MEMORANDUM

To: Andrew Martin and Rachel Greene

From: Michelle Diplock and Joe Nethery

Date: July/18/2026

Re: High Level Engineering Costing Estimates for the Lifecycle of the Official Plan

Our File No: 186

INTRODUCTION

Nethery Planning and the broader Official Plan Consulting team has prepared high level lifecycle cost analysis for the Township's new Official Plan. It is important to note that these costs are estimates that are intended to span the next 25 years and are for information and planning purposes only. Actual costs will be determined on a project specific basis at the time of construction of various infrastructure works. We have provided engineering cost estimates for Transportation, Water and Wastewater Servicing, and Stormwater Management Infrastructure to support Official Plan implementation.

TRANSPORTATION

Based on 2026 GTA cost ranges for roads that are 9m wide pavement, we are generally seeing values in the order of $4,500 to $6,200 per metre, or approximately $4.5M to $6.5M per kilometre. At this level, this range can be reasonably used as a representative unit cost for new road construction.

With respect to Gingrich Road, some improvements would likely be required; however, these would more likely take the form of operational upgrades (i.e

signalization or turning lane) rather than full roadway widening. Based on the rough estimate of 4.37 km of road in the industrial concept plan, we anticipate a cost of approximately $18,972,000.00 to $26,139,200.00.

WATER AND WASTEWATER SERVICING

Available fire flow will dictate water needs for the Proposed Employment Lands. The Region's 2023 Baden – New Hamburg Water and Wastewater System Servicing Review identified the required fire flow for Industrial Land Use to be 250 L/s. There is an existing 300mm diameter trunk watermain that runs along Nafziger Road and an existing 450mm diameter trunk that runs along Gingerich Road and the hydraulic analysis in support of the 2023 Servicing Review shows available fire flows greater than 330 L/s at the 300mm diameter Nafziger Road trunk main, west of the Proposed Employment Lands. The Employment Lands design concept provides opportunity for connection to the trunk main at locations along both Nafigizer Road and Gingerich Road – a looped watermain through the Employment Lands should be able to provide the necessary fire flow – with sizing to be confirmed as part of a more detailed engineering study. Watermain within the Employment Lands will be PVC, 300mm diameter or less and can be cost efficiently constructed as open-cut / direct bury within the ROWs at $1,000/m - $2,000m. This unit rate cost estimate range is based on Master Plan level cost estimates recently completed for area municipalities and considers installation of direct buried valves and / or valve chambers, hydrants, restoration and all other municipal water servicing requirements. If watermain is installed for the full length of all roads within the Proposed Employment Lands, there will be approximately 4.1 km of watermain. Table 1 includes a summary of costs for the watermain service to the area.

Table 1. Summary of Watermain Costs to Service Proposed Employment Lands

o. 289.902.3903 / **tf.** 1.888.638.4379 / solutions@netheryplanning.ca / **netheryplanning.ca**

Length	Diameter	Unit Rate Range (Full Construction within ROW)	Total
4.1 km	200mm – 300mm	$1,000/m - $2,000/m	$4.1M - $8.2M

The costs for the watermain will likely be considered local servicing and not eligible for Development Charges funding. As a comparable, in their recently updated (2024) Development Charges Background Study, the Township of Woolwich considered eligibility for the oversizing component for watermains greater than 300mm diameter.

The sanitary sewer for the Proposed Employment Lands may require downstream upgrades depending on calculations for peak wastewater flows from the Proposed Employment Lands as well as downstream sewer capacity. This will be required to be determined as part of a separate detailed engineering study. The existing 250mm diameter sanitary sewer that services the Wilmot Recreation Complex is expected to be undersized to also service the Proposed Employment Lands, and sewer extension and upgrades from the Proposed Employment Lands can be considered with potential to connect to:

1. Existing 300mm diameter sewer located within lands east of Nafziger Road (approximately 250 metres west of a proposed Nafziger Road connection from the Employment Lands);
2. Existing 375mm diameter sewer running along Highway 8 (approximately 1 km downstream from a proposed Nafziger Road connection from the Employment Lands); or,
3. Planned 450mm diameter trunk sewer running through lands west of Nafziger Road (approximately 1,250 metres downstream from a proposed Nafziger Road connection from the Employment Lands)

Available capacity will also need to be confirmed within the downstream sewers and Morningside Sewage Pumping Station and Forcemain. If there are capacity

o. 289.902.3903 / **tf.** 1.888.638.4379 / solutions@netheryplanning.ca / **netheryplanning.ca**

constraints within the downstream network, consideration will also need to be made for timing of recommended upgrades to pump wastewater flows from Baden directly to the WWTP, freeing up capacity within the Morningside sewer system. Available GIS for the existing sewers in the area suggests that an extension to / upgraded sewer is likely able to be installed at approximately 5 metres depth (which is a typical depth for a sub-trunk sewer). Similar to for the watermain unit rate costing, the sewer costing is based on Master Plan cost estimates prepared for area municipalities, and includes consideration for manholes, restoration and all other municipal wastewater requirements. Table 2 includes a summary of costs for the wastewater upgrades to service the Proposed Employment Lands (including a high-level estimate of length of proposed sewers internal to the development as well as new / upgraded sewer required to connect to the various downstream sewers).

Table 2. Summary of Wastewater Costs to Service Proposed Employment Lands

Scenario	**Length**	**Diameter**	**Unit Rate Range (Full Construction within Existing / Planned ROW)**	**Total**
To Existing 300mm Dia.	1250m – 1500m	300mm	$1,000/m - $1,500/m	$1.25M - $2.25M
To Existing 375mm Dia.	2000m – 2250m	300mm – 375mm	$1,000/m - $1,750/m	$2.0M - $4.0M
To Planned 450mm Dia.	2150m – 2400m	300mm – 450mm	$1,000/m - $2,000/m	$2.2M - $4.8M

The oversizing component of the replacement sewers will likely be eligible for payment through the Township's Development Charges program. In their recently

o. 289.902.3903 / **tf.** 1.888.638.4379 / solutions@netheryplanning.ca / **netheryplanning.ca**

updated (2024) Development Charges Background Study, the Township of Woolwich considered eligibility for the oversizing component for sewers greater than 375mm diameter. Size of the existing sewers will be considered benefit-to-existing and that component to be estimated and removed from eligibility for Development Charges.

STORMWATER

Stormwater management facilities – such as wet ponds, dry ponds, bioswales, and storage tanks – are used to mitigate the impacts of increased impervious coverage from urban development on water quality, watercourse erosion, flooding, and water balance. Consequently, the amount of impervious area within Wilmont's urban centres determines the total storage volume and associated cost of stormwater management for the Township. Impervious coverages were assigned to each major urban land-use within the municipality based on similar land uses in Southern Ontario to determine the total impervious area for each land use. Table 3 shows a summary of the average impervious area per land-use designation within the Official Plan.

Table 3. Summary of Impervious Area Average per Land-use

Land-use (Impervious Surface Percentage)	Total Area (m^2)
Dry/Industrial Commercial (95%)	184908.9854 m²
General Industrial (90%)	1861098.182 m²
Highway Commercial (90%)	65933.95142 m²
Light Industrial (85%)	480025.4019 m²
Open Space (0%)	2020466.286 m²
Major Recreation (60%)	249235.5249 m²
Settlement Core (60%)	297303.2249 m²
Settlement Residential (55%)	3975356.257 m²
Urban Core Area (75%)	515461.5593 m²

o. 289.902.3903 / tf. 1.888.638.4379 / solutions@netheryplanning.ca / netheryplanning.ca

Urban Residential (70%)	6360022.814 m²

To determine the anticipated lifecycle cost to implement a typical Stormwater Management Facility, the average capital cost and annual O&M (Operating and Maintenance) cost were estimated using values from the *Ontario Stormwater Management Planning and Design Manual (Section 7*) for wet ponds, and construction cost estimates from other sources and studies in Southern Ontario. The storage volume for a "typical" stormwater management facility was estimated assuming a 50-ha drainage area at 75% impervious coverage and establishing the permanent pool and detention storage volumes based upon the Provincial criteria and general guidance from various Subwatershed Studies. Construction cost estimates and lifecycle cost estimates were determined, and a unitary cost per impervious hectare was calculated from the conceptual drainage area. The total capital and lifecycle costs for stormwater management facilities were determined for each land use by multiplying the impervious area for each land use by the unitary capital and O&M costs. Table 4 displays how each cost was generated.

Table 4. Generated Cost using an average Site Area of 50 ha and 70% impervious coverage

Capital and O&M Expenditure	**Cost ($)**	**Cost per Average Site Area ($/Imp. Ha)**
(Capital) Excavation ($/m3)	$798750	$48250
(Capital) Inlet/Outlet Structures (LS)	$15000	
(Capital) Landscaping and Appurtenances ($/m2)	$875000	
(O&M) Grass Cutting/Vegetation	$1313	$99881
(O&M) Sediment Removal	$1809030	
(O&M) Facility Rehabilitation	$1685491	

As demonstrated from the above, the unit lifecycle cost for a stormwater management facility is $45250/imp. Ha + $99881/imp. Ha = $148131/imp. Ha. To determine the lifecycle cost of each land-use's stormwater management facilities, each land-use's impervious area in hectares was multiplied by the unit cost of $148131/imp. Ha. Table 5 below shows the results.

Land-use (Impervious Surface Percentage)	Impervious Surface (ha)	Total Cost for Impervious Area of Land Uses ($)
Dry/Industrial Commercial (95%)	17.57	$2602121.4
General Industrial (90%)	167.5	$24811768.92
Highway Commercial (90%)	5.9	$879017.5514
Light Industrial (85%)	40.8	$6044064.345
Open Space (0%)	0	0
Major Recreation (60%)	14.9	$2215170.345
Settlement Core (60%)	17.8	$2642389.312
Settlement Residential (55%)	218.6	$32388040.8
Urban Core Area (75%)	38.7	$5726687.439
Urban Residential (70%)	445.2	$65948154.55
Total	967.1	**$143257414.7**

To conclude, over the lifecycle of the Official Plan, stormwater management costs are estimated to be in the order of **$14-15 million.**

o. 289.902.3903 / **tf.** 1.888.638.4379 / solutions@netheryplanning.ca / **netheryplanning.ca**