



TORONTO WATER

January 2024

**Re: Jane Finch Servicing Capacity Assessment**

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## **Introduction**

This report provides an overview of the existing municipal servicing within Jane Finch Secondary Plan Area, and a capacity assessment of the existing sanitary sewer and water distribution systems considering the projected population growth to 2051. This capacity assessment supports planning for growth for the Jane Finch Secondary Plan Area.

## **Approach**

An updated capacity assessment was undertaken to understand the existing servicing infrastructure performance and identify servicing constraints for the Jane Finch Secondary Plan Area. The assessment was completed by updating existing hydraulic models. The following steps were taken to complete the analysis:

- Develop/update hydraulic models for both the sanitary and water distribution system to reflect existing conditions using available information;
- Conduct existing conditions capacity analysis to serve as a baseline; and
- Conduct future condition capacity analysis based on projection data provided by City Planning to the year 2051.

## **Criteria for Capacity Assessment**

The City's Sewer Capacity Assessment Guidelines (July 2021) provide a clear and consistent approach for assessment of capacity in the City's local sanitary and combined sewer systems. It is used to ensure there is sewer capacity to accommodate growth-related development. The following criteria apply for the Study Area:

- Under design flow conditions (i.e., dry weather flow) sewers are not surcharged; and
- Under extreme wet weather flow (WWF) conditions, prescribed to be the May 12, 2000 event, sewers meet acceptable Hydraulic Grade Line (HGL) levels (greater than 1.8 m below ground) to support the objectives of the City's Basement Flooding Protection Program.

For the water distribution system, the City's Sewer and Watermain Design Criteria (January 2021) outlines the required pressures that the system must operate under daily demand and fire flow scenarios. The primary focus is ensuring that there is adequate hydraulic pressure in the distribution system. The following criteria govern that watermain performance criteria for the servicing assessment:

- preferred design pressure range of 350 kPa (50 psi) to 550 kPa (80 psi) during average day demand (ADD) and maximum day demand (MDD);
- minimum allowable pressure during non-fire scenarios is 275 kPa (40 psi); and,

- minimum residual pressure during maximum day plus fire scenarios will be greater than 140 kPa (20 psi) at any location in water distribution system and the available fire flow shall be at minimum 80 L/s and 83 L/s for residential and commercial uses, respectively.

### **Scenarios for Assessment**

The servicing assessment evaluates the municipal servicing infrastructure under existing and future conditions. The existing condition is reflective of the current conditions and in this assessment is based on the 2021 census population and water usage data. The future condition uses the 2051 projection data provided by City Planning. Two types of future scenarios were modeled in the assessment:

- High-Level allocation – traffic zone projection is distributed according to land-use but favours high-density land-use areas (e.g., *Apartment Neighbourhoods, Mixed Use Areas*). This scenario represents a more evenly distributed intensification within the Jane Finch Secondary Plan Area.
- Targeted allocation – traffic zone projection is distributed to select areas identified by City Planning which have development potential and includes active development applications. This scenario represents a localized intensification within the Jane Finch Secondary Plan Area.

Within the Jane Finch Secondary Plan Area, there are no planned sewer or water capacity upgrades in Toronto Water's ten-year capital plan. Therefore, the future conditions models reflect existing infrastructure conditions.

### **Existing Condition Assessment Results**

The sanitary sewers were assessed under two conditions: dry weather flow and wet weather flow. The results are illustrated within the Jane Finch Secondary Plan Area and the larger Study Area on Figures 2 and 3. The results indicate that there is no surcharging of the sewers under dry weather flow (DWF) condition and hence meet the sewer capacity assessment guideline criteria. During wet weather conditions, the system is surcharged at several locations and there is a risk of localized surface flooding. The constrained areas within the Jane Finch Secondary Plan Area are located at the following locations:

- Norfinch Drive at the north boundary of the secondary plan area;
- Potsdam Road at the north-eastern edge of the secondary plan area; and
- Grandravine Drive to Frith Road towards the south edge of the secondary plan area.

The water distribution system was assessed under maximum day demand (MDD) and fire conditions. The results are shown in Figures 4 and 5 for the maximum day demand and fire scenario, respectively. The results indicate that the water distribution system currently has sufficient capacity to handle the maximum day demands as the system is operating greater than 275 kPa (40 psi). Under a fire scenario, there are 3 nodes that currently cannot provide the minimum 80 L/s.

## **Future Condition Assessment Results**

The sewer performance under future (2051) conditions for the High-Level and Targeted scenarios under DWF conditions are shown in Figures 6 and 7. Figures 8 and 9 present the results for the WWF condition for both scenarios. The future condition analysis found that several sewers within the Jane Finch Secondary Plan Area will be at capacity under dry weather conditions. The targeted growth scenario results in additional sewer constraints beyond the high-level scenario, as expected, as growth is more concentrated in a smaller area. The capacity assessment also concluded that the additional flows from the 2051 growth will exacerbate the current capacity condition under wet weather flow for the same areas identified within the Jane Finch Secondary Plan Area.

The water distribution system performance under future (2051) conditions for the High-Level and Targeted scenarios under MDD conditions are shown in Figures 10 and 11. Figures 12 and 13 show the available fire flow for both future scenarios. Based on the MDD results, the system has sufficient capacity to accommodate the future growth. However, like the existing condition results, there are locations where the available fire flow is less than the minimum requirement for residential land uses.

## **Conclusions**

This high-level servicing capacity assessment identifies constraints in the sewer and water distribution systems considering projected growth. It accounts for broad population growth, distributed relatively uniformly across the study site, modelled in two limited development scenarios (High-Level and Targeted scenarios). The analysis cannot account for individual applications and as such, developers will need to confirm adequate capacity exists to service the development and if required, identify upgrades through the application process. The results are based on available information at the time of analysis and future analyses by others will need to update parameters to reflect best available information.

This report and the servicing capacity results are available to developers submitting individual development applications. Any infrastructure upgrades required to provide adequate capacity to meet the demands due to the development application will have to be assessed by the developer and implemented prior to the development proceeding to building permit.

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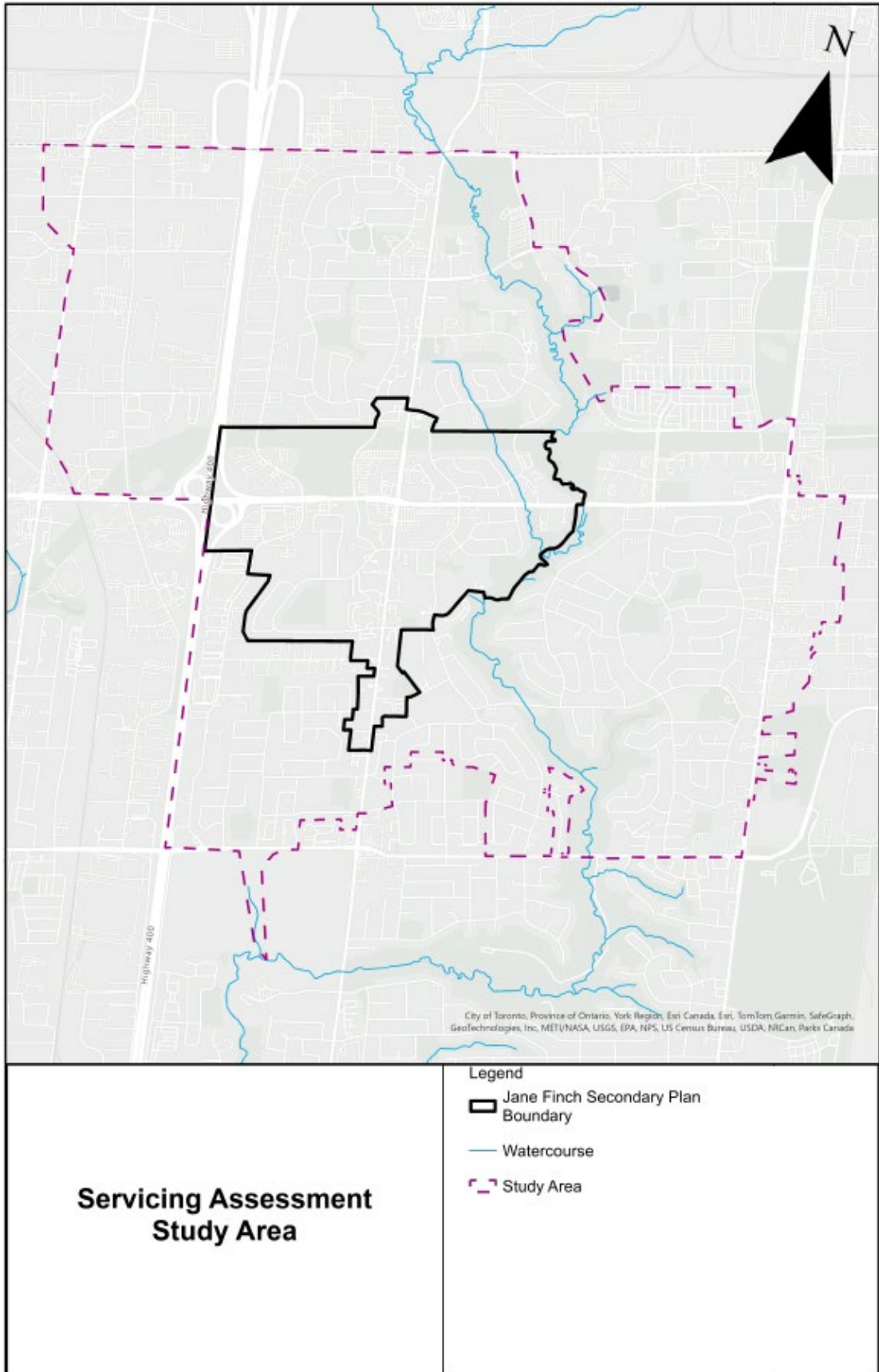


Figure 1 – Modeling Extents for Sanitary and Water Distribution Systems

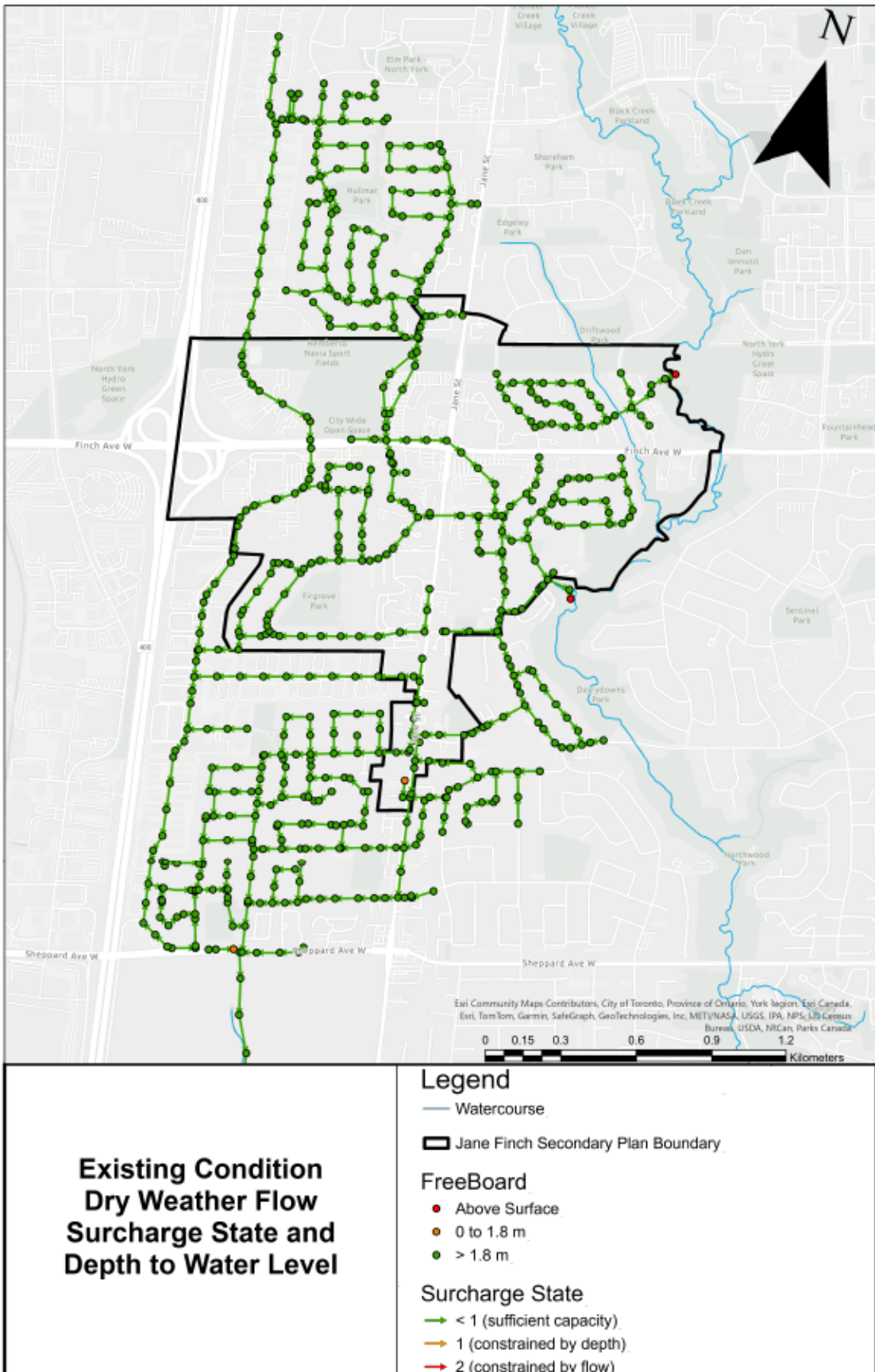


Figure 2 - Sanitary Sewer - Existing Condition, Dry Weather Flow Results

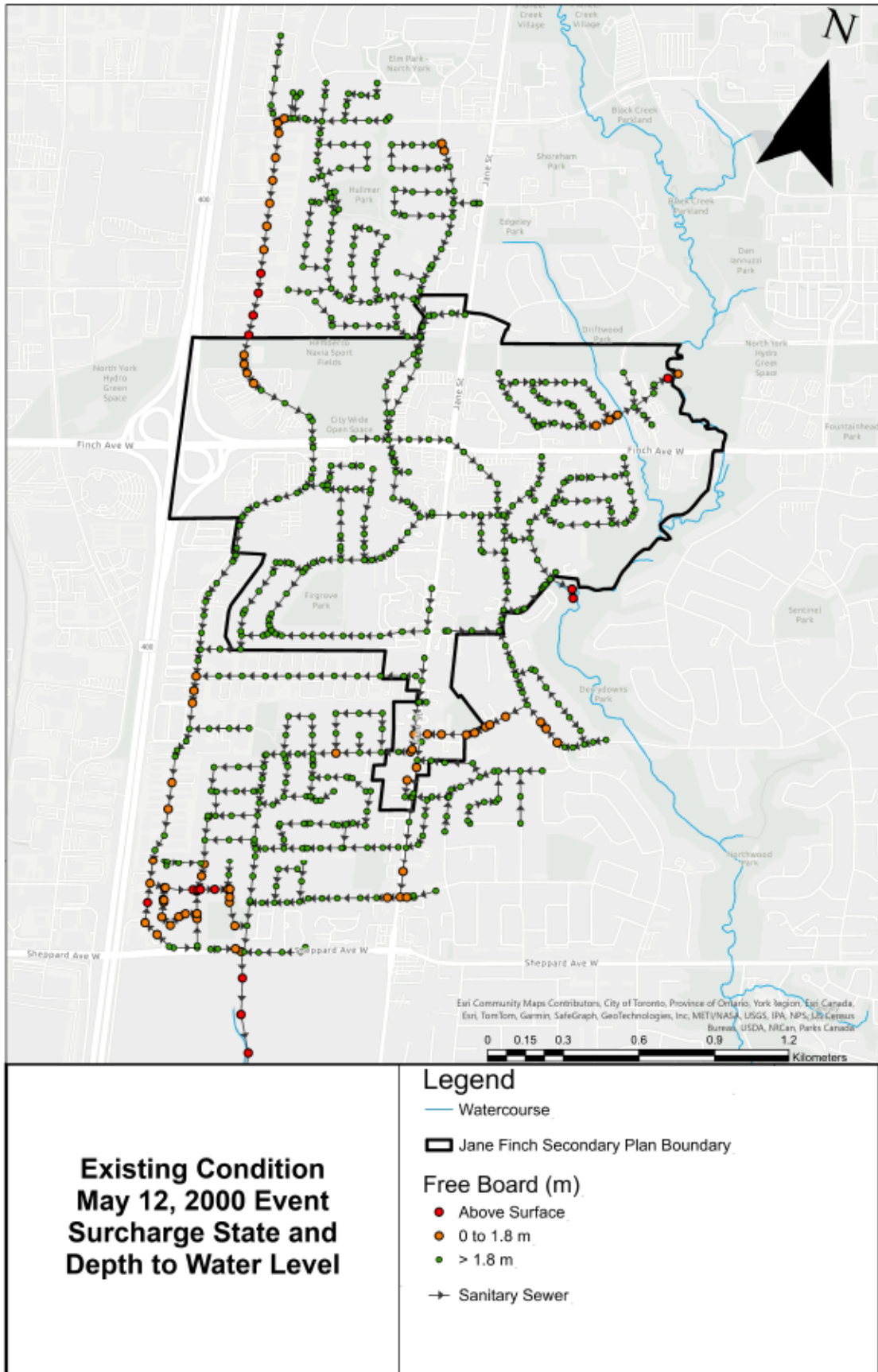


Figure 3 - Sanitary Sewer - Existing Condition, Wet Weather Flow Results (May 12, 2000)

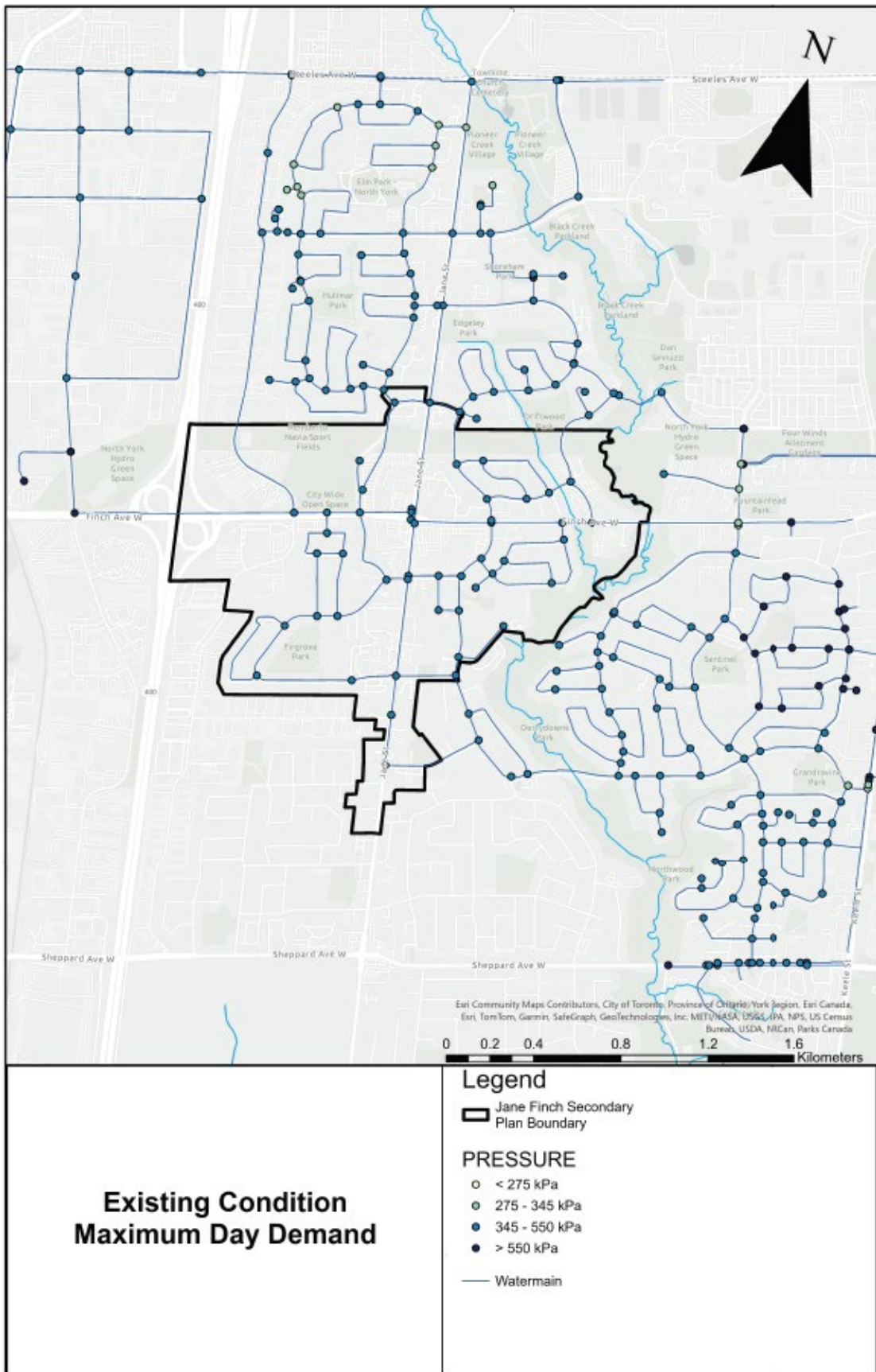


Figure 4 – Water Distribution System - Existing Condition, Maximum Day Demand







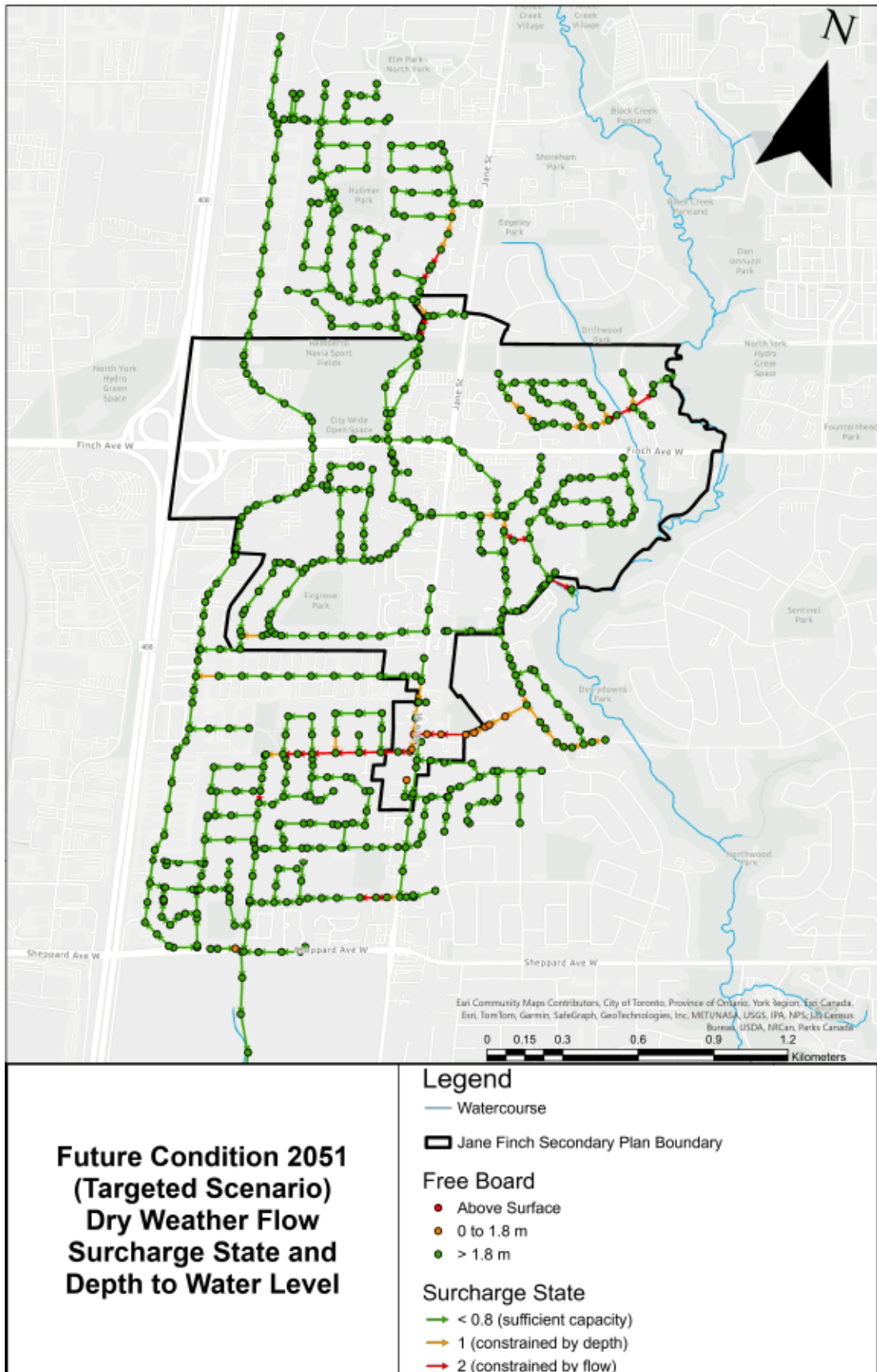


Figure 7 - Sanitary Sewer - Future Condition, Targeted-Level Scenario, Dry Weather Flow

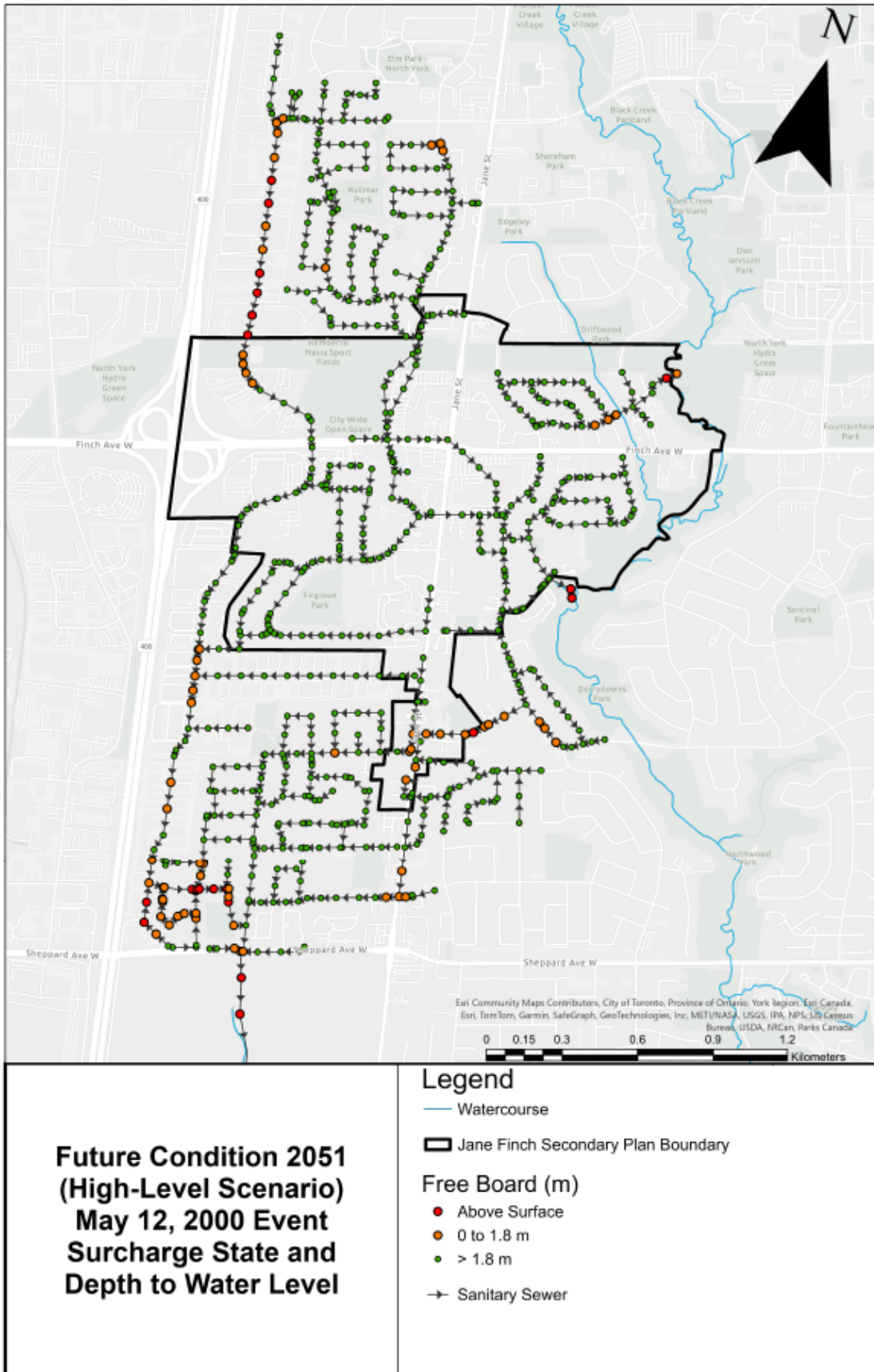


Figure 8 - Sanitary Sewer - Future Condition, High-Level Scenario, Wet Weather Flow (May 12, 2000)

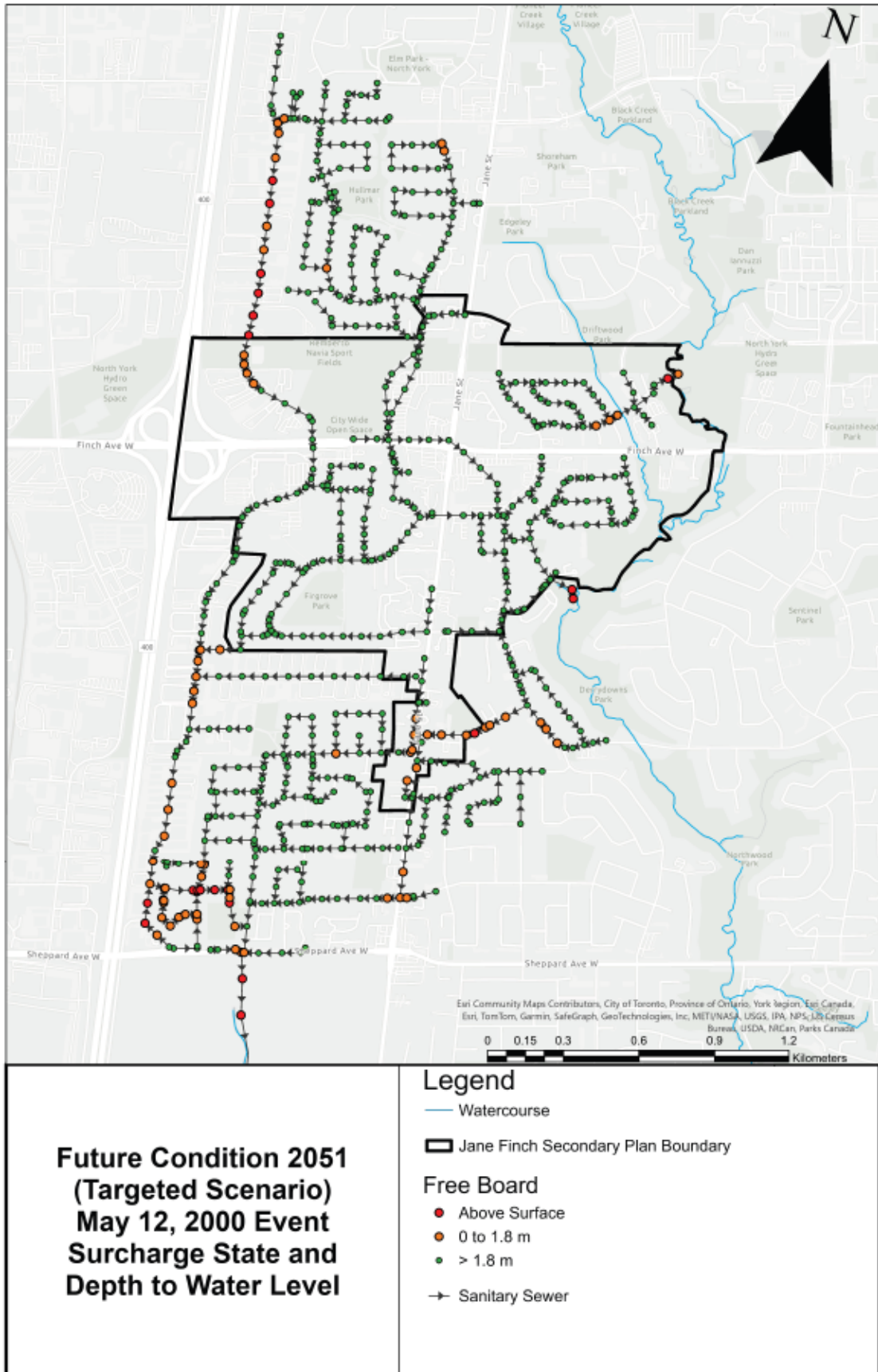


Figure 9 - Sanitary Sewer - Future Condition, Targeted-Level Scenario, Wet Weather Flow (May 12, 2000)

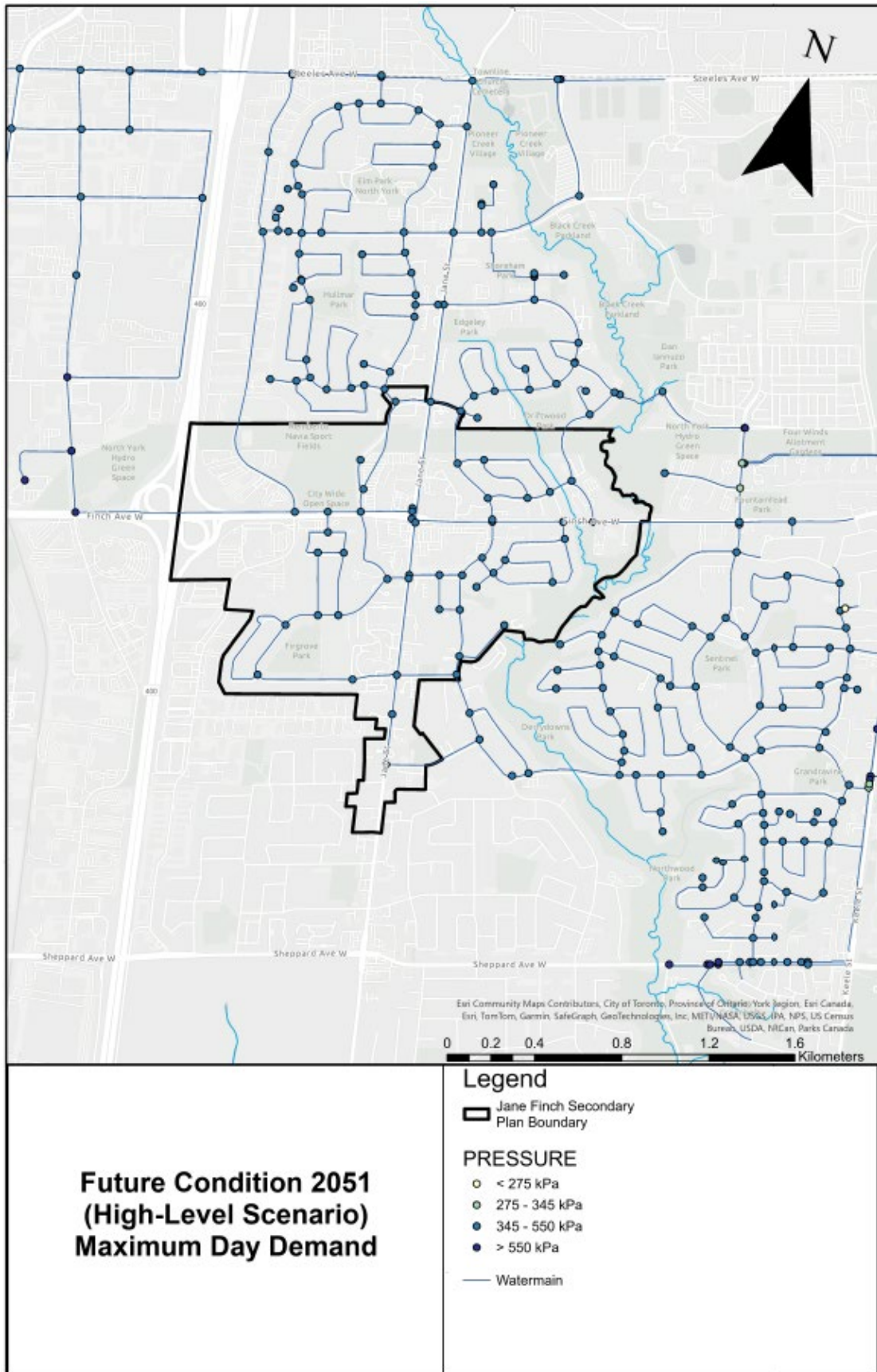


Figure 10 - Water Distribution System - Future Condition, High-Level Scenario, Maximum Day Demand

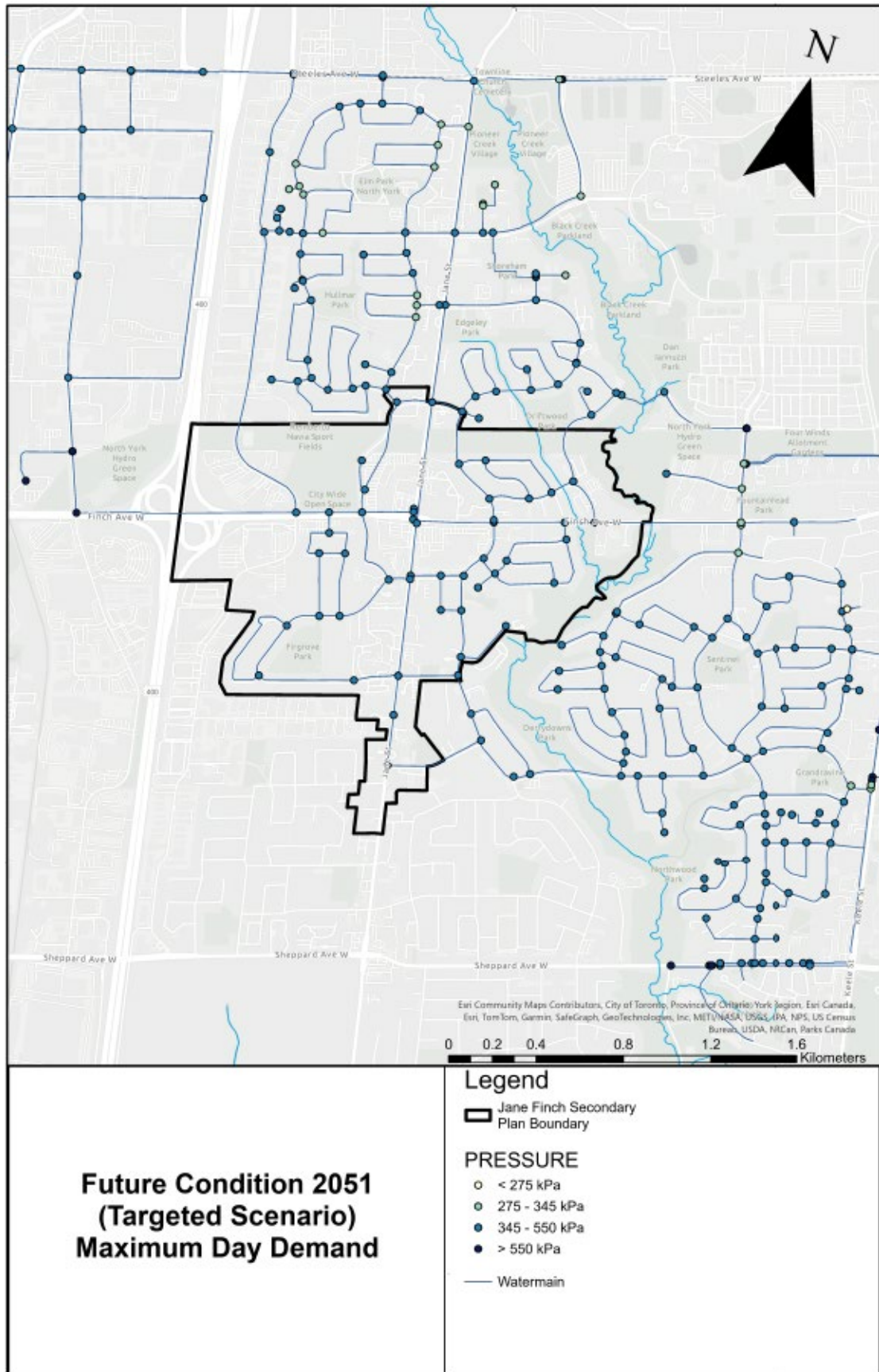


Figure 11 - Water Distribution System - Future Condition, Targeted-Level Scenario, Maximum Day Demand





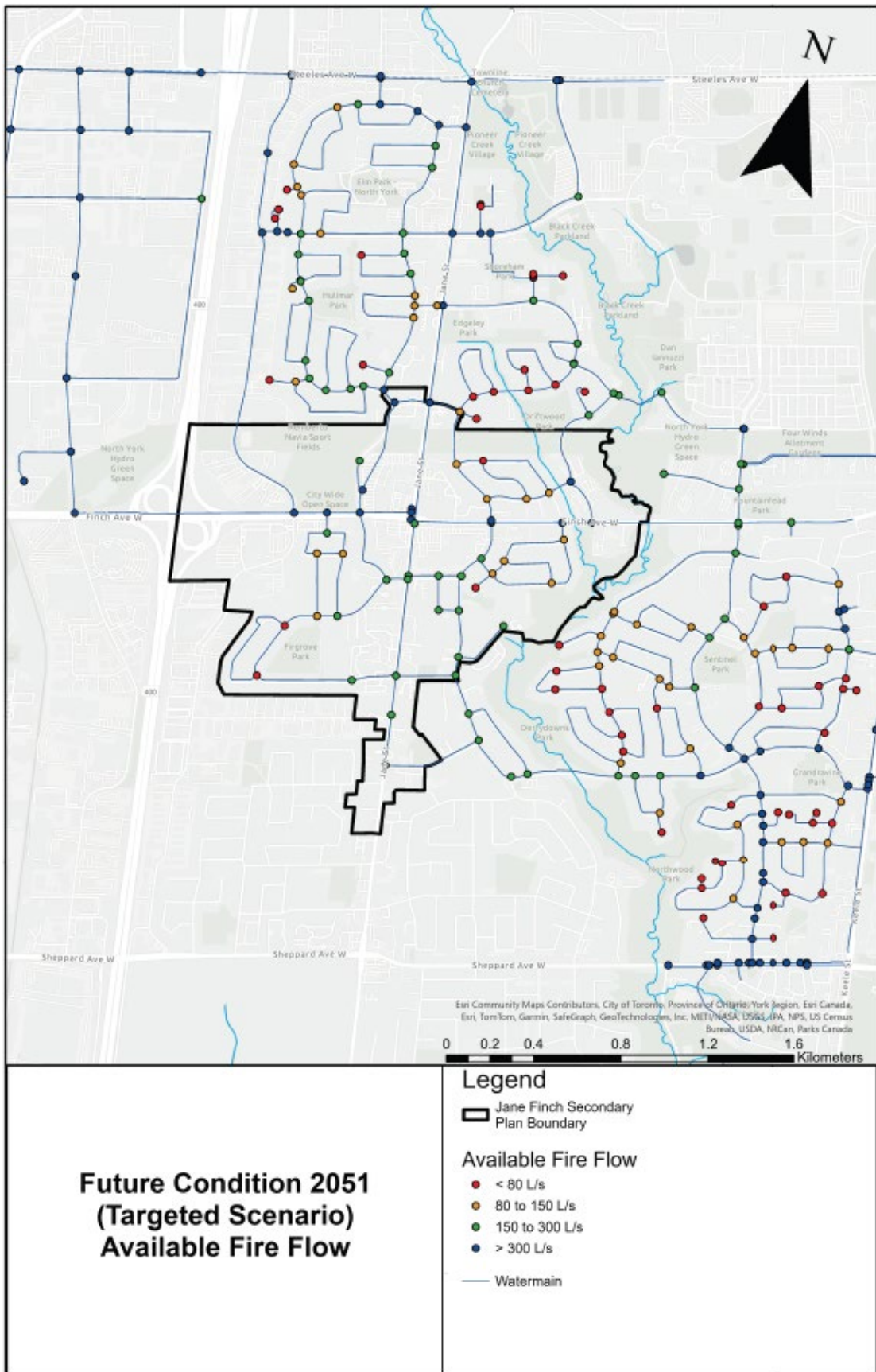


Figure 13 - Water Distribution System - Future Condition, Targeted-Level Scenario, Available Fire Flow