To:	Roman Kuczynski	**Date:**	October 06, 2023
From:	Justin Lee	**Subject:**	Water and Wastewater Commentary for City of Mississauga Servicing analysis for Potential Employment Conversions
CC:	Kamal Adhikary	**Our File:**	

SUMMARY

The high-level water and wastewater servicing analysis for potential employment conversions for the three sites (Site 1, Site 2 and Site 3) in the City of Mississauga for both provided potential low and high growth scenarios were investigated. The Site 1, Site 2 and Site 3 are located in SGU M0205, SGU M0253 and SGU M0254, respectively. Separate low and high growth scenarios in these three sites were provided.

The additional water demand as well as wastewater flows in these sites, as compared to approved growth scenarios, were estimated for both low and high growth scenarios for respective subject sites. The potential impacts and recommendations based on the high-level analysis to the Region water and wastewater systems for the subject sites are as follows:

1. ***Wastewater Servicing:***
   The capacity of existing/planned wastewater system was modelled based on the estimated population/wastewater flows discharging to the existing wastewater infrastructure adjacent to subject sites. The following are the high-level conclusions and recommendation for wastewater servicing to the sites:
   i. Site 1: Upgrades to the existing local wastewater system is required to accept potential employment conversions in the subject site for both low/high growth scenarios
   ii. Site 2 and Site 3: Upgrades to the existing local wastewater system is required to accept potential employment conversions in the subject site for both low/high growth scenarios

2. ***Water Servicing:***
   The capacity of existing/planned water system was modelled based on the estimated population/water demands supply through existing PZ3 water infrastructure (for sites 2 and 3) and existing PZ5 water infrastructure (for site 1) adjacent to subject sites. The following are the high-level conclusions and recommendation for water servicing to the sites:
   i. Site 1: Upgrades to the existing distribution watermain (PZ 5) is required to accept potential employment conversions in the subject Site for both low/high growth scenarios
   ii. Site 2 and Site 3: Upgrades to the existing distribution watermain (PZ 3) is required to accept potential employment conversions in the subject Site for both low/high growth scenarios

The required local wastewater and local water infrastructure improvements to service these sites are not DC eligible. The employment conversion lands could proceed; however, the

future development would be responsible for the required water and wastewater infrastructure improvements. It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed.

The recommendations could change should the population estimates change based on a review of the potential impacts of these new numbers.

1 INTRODUCTION

The City of Mississauga provided the Region with two scenarios of potential employment conversions within three select sites within the City for the purposes of high-level water and wastewater infrastructure capacity assessment. The Region's Water and Wastewater Infrastructure Planning have investigated to provide an overview of the water and wastewater impacts of potential employment conversions within following three select sites:

- Site 1 (located in SGU M0205)
- Site 2 (located in SGU M0253)
- Site 3 (located in SGU M0254)

The revised distribution for servicing analysis for low and high growth scenarios and corresponding population provided by the City for each site are summarized in Table 1.

Table 1. Summary of the population by Growth Distribution Scenarios for Employment Conversion Study 2023

Site (SGU ID)	Approved						Revised Distribution for Servicing Analysis											
							Low Growth Scenario						High Growth Scenario					
	Population			Employment			Population			Employment			Population			Employment		
	2031	2041	2051	2031	2041	2051	2031	2041	2051	2031	2041	2051	2031	2041	2051	2031	2041	2051
Site 1(M0205)	0	0	0	1,610	1,680	1,730	3,636	7,272	7,272	1,008	1,680	1,730	5,165	10,331	10,331	1,976	3,617	3,667
Site 2 (M0253)	240	740	1,060	3,090	3,280	3,660	1,674	3,609	3,929	2,728	3,280	3,660	2,288	4,837	5,157	2,883	3,590	3,970
Site 3 (M0254)	0	0	0	2,040	2,030	2,020	1,045	2,091	2,091	1,861	2,030	2,020	1,494	2,988	2,988	1,808	1,925	1,915
Sub-Total[2]	**240**	**740**	**1,060**	**6,740**	**6,990**	**7,410**	**6,355**	**12,972**	**13,292**	**5,597**	**6,990**	**7,410**	**8,947**	**18,156**	**18,476**	**6,667**	**9,132**	**9,552**

Table 2 summarizes the estimated water demands and wastewater flows generated by the additional low and high growth scenarios to get a high-level understanding of the scale of wastewater flows based on the information provided:

2 SERVICING ANALYSIS OF THE AREAS

2.1 Site 1 Overview

- The Site 1 is located in SGU M0205. Based on the information provided in Table 1, the total population with the low and high growth scenarios are well above the Region's 2051 anticipated growth within the area for the years 2031, 2041 and 2051. Both low and high growth scenarios for this site was provided. The potential impacts to the water and wastewater systems with the potential utilization of Low and High growth Scenarios in the Site 1 was investigated.

Table 2. Estimated water demands and wastewater flows from low and high growth scenarios

Sites (SGU ID)	Growth Year	Approved				Low Growth Scenario				High Growth Scenario			
		Growth Population	Growth Peak Wet Weather Flow (L/s)	Growth Water Demands		Proposed Growth Population	Growth Peak Wet Weather Flow (L/s)	Growth Water Demands		Proposed Growth Population	Growth Peak Wet Weather Flow (L/s)	Growth Water Demands	
				Average (L/s)	Maximum Day Demand (MDD)(L/s)			Average (L/s)	Maximum Day Demand (MDD)(L/s)			Average (L/s)	MDD (L/s)
Site 1 (M0205)	2031	1,610	34.3	4.7	6.5	4,644	65.7	14.3	24.5	7,141	89.0	21.9	65.6
	2041	1,680	35.1	4.9	6.8	8,952	105.0	27.6	47.7	13,948	146.5	42.8	128.3
	2051	1,730	35.6	5.0	7.0	9,002	105.4	27.7	47.9	13,998	146.9	42.9	128.7
Site 2 (M0253)	2031	3,330	46.2	9.7	13.9	4,402	56.9	13.1	20.5	5,171	64.3	15.5	24.5
	2041	4,020	53.1	11.8	17.4	6,889	80.2	20.8	33.6	8,427	94.0	25.5	41.8
	2051	4,720	60.0	13.9	20.8	7,589	86.5	22.9	36.9	9,127	100.0	27.6	45.1
Site 3 (M0254)	2031	2,040	38.7	5.9	8.3	2,906	47.9	8.7	13.4	3,302	52.0	9.9	15.7
	2041	2,030	38.6	5.9	8.2	4,121	60.2	12.4	20.0	4,913	67.9	14.9	24.6
	2051	2,020	38.5	5.8	8.2	4,111	60.1	12.4	19.9	4,903	67.8	14.9	24.6

- The additional water demand as well as wastewater flows in these sites, as compared to approved growth scenarios, were estimated for both low and high growth scenarios for respective subject sites.
- There is existing water and wastewater infrastructure located in the vicinity of subject sites. There are no planned capital and/or master plan water and wastewater infrastructure improvements identified in the vicinity of subject sites.
- The capacity of wastewater systems was modelled based on the wastewater flows discharging on existing sewer in the area.
- The capacity of existing water system was investigated based on the estimated population/water demands supply through existing PZ5 water infrastructure in the area.
- The map showing the site, additional water demands and wastewater flows, existing /proposed infrastructure and high-level conclusions and recommendations for the existing water and wastewater servicing to the sites are provided separately in the Appendix 1 for the Site 1.

2.2 Site 2 and Site 3 Overview

- The Site 2 is located in SGU M0253 and Site 3 is located in SGU M0254. Based on the information provided in Table 1, the total population with the low and high growth scenarios are well above the Region's 2051 anticipated growth within the area for the years 2031, 2041 and 2051. Both low and high growth scenarios for this site was provided. The potential impacts to the water and wastewater systems with the potential utilization of Low and High growth Scenarios in the Site 2 and Site 3 was investigated.
- The additional water demand as well as wastewater flows in these sites, as compared to approved growth scenarios, were estimated for both low and high growth scenarios for respective subject sites.
- There is existing water and wastewater infrastructure located in the vicinity of subject sites. There are no planned capital and/or master plan water and wastewater infrastructure improvements identified in the vicinity of subject sites.
- The capacity of wastewater systems was modelled based on the wastewater flows discharging on existing sewer in the area.
- The capacity of existing water system was investigated based on the estimated population/water demands supply through existing PZ3 water infrastructure in the area.

- The map showing the site, additional water demands and wastewater flows, existing /proposed infrastructure and high-level conclusions and recommendations for the existing water and wastewater servicing to the sites are provided separately in the Appendix 2 for the Site 2 and Site 3.

3 CONCLUSIONS AND RECOMMENDATION

1. **Wastewater Servicing**
   The capacity of existing/planned wastewater system was modelled based on the estimated population/wastewater flows discharging to the existing wastewater infrastructure adjacent to subject sites. The following are the high-level conclusions and recommendation for wastewater servicing to the sites:

   i. Site 1: Upgrades to the existing local wastewater system is required to accept potential employment conversions in the subject Site for both low/high growth scenarios
   ii. Site 2 and Site 3: Upgrades to the existing local wastewater system is required to accept potential employment conversions in the subject Site for both low/high growth scenarios

2. **Water Servicing**

   The capacity of existing/planned water system was modelled based on the estimated population/water demands supply through existing PZ3 water infrastructure (for sites 2 and 3) and existing PZ5 water infrastructure (for site 1) adjacent to subject sites. The following are the high-level conclusions and recommendation for water servicing to the sites:

   i. Site 1: Upgrades to the existing distribution watermain (PZ 5) is required to accept potential employment conversions in the subject Site for both low/high growth scenarios
   ii. Site 2 and Site 3: Upgrades to the existing distribution watermain (PZ 3) is required to accept potential employment conversions in the subject Site for both low/high growth scenarios

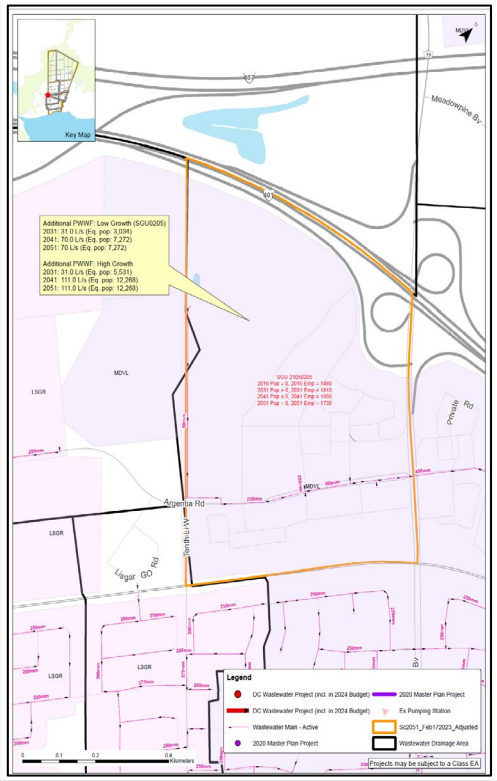
The required local wastewater and local water infrastructure improvements to service these sites are not DC eligible. The employment conversion lands could proceed; however, the future development would be responsible for the required water and wastewater infrastructure improvements. It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed.

The recommendations could change should the population estimates change based on a review of the potential impacts of these new numbers.

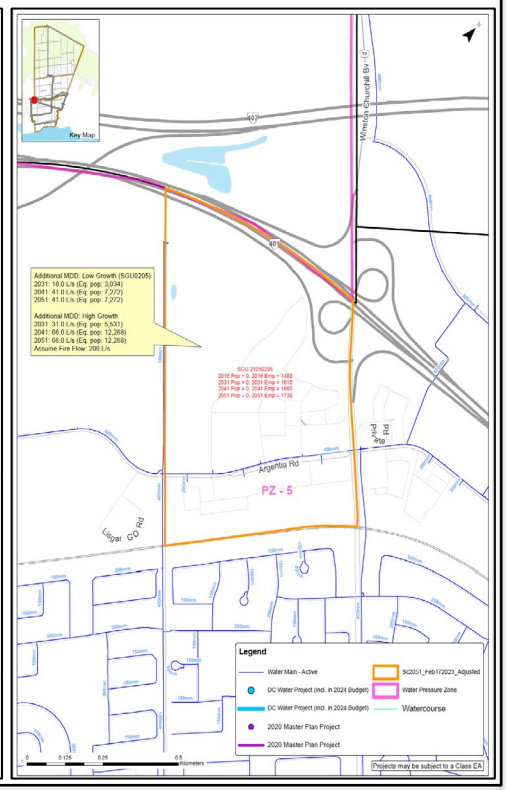
Appendix 1 Growth Distribution Scenarios for Employment Conversion Study 2023 – Site 1

Development Concept	Growth Distribution Scenarios for Employment Conversion Study 2023 in Three Sites
Development Area	Site 1 (located in SGU M0205)
Equivalent SGU Population (Year) - Approved	Site 1: 1,610 (2031); 1,680 (2041); 1,730 (2051)
Equivalent SGU Population (Year) – Low Growth	Site 1: 4,644 (2031); 8,952 (2041); 9,002 (2051)
Equivalent SGU Population (Year) – High Growth	Site 1: 7,141 (2031); 13,948 (2041); 13,998 (2051)
Ultimate Population	Site 1: 1,898

Existing/Proposed Wastewater System



Existing/Proposed Water System



Potential Wastewater Servicing Strategy:

- *Site 1 is located within the Credit Valley (MDVL) sewershed area, and discharges via McVean/East Trunk sewer system GE Booth Wastewater Treatment Facility.*
- ***Existing/ Proposed Infrastructure:***
  - *Exiting wastewater infrastructure: 50mm forcemain on Tenth Line; 250/300/450mm on easement east of Tenth Line and Argentia Rd intersection*
  - *No planned capital and master plan wastewater infrastructure in the vicinity of Site 1*
- ***Servicing Request:***
  - *Investigate the impacts to the wastewater system with the potential utilization of Low and High Scenario for the site*
- ***Infrastructure Planning Review:***
  - *Additional population and wastewater flows for Low/High growth compared to approved scenario is shown in map. The capacity of wastewater system was modelled based on the estimated population/wastewater flows discharging on existing sewer in the area and following are the recommendations:*
    - *Site 1: The upgrades of existing local wastewater system is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *The local sewer upgrades is not DC eligible and it's the developer's responsibility*
    - *It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed for these lands and local servicing is developed.*

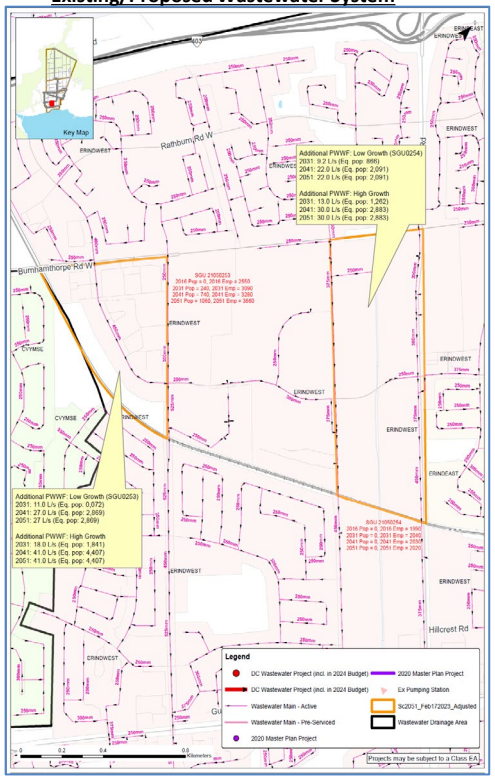
Potential Water Servicing Strategy:

- *Site 1 is located in water pressure zone # 5*
- ***Existing/ Proposed Infrastructure:***
  - *Exiting water main around Site 1: 300/400mm on Tenth Line; 400mm on easement east of Tenth Line and Argentia Rd intersection, and 400mm on Winston Churchill Blvd*
  - *No planned capital and master plan water infrastructure in the vicinity of Site*
- ***Servicing Request:***
  - *Investigate the impacts to the water system with the potential utilization of Low and High Scenario for the site*
- ***Infrastructure Planning Review:***
  - *Additional population and water demands for Low/High growth compared to approved scenario is shown in map. The capacity of existing water system was investigated based on the estimated population/water demands supply through existing PZ5 water infrastructure in the area.*
    - *Site 1: The upgrades of existing distribution watermain is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *The local watermain upgrades is not DC eligible and it's the developer's responsibility*
    - *It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed for these lands and local servicing is developed.*

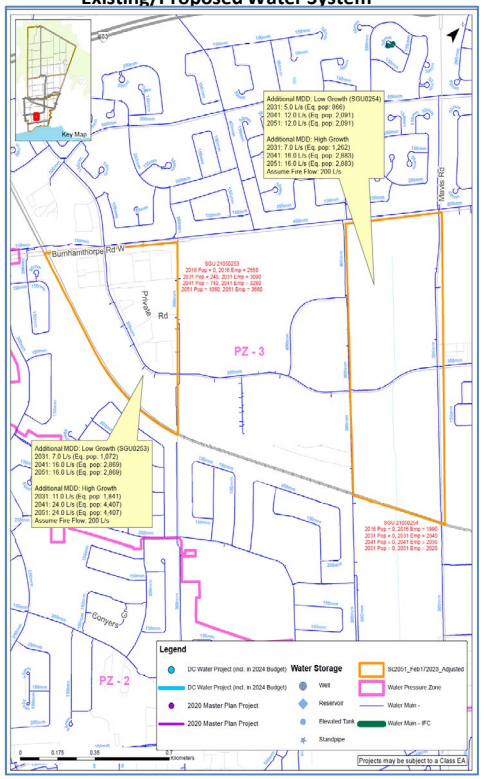
Appendix 2 Growth Distribution Scenarios for Employment Conversion Study 2023 – Site 2 and Site 3

Development Concept	Growth Distribution Scenarios for Employment Conversion Study 2023 in Three SGUs
Development Area	Site 2 (located in SGU M0253) and Site 3 (located in SGU M0254)
Equivalent SGU Population (Year) - Approved	Site 2: 3,330 (2031); 4,020 (2041); 4,720 (2051) Site 3: 2,040 (2031); 2,030 (2041); 2,020 (2051)
Equivalent SGU Population (Year) – Low Growth	Site 2: 4,402 (2031); 6,889 (2041); 7,589 (2051) Site 3: 2,906 (2031); 4,120 (2041); 4,111 (2051)
Equivalent SGU Population (Year) – High Growth	Site 2: 4,402 (2031); 6,889 (2041); 7,589 (2051) Site 3: 2,906 (2031); 4,120 (2041); 4,111 (2051)
Ultimate Population	Site 2: 5,298; M0254: 2,137

Existing/Proposed Wastewater System



Existing/Proposed Water System



Potential Wastewater Servicing Strategy:

- *SGUs located within the Credit Valley Creek (ERINDWEST) sewershed area, and discharges via East Trunk sewer system GE Booth Wastewater Treatment Facility.*
- ***Existing/ Proposed Infrastructure:***
  - *Exiting sewer around Site 2: 450mm on Wolfedale Rd; 300/375mm on Mavis Rd; 300mm on Central Pkwy*
  - *Exiting sewer around Site 3: 450mm on Central Pkwy; 250/350/525mm on Erindale Station Rd; 300mm on Central Pkwy*
  - *No planned capital and master plan wastewater infrastructure in the vicinity of both Sites*
- ***Servicing Request:***
  - *Investigate the impacts to wastewater system with the potential utilization of Low and High Scenario for these Sites*
- ***Infrastructure Planning Review:***
  - *Additional population and wastewater flows for Low/High growth compared to approved scenario is shown in map. The capacity of wastewater system was modelled based on the estimated population/wastewater flows discharging on existing sewer in the area and following are the recommendations:*
    - *Site 2: The upgrades of existing local wastewater system is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *Site 3: The upgrades of existing local wastewater system is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *The local sewer upgrades is not DC eligible and it's the developer's responsibility*
    - *It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed for these lands and local servicing is developed.*

Potential Water Servicing Strategy:

- *Sites is located in water pressure zone # 3*
- ***Existing/ Proposed Infrastructure:***
  - *Exiting water main around Site 2: 300/400mm on Wolfedale Rd; 300mm on Mavis Rd; 300mm on Central Pkwy and 400/600mm on Burnhamthorpe Rd W*
  - *Exiting water main around Site 3: 300mm on Central Pkwy; 300mm on Erindale St Rd; and 400/600mm on Burnhamthorpe Rd W*
  - *Construction of 400mm several growth-related water mains in the Mississauga City Centre (Completed)*
- ***Servicing Request:***
  - *Investigate the impacts to the water system with the potential utilization of Low and High Scenario for these Sites*
- ***Infrastructure Planning Review:***
  - *Additional population and water demands for Low/High growth compared to approved scenario is shown in map. The capacity of existing water system was investigated based on the estimated population/water demands supply through existing PZ3 water infrastructure in the area.*
    - *Site 2: The upgrades of existing distribution watermain is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *Site 3: The upgrades of existing distribution watermain is required to accepts potential employment conversions in the subject Site for both low/high growth scenarios*
    - *The local watermain upgrades is not DC eligible and it's the developer's responsibility*
  - *It is recommended that detailed modeling and hydraulic analysis be undertaken at the time a development is proposed for these lands and local servicing is developed.*