



**To:** Carolyn Ali

**From:** Gaurav Jadhav

**Date:** May 17, 2022

**Address:** Township of King

**CC:**

**Re:** Water and Wastewater Master Plan – Addendum Addressing Capacity Impacts Due to New Information

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## MEMORANDUM

### Introduction

A discrepancy has been identified between the GIS sewer database provided by the Township for use in the Water/Wastewater Master Plan, and the Township's current GIS database, specifically for the gravity sewers at the intersection of King Road and Keele Street. The issue was discussed with the Township in a meeting on April 14, 2022, and a field investigation was proposed.

As agreed in a meeting, a site visit was conducted on April 19, 2022, to confirm the sewer configuration and sizes. This memorandum presents findings from the site investigation, updated sewer information, impact on constraints, and the updated need for project WW-K-1.

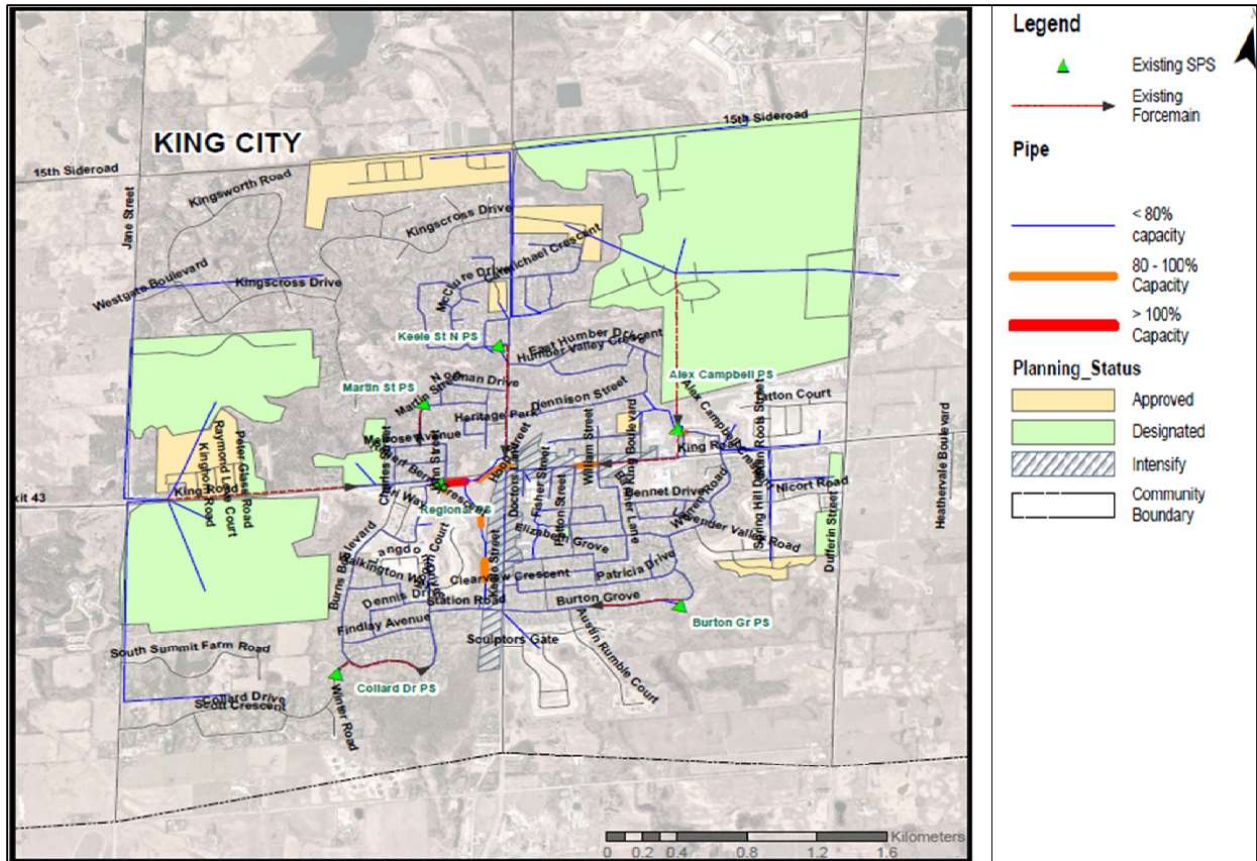
### Master Plan Review of King City Sanitary Servicing Constraints

King Township initiated Master Plan studies to support the Township's Official Plan and the individual Community Plans, while ensuring the level of service for the existing serviced areas is maintained. The studies considered all lands currently designated for development, plus an allowance to accommodate intensification within the existing development limits as established by York Region and the provincial Growth Plan.

During the Master Plan study, the capacity of King City wastewater collection system was analyzed based on the Township's planning projections and design criteria. The analysis was completed using a wastewater collection system hydraulic model built for this Master Plan using the InfoSewer modelling platform and based on the Township's GIS data provided at the initiation of this project.

The surcharge status of the existing sewers as identified in the Master Plan is shown in **Figure 1**. The figure indicates that some stretches of sanitary sewer exceeded 80 percent of their full flow capacity, and that some of the pipes along King Road west of Keele Street were expected to surcharge under full buildout conditions (with a projected population of 15,500 residents).

Figure 1: King City Wastewater Servicing Constraints Identified in Master Plan



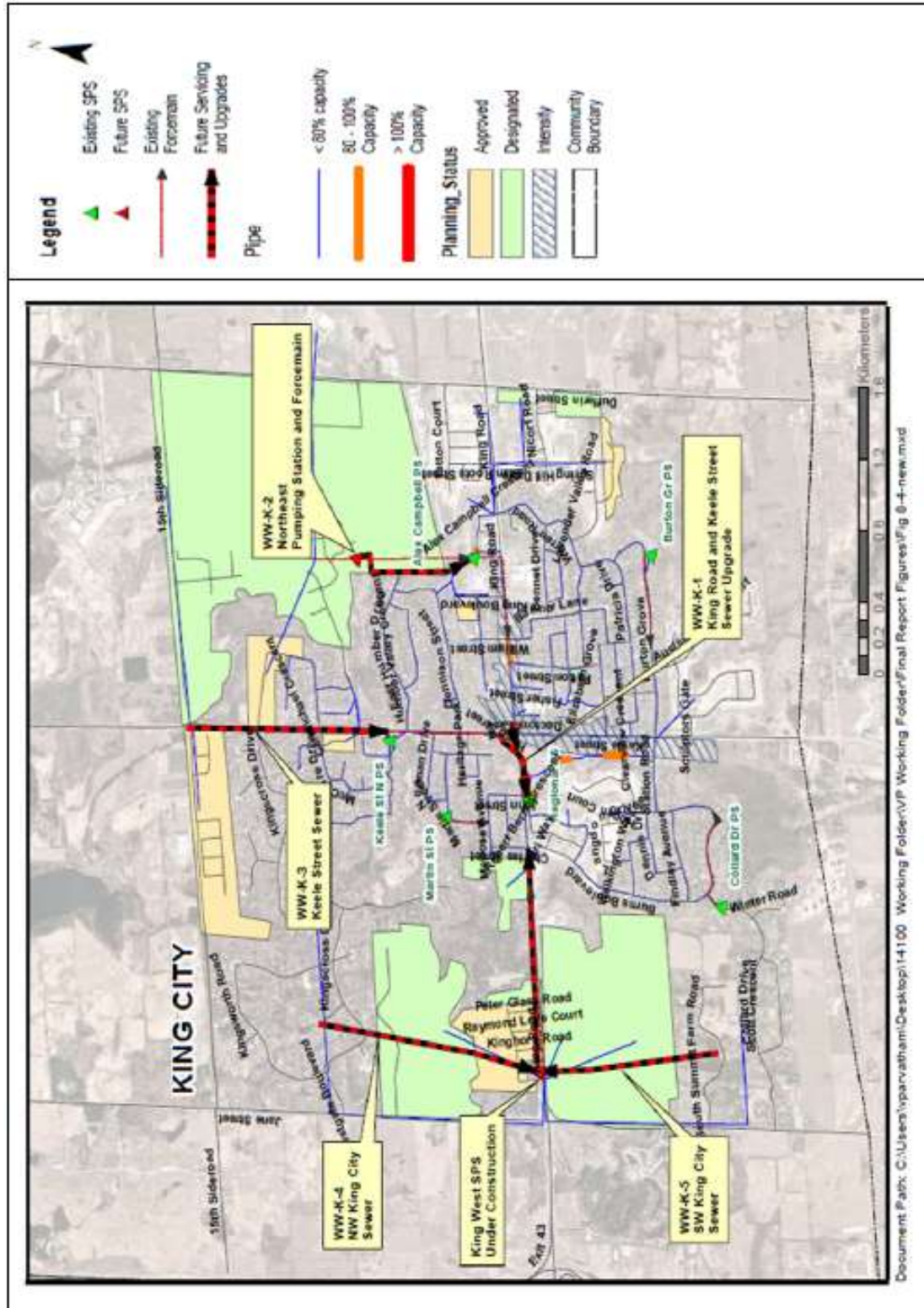
## Master Plan Recommendation

The Master Plan considered all these potential constraints and identified alternatives to be considered by the Township. The preferred alternative consisting of five projects were recommended for the King City and these are show in **Figure 2**. Out of five recommended projects, project WW-K-1 recommends upgrades at the intersection of King Road and Keele Street where the discrepancy about sewer configuration and sizes were observed.

Project WW-K-1 contemplates upsizing of the existing sewers along King Road and Keele Street upstream of the regional sewage pumping station. This infrastructure upgrade was recommended, as it to provide additional capacity required to service the existing system and planned future development in Northeast King and North along Dufferin Street.

# Tylin

Figure 2: Recommended King City Wastewater Projects





## Data Discrepancy at King Road and Keele Street

TYLin received the Township's latest sewer GIS dataset for the operational modelling assignment. The review of the latest GIS information suggested that there is a data discrepancy in some of the sewer segments at King Road and Keele Street. One of the sewer diameters at this intersection is 450 mm in the model but the latest GIS data shows as 200 mm. This sewer segment (ID: KSPI\_0002) is critical, as it carries wastewater flows from the south-east of King Road and Keele Street to the Regional Pumping Station.

Due to the critical location of this sewer segment and its impact on overall system, a field investigation was carried out. TYLin recommended an entry at the critical manholes to confirm the connectivity and diameters. It was recommended to measure the depths of the sewers as well.

## Field Investigation

The field investigation crew entered the identified manholes (ID: KSMH\_0347 and KSMH\_0156). The inlet and outlet pipe sizes along with depth from the manhole lid were measured at both manholes. The diameter of the subject sewer was confirmed to be 450mm.

## Model Update and Constraint Analysis

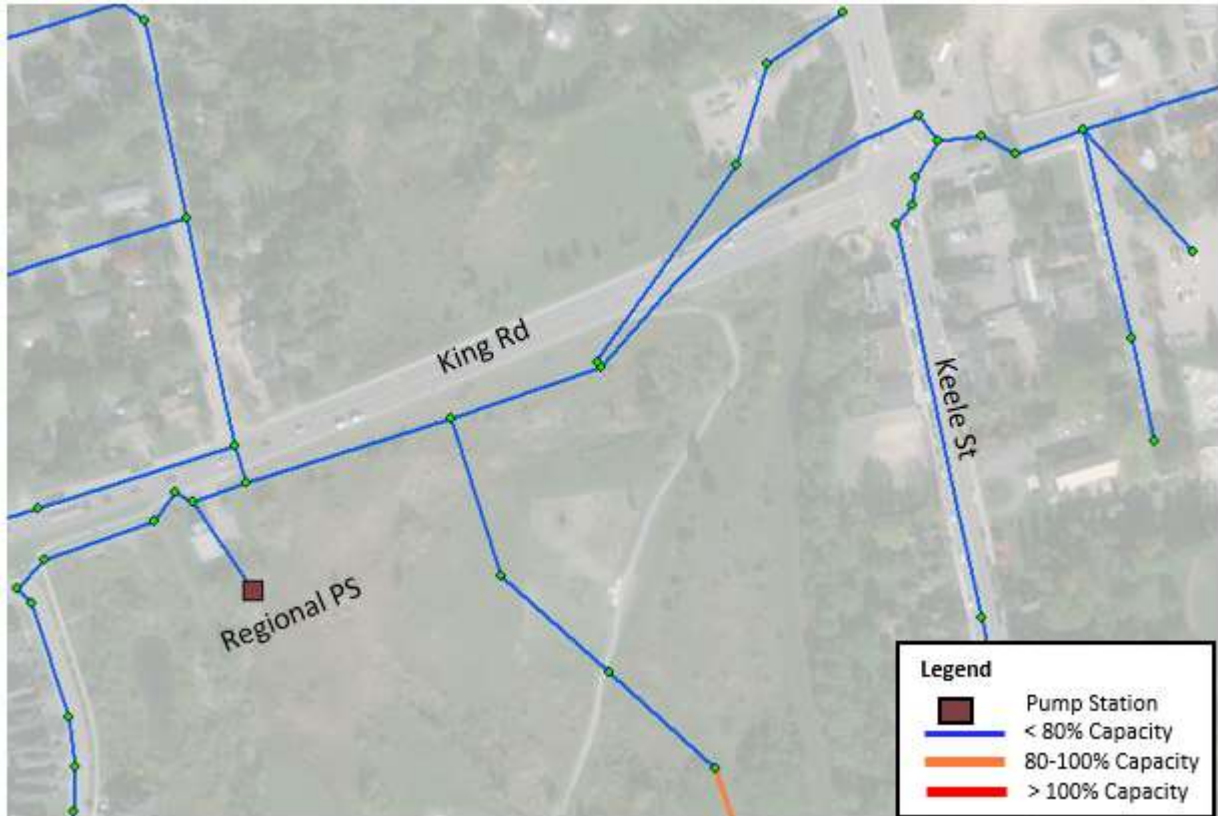
Township's Wastewater Master Plan model was updated at the intersection of King Road and Keele Street (within Project WW-K-1) with the new GIS information. The GIS information was checked against the Contract Drawing 3B received from the Township. In case of discrepancy between GIS and Drawings, information from Contract Drawings was used to update the model.

Upon review of this new information, the constraints identified in the Master Plan at the intersection of King Road and Keele Street no longer exist. The updated modelling results indicate that the existing sanitary drainage network at King Road and Keele Street has sufficient capacity to accommodate the planned future developments. The updated model results at the intersection of King Road and Keele Street are shown in **Figure 3**.



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**Figure 3: Wastewater Servicing Constraints at King Road and Keele Street Based on Updated Master Plan Model**



## Summary

TYLin has reviewed the newly received GIS information and measured field data at the intersection of King Road and Keele Street within the Project Area WW-K-1. The GIS information was compared with the contract drawings. Following a field investigation, it was confirmed that the Contract 3B drawings were accurate.

TYLin has further updated the Township's Wastewater Master Plan model at the intersection of King Road and Keele Street to reflect the new information. The updated model results show that the existing sanitary drainage network at King Road and Keele Street has sufficient capacity to accommodate the planned future growth in the community, to a total population of at least 15,500 residents (per the current Official Plan)

Based on updated model results, we have determined that the original Master Plan identified project WW-K-1 which contemplates upsizing of existing sewers along King Road is not required as the existing system has sufficient capacity to service the planned growth.