

4A

**Halton Region
Integrated Master Plan**

APPENDIX 4A

Strategy Evaluation

4A

Strategy Evaluation

Focus Area Servicing Solutions – Georgetown WWTP

Screening and Detailed Evaluation Table

Focus Area Servicing Solutions – Georgetown WWTP

What is the Constraint?

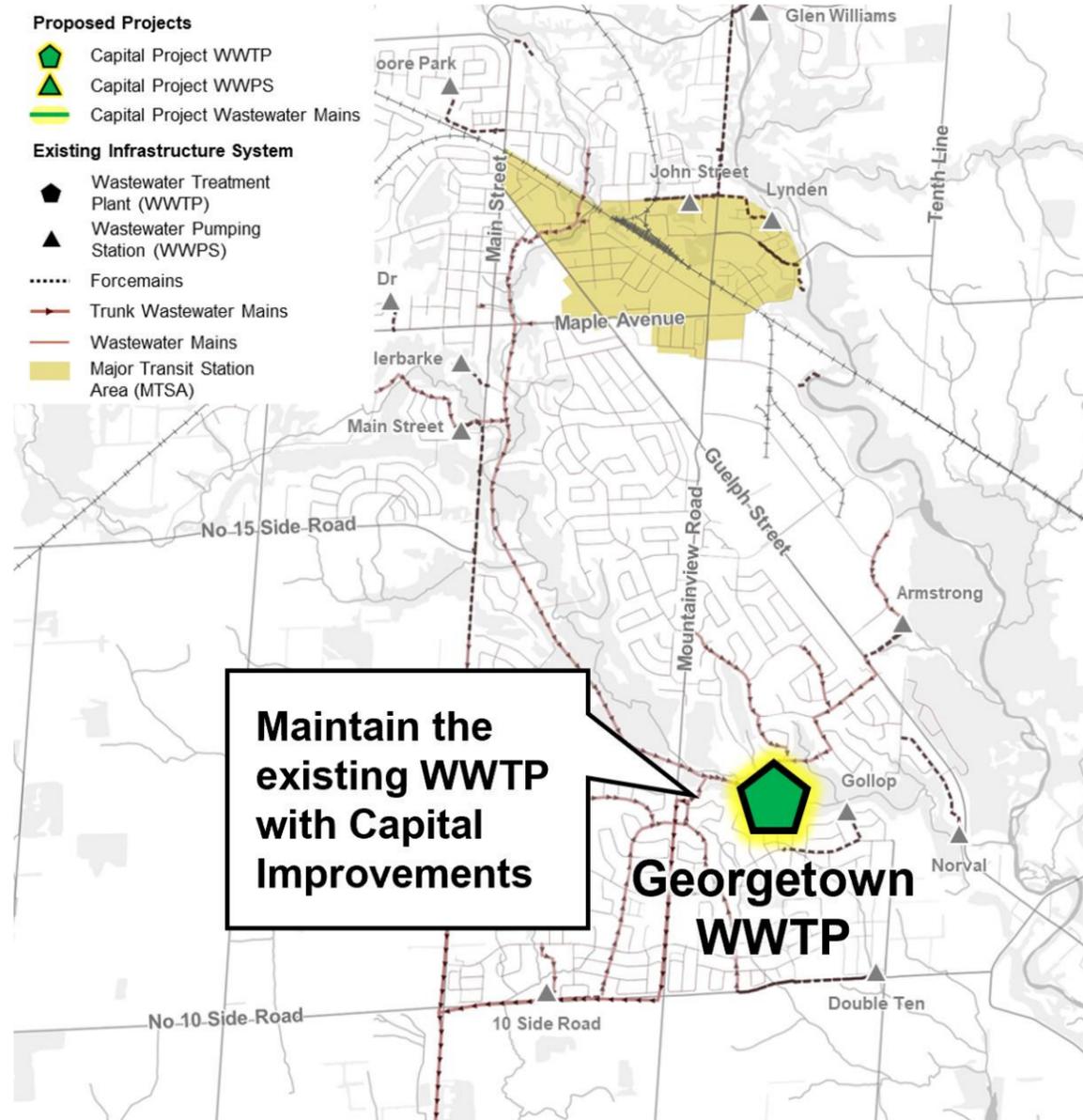
Some challenges arise with the implementation of the flow diversion from parts of Georgetown WWTP drainage area towards the Mid-Halton WWTP including:

1. Issues with low flow and maintaining operation of the plant post diversion of flows to the Mid-Halton WWTP through Eighth Line trunk sewer.
2. High concentration of influent with reduced flows and operational challenges due to impact on the treatment processes.

Alternatives	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of upgrades required in system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Maintain Georgetown WWTP with capital improvements	<ul style="list-style-type: none"> Makes use of existing infrastructure, reducing the need for new large-scale construction. Maintains flow within the same drainage area thereby avoiding significant downstream capacity upgrades and preserving capacity for future growth. Capital improvements can address operational challenges from lower flows and higher-strength influent post south Georgetown diversion. Minimizes environmental approvals and construction impacts by keeping work within the existing site. 	<ul style="list-style-type: none"> Requires targeted upgrades to address low-flow and higher-strength influent conditions post south Georgetown diversion. Additional odour control measures may be required. Full scope and cost of required process improvements have not yet been defined. 	High	Carried Forward
4. Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP	<ul style="list-style-type: none"> Addresses potential operational challenges from low-flow/high-strength influent by diverting all flows. Consolidates treatment at the Mid-Halton WWTP, potentially improving operational efficiency in the long-term. Potential to repurpose the existing WWTP site for other beneficial uses. 	<ul style="list-style-type: none"> Redirection of wastewater flow from Georgetown to Mid-Halton WWTP may limit growth in the existing Mid-Halton catchment areas. Higher lifecycle costs from long-distance pumping and operation of multiple WWPS, offsetting savings from decommissioning the WWTP. Requires complex approvals and coordination due to potential hydraulic connectivity impacts at Silver Creek. Greater construction complexity and disruption due to new WWPS, forcemain, and decommissioning activities. 	Medium	Carried Forward

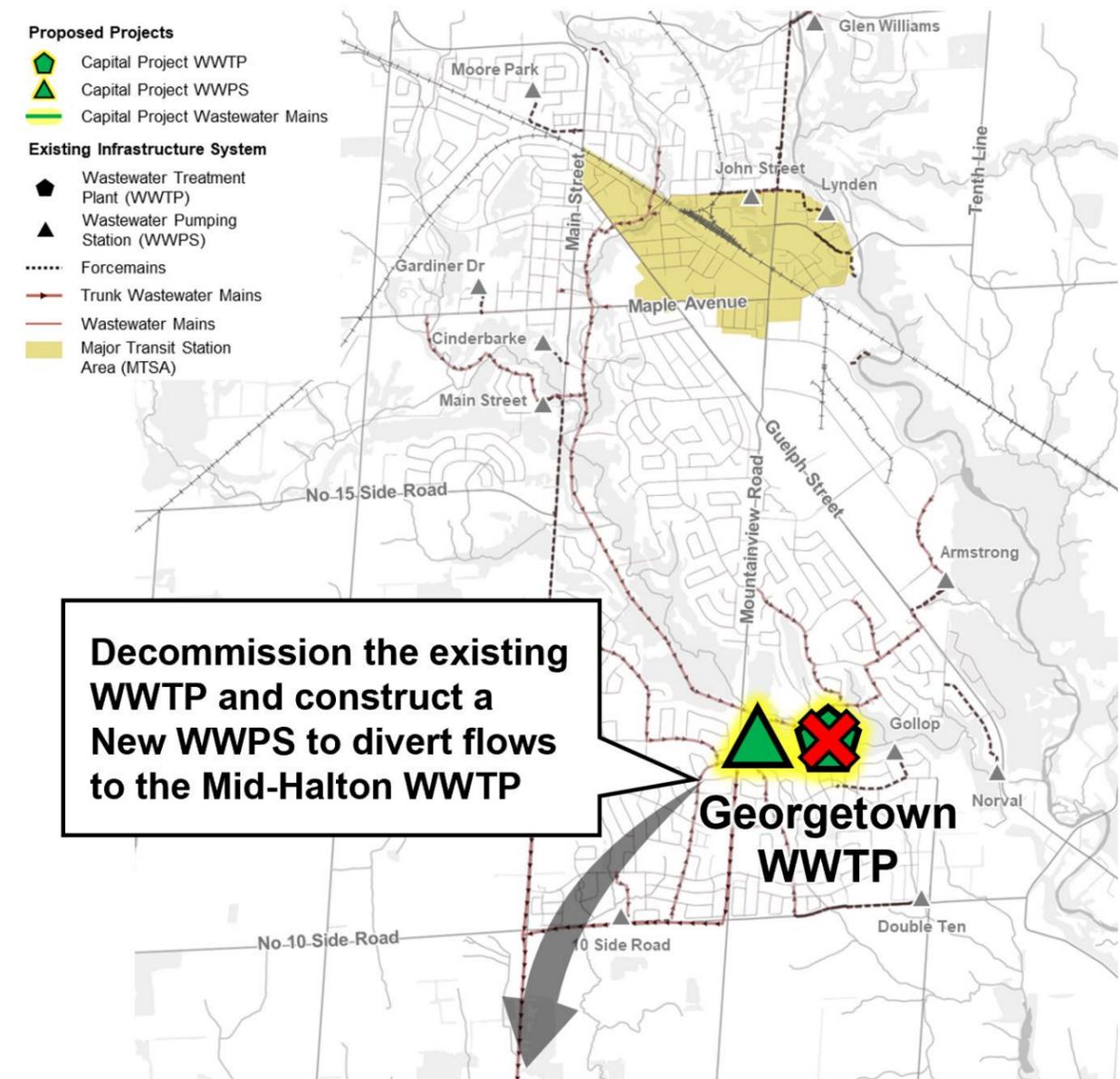
Focus Area Servicing Solutions – Georgetown WWTP

Alternative 3 Maintain Georgetown WWTP with capital improvements



- No planned capacity upgrades at the plant.
- Local upgrades to plant processes to adapt to low flows and potentially high concentration influents.

Alternative 4 Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP



- Decommissioning of the existing WWTP.
- Construction of a new WWPS at Mountainview Road and diversion of flows to the new station.
- Forcemain to the new Eighth Line trunk sewer and diversion of flows to Mid-Halton WWTP.

Focus Area Servicing Solutions – Georgetown WWTP

Criteria, Description and Scoring	Alternative 3 Maintain Georgetown WWTP with Capital Improvements	Alternative 4 Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	<ul style="list-style-type: none"> ✓✓ Improves LOS 	<ul style="list-style-type: none"> ✓✓ Improves LOS
	<ul style="list-style-type: none"> Improves levels of service by addressing treatment challenges related to lower flow and higher-strength influent following the South Georgetown diversion, while continuing service within the existing facility. 	<ul style="list-style-type: none"> Improves levels of service by diverting flows to the Mid-Halton WWTP, alleviating treatment challenges at the Georgetown WWTP associated with low-flow, high-strength influent conditions.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	<ul style="list-style-type: none"> ✗ Increases impact 	<ul style="list-style-type: none"> ✓✓ Decreases impact
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	<ul style="list-style-type: none"> ✓✓ Decreases impact 	<ul style="list-style-type: none"> ✗ Increases impact
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✓✓ Decreases visual impact
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	<ul style="list-style-type: none"> ✓✓ Minimizes road/utility crossings & conflicts 	<ul style="list-style-type: none"> ✓ Neutral
	<ul style="list-style-type: none"> There is potential for odour issues post partial diversion of flows to Mid-Halton WWTP due to lower flows and increased influent strength. Low construction impact, as improvements are contained within the existing facility site and do not affect nearby residents and businesses. Maintains general site appearance; any changes to infrastructure are expected to remain within the existing footprint and are not anticipated to significantly alter visual aesthetics. Minimal impact on surrounding properties as upgrades are expected to remain within the existing site boundaries, with no additional land or property interface anticipated. 	<ul style="list-style-type: none"> Conversion to a pumping station reduces potential long-term odour issues by removing open tanks and digestion, though odour control measures may still be required. Increased construction related impacts on traffic and nearby residents and businesses due to construction of linear infrastructure associated with the new WWPS at the existing WWTP site. Provides opportunity to enhance site aesthetics through the design of a new WWPS and potential reconfiguration or repurposing of the site. Minor impact on surrounding properties during construction of the new pumping station and forcemain, particularly along the conveyance route.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✗ Increases Impacts
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✓ Neutral
<ul style="list-style-type: none"> Maximizes existing infrastructure 	<ul style="list-style-type: none"> ✓✓ Maximizes capacity of existing infrastructure 	<ul style="list-style-type: none"> ✗ Requires new, dedicated infrastructure that doesn't improve system resiliency

Criteria, Description and Scoring	Alternative 3 Maintain Georgetown WWTP with Capital Improvements	Alternative 4 Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP
<ul style="list-style-type: none"> • Full lifecycle costs 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> • Staging costs 	✓✓ Lower Staging and throwaway costs	✗ Higher staging and throwaway costs
<ul style="list-style-type: none"> • State of Good Repair (SOGR) Integration 	✓✓ Higher level of coordination with SOGR program to allow for cost savings	✓ Neutral
	<ul style="list-style-type: none"> • Avoids potential hydraulic connectivity concerns at Silver Creek by maintaining effluent discharge but will require capital improvements to treat potentially higher-strength wastewater. • Minimizes impacts on archaeological/resources and cultural heritage sites, as the impacts are localized at the existing site. • Maximizes use of existing infrastructure with sufficient hydraulic capacity to accommodate projected flows to 2051; however, targeted capital improvements are needed to address operational challenges associated with lower flow rates and higher-strength influent post-diversion. • Potential for lower lifecycle costs as flows are treated locally, avoiding long-distance pumping to the Mid-Halton WWTP. However, the full extent and cost of capital improvements required to accommodate lower flows and higher-strength influent are not yet defined. • Lower staging and throwaway costs, as the improvements are limited to upgrades at the existing site and do not rely on construction of downstream infrastructure. • Improvements can be integrated with future SOGR-related upgrades at the WWTP site, allowing for coordinated investment and minimized disruption. 	<ul style="list-style-type: none"> • Eliminates effluent discharge to Silver Creek, potentially reducing phosphorus loading to the Credit River, but may create hydraulic connectivity concerns and require complex coordination with regulatory agencies. • Minimizes impacts on archaeological/resources and cultural heritage sites, as the impacts are localized at the existing site and road ROWs. • Makes limited use of existing infrastructure and requires new WWPS and forcemain; increases reliance on downstream systems not originally sized for full Georgetown flows, including the need to pump flows three times (new WWPS, Drumquin WWPS, Lower Base Line WWPS) in succession to reach the Mid-Halton WWTP. • Higher lifecycle costs are expected due to new infrastructure and long-distance pumping to Mid-Halton WWTP. Although decommissioning the Georgetown WWTP may lower operations and maintenance costs, these savings are likely offset by added pumping and treatment costs at Mid-Halton WWTP. • Higher potential for throwaway costs due to capital investments at the existing WWTP that may become redundant once the facility is decommissioned. Also includes new infrastructure that must be constructed and coordinated with downstream systems. • Requires the existing WWTP to remain operational during the construction of the new WWPS, which may limit opportunities for coordination with the SOGR program.
Climate Change		
<ul style="list-style-type: none"> • Considers resiliency and operational flexibility to adapt to Climate Change 	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation	✗ Strategy elements do not provide improved resiliency for Climate Change adaptation
<ul style="list-style-type: none"> • Reduction in emissions 	✓ Neutral	✗ High carbon footprint
	<ul style="list-style-type: none"> • Retains local treatment capacity, reducing reliance on downstream systems and long-distance pumping, supporting operational flexibility during extreme weather events or power disruptions. Capital improvements can be designed to enhance resilience to climate-related impacts (e.g., extreme wet-weather events, higher-strength influent, and flooding). • Potential for lower emissions compared to Alternative 3 by avoiding continuous long-distance pumping of flows to the Mid-Halton WWTP. Some emissions will still occur from treatment processes on-site and any required construction activities for plant upgrades. 	<ul style="list-style-type: none"> • Relies on continuous pumped conveyance through three (3) downstream pumping stations, requiring coordinated planning and operation of backup power, storage, and control systems to maintain resilience during extreme weather events. • Potential for higher emissions due to increased energy demand from pumping flows over a long distance and operating multiple WWPSs. Reduced emissions locally from elimination of treatment processes at the Georgetown WWTP; however, wastewater flows will still require treatment at the Mid-Halton WWTP, so overall treatment-related emissions are not eliminated but shifted to another facility.

Criteria, Description and Scoring	Alternative 3 Maintain Georgetown WWTP with Capital Improvements	Alternative 4 Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP
Integration of Planning for Regional Infrastructure		
<ul style="list-style-type: none"> Minimizes approvals/coordination 	✓✓ Decreases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Strategy is confined to the existing site and will likely not require major new permits or external approvals beyond standard upgrade requirements. No integration with road or transportation projects. 		<ul style="list-style-type: none"> Requires coordination and approvals for construction of a new WWPS and forcemain, and for decommissioning the existing WWTP. Potential hydraulic connectivity issues at Silver Creek from the reduction of effluent flows may add complexity, requiring engagement and approvals from regulatory agencies. No integration with road or transportation projects.
Technical Innovation		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	✓✓ Considers/applies innovative and/or new technologies	✓ Neutral
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓✓ Maximizes operational flexibility and security of supply/capacity	✗ Reduces operational flexibility and security of supply/capacity
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓✓ Improves performance	✓ Maintains performance
<ul style="list-style-type: none"> Supports phased growth 	✓✓ Supports phased growth	✗ Does not support phased growth
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road / utility crossings & conflicts
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✓✓ Reduced constructability challenges and improved technical feasibility	✓ Neutral
<ul style="list-style-type: none"> Provides opportunities to incorporate innovative treatment processes or technologies when upgrading the plant to manage lower flow volumes and higher-strength influent. Secures operational capacity by maintaining independence from downstream systems, allowing flexible on-site management of flows and operations without requiring coordination with other facilities. Retains reserve treatment and hydraulic capacity to handle high flows during extreme wet weather conditions or emergencies, ensuring continuous operation independently of downstream infrastructure. Can support phased growth as required upgrades are operational rather than capacity-related, allowing existing capacity to be maintained while accommodating incremental development. Minimal road and utility crossings as all works are within the existing WWTP site, avoiding proximity or conflicts with external infrastructure. Feasible solution with fewer constructability challenges, as work is contained within the existing WWTP site. Minimizes capacity impacts at the downstream facilities at the Drumquoin 		<ul style="list-style-type: none"> Limited opportunities for innovation, as the new infrastructure is primarily conveyance and pumping based, although advanced pumping and monitoring systems could be implemented to improve efficiency and reliability. Eliminates local treatment capacity and increases reliance on multiple downstream WWPS and conveyance systems with minimal operational flexibility. Doing so decreases security of capacity for existing and future users. Requires increased operational coordination at downstream pumping stations during atypical conditions (e.g. as power outages or equipment maintenance) which results in reduced operational flexibility and independence. Pumping station design will incorporate redundancy to ensure continuous operation, but system resiliency is reduced compared to maintaining independent on-site treatment capacity. Can support phased growth as the new pumping station would be sized for ultimate flows; however, these additional flows would decrease available capacity in downstream which can limit development potential in other areas or accelerate the need for capacity upgrades that were not planned for or were originally scheduled much further in the future.

Criteria, Description and Scoring	Alternative 3 Maintain Georgetown WWTP with Capital Improvements	Alternative 4 Decommission the Georgetown WWTP, construct a new WWPS, and divert flows to the Mid-Halton WWTP
	WWPS, Lower Baseline WWPS, and Mid-Halton WWTP, preserving capacity for other planned growth areas.	<ul style="list-style-type: none"> • Increased road and utility crossings due to the construction of a new WWPS, forcemain, and diversion sewers which will increase potential for conflicts with existing infrastructure. • Feasible solution but involves greater constructability challenges related to the construction of a new WWPS and forcemain. Increases flows to the Eighth Line trunk sewer and downstream facilities which decreases available capacity for existing user and growth. It may accelerate the need for capacity upgrades at the Drumquin WWPS and Mid-Halton WWTP. <ul style="list-style-type: none"> ○ The increased flows to Eighth Line trunk sewer could help address low-flow operational concerns during the initial phases of the South Georgetown flow diversion.
Preferred Strategy	✓✓ Preferred Alternative	✓ Least Preferred Alternative

Alternative 3 - Maintain Georgetown WWTP with Capital Improvements is the preferred strategy, as it makes use of the existing Georgetown WWTP, avoids the need for significant downstream capacity upgrades, and preserves capacity at the Drumquin WWPS, Lower Baseline WWPS, and Mid-Halton WWTP for other planned growth areas. This approach addresses anticipated operational challenges from lower flows and higher-strength influent following the South Georgetown diversion through targeted capital improvements while minimizing construction impacts, environmental approvals, and lifecycle costs. By keeping upgrades within the existing site, this strategy reduces coordination requirements, maintains flexibility for integration with State of Good Repair works, and offers a more cost-effective and environmentally responsible solution compared to decommissioning the plant and constructing new conveyance infrastructure.

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Strategy Evaluation **Burlington East (BEAST) Sanitary Trunk Sewer**

Screening and Detailed Evaluation Table

Focus Area Servicing Solutions – Burlington East (BEAST) Sanitary Trunk Sewer

What is the Constraint?

A combination of ongoing challenges has prompted the need for a revised servicing strategy for the Burlington East drainage area. These challenges/constraints include:

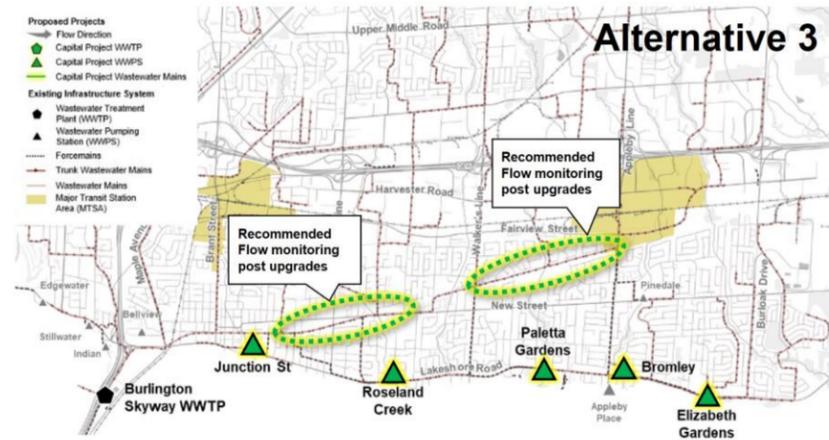
1. Pumping stations with capacity constraints under existing and future peak wet weather flow conditions.
2. Significant constraints at Paletta and Bromley WWPS due to footprint limitations.
3. More frequent and intense rainfall events and growth in these areas are expected to increase capacity constraints.
4. Alignment with the Region’s objective to improve long-term resiliency and sustainability by reducing reliance on pumping stations where feasible.

Alternative	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP’s vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP’s vision and considerations. 	Low	Screened Out
3. Increase capacity of existing WWPSs	<ul style="list-style-type: none"> Localized upgrades to existing WWPS, minimizing construction footprint and disruption. Lower staging and throwaway costs, as upgrades can be implemented on a station-by-station basis. Maximizes use of existing infrastructure. Supports phased growth by enabling capacity increases at individual stations as needed. 	<ul style="list-style-type: none"> Maintains all existing WWPSs. Constructability challenges at constrained sites (e.g., Paletta, Bromley). No reduction in long-term noise, odour, or emissions from WWPS operation. Does not support potential decommissioning of Pinedale WWPS 	Medium	Carried Forward
4. Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	<ul style="list-style-type: none"> Eliminates all WWPSs. Reduces long-term operational costs and emissions from WWPS operation. Supports potential decommissioning of Pinedale WWPS. 	<ul style="list-style-type: none"> Highest capital cost and most complex implementation due to deep trunk sewer construction. Extensive construction impacts along Lakeshore Road, affecting traffic, residents and businesses. High staging/throwaway costs for interim upgrades to maintain operations during construction. Potential odour issues from low flows in the deep trunk sewer and existing hydro corridor sewer. 	Medium	Carried Forward

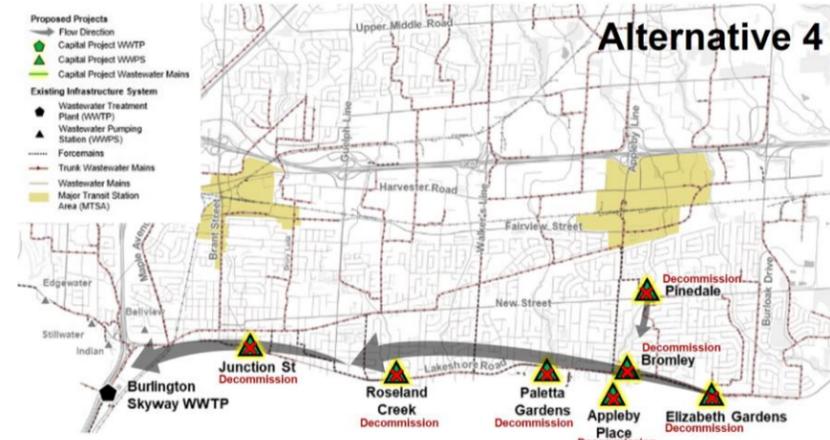
Alternative	Advantages	Disadvantages	Rating	Result
5. Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS	<ul style="list-style-type: none"> • Decommissions four (4) pumping stations. • Provides phased implementation opportunities, aligning with growth and funding. • Shorter deep trunk sewer extent than Alternative 4, reducing construction complexity and community impacts during construction. • Supports potential decommissioning of Pinedale WWPS. 	<ul style="list-style-type: none"> • Retains three (3) pumping stations. • Property constraints at the Elizabeth Gardens WWPS site. • Some construction impacts along Lakeshore Road and Burloak Drive. • Potential odour issues from low flows in the trunk sewer, though less than Alternative 4. 	High	Carried Forward

Focus Area Servicing Solutions – Burlington East Sanitary Trunk Sewer (BEAST)

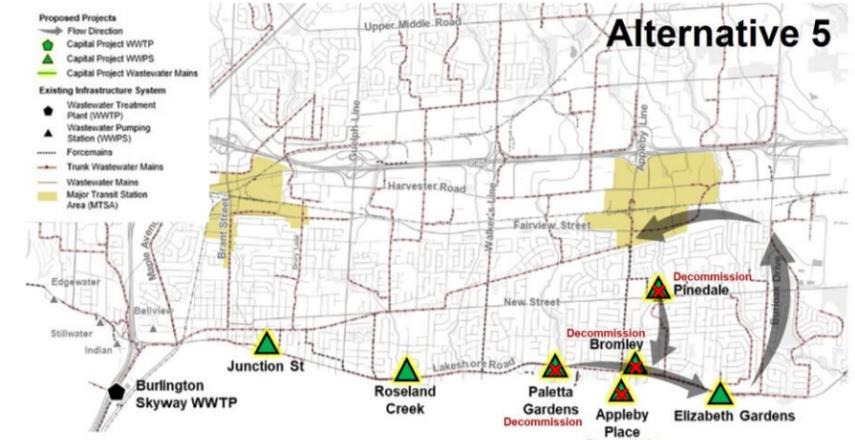
Alternative 3 Increase capacity of existing WWPS	Alternative 4 Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	Alternative 5 Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS
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- Localized station upgrades.
- Recommended long-term flow monitoring of the existing Burlington trunk sewer to assess the impact of pumping station upgrades.



- Decommissioning of seven WWPSs: Elizabeth Gardens WWPS, Pinedale WWPS (Add-on), Bromley Park WWPS, Appleby Line WWPS, Paletta Gardens WWPS, Roseland WWPS, Junction WWPS.
- Construction of a deep gravity trunk sewer to convey flows from the decommissioned stations starting at Elizabeth Gardens WWPS to the Skyway WWTP.



- Decommissioning of four WWPSs: Paletta Gardens WWPS, Bromley Park WWPS, Appleby Line WWPS, Pinedale WWPS (Add-on).
 - Add-on: Decommissioning of Pinedale WWPS and diversion of flows through an unsized sewer along Cherry Hill Crescent and White Pine Drive.
- Expansion of Rosedale and Junction WWPS.
- Construction of a deep gravity trunk sewer to convey flows from the four decommissioned WWPSs starting at Paletta Gardens WWPS to the expanded Elizabeth Gardens WWPS.
- Expansion of Elizabeth Gardens WWPS.
- Construction of a forcemain from Elizabeth Gardens WWPS to the existing hydro corridor trunk sewer. The alignment will be along part of Lakeshore Road, Burloak Drive and the hydro corridor.

Focus Area Servicing Solutions – Burlington East (BEAST) Sanitary Trunk Sewer

Criteria, Description and Scoring	Alternative 3 Increase capacity of existing WWPS	Alternative 4 Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	Alternative 5 Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS
Equitable Infrastructure Services			
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	✓✓ Improves LOS	✓✓ Improves LOS	✓✓ Improves LOS
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities			
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	✓ Neutral	✗ Increases impact	✗ Increases impact
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	✓ Neutral	✗ Increases impact	✗ Increases impact
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	✓ Neutral	✓✓ Decreases visual impact	✓✓ Decreases visual impact
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts
	<ul style="list-style-type: none"> Maintains the current noise and odour impacts at all existing wastewater pumping stations with long-term impacts remaining generally consistent with current performance. Potentially increased temporary noise impacts during construction at WWPS sites. Temporary traffic impacts are expected during construction. Disruption would be localized to the vicinity of the WWPS and associated linear infrastructure upgrades. No change to visual aesthetics, as all existing WWPSs are maintained. Minimal road or utility crossings, as work is confined to existing WWPS sites and short, localized linear infrastructure. Lowest potential for conflicts with other infrastructure. 	<ul style="list-style-type: none"> Eliminates potential long-term noise and odour impacts from the existing WWPS; however, can introduce potential odour issues in the new trunk sewer under low-flow conditions. Increased short-term noise impacts due to extensive construction along the length of the proposed trunk sewer, including multiple shaft locations along Lakeshore Road. Highest potential traffic impact during construction among the alternatives. The complexity of constructing a deep trunk sewer along a major roadway results in extended construction timelines and complex traffic management measures. Accommodating shaft sites within the ROW can impede traffic for the construction duration. Some work would occur downstream of the service area, impacting residents and businesses who would not directly benefit from improved levels of service. Reduces visual impact by removing all WWPS from the service area. Highest potential for road and utility crossings due to the length of the deep trunk sewer and multiple shaft locations along a congested road. High potential for conflicts with existing underground infrastructure. 	<ul style="list-style-type: none"> Reduces potential long-term noise and odour impacts by decommissioning four WWPS, but retains three facilities, including an expanded Elizabeth Gardens WWPS. Potential odour issues may occur under low-flow conditions in the trunk sewer, though to a lesser extent than Alternative 4. Potential short-term noise impacts due to construction of the trunk sewer and expansion of the two remaining WWPS sites are expected to be less than Alternative 4. Moderate construction-related traffic impacts are anticipated. Disruption would be concentrated around the upgraded WWPS sites and required linear infrastructure, with a smaller construction footprint compared to Alternative 4. Reduces visual impact by decommissioning four WWPSs, but retains three facilities, including an expanded Elizabeth Gardens WWPS. Moderate potential for road or utility crossings, concentrated at select WWPS sites and connection points. Fewer potential conflicts compared to Alternative 4 but more than Alternative 3.

Criteria, Description and Scoring	Alternative 3 Increase capacity of existing WWPS	Alternative 4 Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	Alternative 5 Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS
Sustainability			
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	✓ Neutral	✓✓ Decreases impact	✓✓ Decreases impact
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	N/A	N/A	N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	✓✓ Decreases impact	✓✓ Decreases impact	✓✓ Decreases impact
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓✓ Maximizes capacity of existing infrastructure	✗ Requires new, dedicated infrastructure that doesn't improve system resiliency	✓ Neutral
<ul style="list-style-type: none"> Full lifecycle costs 	✓ Neutral	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Staging costs 	✓✓ Lower Staging and throwaway costs	✗ Higher staging and throwaway costs	✗ Higher staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓✓ Higher level of coordination with SOGR	✗ Lower level of coordination with SOGR program	✓✓ Higher level of coordination with SOGR
	<ul style="list-style-type: none"> Minimal construction-related environmental impacts due to localized work at existing sites; however, all existing WWPS remain in service, maintaining the potential risk of system overflows to the environment under emergency or extreme operating conditions. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the facilities and proposed alignments are located within existing ROW and WWPS sites. Maximizes use of existing infrastructure by upgrading multiple existing WWPS. This alternative has the lowest capital cost and the highest operations and maintenance costs. Lower staging and throwaway costs because upgrades to the existing WWPS are largely independent of each other, allowing them to be implemented as needed without significant interim works or reliance on downstream infrastructure upgrades. Allows work at each WWPS to be coordinated with planned SOGR activities, enabling efficient use of resources and minimizing repeat disruptions. 	<ul style="list-style-type: none"> Some environmental crossings are required but will be tunneled to minimize disturbance; decommissioning all WWPSs eliminates potential risk of system overflows to the environment under unforeseen circumstances such as emergency conditions. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the proposed alignment is located within existing ROW. Does not maximize use of existing infrastructure including the existing sewer along the hydro corridor. This alternative has the highest capital cost and lowest operations and maintenance costs. Higher staging and throwaway costs for interim existing infrastructure upgrades to maintain operations during construction and commissioning of the proposed deep trunk sewer. Limited opportunity for SOGR integration, as existing WWPS may still need to be maintained in a state of good repair during the extended trunk sewer construction period. This could result in less efficient use of capital and operational resources. 	<ul style="list-style-type: none"> Minimal construction-related environmental impacts due to localized work at select sites; some environmental crossings will be tunneled; decommissioning several WWPS, reduces but does not fully eliminate potential risk of system overflows to the environment under emergency or extreme operating conditions. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as most facility expansion and proposed alignments are located within existing ROW and WWPS sites. Maximizes the use of some existing infrastructure while eliminating some existing WWPS. This alternative has moderate capital costs and operations and maintenance costs, falling between Alternatives 3 and 4. High staging and throwaway costs. However, this alternative will offer lower operations and maintenance costs of the existing infrastructure prior to decommissioning when compared to Alternative 4. Provides opportunities to integrate SOGR activities with planned upgrades along the existing hydro corridor trunk sewer. Upgrades to Roseland and Junction WWPS can be coordinated independently to align with condition, capacity, and phasing needs.

Criteria, Description and Scoring	Alternative 3 Increase capacity of existing WWPS	Alternative 4 Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	Alternative 5 Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS
Climate Change			
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✗ Strategy elements do not provide improved resiliency for Climate Change adaptation	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation
<ul style="list-style-type: none"> Reduction in emissions 	✓ Neutral	✓✓ Lower carbon footprint	✓✓ Lower carbon footprint
	<ul style="list-style-type: none"> Relies on pumped conveyance and active system management to maintain operational flexibility and performance under a range of future climate and operating conditions. Maintains emissions from operating all existing WWPS as well as emissions from construction activities at each site. 	<ul style="list-style-type: none"> Gravity-based conveyance provides inherent operational simplicity and passive resiliency with reduced reliance on active system management under varying future climate and operating conditions. Potential to reduce operational emissions by eliminating all WWPS, although construction of the deep gravity sewer would result in significant short-term emissions from extensive tunnelling and shaft works. 	<ul style="list-style-type: none"> Combines gravity-based conveyance with selective use of pumped infrastructure, providing a balanced level of operational flexibility and resiliency under a range of future climate and operating conditions. Reduces operational emissions by decommissioning four WWPSs, though emissions from operating the remaining three WWPSs and from construction activities will remain.
Integration of Planning for Regional Infrastructure			
<ul style="list-style-type: none"> Minimizes approvals/coordination 	✓ Neutral	✗ Increases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓ Neutral	✗ Decreased integration with road/transportation program	✓ Neutral
	<ul style="list-style-type: none"> Requires approvals and coordination for capacity upgrades and associated linear infrastructure at multiple existing WWPS sites. While the scope at each location is relatively contained, the need to coordinate construction across several sites increases overall implementation complexity. Upgrades at existing WWPS sites are localized and generally independent of major Region-led road projects. Minimal opportunity for integration with planned road or transportation works, aside from standard coordination with the City of Burlington where municipal roads are impacted. 	<ul style="list-style-type: none"> Requires significant approvals and coordination due to the scale and complexity of the deep trunk sewer. A Class EA study will be needed to determine shaft locations for tunneling, with construction spanning along the corridor from the Elizabeth Gardens WWPS to the Skyway treatment plant. The extent of linear infrastructure and associated environmental, technical, and community considerations will require a high degree of inter-agency coordination. Construction along Lakeshore Road is generally independent of major Region-led road projects. However, it will require extensive coordination with the City of Burlington to manage the project's scale, timelines, and associated disruption. 	<ul style="list-style-type: none"> Requires a Class EA study for the proposed Elizabeth Gardens WWPS capacity upgrade and associated linear infrastructure to consolidate flows from multiple existing stations. While less extensive than Alternative 4, coordination will still be required for the decommissioning of four existing WWPSs and integration with surrounding infrastructure. Minimal opportunity for integration with planned road or transportation works, aside from standard coordination with the City of Burlington where municipal roads are impacted. While less extensive than Alternative 3, coordination will still be required to align construction timelines and minimize disruption.
Technical Innovation			
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓ Neutral	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓ Maintains performance	✓✓ Improves performance	✓✓ Improves performance
<ul style="list-style-type: none"> Supports phased growth 	✓✓ Supports phased growth	✗ Does not support phased growth	✓✓ Supports phased growth

Criteria, Description and Scoring	Alternative 3 Increase capacity of existing WWPS	Alternative 4 Deep gravity sewer along Lakeshore Road and decommission all seven WWPSs	Alternative 5 Decommission some WWPSs and upgrade the Elizabeth Gardens (EG), Roseland and Junction WWPS
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	<p>✓ Neutral</p>	<p>✗ Increases road/utility crossings & conflicts</p>	<p>✓ Neutral</p>
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	<p>✗ More constructability challenges and reduced technical feasibility</p>	<p>✗ More constructability challenges and reduced technical feasibility</p>	<p>✓✓ Reduced constructability challenges and improved technical feasibility</p>
	<ul style="list-style-type: none"> Maintains the existing distributed WWPS network, enabling localized flow management but limiting flexibility to the capacity of individual stations and retaining reliance on multiple mechanical assets. Performance during emergency conditions is comparable to existing operations maintaining reliance on multiple mechanical assets. Supports phased growth, as capacity upgrades at individual WWPS can be implemented in stages based on demand. Minimal new road or utility crossings; work largely confined to existing WWPS sites. Significant constructability constraints at Paletta and Bromley WWPS due to site limitations. <ul style="list-style-type: none"> Limited available property at existing WWPS sites makes upgrades challenging and, in some cases, not technically feasible. Does not support the potential decommissioning of the Pinedale WWPS. 	<ul style="list-style-type: none"> Eliminates reliance on WWPSs by consolidating flows into a deep gravity trunk sewer. This reduces operational complexity during emergency conditions and improving long-term security. However, operational flexibility is reduced as reliance is on a single trunk sewer. Improves performance under emergency conditions by reducing operational complexities associated with WWPS. Offers limited flexibility for phased implementation, as the deep trunk sewer would require full construction before operational benefits are realized. Multiple road and utility crossings along Lakeshore Road corridor, increasing potential conflicts. Major constructability challenges and reduced technical feasibility due to the scale of tunneling, limited land availability for multiple shaft sites, and significant traffic disruption along Lakeshore Road. <ul style="list-style-type: none"> Design must address potential odour issues and operational concerns from average-day low flows in both the new deep trunk sewer and the existing hydro corridor sewer. Pinedale WWPS decommissioning could be included as an additional future phase but is not immediately required. 	<ul style="list-style-type: none"> Decommissions four WWPSs while upgrading three key stations. However, it limits operational flexibility to the capacity of the remaining individual stations and reduces but does not fully remove reliance on multiple mechanical assets. Improves performance under emergency conditions compared to Alternative 3 by decommissioning four WWPSs, reducing operational complexities associated with WWPS. Supports phased intensification growth by allowing upgrades and flow diversions to be implemented in stages. The phased decommissioning of WWPSs and the timing of capacity upgrades at the Elizabeth Gardens WWPS can be aligned with growth, system condition, and available funding, providing greater flexibility than Alternative 4. Some road and utility crossings required, including linear infrastructure along Lakeshore Road and Burloak Drive, but less extensive than Alternative 4. Some constructability challenges associated with building a larger Elizabeth Gardens WWPS and construction of a deep trunk sewer and forcemain. <ul style="list-style-type: none"> Maintaining ongoing operation while expanding the Elizabeth Gardens WWPS will be challenging. Although requires land negotiation at Elizabeth Gardens WWPS site, the space availability at the land adjacent to the site, helps mitigate operational impacts. The construction of the deep trunk sewer and forcemain will be less complex than Alternative 4; deep trunk sewer extent along Lakeshore Road is shorter and forcemain routing is in less congested corridors. Pinedale WWPS decommissioning could be included as an additional future phase but is not immediately required.
<p>Preferred Strategy</p>	<p>✓ Least Preferred Alternative</p>	<p>✓ Least Preferred Alternative</p>	<p>✓✓ Most Preferred Alternative</p>

Alternative 4 – Decommissioning of some WWPSs and upgrading Elizabeth Gardens, Roseland and Junction WWPS is the preferred servicing strategy for the BEAST area, as it offers a balanced approach that addresses long-term capacity needs while minimizing disruption and implementation risks. By consolidating flows to an upgraded Elizabeth Gardens WWPS and decommissioning four pumping stations, this strategy improves system resiliency, reduces operational complexities, and provides opportunities for phased implementation in line with growth and infrastructure conditions. Compared to Alternative 4, it avoids the extensive cost, complexity, and disruption of a long and deep trunk sewer along Lakeshore Road while still achieving significant operational improvements over Alternative 3, which maintains all existing stations. The shorter extent of deep trunk sewer construction and routing of the forcemain in less congested corridors further reduce constructability challenges. This approach also preserves flexibility to incorporate future system enhancements, such as the potential decommissioning of the Pinedale WWPS, without compromising current system performance.

4A

Strategy Evaluation

Focus Area Servicing Solutions – North Service Road and Leighland Road Upgrades

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions – North Service Road and Leighland Road Upgrades

What is the Constraint?

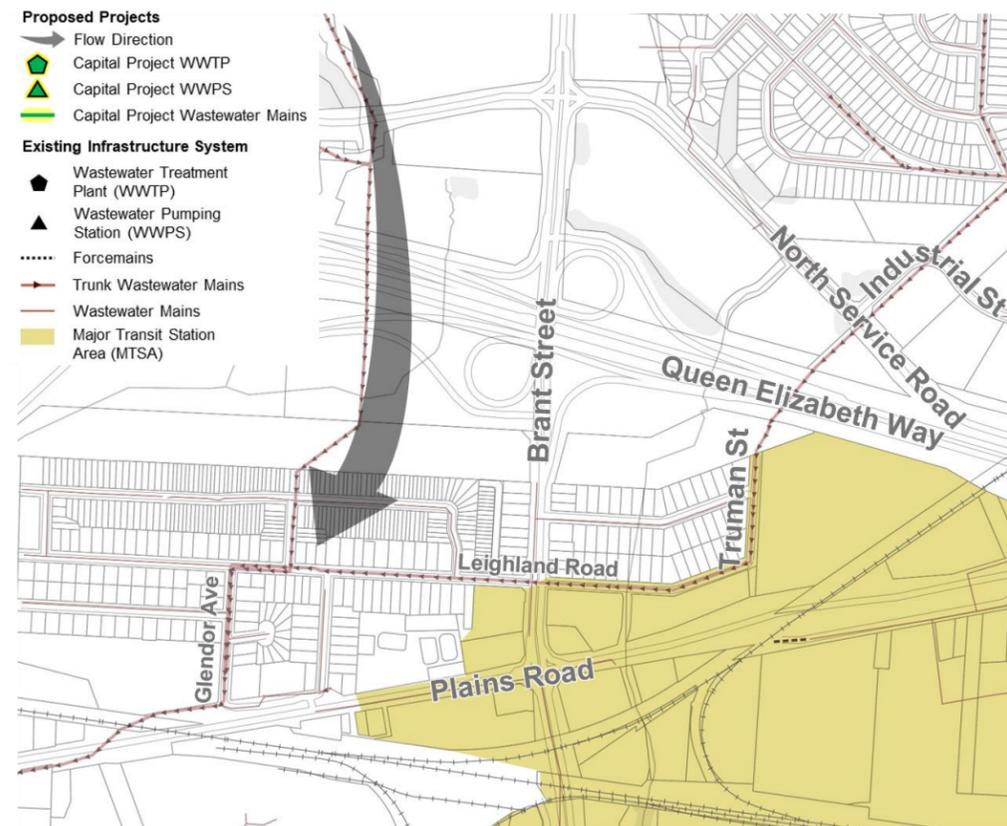
The ongoing capacity constraints and significant planned growth in this area create servicing challenges. These challenges/constraints include:

1. Capacity constraints under existing and future peak wet weather flow conditions.
2. Limited servicing opportunities for two major planned growth Areas – Burlington GO MTSA and Brant Commercial Centre – by existing infrastructure.

Alternatives	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital cost. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Twinning of the existing sewer within easement (under the QEW)	<ul style="list-style-type: none"> Improves levels of service for both existing and future users. Maximizes use of existing conveyance infrastructure while adding resiliency through a secondary route. Construction activities concentrated within an existing corridor, which minimizes the extent of new land disturbance. Technically feasible; however, this alternative is more complex than Alternative 4. 	<ul style="list-style-type: none"> Does not support phased intensification, as benefits are only realized once the twinned sewer is fully commissioned. More constructability challenges due to highway crossings with constrained space near interchanges. Potential need for expanded easement limits, increasing coordination requirements. Provides limited integration with SOGR program, as it does not resolve capacity constraints along Leighland Road. 	Medium	Carried Forward
4. Diversion of flows through a new sewer on North Service Road	<ul style="list-style-type: none"> Improves levels of service for both existing and future users. Supports phased intensification, as Leighland Road upgrades can proceed independently while the timing of new sewers on North Service Road can be aligned with growth. Provides capacity for growth and improved system performance downstream through proposed upgrades. Reduced construction complexity compared to Alternative 3, as the alignment largely follows existing ROW. Shorter highway crossing (east of Brant Street), reducing construction risks and complexity relative to Alternative 3. 	<ul style="list-style-type: none"> Higher initial and staging costs due to longer alignment. Moderate construction disruption, particularly in residential and commercial areas along the alignment. The increased length may result in greater upfront capital and staging costs. 	High	Carried Forward

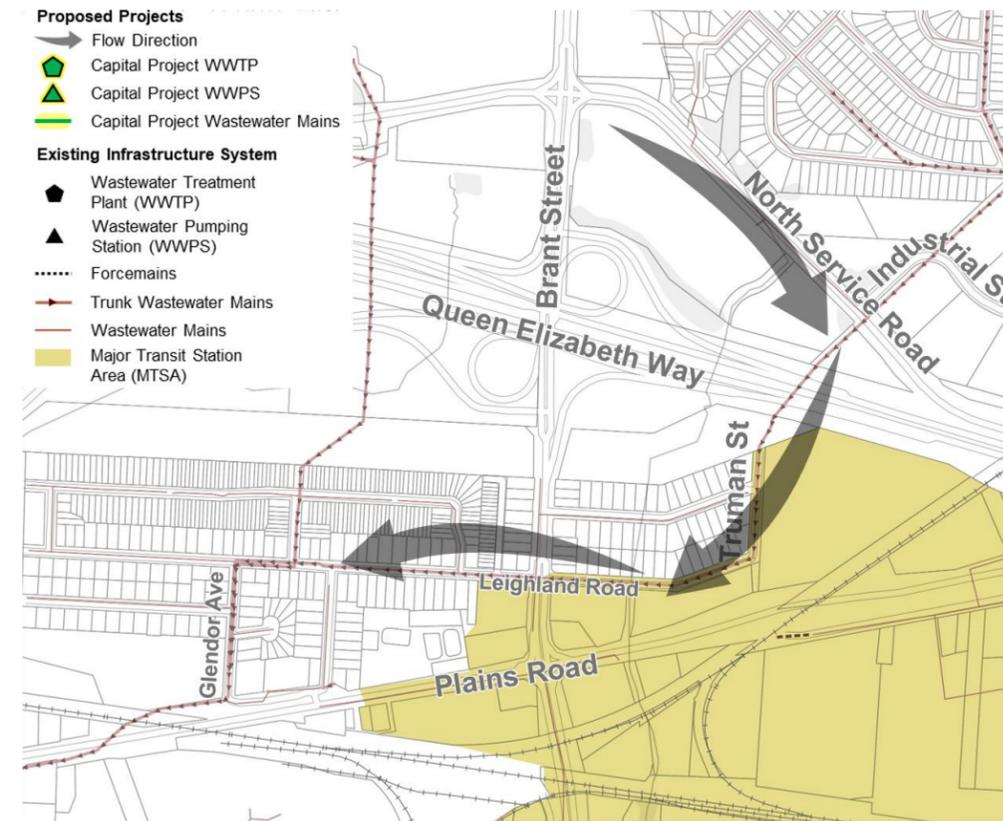
Focus Area Servicing Solutions – North Service Road and Leighland Road Upgrades

Alternative 3 Twinning of the existing sewer within easement (under the QEW)



- Twinning of existing trunk sewer from North Service Road to Leighland Road.

Alternative 4 Diversion of flows through a new sewer on North Service Road



- New sewer along North Service Road to Industrial Street.
- Twinning of the existing sewer in easement and along Truman Street from Industrial Street to Leighland Road.
- Upsizing of trunk sewer on Leighland Road.

Focus Area Servicing Solutions – North Service Road and Leighland Road Upgrades

Criteria, Description and Scoring	Alternative 3 Twinning of the existing sewer within easement (under the QEW)	Alternative 4 Diversion of flows through a new sewer on North Service Road
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	<p>✓✓ Improves LOS</p>	<p>✓✓ Improves LOS</p>
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	<p>✓ Neutral</p>	<p>✗ Increases impact</p>
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	<p>✗ Increases impact</p>	<p>✗ Increases impact</p>
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	<p>✓ Neutral</p>	<p>✓ Neutral</p>
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	<p>✗ Increases road/utility crossings & conflicts</p>	<p>✗ Increases road/utility crossings & conflicts</p>
	<ul style="list-style-type: none"> Potential short-term noise and odour impacts limited to construction activities. Potential for traffic and community disruption due to location of the proposed alignment, with some construction activities occurring in residential areas and near businesses. No long-term visual impacts: all upgrades are underground with no change to visual character post-construction. Increased construction impact at highway crossings (QEW and Highway 403) due to proximity to Brant Street and Highway 407 interchange. Remainder of alignment will potentially be within an existing easement. Additional investigation required to ensure current easement limits are sufficient to accommodate the twin sewer. 	<ul style="list-style-type: none"> Increased potential short-term noise and odour impacts due to construction of a longer alignment. Higher potential for traffic and community disruption due to the longer length of the alignment, with most construction activities occurring in residential areas and near businesses. No long-term visual impacts: all upgrades are underground with no change to visual character post-construction. Shorter highway crossing of QEW and Highway 403 is required; located east of Brant Street, away from major interchanges. Avoiding crossing a highway interchange reduces construction complexity, traffic management, and high-impact construction conflicts at a single location. Portions of alignment within municipal roads may cause temporary localized property impacts.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	<p>✓✓ Decreases impact</p>	<p>✓✓ Decreases impact</p>
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	<p>N/A</p>	<p>N/A</p>
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	<p>✓✓ Decreases impact</p>	<p>✓✓ Decreases impact</p>

Criteria, Description and Scoring	Alternative 3 Twinning of the existing sewer within easement (under the QEW)	Alternative 4 Diversion of flows through a new sewer on North Service Road
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Full lifecycle costs 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Staging costs 	✓✓ Lower staging and throwaway costs	✗ Higher staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓ Neutral	✓ Higher level of coordination with SOGR program
	<ul style="list-style-type: none"> Includes several creek crossings, all of which will be tunneled to avoid direct disturbance to watercourses and aquatic habitats. Most of the alignment is within an easement, further minimizing environmental impacts. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the proposed alignment is located within an easement and existing ROW. Relies on new infrastructure but continues to make use of the existing conveyance system, adding resiliency through provision of an additional flow route. Both alternatives have similar lifecycle costs. Lower staging costs due to the shorter alignment. However, tunneling under two highway interchanges increases construction complexities, coupled with limited space available for construction set up may increase staging costs. Additional costs may also arise if easement expansions are required. Neutral - Limited level of coordination with the SOGR program. While this alternative provides a new sewer on the same alignment, it does not address the existing capacity constraints along Leighland Road and therefore has limited integration potential with renewal or upgrade programs. 	<ul style="list-style-type: none"> Includes several creek crossings, all of which will be tunneled to avoid direct disturbance to watercourses and aquatic habitats. Majority of the alignment is within existing ROW. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the proposed alignment is expected to be located within existing easement and existing ROW. Relies on new infrastructure but continues to make use of the existing conveyance system, while upgrading portions of the downstream infrastructure. Both alternatives have similar lifecycle costs. Higher staging costs due to the longer alignment. While construction is less complex than Alternative 3 because it is mainly within existing rights-of-way, the increased length may result in greater upfront capital and staging costs. Additional costs may also arise if easement expansions are required. Higher level of coordination with the SOGR program, as this alternative addresses additional capacity constraints along Leighland Road and enables integration of renewal needs into a broader upgrade strategy.
Climate Change		
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation	✓ Neutral
<ul style="list-style-type: none"> Reduction in emissions 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Increases system capacity, redundancy, and reliability under extreme events by providing an alternative flow path along the same alignment. Limited access at highway interchange reduces operational flexibility for bypassing or future rerouting. Emissions are primarily associated with construction activities. Construction-related emissions are potentially less than Alternative 4 due to the shorter length. 	<ul style="list-style-type: none"> Improved security of capacity as this option ensures that additional growth can be accommodated without reducing level of service for existing users. Emissions are primarily associated with construction activities. Linear construction has potentially greater emissions due to the increased length of construction.
Integration of Planning for Regional Infrastructure		
<ul style="list-style-type: none"> Minimizes approvals/coordination 	✗ Increases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Requires approvals and coordination for construction of the gravity sewer in an easement and under two highway interchanges. Depending on the extent of the existing easement, additional coordination and approvals may be required to expand the easement. 	<ul style="list-style-type: none"> Requires approvals and coordination for construction of the gravity sewer in an easement. Depending on the extent of the existing easement, additional coordination and approvals may be required to expand the easement. The majority of the work will be along the

Criteria, Description and Scoring	Alternative 3 Twinning of the existing sewer within easement (under the QEW)	Alternative 4 Diversion of flows through a new sewer on North Service Road
	<ul style="list-style-type: none"> The sewer will be along an easement. There are limited opportunities for coordination with planned municipal road rehabilitation or utility works along this corridor. 	<p>existing ROW, so required approvals are expected to be minimal or standard compared to the Alternative 3.</p> <ul style="list-style-type: none"> The sewer will be with an existing ROW for the majority of the alignment. There could be some potential to coordinate with planned municipal road rehabilitation or utility works along this corridor if required, but no direct integration with major Region-led road projects.
Technical Innovation		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓✓ Maximizes operational flexibility and security of supply/capacity	✓ Neutral
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓✓ Improves performance	✓✓ Improves performance
<ul style="list-style-type: none"> Supports phased growth 	✓ Neutral	✓✓ Supports phased growth
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✗ Increases road/utility crossings & conflicts	✓ Neutral
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✗ More constructability challenges and reduced technical feasibility	✓✓ Reduced constructability challenges and improved technical feasibility
	<ul style="list-style-type: none"> Increases operational flexibility and security by providing an alternate flow route, enhancing the system's overall redundancy. Similar performance under emergency conditions to Alternative 4. Construction activities may introduce temporary disruption, but long-term operations would be consistent with standard wastewater infrastructure. The twinned sewer is required to support both existing and future users; however, benefits to servicing intensification will not be realized until the full sewer is commissioned, limiting flexibility to align with phasing. Involves increased impacts due to the need for longer highway crossing at a challenging location. The extent of available easement space and potential conflicts with existing utilities will need to be confirmed during detailed design, increasing the complexity of this alternative. Technically feasible; however, this alternative is more complex due to the complex construction setup, potential limitations with easement availability, and the need for additional coordination. If the existing easement is not sufficient, the feasibility of this alternative would be significantly reduced, making the alignment notably more challenging than Alternative 4. 	<ul style="list-style-type: none"> Does not provide operational flexibility as there is a single flow route. However, it ensures security of capacity for growth by providing an alternative servicing route and improving system performance downstream through proposed upgrades. Similar performance under emergency conditions to Alternative 3. While this alternative involves a longer linear alignment, risks during construction and operation remain consistent with standard infrastructure. Provides greater opportunity to support phased intensification, as upgrades along Leighland Road can proceed independently of the upstream works. Construction of the new sewers on North Service Road can be staged in coordination with growth. Alignment generally follows existing ROW with a portion within an easement, which helps manage potential conflicts. There is potential for disruption due to the length of the gravity sewer. The highway crossing is shorter than in Alternative 3, reducing some complexity. Technically feasible; requires construction of a longer gravity sewer with a highway crossing. However, the alignment generally follows existing ROW, which simplifies construction compared to Alternative 3, and the required highway crossing is shorter in length, helping reduce construction complexity. This alternative has the added benefit that it alleviates capacity constraints along Leighland Road that are not addressed under Alternative 3.
Preferred Strategy	✓ Least Preferred Alternative	✓✓ Most Preferred Alternative

Alternative 4 — Diversion of flows through a new trunk sewer on North Service Road is the preferred strategy, as it provides an alternative servicing strategy which can be phased with growth at two major growth areas. There is increased staging costs associated with construction of the longer alignment; however, it reduces construction complexity. While still requiring upsizing the downstream infrastructure, the upgrades will be located along existing ROWs, enabling straightforward approvals and coordination. This alternative supports phased growth, addresses capacity constraints and includes routine construction activities, making it the most balanced and cost-effective long-term solution.

4A

Strategy Evaluation

Focus Area Servicing Solutions – Silver Creek Trunk Sewer and Main Street WWPS

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions – Silver Creek Trunk Sewer and Main Street WWPS

What is the Constraint?

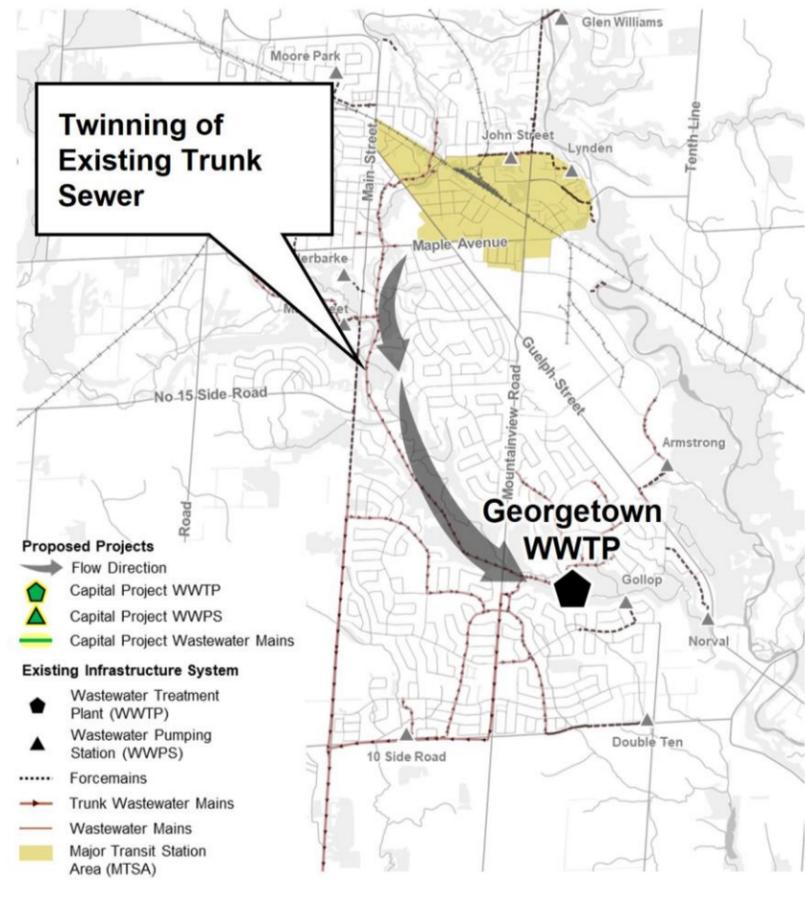
There are existing system constraints along Silver Creek Trunk Sewer with major growth (Georgetown GO) planned in the upstream catchment. These challenges/constraints include:

1. Existing and future capacity constraints under peak wet weather flow conditions in the trunk sewer located within the Silver Creek Valley corridor.
2. Planned growth in the service area will worsen the existing condition.

Alternative	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Twinning of the existing trunk sewer	<ul style="list-style-type: none"> Gravity-based solution improves system redundancy and performance. Lower staging and throwaway costs compared to new WWPS. Minimizes road and utility crossings with construction within existing easement. Maximizes use of existing WWTP infrastructure. 	<ul style="list-style-type: none"> Constructability challenges due to work within the Silver Creek Valley corridor and proximity to the existing sewer. Retains both Main Street and Cinderbarke WWPS, limiting operational efficiencies and continued long-term emissions. Higher lifecycle cost due to continued operation of two existing WWPSs and new linear infrastructure. Does not reduce potential odour/noise/visual impacts from existing WWPS in proximity with residential areas. 	High	Carried Forward
4. Flow diversion to New Main Street WWPS	<ul style="list-style-type: none"> Improves system resilience and redundancy through new route and upstream diversion of flows. Enables decommissioning of Main Street WWPS and potentially Cinderbarke WWPS, reducing long-term operational challenges. Offers improved visual and noise outcomes by potentially relocating the new WWPS away from residences. Lower long-term operational emissions through consolidation of WWPS infrastructure. Generally, more constructible, following municipal ROWs and potentially using Regionally owned land for the proposed WWPS. 	<ul style="list-style-type: none"> Increased road and utility conflicts during construction in ROW. Relies on pumped conveyance during emergency or extreme conditions operating conditions. Higher upfront capital and staging costs due to new WWPS, trunk sewer, and forcemain. Requires extensive coordination with multiple authorities and road agencies. Does not fully utilize existing treatment capacity at Georgetown WWTP due to flow diversion. 	High	Carried Forward

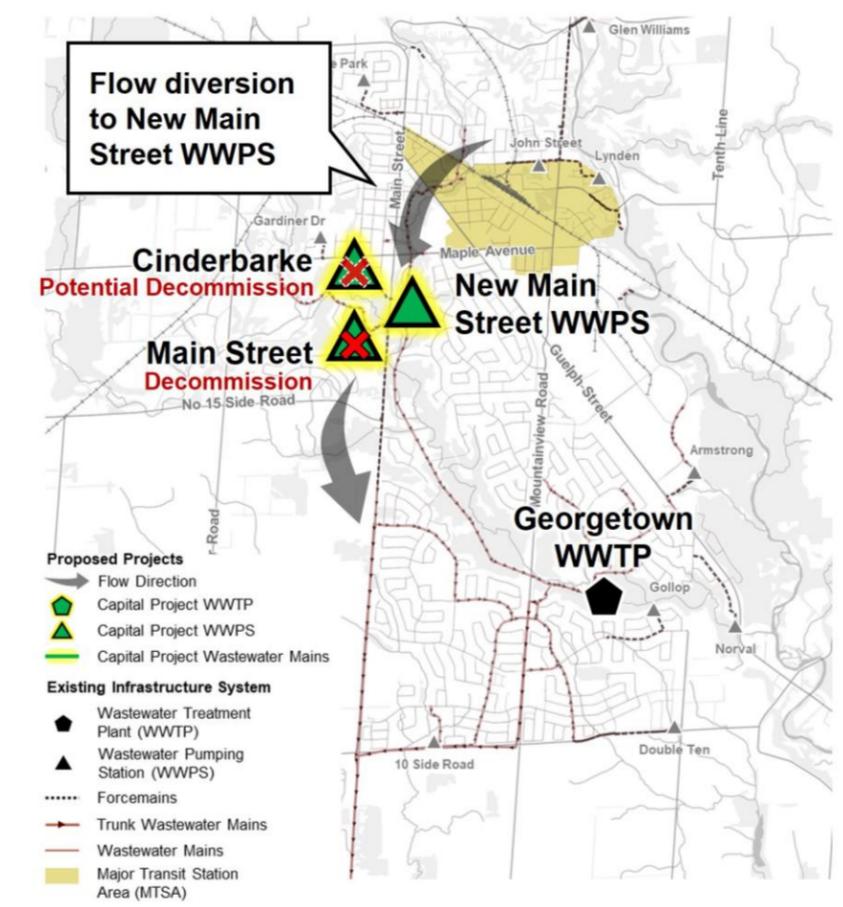
Focus Area Servicing Solutions – Silver Creek Trunk Sewer

Alternative 3 Twinning of the existing trunk sewer



- Twinning of existing trunk sewer along easement from Maple Avenue to the Georgetown WWTP.

Alternative 4 Flow diversion to New Main Street WWPS



- Twin existing sewer along Park Avenue from Mill Street to Park Avenue.
- New trunk sewer along Park Avenue and Main Street to the new Main Street WWPS.
- Decommissioning of the existing Main Street WWPS.
- Construction of a new Main Street WWPS at Main Street and Cinderbarke Terrace with a forcemain along Main Street South to Miller Drive.
- New trunk sewer from the decommissioned Main Street WWPS to the new Main Street WWPS.

Focus Area Servicing Solutions – Silver Creek Trunk Sewer

Criteria, Description and Scoring	Alternative 3 Twinning of the existing trunk sewer	Alternative 4 Flow diversion to New Main Street WWPS
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	✓✓ Improves LOS	✓✓ Improves LOS
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	✓ Neutral	✓✓ Decreases impact
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	✓ Neutral	✗ Increases impact
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	✓ Neutral	✓✓ Decreases visual impact
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts
	<ul style="list-style-type: none"> Maintain the same long-term noise and odour impacts as currently exists. Moderate construction impacts expected, as works are primarily located within an existing easement along Silver Creek and away from major roadways. However, construction activities may still affect properties in the immediate vicinity of the current trunk sewer alignment due to noise, access limitations, or construction traffic. Minimal new visual impacts due to underground infrastructure; however, existing visual impacts associated with the Main Street WWPS located in a residential area will remain. Minimal road and utility conflicts expected, as construction will occur primarily within an existing easement along Silver Creek. 	<ul style="list-style-type: none"> Decommissions the existing Main Street WWPS, potentially reducing long-term odour and noise impacts in a residential area. Introduces a new WWPS with potential to mitigate noise and odour impacts through design and siting. Increased construction disruption anticipated due to work along road ROWs, with higher potential for impacts to traffic, local businesses, and residents. Potential for improved community aesthetics through decommissioning of the existing WWPS in a residential area. While a new WWPS is introduced, it is anticipated to be located further away from residential areas, reducing overall visual impact. Increased potential for road and utility crossings and conflicts, as new infrastructure will be located within existing road ROW.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	✗ Increases impact	✓✓ Decreases impact
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	N/A	N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓✓ Maximizes capacity of existing infrastructure	✓ Neutral
<ul style="list-style-type: none"> Full lifecycle costs 	✗ Higher Lifecycle Cost	✓✓ Lower Lifecycle Cost
<ul style="list-style-type: none"> Staging costs 	✓✓ Lower Staging and throwaway costs	✗ Higher staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓ Neutral	✓✓ Higher level of coordination with SOGR program

Criteria, Description and Scoring	Alternative 3 Twinning of the existing trunk sewer	Alternative 4 Flow diversion to New Main Street WWPS
	<ul style="list-style-type: none"> Construction will occur within a creek valley, with potential short-term impacts to terrestrial and aquatic systems from construction equipment and activity. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. Maximizes the use of the existing Georgetown WWTP by continuing to direct all flows to the facility. Requires investment in a new twin trunk sewer with complex construction activities located in the Silver Creek valley corridor. Additionally, maintaining both the existing Main Street and Cinderbarke WWPS, results in higher long-term operational and maintenance costs. Involves construction of a twin sewer with fewer throwaway costs compared to building a new pumping station. However, construction within an existing easement may introduce additional construction complexities due to limited access that could increase staging costs. Provides strong alignment with future maintenance activities by introducing a parallel sewer along the same alignment, which supports flexibility and reduces reliance on the existing sewer during repairs. This alternative is largely independent of other infrastructure, minimizing coordination needs. 	<ul style="list-style-type: none"> Minimal environmental crossings expected along the proposed alignment as it is located with existing ROW. Any crossing of environmental features will be tunneled to minimize disturbance. This alternative enables decommissioning of the Cinderbarke WWPS which reduces the potential risk of system overflows to the environment under emergency or extreme operating conditions. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. Maximizes use of the existing conveyance network but diverts some peak wet weather flows away from Georgetown to Mid-Halton WWTP, reducing utilization of the existing treatment plant. Increased costs associated with construction of the new linear infrastructure and a new Main Street WWPS. However, consolidating the flows at a new Main Street WWPS and the opportunity to decommission the Cinderbarke WWPS in the future, may reduce the long-term operational costs. Involves decommissioning the existing Main Street WWPS, constructing a new station, and installing new sewers that bypass the northern section of the existing trunk. While this approach offers long-term operational benefits, it requires higher upfront investment and potential increased staging and throwaway costs. Offers opportunity to decommission the existing Main Street and Cinderbarke WWPS, which requires careful coordination with the Region's SOGR program to avoid throwaway investments. Also allows some flexibility for maintenance of the existing sewer but less so than Alternative 3.

Climate Change

<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✓ Neutral	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation
<ul style="list-style-type: none"> Reduction in emissions 	✓ Neutral	✓✓ Lower carbon footprint
	<ul style="list-style-type: none"> Provides moderate improvement to resiliency by increasing conveyance capacity and introducing redundancy along the same alignment. The twinned sewer offers an additional pathway for flows during extreme wet weather events. It also allows for operational flexibility, as one pipe can be taken offline for maintenance while the other remains in service. This alternative results in continued emissions associated with the operation and maintenance of both the existing Main Street and Cinderbarke WWPS. Additional emissions are also expected during construction of the new twin sewer through the creek valley. Overall, it does not provide significant opportunities for long-term emissions reduction. 	<ul style="list-style-type: none"> Provides greater resiliency by adding system redundancy at two (2) locations: First through diversion of flows along a new route, and second through a relief pipe from Silver Creek trunk sewer to the new pump station. This strategy also supports long-term resiliency by enabling the decommissioning of the existing Main Street and Cinderbarke WWPS. This alternative offers the potential to reduce long-term operational emissions by decommissioning the existing Main Street and Cinderbarke WWPS and consolidating flows to a single new facility. While there are short-term emissions associated with the construction of new sewers and the new Main Street WWPS, the overall operational footprint may be reduced in the long term through improved energy efficiency and fewer pumping stations.

Integration of Planning for Regional Infrastructure

<ul style="list-style-type: none"> Minimizes approvals/coordination 	✗ Increases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓ Neutral	✓ Neutral

Criteria, Description and Scoring	Alternative 3 Twinning of the existing trunk sewer	Alternative 4 Flow diversion to New Main Street WWPS
	<ul style="list-style-type: none"> Increased approvals and coordination required due to the location of construction within the Silver Creek valley corridor. May require permits related to watercourse crossings, species at risk, and conservation authority oversight. Proposed work is not located along Regional Roads. Does not require coordination with future road or transportation projects, as the work is within an existing easement and outside road ROW. 	<ul style="list-style-type: none"> Increased approvals and coordination required for the construction of a new pump station, forcemain, and associated trunk sewers. Coordination needed with road authorities due to work in the ROW, and multiple regulatory bodies for new infrastructure and potential decommissioning of existing facilities. Proposed work is not located along Regional Roads. May require coordination with local municipal road authorities due to proposed infrastructure within local road ROW.
Technical Innovation		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓✓ Maximizes operational flexibility and security of supply/capacity	✓✓ Maximizes operational flexibility and security of supply/capacity
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓✓ Improves performance	✓ Neutral
<ul style="list-style-type: none"> Supports phased growth 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✓ Neutral	✗ Increases road/utility crossings & conflicts
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✗ More constructability challenges and reduced technical feasibility	✓✓ Reduced constructability challenges and improved technical feasibility
	<ul style="list-style-type: none"> Provides improved operational flexibility by introducing a second, parallel flow path along the same alignment. Gravity-based conveyance provides inherent operational simplicity and passive resiliency with reduced reliance on active system management under varying operating conditions. Supports future growth by increasing conveyance capacity within the existing alignment. Minimal road and utility crossings, as the new sewer will be located mostly within an existing easement. However, due to the proximity of the alignment to the existing trunk sewer it may pose construction and long-term maintenance constraints due to limited working space. Complex construction due to the location of the existing sewer within the Silver Creek valley corridor. Limited access, terrain constraints, and environmental protection requirements can result in challenges during construction and long-term maintenance. The longer length of linear infrastructure required compared to Alternative 4, may increase construction time, cost, and coordination needs. 	<ul style="list-style-type: none"> Enhances overall system security by introducing an alternate conveyance route that bypasses the constrained segment of the Silver Creek Trunk Sewer. Combines gravity-based conveyance with selective use of pumped infrastructure, providing a balanced level of operational flexibility and resiliency under a range of future climate and operating conditions. Supports phased intensification by providing a new conveyance route and expanded capacity in the existing one. Increased road and utility crossings along the proposed alignment within the municipal road ROW. Higher potential for conflicts with existing infrastructure, particularly during construction and staging. Generally, more technically feasible, as it involves standard construction practices along municipal ROWs. <ul style="list-style-type: none"> Proposed Main Street WWPS could be located on Regionally owned land, simplifying land acquisition and permitting. The location of the WWPS will be determine through a subsequent Class EA study. Offers additional benefit of supporting potential future decommissioning of the Cinderbarke WWPS, further reducing long-term operational complexity.
Preferred Strategy	✓ Least Preferred Alternative	✓✓ Most Preferred Alternative

Alternative 4 – Flow diversion to the new Main Street WWPS is identified as the preferred strategy, as it offers a more resilient, flexible, and technically feasible long-term solution for addressing capacity constraints along the Silver Creek Trunk Sewer. By creating a new conveyance route and enabling the decommissioning of the aging Main Street and potentially the Cinderbarke WWPS, this strategy improves system redundancy, reduces community impacts, and supports long-term operational efficiency. Although it involves higher upfront costs and increased coordination during implementation, these are outweighed by the environmental, social, and performance benefits it provides.

4A

Strategy Evaluation Focus Area Servicing Solutions – Drumquin WWPS

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions – Drumquin WWPS

What is the Constraint?

A combination of challenges has prompted the need for a servicing strategy for this area. These challenges/constraints include:

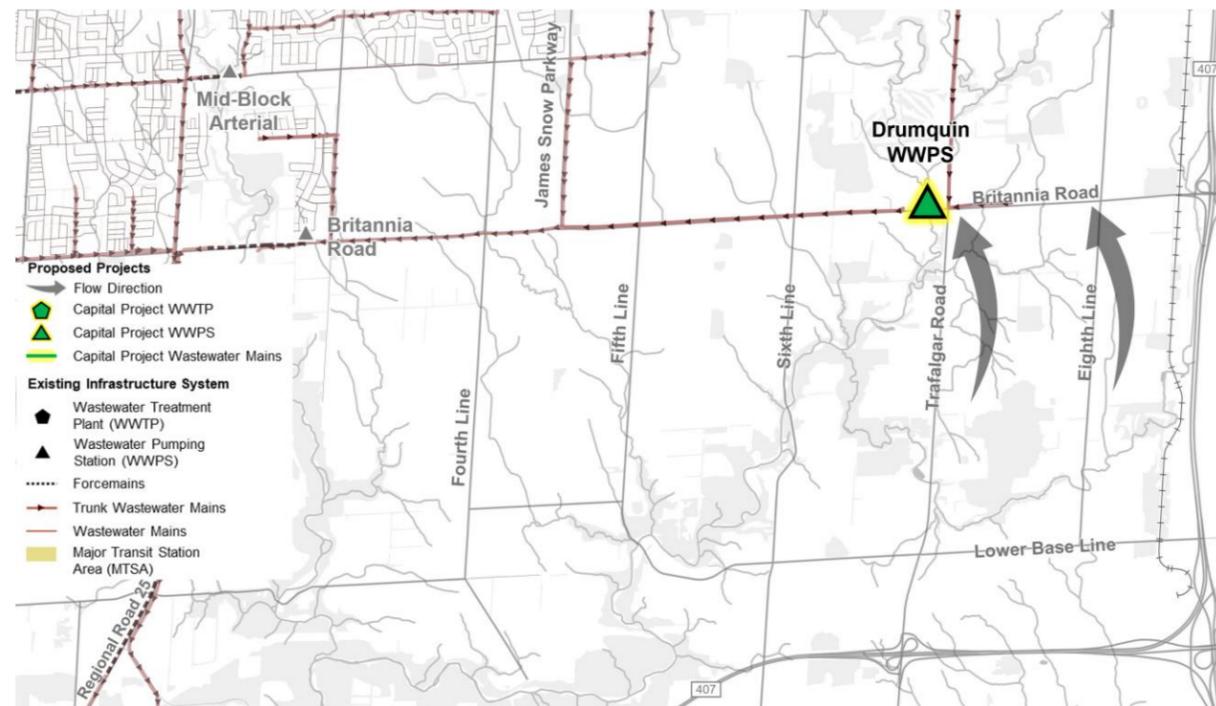
1. Capacity constraints at the Drumquin WWPS under future peak wet weather flow conditions.
2. Extension of servicing required to newly approved greenfield growth areas.

Alternative	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to lack of servicing. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Expand Drumquin WWPS's servicing area further south for future Greenfield growth areas	<ul style="list-style-type: none"> Makes use of a shorter sewer alignment compared to Alternative 4, which reduces linear infrastructure requirements. Alignment includes several environmental crossings that will be tunneled, minimizing direct impacts on aquatic and terrestrial habitats. Integrates with planned road improvements along Trafalgar Road, creating opportunities for coordination during construction. 	<ul style="list-style-type: none"> Requires a larger expansion of the Drumquin WWPS, increasing construction complexity and long-term operating costs. Relies more heavily on pumping, flows are lifted twice before reaching the Mid-Halton WWTP, reducing operational efficiency. Increased reliance on Drumquin WWPS elevates the potential risk of overflows to the environment under emergency or extreme wet weather conditions. Offers less flexibility to support phased growth, since the WWPS expansion and sewer must be implemented early to accommodate new development. 	High	Carried Forward
4. Expand Lower Base Line WWPS's servicing area further east for future Greenfield growth	<ul style="list-style-type: none"> Requires a smaller expansion of the Drumquin WWPS, reducing lifecycle costs at the facility. Relies on gravity conveyance to the Lower Base Line WWPS, meaning flows are pumped only once before reaching Mid-Halton WWTP, improving long-term efficiency. Reduces reliance on Drumquin WWPS, thereby lowering the potential risk of overflows under emergency or extreme operating conditions and improving resiliency under climate change conditions. Supports phased growth by allowing construction of sewer segments to proceed in line with development timing and location. 	<ul style="list-style-type: none"> Requires a longer and deeper sewer alignment than Alternative 3, increasing capital costs and construction complexity. Involves one additional major creek crossing compared to Alternative 3, introducing higher environmental risk despite tunneling methods. Requires property acquisition for an easement connection to Lower Base Line at Fifth Line, adding coordination and approval challenges. 	High	Carried Forward

Focus Area Servicing Solutions – Drumquin WWPS

Alternative 3

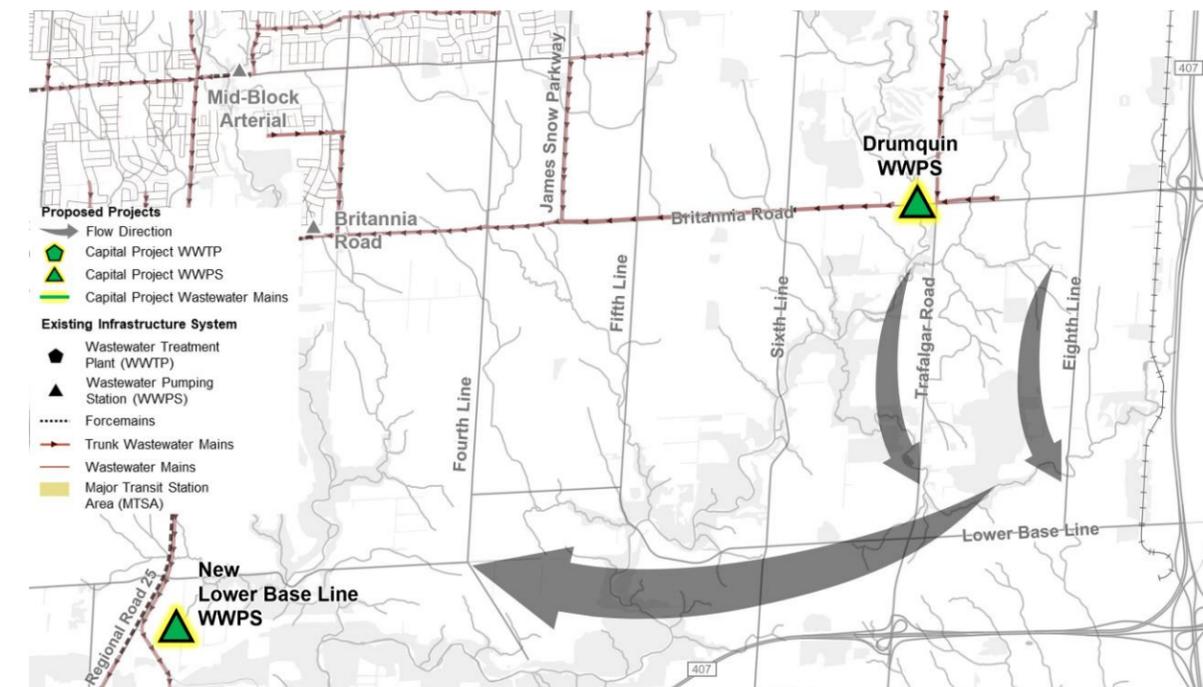
Expand Drumquin WWPS's servicing area further south for future Greenfield growth areas



- Gravity sewer along Eighth Line and Trafalgar Road to service greenfield growth by sending flows northerly to Drumquin WWPS.
- Expansion of Drumquin WWPS.

Alternative 4

Expand Lower Base Line WWPS's servicing area further east for future Greenfield growth



- Gravity sewer along Eighth Line and Trafalgar Road to service greenfield growth by sending flows south-westerly towards Lower Base Line WWPS.
- Smaller expansion of Drumquin WWPS.

Focus Area Servicing Solutions – Drumquin WWPS

Criteria, Description and Scoring	Alternative 3 Expand Drumquin WWPS’s servicing area further south for future Greenfield growth areas	Alternative 4 Expand Lower Base Line WWPS’s servicing area further east for future Greenfield growth
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	<p>✓✓ Improves LOS</p>	<p>✓✓ Improves LOS</p>
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	<p>✓ Neutral</p>	<p>✓ Neutral</p>
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	<p>✓ Neutral</p>	<p>✓ Neutral</p>
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	<p>✓ Neutral</p>	<p>✓ Neutral</p>
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	<p>✗ Increases impact</p>	<p>✗ Increases impact</p>
	<ul style="list-style-type: none"> The potential short- and long-term noise and odour issues are similar for both alternatives and are associated with construction of gravity mains to Drumquin WWPS as well as upgrades and operation of this station. Construction impacts are limited, as most of the new gravity sewer infrastructure will be located within planned greenfield development areas. Some localized disruption will occur along Eighth Line and Trafalgar Road during sewer installation and expansion of the Drumquin WWPS, but impacts to established communities, traffic, and businesses are expected to be minimal and short-term. Both alternatives have similar visual impacts. Both alternatives require construction of linear infrastructure along similar alignments, resulting in comparable levels of disruption for road/utility crossings and conflicts. This alternative also involves a major expansion of the existing Drumquin WWPS, which increases the potential for direct impacts to adjacent properties during construction and ongoing operations. 	<ul style="list-style-type: none"> The potential short- and long-term noise and odour issues are similar in both alternatives and are associated with construction of gravity mains to Lower Base Line WWPS and operation of this station. Construction impacts are limited as most of the new gravity sewer infrastructure will be located within planned greenfield development areas. Some localized disruption will occur along Eighth Line and Trafalgar Road during sewer installation and expansion of the Drumquin WWPS, but impacts to established communities, traffic, and businesses are expected to be minimal and short-term. Both alternative s have similar visual impacts. Both alternatives require construction of linear infrastructure along similar alignments, resulting in comparable levels of disruption for road/utility crossings and conflicts. This alternative involves a smaller expansion of the Drumquin WWPS but requires construction of a longer, deeper gravity sewer to convey flows to the Lower Base Line WWPS, which introduces greater construction complexity and impacts to surrounding properties.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	<p>✗ Increases impact</p>	<p>✗ Increases impact</p>
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	<p>N/A</p>	<p>N/A</p>
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	<p>✓✓ Decreases impact</p>	<p>✓✓ Neutral</p>

Criteria, Description and Scoring	Alternative 3 Expand Drumquin WWPS's servicing area further south for future Greenfield growth areas	Alternative 4 Expand Lower Base Line WWPS's servicing area further east for future Greenfield growth
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Full lifecycle costs 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Staging costs 	✓ Lower staging and throwaway costs	✗ Higher Staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> The alignment includes several environmental crossings; however, these will be constructed using tunneling methods, which minimizes impacts on aquatic and terrestrial habitats. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the facilities and proposed alignments are located within existing ROW and WWPS sites. Utilizes existing and planned infrastructure to convey flows to its final destination at the Mid-Halton WWTP. Both alternatives have similar lifecycle costs, with Alternative 3 having higher long-term operations and maintenance cost associated with higher flows at the Drumquin WWPS. Lower staging costs compared to Alternative 4. There are higher upfront costs associated with expansion of the Drumquin WWPS, but lower cost associated with linear infrastructure. Some opportunity to integrate with SOGR works during expansion of Drumquin WWPS but not elsewhere in the system. 	<ul style="list-style-type: none"> The alignment includes several environmental crossings; however, these will be constructed using tunneling methods, which minimizes impacts on aquatic and terrestrial habitats. This alternative requires one additional major creek crossing compared to Alternative 3. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. Impacts will be determined during the EA stage as a portion of the alignment is located within a proposed easement. Utilizes existing and planned infrastructure to convey flows to its final destination at the Mid-Halton WWTP. Both alternatives have similar lifecycle costs, with this alternative having higher upfront capital cost associated with the construction of the deep sewer to Lower Base Line WWPS. Higher staging cost associated with the construction of the deep sewer to Lower Base Line WWPS. Some opportunity to integrate with SOGR works during expansion of Drumquin WWPS but not elsewhere in the system.
Climate Change		
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Reduction in emissions 	✗ Higher carbon footprint	✓✓ Lower carbon footprint
	<ul style="list-style-type: none"> Provides similar resiliency considerations to Alternative 4, as both ultimately convey flows to the Lower Base Line WWPS. However, this alternative directs a greater proportion of flows to the Drumquin WWPS prior to reaching the Lower Base Line WWPS . Results in higher long-term emissions compared to Alternative 4, as a greater proportion of flows are pumped at the expanded Drumquin WWPS. However, this alternative requires a shorter length of new sewer infrastructure, which reduces emissions associated with construction activities. 	<ul style="list-style-type: none"> Provides similar resiliency considerations to Alternative 3, as both ultimately convey flows to the Lower Base Line WWPS. However, the reliance on a gravity-based conveyance to Lower Base Line WWPS reduces the amount of flows that need to be pumped at the Drumquin WWPS. Results in lower long-term emissions compared to Alternative 3, as a smaller proportion of flows are pumped at the Drumquin WWPS. However, this alternative requires construction of a longer and deeper gravity sewer, leading to higher emissions during the construction phase.
Integration of Planning for Regional Infrastructure		
<ul style="list-style-type: none"> Minimizes approvals/coordination 	✗ Increases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓✓ Increased integration with road/transportation program	✓✓ Increased integration with road/transportation program
	<ul style="list-style-type: none"> Requires a Class EA study to support the major expansion of the Drumquin WWPS. If the required capacity expansion cannot be accommodated within the existing building footprint, additional property at or adjacent to the site may need to be secured, introducing potential coordination requirements. 	<ul style="list-style-type: none"> Requires a Class EA study and acquisition of property for an easement to connect the gravity main along Lower Base Line at Fifth Line to the extension of James Snow Parkway. This introduces additional approvals and coordination requirements compared to Alternative 3.

Criteria, Description and Scoring	Alternative 3 Expand Drumquin WWPS's servicing area further south for future Greenfield growth areas	Alternative 4 Expand Lower Base Line WWPS's servicing area further east for future Greenfield growth
	<ul style="list-style-type: none"> Offers the opportunity to coordinate the construction of the gravity sewer along Trafalgar Road with planned road widening projects, helping to minimize overall disruption and align schedules. 	<ul style="list-style-type: none"> Offers the opportunity to coordinate the construction of the gravity sewer along Trafalgar Road with planned road widening projects, helping to minimize overall disruption and align schedules.
Technical Innovation		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓ Neutral	✓✓ Maximizes operational flexibility and security of supply/capacity
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓✓ Improves performance	✓✓ Improves performance
<ul style="list-style-type: none"> Supports phased growth 	✓ Neutral	✓✓ Supports phased growth
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Relies on pumping a greater proportion of flows through Drumquin WWPS, which results in flows being pumped twice before reaching the Mid-Halton WWTP. This increases reliance on pumping infrastructure which reduces operational flexibility. Both alternatives improve system performance through the expansion of Drumquin WWPS capacity, while relying on pumped conveyance and coordinated system operation to maintain performance during emergency conditions and construction activities. Provides less flexibility to phase infrastructure as the Drumquin expansion would need to be in place to support additional growth areas to the south of Britannia Road. Requires fewer crossings than Alternative 4. The alignment is primarily located within existing ROW which may increase the likelihood of conflicts with other utilities and minimizing proximity issues with existing infrastructure. Technically feasible; however, requires a larger expansion at the Drumquin WWPS, which may introduce constructability challenges related to available space, staging, and utility coordination at an active facility. Additional complexity arises from managing construction impacts at the WWPS site alongside the required linear works. 	<ul style="list-style-type: none"> Relies on a gravity sewer to convey flows directly to the Lower Base Line WWPS, avoiding additional pumping at Drumquin WWPS. This means flows are only pumped once before reaching the Mid-Halton WWTP, improving operational resiliency and reducing dependency on multiple pumping facilities. Both alternatives improve system performance through the expansion of Drumquin WWPS capacity, while relying on pumped conveyance and coordinated system operation to maintain performance during emergency conditions and construction activities. However, this alternative requires a smaller Drumquin WWPs expansion. Supports phased intensification growth by enabling construction of sewer segments in line with the timing and location of development. This allows more flexibility to stage capital investments in coordination with planned growth. Requires more crossings than Alternative 3. While the alignment generally follows existing ROW, a portion is located within a proposed future easement, which introduces additional coordination requirements and increases complexity. Technically feasible; relies primarily on construction of a new deep gravity sewer to convey flows to the Lower Base Line WWPS, independent of expansion at Drumquin WWPS. While the longer and deeper sewer presents constructability considerations, it reduces operational complexity by reducing the number of times the flow is pumped before reaching the Mid-Halton WWTP. Additionally, the gravity-based conveyance is generally self-operating, thereby reducing potential operational challenges during emergency or extreme wet weather conditions. The alignment generally follows new development areas, which improves feasibility and reduces conflict with existing infrastructure.

Criteria, Description and Scoring	Alternative 3 Expand Drumquin WWPS’s servicing area further south for future Greenfield growth areas	Alternative 4 Expand Lower Base Line WWPS’s servicing area further east for future Greenfield growth
Preferred Strategy	✓ Least Preferred Alternative	✓✓ Most Preferred Alternative

Alternative 4 — Expand Lower Base Line WWPS’s servicing area further east for future Greenfield growth is identified as the preferred strategy. While it requires a longer and deeper sewer with higher upfront capital and staging costs, it delivers greater long-term system resiliency, reduces reliance on the Drumquin WWPS, and minimizes potential operational challenges under climate change and emergency conditions. Alternative 4 also supports phased growth, integrates well with the broader servicing strategy for the Lower Base Line WWPS, and optimizes pumping efficiency by reducing the number of pumping stages required before flows reach the Mid-Halton WWTP. Overall, this alternative balances technical feasibility, environmental considerations, and operational flexibility, making it the most sustainable and resilient long-term solution for the Drumquin focus area.

4A

Strategy Evaluation Focus Area Servicing Solutions – Tremaine Road Trunk Sewer and WWPS

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions –Tremaine Road Trunk Sewer and WWPS

What is the Constraint?

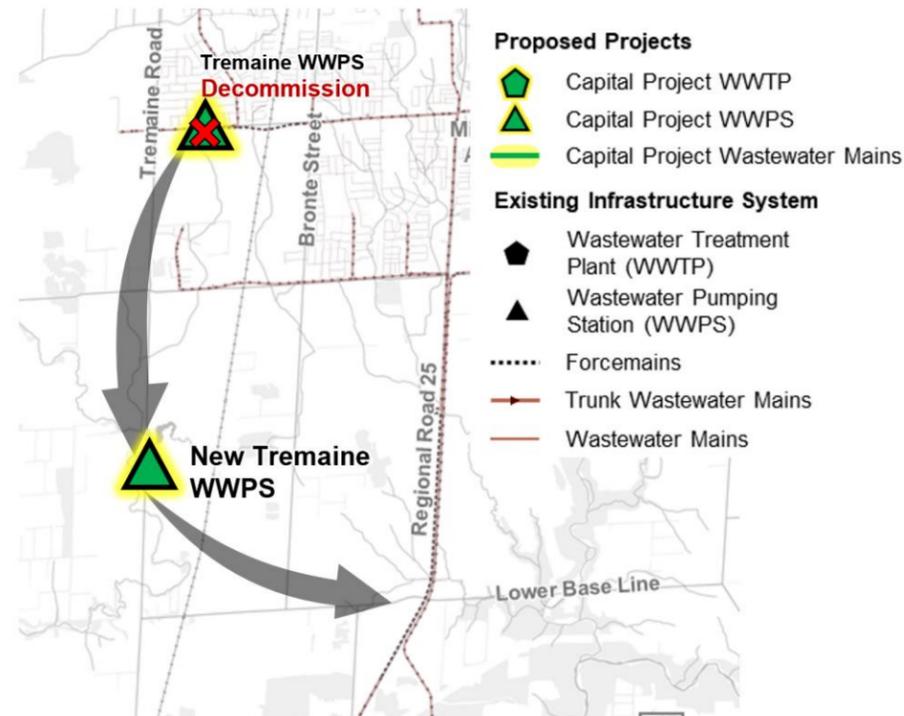
A servicing solution required for Greenfield growth along Tremaine Road. Challenges include:

1. No wastewater infrastructure currently in place to service greenfield growth along Tremaine Road.
2. Potential capacity constraints at the existing Tremaine Road WWPS under future peak wet weather flow conditions.

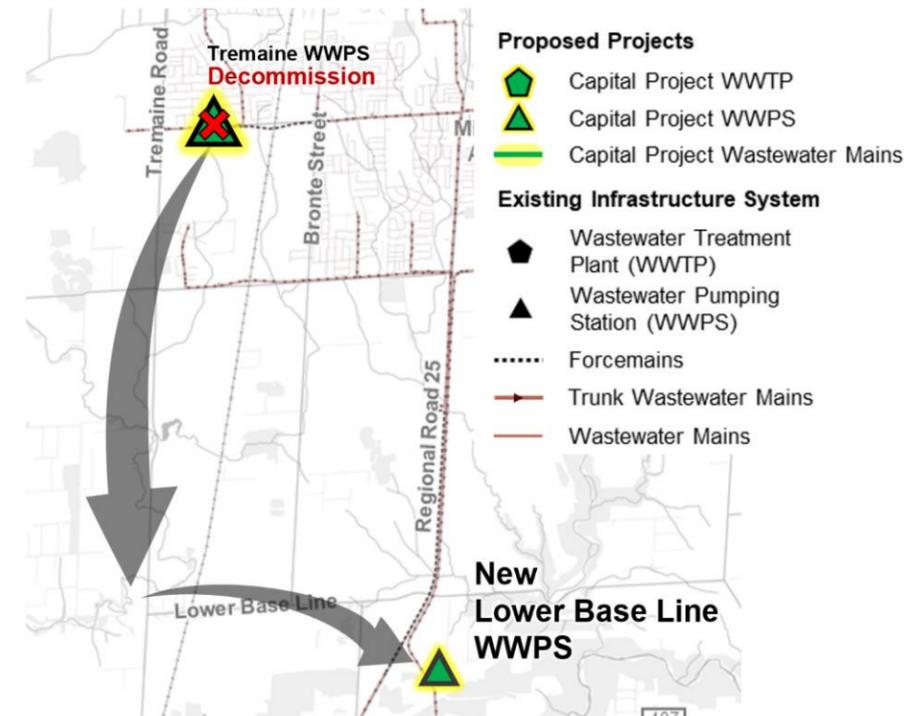
Alternative	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to lack of servicing. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. New WWPS on Tremaine Road and gravity sewer to the Boyne trunk sewer	<ul style="list-style-type: none"> Provides servicing to the new growth area without impacting existing users. Construction primarily within new growth or rural areas, minimizing long-term impacts to residents and businesses. Technically feasible alternative that can be implemented with standard WWPS design and construction practices. Opportunity to coordinate construction with future Tremaine Road widening projects. 	<ul style="list-style-type: none"> Potential increases in short and long-term noise, odour, and visual impacts from the construction and ongoing operation of a new pumping station. Higher lifecycle costs associated with operation and maintenance of a new WWPS. Requires Class EA, property acquisition, facility approvals, and extensive coordination - increasing approval and implementation requirements. Introduces ongoing vulnerability to mechanical and power-related failures, reducing resiliency compared to a gravity-only solution. 	Medium	Carried Forward
4. Deep gravity sewer to the new Lower Base Line WWPS	<ul style="list-style-type: none"> Provides servicing to the new growth area without impact to existing users. Gravity-only solution avoids noise, odour, and visual impacts associated with a new WWPS. Improves long-term efficiency of system operations by consolidating flows at a regional facility (Lower Base Line WWPS), which has planned capacity to accommodate future growth and improves overall system resiliency. Reduces future operational risks by minimizing the number of pumping stations in the system, as well as lowering the overall exposure to potential failures, power outages, and high operation and maintenance costs. 	<ul style="list-style-type: none"> Requires construction of a deep gravity sewer, leading to higher capital costs and more complex tunnelling compared to shallower sewer and forcemain options. Construction of the deep sewer may require a feasibility study to confirm constructability and cost-effectiveness. 	High	Carried Forward

Focus Area Servicing Solutions –Tremaine Road Trunk Sewer

Alternative 3 New WWPS on Tremaine Road and gravity sewer to the Boyne trunk sewer	Alternative 4 Deep gravity sewer to the new Lower Base Line WWPS
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- Construction of gravity sewer along Tremaine Road to a new pumping station.
- Construction of a new pumping station on Tremaine Road and forcemain along Lower Base Line.
- Shallow gravity sewer along Lower Base Line from the forcemain to the trunk sewer on Regional Road 25 (Boyne trunk sewer).



- Deep Gravity sewer on Tremaine Road and Lower Base Line to the new Lower Base Line WWPS.

Focus Area Servicing Solutions – Tremaine Road Trunk Sewer

Criteria, Description and Scoring	Alternative 3 New WWPS on Tremaine Road and gravity sewer to the Boyne trunk sewer	Alternative 4 Deep gravity sewer to the new Lower Base Line WWPS
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Provides extension of servicing for new growth without impact to existing users. 	<ul style="list-style-type: none"> Provides extension of servicing for new growth without impact to existing users.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	✗ Increases impact	✓ Neutral
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	✗ Increases visual impact	✓ Neutral
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Increased potential short and long-term noise and odour impacts due to both the construction and ongoing operation of a new pumping station. Construction will occur along Tremaine Road and Lower Base Line within planned growth or rural areas, where impacts to existing residents and businesses are minimal. Temporary traffic disruptions will still occur while working within the road right-of-way. Increased visual impacts associated with the addition of a new WWPS. Visual aesthetics of the building may be improved through the design of the building. Both alternatives will have the same road and utility conflicts. 	<ul style="list-style-type: none"> Potentially reduced long-term noise and odour impacts with a gravity-only solution, as impacts are limited to construction activities. Construction will occur along Tremaine Road and Lower Base Line within planned growth or rural areas, where impacts to existing residents and businesses are minimal. Temporary traffic disruptions will still occur while working within the road right-of-way. Minimal visual impacts with a gravity-only solution, as infrastructure will be located underground. Both alternatives will have the same road and utility conflicts.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	✗ Increases impact	✓✓ Decreases impact
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	N/A	N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	✓ Neutral	✓✓ Decreases impact
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Full lifecycle costs 	✗ Higher lifecycle cost	✗ Higher lifecycle cost
<ul style="list-style-type: none"> Staging costs 	✓ Lower staging and throwaway costs	✗ Higher staging and throwaway costs

Criteria, Description and Scoring	Alternative 3 New WWPS on Tremaine Road and gravity sewer to the Boyne trunk sewer	Alternative 4 Deep gravity sewer to the new Lower Base Line WWPS
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	<p style="text-align: center;">✓ Neutral</p>	<p style="text-align: center;">✓ Neutral</p>
	<ul style="list-style-type: none"> Includes several environmental crossings; however, these would be completed via tunnelling, resulting in minimal disturbance. The addition of a new WWPS introduces risk of a potential overflow to the environment under emergency conditions. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. Potential for impacts would be dependent on the selected WWPS site. Requires construction of a new WWPS and associated gravity sewer to service the growth area. Higher full lifecycle costs relating to continuous operation and maintenance of the facility even though upfront construction costs such as land acquisition and construction may be lower than Alternative 4. Staging costs due to the construction of a new WWPS and associated infrastructure. Costs are concentrated at a single stage but include significant site work and commissioning of a new WWPS. No throwaway costs are anticipated. Construction is located mainly within new growth areas where no existing infrastructure is present, resulting in minimal for coordination with the SOGR program. 	<ul style="list-style-type: none"> Includes several environmental crossings; however, these would be completed via tunnelling, resulting in minimal disturbance. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, limited to no impacts on archeological and cultural heritage sites are expected as the alignment will be located within existing ROW. Requires construction of a new gravity trunk sewer to service the growth area. Lower operation and maintenance cost by avoiding the construction of a new WWPS. However, this alternative requires a deep gravity sewer to convey flows to the Lower Base Line WWPS, which may increase construction complexity and capital costs compared to a WWPS, shallower gravity sewer and forcemain. Higher staging costs relating to tunneling a deep trunk sewer. Construction costs for tunneling requirements may still lead to a higher up-front investment compared to a shallower gravity sewer and forcemain. No throwaway costs are anticipated. Construction is located mainly within new growth areas where no existing infrastructure is present, resulting in minimal coordination with the SOGR program.
Climate Change		
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	<p style="text-align: center;">✓ Neutral</p>	<p style="text-align: center;">✓ Neutral</p>
<ul style="list-style-type: none"> Reduction in emissions 	<p style="text-align: center;">✗ High carbon footprint</p>	<p style="text-align: center;">✗ High carbon footprint</p>
	<ul style="list-style-type: none"> Introduces a new WWPS that can be designed to current standards, including climate-responsive features and operational safeguards. System performance during emergency and extreme operating conditions relies on pumped conveyance and coordinated system operation, requiring a higher degree of active management compared to gravity-only solutions. Increased emissions from both the construction and ongoing operation of a new WWPS, including energy use for pumping over the long term. 	<ul style="list-style-type: none"> Emphasizes gravity-based conveyance upstream of the Lower Base Line WWPS, supporting passive system performance and reduced reliance on active system intervention during emergency conditions. Ultimate system performance remains dependent on the operation of Lower Baseline WWPS under emergency and extreme operating events. Although this alternative avoids emissions associated with new WWPS, the emissions from Lower Base Line WWPS will be increased due to the increased flows. Additionally, construction of the deep gravity sewer would result in significant short-term emissions from extensive tunnelling and shaft works.
Integration of Planning for Regional Infrastructure		
<ul style="list-style-type: none"> Minimizes approvals/coordination 	<p style="text-align: center;">✗ Increases approval/coordination needs</p>	<p style="text-align: center;">✗ Increases approval/coordination needs</p>
<ul style="list-style-type: none"> Integrates with road/transportation projects 	<p style="text-align: center;">✓ Neutral</p>	<p style="text-align: center;">✓ Neutral</p>
	<ul style="list-style-type: none"> Requires a Class EA study, property acquisition, facility approvals, and coordination for the new WWPS, as well as linear connections to the system. Both alternatives provide an opportunity to coordinate with future Tremaine Road widening project. 	<ul style="list-style-type: none"> May require a feasibility study, coordination and approvals to make sure the depth of the proposed sewer is not cost prohibited and is constructible. Both alternatives provide an opportunity to coordinate with future Tremaine Road widening project.

Criteria, Description and Scoring	Alternative 3 New WWPS on Tremaine Road and gravity sewer to the Boyne trunk sewer	Alternative 4 Deep gravity sewer to the new Lower Base Line WWPS
Supports phased growth		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓ Maintains performance	✓ Maintains performance
<ul style="list-style-type: none"> Supports phased growth 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✓✓ Reduced constructability challenges and improved technical feasibility	✓✓ Reduced constructability challenges and improved technical feasibility
	<ul style="list-style-type: none"> Both alternatives provide limited operational flexibility as reliance is on a single flow route. Performance under emergency conditions is dependent on the continuous operation of the new WWPS, which can increase operational coordination required during power outages or extreme peak wet weather events. Both alternatives support phased growth, but the timeline is dependent on the commissioning of the new WWPS. Construction is on the same alignment as Alternative 4, resulting in similar road and utility crossings. Most works are located within new growth areas with minimal existing infrastructure, reducing the potential for conflicts. Technically feasible alternative: however, a Class EA will be required to determine the location of the new WWPS. Construction and long-term maintenance of the station will require additional planning and coordination. 	<ul style="list-style-type: none"> Both alternatives provide limited operational flexibility as reliance is on a single flow route. Performance under emergency conditions is dependent on the continuous operation of the Lower Base Line WWPS, which can increase operational coordination required during power outages or extreme peak wet weather events. Both alternatives support phased growth, but the timeline is dependent on the commissioning of the Lower Base Line WWPS. Construction is on the same alignment as Alternative 3, resulting in similar road and utility crossings. Most works are located within new growth areas with minimal existing infrastructure, reducing the potential for conflicts. Technically feasible alternative: however, a feasibility study may be required to confirm constructability of the deep sewer and ensure the capital cost is not prohibitive. Construction of the deep gravity sewer will be more complex than the linear infrastructure of Alternative 3 but avoids the introduction of a new WWPS and maximizes efficiencies by sending flows to the new Lower Base Line WWPS instead.
Preferred Strategy	✓ Least Preferred Alternative	✓✓ Most Preferred Alternative

Alternative 4 – Deep gravity sewer to the new Lower Base Line WWPS is identified as the preferred servicing solution, as it avoids the need for a new WWPS, thereby reducing long-term operational and maintenance requirements while maintaining system reliability. Although this strategy requires the construction of a deep gravity sewer, which presents higher capital costs and potential constructability challenges, it provides a gravity-based solution that eliminates potential operational challenges associated with operating a pumping station under emergency or extreme operational conditions. The alignment is located primarily within new growth areas, limiting impacts to existing residents and businesses, and the infrastructure can be phased to align with planned development. This approach supports long-term servicing needs while offering operational resiliency and reducing lifecycle costs compared to a new pumping station.

4A

Strategy Evaluation Focus Area Servicing Solutions – Mid-Block Arterial WWPS

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions – Mid-Block Arterial WWPS

What is the Constraint?

There are existing system constraints which are worsened under future growth scenarios. These challenges/constraints include:

1. Pumping station with capacity constraints under existing and future peak wet weather flow conditions.
2. Growth and more frequent and intense rainfall events in these areas are expected to exacerbate current capacity constraints.

Alternatives	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades	<ul style="list-style-type: none"> Reduces the extent of capital upgrades required in the system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Expand Mid-Block Arterial WWPS	<ul style="list-style-type: none"> No new linear infrastructure, avoiding road and utility conflicts. Minimal environmental impacts, as work is confined to the station site. Lower construction disruption to surrounding areas compared to alternatives with long sewer alignments. 	<ul style="list-style-type: none"> Limited land availability for expansion may make the alternative infeasible. Higher operational dependency on a single facility, reducing redundancy. Does not provide an alternate flow route for improved system flexibility. 	Medium	Carried Forward
4. Divert excess flows to Lower Base Line WWPS	<ul style="list-style-type: none"> Creates an alternate flow route, adding redundancy and operational flexibility. Avoids major upgrades at Mid-Block Arterial WWPS. Potential to integrate works with new development areas in the south, reducing local disruption. Maintains minimal environmental impacts through tunneled watercourse construction. 	<ul style="list-style-type: none"> Deep trunk sewer with higher construction complexity and cost. Greater length of linear works increases road and utility conflicts. Introduces reliance on an interconnection between two existing pumping stations, requiring coordinated operation and monitoring. Longer construction period and higher staging costs compared to Alternative 5. 	Medium	Carried Forward
5. Divert excess flows to Britannia Road WWPS	<ul style="list-style-type: none"> Optimizes use of both Mid-Block Arterial and Britannia Road WWPS, avoiding major capacity upgrades at either site. Shorter, shallower sewer reduces construction cost, complexity, and staging requirements. Work largely within existing ROW, reducing approvals and coordination required. Adds an alternate flow route for redundancy and improved operational flexibility. 	<ul style="list-style-type: none"> Requires new linear infrastructure, resulting in construction-related disruption to local roads and adjacent properties. Introduces reliance on an interconnection between two existing pumping stations, requiring coordinated operation and monitoring. 	High	Carried Forward

Focus Area Servicing Solutions – Mid-Block Arterial WWPS

<p style="text-align: center;">Alternative 3 Expand Mid-Block Arterial WWPS</p>	<p style="text-align: center;">Alternative 4 Divert excess flows to Lower Base Line WWPS</p>	<p style="text-align: center;">Alternative 5 Divert excess flows to Britannia Road WWPS</p>
<div data-bbox="264 514 1056 977"> <p>Proposed Projects</p> <ul style="list-style-type: none"> Flow Direction Capital Project WWTP Capital Project WWPS Capital Project Wastewater Mains <p>Existing Infrastructure System</p> <ul style="list-style-type: none"> Wastewater Treatment Plant (WWTP) Wastewater Pumping Station (WWPS) Forcemains Trunk Wastewater Mains Wastewater Mains <p style="font-size: 24pt; font-weight: bold;">Alternative 3</p> </div> <ul style="list-style-type: none"> Expansion at Mid-Block Arterial WWPS. 	<div data-bbox="1227 514 2020 977"> <p>Proposed Projects</p> <ul style="list-style-type: none"> Flow Direction Capital Project WWTP Capital Project WWPS Capital Project Wastewater Mains <p>Existing Infrastructure System</p> <ul style="list-style-type: none"> Wastewater Treatment Plant (WWTP) Wastewater Pumping Station (WWPS) Forcemains Trunk Wastewater Mains Wastewater Mains <p style="font-size: 24pt; font-weight: bold;">Alternative 4</p> </div> <ul style="list-style-type: none"> Construction of a diversion chamber at Thompson Road South and Hepburn Road. Construction of a new gravity sewer along Thompson Road South to the new gravity trunk sewer south of Britannia Road. 	<div data-bbox="2128 514 2890 977"> <p>Proposed Projects</p> <ul style="list-style-type: none"> Flow Direction Capital Project WWTP Capital Project WWPS Capital Project Wastewater Mains <p>Existing Infrastructure System</p> <ul style="list-style-type: none"> Wastewater Treatment Plant (WWTP) Wastewater Pumping Station (WWPS) Forcemains Trunk Wastewater Mains Wastewater Mains <p style="font-size: 24pt; font-weight: bold;">Alternative 5</p> </div> <ul style="list-style-type: none"> Construction of diversion chamber at Thompson Road South and Hepburn Road. Construction of a new gravity sewer along Thompson Road South to the existing gravity sewer on Britannia Road.

Focus Area Servicing Solutions – Mid-Block Arterial WWPS

Criteria, Description and Scoring	Alternative 3 Expand Mid-Block Arterial WWPS	Alternative 4 Divert excess flows to Lower Base Line WWPS	Alternative 5 Divert excess flows to Britannia Road WWPS
Equitable Infrastructure Services			
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	✓✓ Improves LOS	✓✓ Improves LOS	✓✓ Improves LOS
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities			
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	✓ Neutral	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	✓✓ Decreases impact	✗ Increases impact	✗ Increases impact
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	✓ Neutral	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts	✓ Neutral
	<ul style="list-style-type: none"> All three alternatives will have potential long-term noise and odour impacts associated with operating pumping stations. Construction may introduce minimal short-term issues that will be limited to the Mid-Block Arterial WWPS. Minimal construction disruption, as upgrades are confined to the existing WWPS site with no associated linear infrastructure. Impacts are localized and short-term. Visual impacts remain similar to current conditions. This may be worsened if upgrades trigger an expansion of the building footprint. No utility conflicts or road crossings, as construction is limited to the existing WWPS. 	<ul style="list-style-type: none"> All three alternatives will have potential long-term noise and odour issues associated with operating pumping stations. Minimal short-term issues associated with construction of linear infrastructure to Lower Base Line WWPS. Longest extent of linear upgrades among the alternatives, with greater potential for traffic disruption and impacts along Thompson Road. The southern portion of the proposed sewer to the Lower Base Line WWPS is located within a new development area, which limits impacts to existing users. Visual impacts remain similar to current conditions, as no expansion of the existing WWPS footprint is required. Longer sewer alignment increases potential for road and utility conflicts, though most construction is within existing and planned ROW, minimizing property impacts. 	<ul style="list-style-type: none"> All three alternatives will have potential long-term noise and odour issues associated with operating pumping stations. Minimal short-term issues associated with construction of linear infrastructure to Britannia Road WWPS. Moderate construction disruption from a shorter length of diversion sewer compared to Alternative 4. Impacts are more localized but still require traffic coordination and result in temporary disruptions along Thompson Road and connection to Britannia Road WWPS. Visual impacts remain similar to current conditions as no expansion of the existing WWPS footprint is required. Shorter sewer alignment reduces potential for road and utility conflicts compared to Alternative 4, though most construction is within existing ROW, minimizing property impacts.
Sustainability			
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	✓ Neutral	✓ Neutral	✓ Neutral

Criteria, Description and Scoring	Alternative 3 Expand Mid-Block Arterial WWPS	Alternative 4 Divert excess flows to Lower Base Line WWPS	Alternative 5 Divert excess flows to Britannia Road WWPS
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	N/A	N/A	N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	✓ Neutral	✓ Neutral	✓ Neutral
<ul style="list-style-type: none"> Maximizes existing infrastructure 	✓ Neutral	✓✓ Maximizes capacity of existing infrastructure	✓✓ Maximizes capacity of existing infrastructure
<ul style="list-style-type: none"> Full lifecycle costs 	✗ Higher lifecycle cost	✓✓ Lower lifecycle cost	✓✓ Lower lifecycle cost
<ul style="list-style-type: none"> Staging costs 	✓ Lower Staging and throwaway costs	✗ Higher staging and throwaway costs	✓ Lower Staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓✓ Higher level of coordination with SOGR program	✗ Lower level of coordination with SOGR program	✗ Lower level of coordination with SOGR program
	<ul style="list-style-type: none"> No environmental crossings or impacts, as construction activities are confined to the existing Mid-Block Arterial WWPS site. Remaining potential effects are limited to the ongoing operation of the existing WWPS. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, impacts are expected to be limited, as the construction is located within existing WWPS site. Maximizes the capacity of the existing Mid-Block Arterial WWPS through expansion. Continues to use existing conveyance infrastructure but requires upgrades to the station to meet future demands. Lifecycle costs are moderate, with capital costs driven by the capacity upgrade at the existing Mid-Block Arterial WWPS. Avoids major new linear infrastructure. Moderate staging costs, as construction is limited to expansion at the existing Mid-Block Arterial WWPS site. Avoids extensive linear works, reducing interim costs during phased implementation. Upgrading the existing Mid-Block Arterial WWPS could be aligned with SOGR work at the site, but the scale of the capacity expansion would likely require more extensive coordination with other rehabilitation activities. 	<ul style="list-style-type: none"> Includes several environmental crossings; however, these would be completed via tunneling, resulting in minimal disturbance. Ongoing potential effects are limited to the operation of the existing WWPS. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, limited to no impacts on archeological and cultural heritage sites are expected, as the alignment will be located within existing ROW. Relies on construction of new conveyance infrastructure to divert excess flows to the Lower Base Line WWPS, reducing dependence on the Mid-Block Arterial WWPS. Lower lifecycle costs compared to Alternative 3, however higher construction costs compared to Alternative 4, as it requires a longer and deeper sewer to Lower Base Line WWPS. Higher staging costs due to the complexity of constructing a new deep tunnelled sewer to Lower Base Line WWPS. Construction must be carefully staged to coordinate tunnelling, shaft installation, and WWPS connection. The diversion to Lower Base Line WWPS avoids major upgrades at Mid-Block Arterial, but the new deep sewer infrastructure is separate from existing SOGR priorities. 	<ul style="list-style-type: none"> Includes several environmental crossings; however, these would be completed via tunneling, resulting in minimal disturbance. Ongoing potential effects are limited to the operation of the existing WWPS. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, limited to no impacts on archeological and cultural heritage sites are expected, as the alignment will be located within existing ROW. Maximizes use of both the Mid-Block Arterial and Britannia Road WWPS without requiring capacity expansion at either facility, optimizing existing pumping infrastructure and avoiding major upgrades. Lower lifecycle costs, as it requires a shorter and shallower sewer to Britannia Road WWPS while avoiding expansion at Mid-Block Arterial WWPS. Moderate staging costs as the sewer to Britannia Road WWPS will be shorter and shallower. The sewer can be built with less complex phasing and minimal disruption compared to deep tunnelling. Uses existing capacity at both Mid-Block Arterial and Britannia Road WWPS without upgrades at either site, meaning minimal overlap with SOGR activities and fewer opportunities for combined work.
Climate Change			
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✗ Strategy elements do not provide improved resiliency for Climate Change adaptation	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation
<ul style="list-style-type: none"> Reduction in emissions 	✗ High carbon footprint	✗ High carbon footprint	✗ High carbon footprint

Criteria, Description and Scoring	Alternative 3 Expand Mid-Block Arterial WWPS	Alternative 4 Divert excess flows to Lower Base Line WWPS	Alternative 5 Divert excess flows to Britannia Road WWPS
	<ul style="list-style-type: none"> Expands the existing Mid-Block Arterial WWPS which increases resiliency. However, operational flexibility remains the same because of reliance on the pumping infrastructure to convey the flows. Potential operational challenges during emergency or extreme weather events. This alternative does not add additional redundancy in the conveyance network. Emissions are primarily associated with construction activities at the Mid-Block Arterial WWPS. Avoids emissions from extensive linear construction, but the overall pumping requirements remain the same as other alternatives. 	<ul style="list-style-type: none"> Diverts flows to Lower Base Line WWPS reducing demand on Mid-Block Arterial WWPS, providing an alternative flow path which increases operational flexibility and conveyance redundancy. Although potential operational coordination at the WWPS may be required during emergency or extreme operational conditions, any potential operational risk is distributed across two facilities rather than concentrating it at the Mid-Block Arterial WWPS. Emissions result from both the construction of a deep, long gravity sewer and continued pumping at the Lower Base Line WWPS. Linear construction has greater material and energy use compared to Alternative 3. 	<ul style="list-style-type: none"> Diverts flows to Britannia Road WWPS, reducing demand on Mid-Block Arterial WWPS, providing an alternative flow path which increases operational flexibility and conveyance redundancy. Although potential operational coordination at the WWPS may be required during emergency or extreme operational conditions, any potential operational risk is distributed across two facilities rather than concentrating it at the Mid-Block Arterial WWPS. Emissions result from construction of a shorter, shallower gravity sewer to Britannia Road WWPS and ongoing pumping at both Mid-Block Arterial and Britannia Road WWPS. Construction-related emissions are less than Alternative 4 but greater than Alternative 3 due to the presence of linear works.

Integration of Planning for Regional Infrastructure

<ul style="list-style-type: none"> Minimizes approvals/coordination 	✘ Increases approval/coordination needs	✘ Increases approval/coordination needs	✓✓ Decreases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✘ Decreased integrated with road/transportation program	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> Requires standard approvals for expansion of the existing Mid-Block Arterial WWPS. However, available space for expansion is limited. If the required capacity upgrade cannot be accommodated within the existing building footprint, additional property, site modifications, and associated approvals will be needed, resulting in higher coordination requirements. Construction is confined to the existing Mid-Block Arterial WWPS site and does not overlap with major Region-led Road or transportation projects. Minimal opportunity for integration, aside from standard coordination with the Town of Milton for any localized site access or road impacts. 	<ul style="list-style-type: none"> Requires approvals and coordination for the construction of a new deep sewer along a greenfield/development corridor to the Lower Base Line WWPS. The proposed sewer to the Lower Base Line WWPS generally follows planned greenfield/development corridors. This alignment offers some potential for integration with planned local road works in new growth areas, though most coordination will be with developers and the Town of Milton. 	<ul style="list-style-type: none"> Requires approvals and coordination for a shorter gravity sewer to Britannia Road WWPS. The work will be along an existing ROW, so required approvals are expected to be minimal or standard compared to the other alternatives. The shorter sewer to Britannia Road WWPS follows an existing ROW. There could be some potential to coordinate with planned municipal road rehabilitation or utility works along this corridor if required, but no direct integration with major Region-led Road projects.

Technical Innovation

<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✘ Reduces operational flexibility and security of supply/capacity	✓✓ Maximizes operational flexibility and security of supply/capacity	✓✓ Maximizes operational flexibility and security of supply/capacity
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire 	✓ Neutral	✓✓ Improves Performance	✓✓ Improves Performance

Criteria, Description and Scoring	Alternative 3 Expand Mid-Block Arterial WWPS	Alternative 4 Divert excess flows to Lower Base Line WWPS	Alternative 5 Divert excess flows to Britannia Road WWPS
emergencies) or during construction			
• Supports phased growth	✓✓ Supports phased growth	✓ Neutral	✓✓ Supports phased growth
• Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure	✓✓ Minimizes road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts
• Considers constructability and technical feasibility to build and maintain infrastructure	✗ More constructability challenges and reduced technical feasibility	✗ More constructability challenges and reduced technical feasibility	✓✓ Reduced constructability challenges and improved technical feasibility
	<ul style="list-style-type: none"> Expands capacity at the existing Mid-Block Arterial WWPS, improving reliability at a single location. However, overall system redundancy remains limited as reliance is on the station with no flow diversion proposed in the system. Improves system performance by expanding Mid-Block Arterial WWPS capacity but relies on a single facility. There is potential for increased operational challenges during emergency or extreme operational conditions. Minimal disruption during implementation as work is confined to the site. Supports phased growth by providing additional capacity at the station that can be aligned with rate of development. Minimal potential for road or utility conflicts, as construction is limited to the WWPS site. No new sewer alignments are required. Technically feasible; however, limited land availability at the Mid-Block Arterial WWPS site creates challenges for expansion. If additional property cannot be acquired, the feasibility of this alternative is significantly reduced. 	<ul style="list-style-type: none"> Increases operational flexibility and security by providing an alternate flow route, enhancing the system's overall redundancy. Improves system performance by creating an alternate flow route to Lower Base Line WWPS, reducing sole reliance on Mid-Block Arterial WWPS and enhancing redundancy during emergencies. Construction impacts will be greater due to the required linear work. Moderately supports phased growth by providing diversion of flows that can be aligned with rate of development. Implementation timeline relies on construction of the sewers south of Britannia Road and Lower Base Line WWPS. Requires a long gravity sewer with multiple road and utility crossings. The alignment generally follows existing and future ROW, which helps manage conflicts, but there is still higher potential for disruptions due to the length of construction. Technically feasible but requires construction of a deeper sewer and increased diameter trunk sewer along Thompson Rd to the Lower Base Line WWPS, increasing complexity and cost compared to shallower installations. 	<ul style="list-style-type: none"> Increases operational flexibility and security by providing an alternate flow route, enhancing the system's overall redundancy. Improves system performance by creating an alternate flow route to Britannia Road WWPS, reducing sole reliance on Mid-Block Arterial WWPS and enhancing redundancy during emergencies. Construction impacts will be greater due to the required linear work. Supports phased growth by providing diversion of flows that can be aligned with rate of development. Requires a shorter sewer to Britannia Road WWPS with fewer crossings and conflicts than Alternative 4. Alignment is along existing ROW, further reducing the likelihood of significant conflicts. Technically feasible with a shorter, shallower sewer to Britannia Road WWPS. Construction is more straightforward compared to Alternative 4 and avoids the significant site constraints of Alternative 3.
Preferred Strategy	✓ Least Preferred Alternative	✓ Least Preferred Alternative	✓✓ Most Preferred Alternative

Alternative 5 — diverting excess flows to the Britannia Road WWPS is the preferred strategy, as it optimizes the use of existing capacity at both the Mid-Block Arterial and Britannia Road facilities, avoiding the need for capacity upgrades at either site. It offers lower lifecycle and staging costs compared to the other alternatives, with a shorter and shallower sewer alignment that reduces construction complexity, minimizes road and utility conflicts, and limits disruption to surrounding properties. While still requiring construction of linear infrastructure, they will be located along existing ROW, enabling straightforward approvals and coordination. This strategy also enhances operational flexibility and redundancy, supports phased growth, and maintains minimal environmental and cultural heritage impacts, making it the most balanced and cost-effective long-term solution.

4A

Strategy Evaluation Focus Area Servicing Solutions – Bronte GO MTSA

Alternatives and Detailed Evaluation Table

Focus Area Servicing Solutions – Bronte GO MTSA Servicing Strategy

What is the Constraint?

A combination of ongoing challenges has prompted the need for a new servicing strategy for this area. These challenges/constraints include:

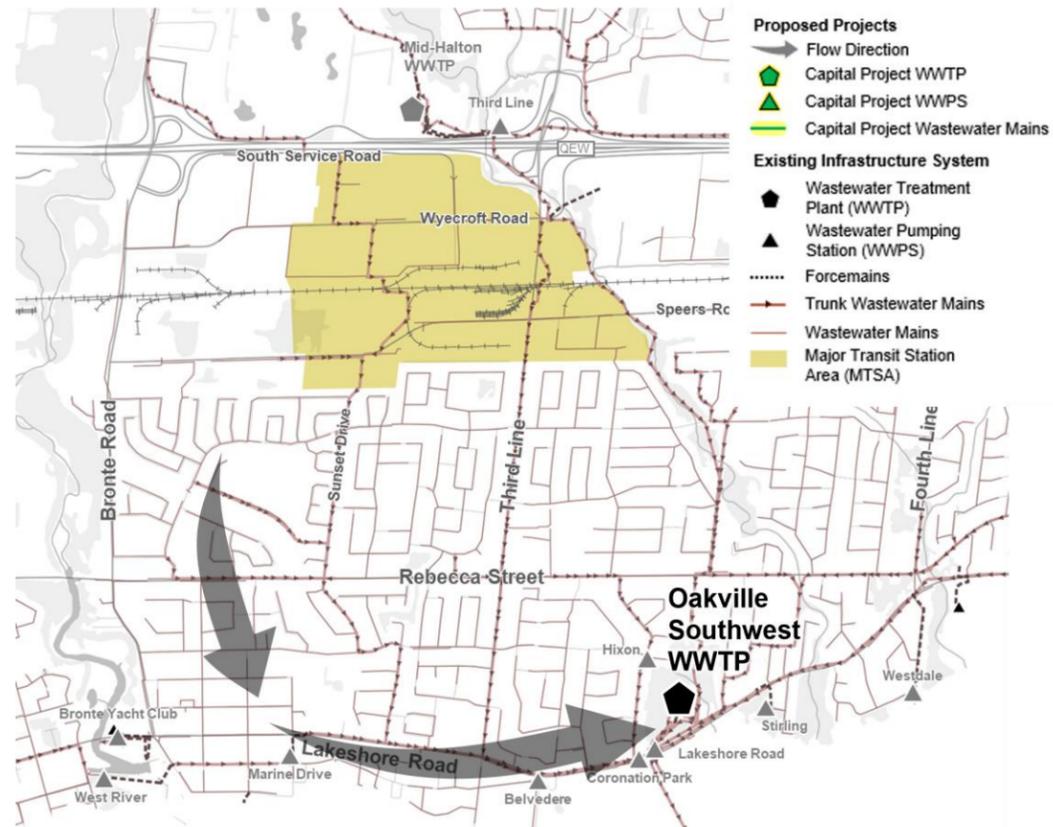
1. Existing capacity constraints limit the ability of the system to accommodate current peak flows.
2. Projected growth in the area is expected to further exacerbate existing capacity limitations.

Alternatives	Advantages	Disadvantages	Rating	Result
1. Do Nothing Existing infrastructure to remain as is.	<ul style="list-style-type: none"> Does not incur new capital costs. No potential impacts due to construction of new infrastructure. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and the Provincial Planning Statement (PPS) 2024 growth targets. Does not align with the IMP's vision and considerations. Potential social/economic/environmental disruptions due to insufficient capacity. 	Low	Screened Out
2. Limit Growth Limit community growth so as to not trigger new infrastructure or upgrades.	<ul style="list-style-type: none"> Reduces the extent of upgrades required in system. 	<ul style="list-style-type: none"> Does not meet adequate levels of service for existing users and future growth. Does not comply with the official plan of the four Local Municipalities in Halton and PPS 2024 growth targets. Does not align with the IMP's vision and considerations. 	Low	Screened Out
3. Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road	<ul style="list-style-type: none"> Relies on a gravity-only solution. Provides security of capacity by providing additional sewer capacity along the existing alignment. Avoids the need for a new WWPS, reducing long-term operational and maintenance costs and emissions. 	<ul style="list-style-type: none"> Constructability and technical feasibility challenges within the utility congested Lakeshore Road corridor containing two existing trunk sewers and watermains; requires upsizing of the existing sewers rather than adding new ones. The construction extent largely downstream of Bronte GO MTSA results in disruption impacting areas not targeted for growth or redevelopment. High potential for road and utility conflicts, increasing social impacts, costs, and schedule risks. Benefits to the MTSA would not be realized until full commissioning, limiting support for early phases of intensification. 	Medium	Carried Forward
4. New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP	<ul style="list-style-type: none"> Targets infrastructure upgrades within the Bronte GO MTSA, directly supporting planned intensification and redevelopment. Significantly shorter extent of linear works compared to Alternative 3, reducing construction duration, costs, and social impacts. Diverts flows from the constrained Oakville Southwest WWTP to the Mid-Halton WWTP, which has existing and planned capacity upgrades. Avoids downstream construction disruptions and utility conflicts, focusing impacts within the redevelopment area. 	<ul style="list-style-type: none"> Introduces a new WWPS that will require ongoing operations and maintenance. Requires a Class EA study, property acquisition, facility approvals, and coordination for the new WWPS within the Bronte GO MTSA, as well as linear connections to the system through crossing of the QEW for the forcemains. Increased visual impacts through construction of a new WWPS. Impacts may be mitigated through the design of the building. 	High	Carried Forward

Focus Area Servicing Solutions – Bronte GO MTSA Servicing Strategy

Alternative 3

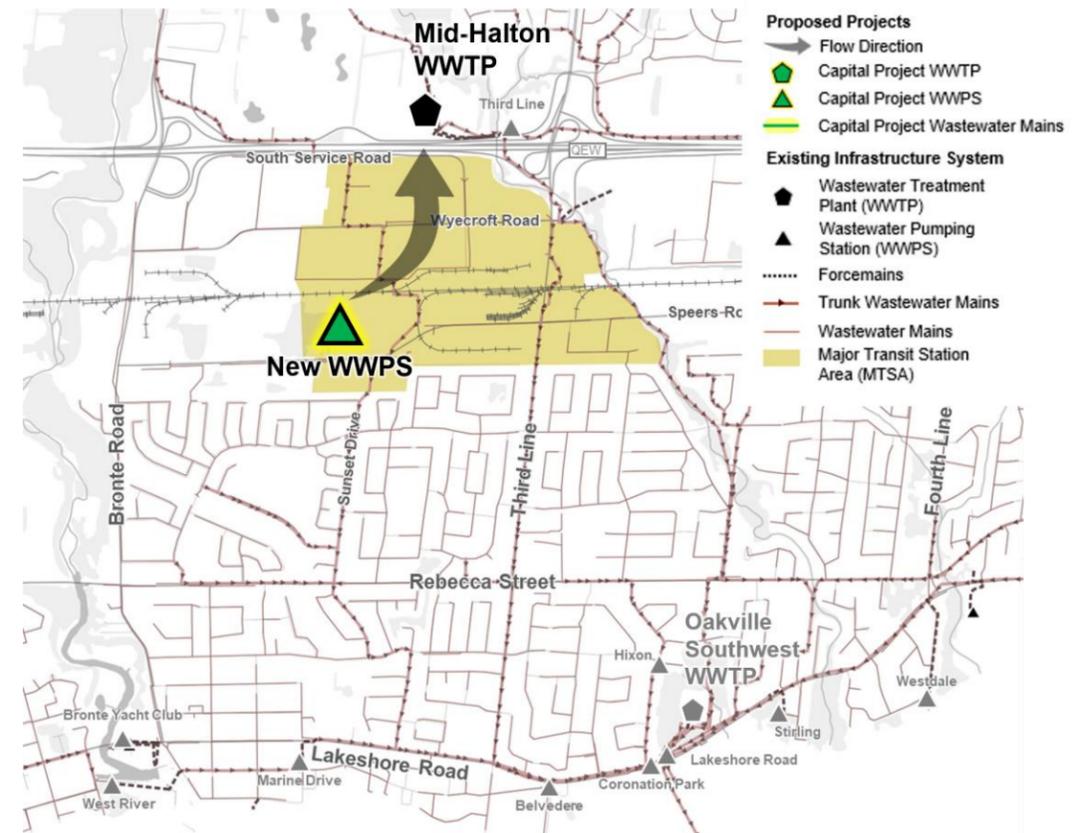
Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road



- Linear upsizing of the existing trunk sewer along Sunset Drive from Yolanda Drive to Hixon Street.
- Linear upsizing of the existing trunk sewer along Hixon Street to Solingate Drive.
- Linear upsizing of the existing trunk sewer on Solingate Drive to Lakeshore Road.
- Linear upsizing of the existing trunk sewers on Lakeshore Road from Third Line to Oakville Southwest WWTP.

Alternative 4

New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP



- Diversion of flow through construction of a pumping station in the vicinity of Wyecroft and Westgate Road within the Bronte GO MTSA area (exact location to be determined).
- Construction of a forcemain from the new pumping station to the Mid-Halton WWTP.

Focus Area Servicing Solutions – Bronte GO MTSA Servicing Strategy

Criteria, Description and Scoring	Alternative 3 Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road	Alternative 4 New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP
Equitable Infrastructure Services		
<ul style="list-style-type: none"> Improves/maintains level of service for existing users 	<ul style="list-style-type: none"> ✓✓ Improves LOS 	<ul style="list-style-type: none"> ✓✓ Improves LOS
	<ul style="list-style-type: none"> Improves levels of service for existing and future users. 	<ul style="list-style-type: none"> Improves levels of service for existing and future users.
Safe and Healthy Communities		
<ul style="list-style-type: none"> Minimizes potential short/long-term noise and odour impacts 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✗ Increases impact
<ul style="list-style-type: none"> Minimizes construction impact on traffic, local businesses, and residents 	<ul style="list-style-type: none"> ✗ Increases impact 	<ul style="list-style-type: none"> ✓✓ Decreases impact
<ul style="list-style-type: none"> Considers long-term visual aesthetics of the proposed infrastructure 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✗ Increases visual impact
<ul style="list-style-type: none"> Minimizes impacts on surrounding properties 	<ul style="list-style-type: none"> ✗ Increases road/utility crossings & conflicts 	<ul style="list-style-type: none"> ✓ Neutral
	<ul style="list-style-type: none"> Increased potential short-term noise and odour impacts by the prolonged construction activities within established residential areas and busy roadway. Lower potential for long-term odour and noise issues by the gravity system once in operation. Higher construction-related impacts compared to Alternative 4 due to the extensive length of linear sewer upgrades. Much of the work would occur downstream of the Bronte GO MTSA, resulting in disruption to areas not targeted for significant intensification. Maintaining the existing visual character of the area. Infrastructure will be located underground. Increased road and utility crossings due to the extensive length of linear upgrades, particularly along utility congested sections of Lakeshore Road where two existing trunk sewers are already in place. 	<ul style="list-style-type: none"> Increased potential short-term noise and odour impact by the construction activities, generally within the growth area. Introduction of a new WWPS may potentially increase long-term noise and odour impacts at the facility site. Although design and odour control measures can be placed to mitigate these impacts. Construction activities are concentrated within the Bronte GO MTSA, aligning with the area of planned growth and redevelopment. Downstream areas are not affected, and disruption is generally confined to locations that are already planned to undergo a transformation. Increased visual impacts associated with the addition of a new WWPS within the Bronte GO MTSA; however, impacts can be mitigated through the design of the building. Fewer road and utility crossings compared to Alternative 3, though the strategy requires a crossing of the Queen Elizabeth Way and may involve placing the WWPS in the vicinity of the railway. The location of the WWPS will be determined through a subsequent Class EA study.
Sustainability		
<ul style="list-style-type: none"> Minimizes environmental crossings, impact on aquatic/terrestrial species at risk, and environmentally sensitive/protected areas, and nearby agricultural lands 	<ul style="list-style-type: none"> ✓ Neutral 	<ul style="list-style-type: none"> ✗ Increases impact
<ul style="list-style-type: none"> Incorporates water conservation and reuse practices 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
<ul style="list-style-type: none"> Minimizes impact on archaeological/resources, and cultural heritage sites 	<ul style="list-style-type: none"> ✓✓ Decreases impact 	<ul style="list-style-type: none"> ✓ Neutral
<ul style="list-style-type: none"> Maximizes existing infrastructure 	<ul style="list-style-type: none"> ✗ Requires new infrastructure that doesn't improve system resiliency 	<ul style="list-style-type: none"> ✓ Neutral

Criteria, Description and Scoring	Alternative 3 Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road	Alternative 4 New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP
<ul style="list-style-type: none"> Full lifecycle costs 	✓✓ Lower lifecycle cost	✗ Higher lifecycle cost
<ul style="list-style-type: none"> Staging costs 	✗ Higher staging and throwaway costs	✓✓ Lower staging and throwaway costs
<ul style="list-style-type: none"> State of Good Repair (SOGR) Integration 	✓✓ Higher level of coordination with SOGR	✓ Neutral
	<ul style="list-style-type: none"> Environmental impacts are generally limited. With no new WWPS being introduced, the potential risk of overflow to the environment under emergency or extreme operational conditions is minimized. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. However, limited to no impacts on archeological and cultural heritage sites are expected as the alignment will be located within existing ROW. Does not maximize use of existing infrastructure, as significant linear sewer upgrades are required to address capacity constraints and future growth. Lower overall lifecycle costs compared to Alternative 4, as operational costs are minimal compared to Alternative 4. While initial construction costs for the deep gravity sewer are high, they are generally less than building a new WWPS. Higher staging and throwaway costs due to the scale of deep sewer construction and need for extensive downstream coordination. Construction is more challenging to phase effectively, with limited opportunity to align with other planned works. Increased opportunity to integrate with SOGR works, as the upgrades can be coordinated with ongoing sewer repairs along this stretch. 	<ul style="list-style-type: none"> Addition of a new WWPS introduces potential risk of localized overflows to the environment under emergency or extreme operational conditions. There may be potential impacts dependant on the selected WWPS site. Detailed archaeological and cultural heritage impact assessments will be completed during future phases of project development, prior to implementation as required. Requires new infrastructure to divert flows to the Mid-Halton WWTP. However, by doing so, it will maximize the use of existing/planned infrastructure at the Mid-Halton WWTP while avoiding additional capacity pressures on downstream infrastructure beyond the Bronte GO MTSA. Higher lifecycle costs due to ongoing operation and maintenance of a new WWPS, along with increased upfront costs for facility construction and property acquisition. Lower staging and throwaway costs as the WWPS and associated infrastructure can be constructed and commissioned in phases, allowing better alignment with growth and other planned projects. Limited opportunity to integrate with SOGR works, as the focus is on new WWPS and associated linear infrastructure construction rather than upgrades to existing infrastructure.
Climate Change		
<ul style="list-style-type: none"> Considers resiliency and operational flexibility to adapt to Climate Change 	✓✓ Strategy elements provide improved resiliency for Climate Change adaptation	✓ Neutral
<ul style="list-style-type: none"> Reduction in emissions 	✗ High carbon footprint	✗ High carbon footprint
	<ul style="list-style-type: none"> Gravity-based conveyance provides inherent operational simplicity and passive resiliency with reduced reliance on active system management under varying future climate and operating condition. Increased emissions generated during construction of the extensive linear upgrades; however, long-term operational emissions are minimal, as the system remains gravity based. 	<ul style="list-style-type: none"> Involves construction of a brand new WWPS and diversion of flows to a different drainage area which increases resiliency in the downstream network. However, it relies on pumped conveyance and active system management to maintain operational flexibility and performance under a range of future climate and operating conditions. Increased emissions from both the construction and ongoing operation of a new WWPS, including energy use for pumping over the long term.
Integration of Planning for Regional Infrastructure		
<ul style="list-style-type: none"> Minimizes approvals/coordination 	✗ Increases approval/coordination needs	✗ Increases approval/coordination needs
<ul style="list-style-type: none"> Integrates with road/transportation projects 	✓ Neutral	✓ Neutral
	<ul style="list-style-type: none"> May require a feasibility study, coordination and approvals for extensive sewer construction along municipal roads, as well as work in congested utility corridors, including Lakeshore Road. Reduced need for site-specific facility approvals as a new WWPS will not be required. 	<ul style="list-style-type: none"> Requires a Class EA study, property acquisition, facility approvals, and coordination for the new WWPS within the Bronte GO MTSA, as well as linear connections to the system.

Criteria, Description and Scoring	Alternative 3 Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road	Alternative 4 New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP
	<ul style="list-style-type: none"> No overlap with major Region-led transportation projects. Minimal opportunity for integration with planned road or transportation works, aside from standard coordination with the Town of Oakville where municipal roads are impacted. 	<ul style="list-style-type: none"> New WWPS site generally independent of major Region-led Road projects. Minimal opportunity for integration with planned road or transportation works, aside from standard coordination with the Town of Oakville where municipal roads are impacted.
Technical Innovation		
<ul style="list-style-type: none"> Applies innovation and/or new technologies 	N/A	N/A
<ul style="list-style-type: none"> Provides opportunity for operational flexibility and security 	✓ Neutral	✓✓ Maximizes operational flexibility and security of supply/capacity
<ul style="list-style-type: none"> Considers performance of the system under emergency conditions (power outages, fire emergencies) or during construction 	✓✓ Improves performance	✓✓ Improves performance
<ul style="list-style-type: none"> Supports phased growth 	✗ Does not support phased growth	✓✓ Supports phased growth
<ul style="list-style-type: none"> Minimizes roads/utility crossings and existing infrastructure and minimize proximity and/or conflicts with existing infrastructure 	✗ Increases road/utility crossings & conflicts	✗ Increases road/utility crossings & conflicts
<ul style="list-style-type: none"> Considers constructability and technical feasibility to build and maintain infrastructure 	✗ More constructability challenges and reduced technical feasibility	✓✓ Reduced constructability challenges and improved technical feasibility
	<ul style="list-style-type: none"> Maintains security by providing additional sewer capacity through upsizing of the existing sewers. Improves system performance under emergency conditions by addressing existing capacity constraints through upsizing the gravity sewers along the existing route. Benefits do not materialize until the full length of the sewer is commissioned. Even if constructed in phases, much of the downstream work occurs outside the Bronte GO MTSA, away from the primary area targeted for intensification and redevelopment. Due to the extensive length of linear upgrades, there is a higher potential for utility crossings and conflicts, particularly along Lakeshore Road where two existing trunk sewers and watermains are already in place. The utility congested corridor increases constructability challenges and coordination requirements. Construction is highly challenging due to the utility congested Lakeshore Road corridor, where two existing trunk sewers and watermains already occupy much of the available space. Fitting an additional trunk sewer, or upsizing an existing one, may not be technically feasible without significant disruption. The length and location of the upgrades, much of which would occur downstream of the Bronte GO MTSA, increase social impacts, utility conflicts, and overall project risk. This alternative requires substantially more work than Alternative 4. 	<ul style="list-style-type: none"> Increases security through diversion of flows to a different drainage area. Doing so, frees capacity in the existing system by distributing flows between two separate drainage areas rather than relying on the constrained downstream infrastructure. An opportunity to maintain the existing connection to the downstream sewer for operational flexibility during maintenance or emergency conditions may be explored during detail design phase. Improves system performance by alleviating capacity issues and reducing flows to the Oakville Southwest WWTP, thereby lowering the magnitude of required capacity expansion. Diverts flows to the Mid-Halton WWTP, which has existing and planned future capacity expansion. Requires additional efforts and provisions in the design, operation, and maintenance of the WWPS during emergency or extreme operational conditions. Focuses new infrastructure within the Bronte GO MTSA, allowing upgrades to be aligned with redevelopment timelines and implemented as growth materializes. Requires a major crossing of the Queen Elizabeth Way, which can be mitigated through tunneling methods. Most remaining construction is confined to the Bronte GO MTSA, primarily affecting local roads, with significantly shorter lengths of linear infrastructure upgrades compared to Alternative 3. This alternative provides a more technically feasible solution through standard construction practices as compared to the long and challenging linear upgrades proposed in Alternative 3. The facility would be sited within the Bronte GO MTSA where redevelopment is already anticipated. This avoids major downstream disruptions and confines work to the growth area. Required linear infrastructure is significantly shorter than Alternative 3, limited primarily to a twin forcemain and localized sewer connections, reducing both complexity and risk.

Criteria, Description and Scoring	Alternative 3 Upsize existing trunk sewers from Sunset Drive to the Oakville Southwest WWTP via Lakeshore Road	Alternative 4 New WWPS and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP
Preferred Strategy	✓ Least Preferred Alternative	✓✓ Preferred Alternative

Alternative 4 – New pumping station and forcemain within Bronte GO MTSA to divert flows to the Mid-Halton WWTP is the preferred servicing strategy for the Bronte GO MTSA, as it provides a targeted, technically feasible solution that aligns directly with the area’s planned intensification. By constructing a new WWPS within the MTSA area and diverting flows to the Mid-Halton WWTP the significant constructability, utility conflict, and downstream disruption challenges associated with the long linear upgrades in Alternative 3 can be avoided. The shorter extent of required infrastructure minimizes environmental, social, and traffic impacts, while confining construction to the growth area where redevelopment activity is expected. In addition, diverting flows away from the constrained Oakville Southwest WWTP reduces future expansion pressures at that facility, while making use of available and planned capacity at the Mid-Halton WWTP. Overall, Alternative 4 offers a more practical, implementable, and growth-focused solution that balances long-term servicing needs with minimized impacts.