham Servicing –** Commit to making this area a strategic priority. This includes initiating detailed design work for Phase 1 and Phase 3 infrastructure, confirming funding for storage and pumping upgrades at the Chatham WTP, and advancing the Environmental Assessment for the South Hub Pumping Station.
3. **Immediate Condition Assessments –** Conduct detailed condition assessments of all pumping stations and treatment facilities, including both the building envelope and process equipment. This will help identify and prioritize risks to LOS and ensure that capital investments are directed toward the highest priority assets.
4. **Water Loss and I&I Strategy** – Develop and implement a comprehensive water loss audit and I&I strategy to reduce system inefficiencies. Given the high levels of water loss in the systems and the large number of main breaks, immediate steps should be taken to locate and address sources of water loss. Additionally, I&I should be addressed through a prioritized approach, which may include residential participation programs for relining, downspout disconnects, and backwater valves. These studies will improve system efficiency and reduce the need for costly infrastructure expansions.
5. **10-year facility and Asset Management Plan** – AMPs should be based on comprehensive condition assessments of all major water and wastewater infrastructure to support risk-based capital prioritization.
6. **Complete Foundational Plans and Studies**: As part of ongoing planning, ensure that the Official Plan update includes key considerations for the Southwest Chatham area, a Greenhouse Policy, and the review of the Waterline Petition Policy. Additionally, initiate a

DC Background Study by 2026 to plan for growth projects, and complete the Asset Management Plan in compliance with Ontario Regulation 588/17.

10.3. Medium-Term Directions (3–5 Years)

During the medium term, the Municipality should deliver key capital works:

1. **SW Chatham Growth Area –** Construction of early-phase infrastructure, Transmission and Trunk watermains and sewers for Phases 1 through 3, should be substantially completed by the end of Year 5. The South Hub Pumping Station and forcemain network should also be operational by this time.
2. **Chatham WTP E/A and Design –** The EA and Design work should be complete for the Chatham WTP. Storage and intake design should all be complete and ready for tender by year 5.
3. **SE Chatham (Ridgetown/ Blenheim) Area –** Construction of early-phase infrastructure should be substantially completed by the end of Year 5.
4. **Risk-based Capital Prioritization Framework –** This tool will apply consistent criteria, risk to service, support for growth, lifecycle cost, and timing sensitivity, to all major infrastructure investments. This can prioritize capital dollars to be directed where there is greatest benefit, regardless of whether the investment is growth-driven or renewal-focused.

10.4. Long-Term Strategic Shifts (Foundational Pillars)

The following recommendations are foundational and will take a continued and concerted effort to maintain Strategic Plan pillars.

Pillar	*Strategic Action*
Governance	Establish a joint CK - PUC governance model with clear mandates, reporting roles, and escalation protocols
Planning	Integrate servicing strategies across Official Plan, DC By-law, AMP, and rate study processes
Finance	Align DC recovery, user rates, capital reserves, and grant strategies under one unified financial model
Operations	Implement rolling 10-year capital and maintenance plans grounded in asset condition and performance risk
Performance	Track shared KPIs linked to system reliability, customer service, project delivery, and cost-efficiency

11. Conclusion

The challenges identified throughout this review are not solely technical or operational—they are rooted in the governance structure that defines how CK and the PUC plan, coordinate, and deliver water and wastewater services. The current arrangement, while historically functional, has not evolved to match the increasing complexity, scale, and urgency of modern municipal infrastructure planning.

At the core of these challenges is the lack of a unified, strategic planning and decision-making framework that brings together CK and the PUC under a common vision. The result is fragmented service delivery, overlapping roles, reactive investment decisions, and diminished confidence among both staff and elected officials.

The review of the Water and Wastewater Master Plan resulted in the list of recommendations that the PUC can implement so that CK has adequate water and wastewater infrastructure to support growth. Implementing the proposed measures will enable CK to achieve its short and long-term goals.

These actions can address the current challenges faced by the PUC, maintain continued service delivery, and position the organization for future growth and sustainability. Implementing these recommendations will establish a solid foundation for the PUC's operations and create a pathway to a more resilient and efficient water and wastewater infrastructure in Chatham-Kent.

Additionally, the PUC and CK should continue to strengthen their coordination and collaboration on water and wastewater projects. Given the complex and interconnected nature of infrastructure planning and development, ongoing communication aligns both parties in terms of growth strategies, project timelines, and resource allocation. Regular coordination can help capital programs be synchronized, funding opportunities be maximized, and shared challenges, such as servicing the Southwest Chatham area, be addressed effectively. Enhancing the partnership between PUC and CK will promote transparency, improve stakeholder engagement, and support CK's broader planning efforts, including Official Plan updates and growth strategies, align with the PUC's infrastructure needs and priorities.

This collaborative approach will help optimize resource use and help both CK and PUC to meet objectives in a cohesive manner.