Public Open House – Welcome!

Water and Wastewater System Master Plans

- Please sign in on the sheet provided. Then feel free to walk around and view the displays.
- If you have any questions, our representatives will be pleased to discuss the study with you.
- We are interested in receiving any comments that you may have about the project. Should you have any questions, comments, require further information, or wish to be added to the project mailing list, please contact one of the representatives listed on the last board.

The objectives of this Public Open House:

- Introduce the project and present preliminary alternative solution strategies

- Present the alternative solution strategy evaluation process

- Answer any questions you may have and provide an opportunity to get involved in the project

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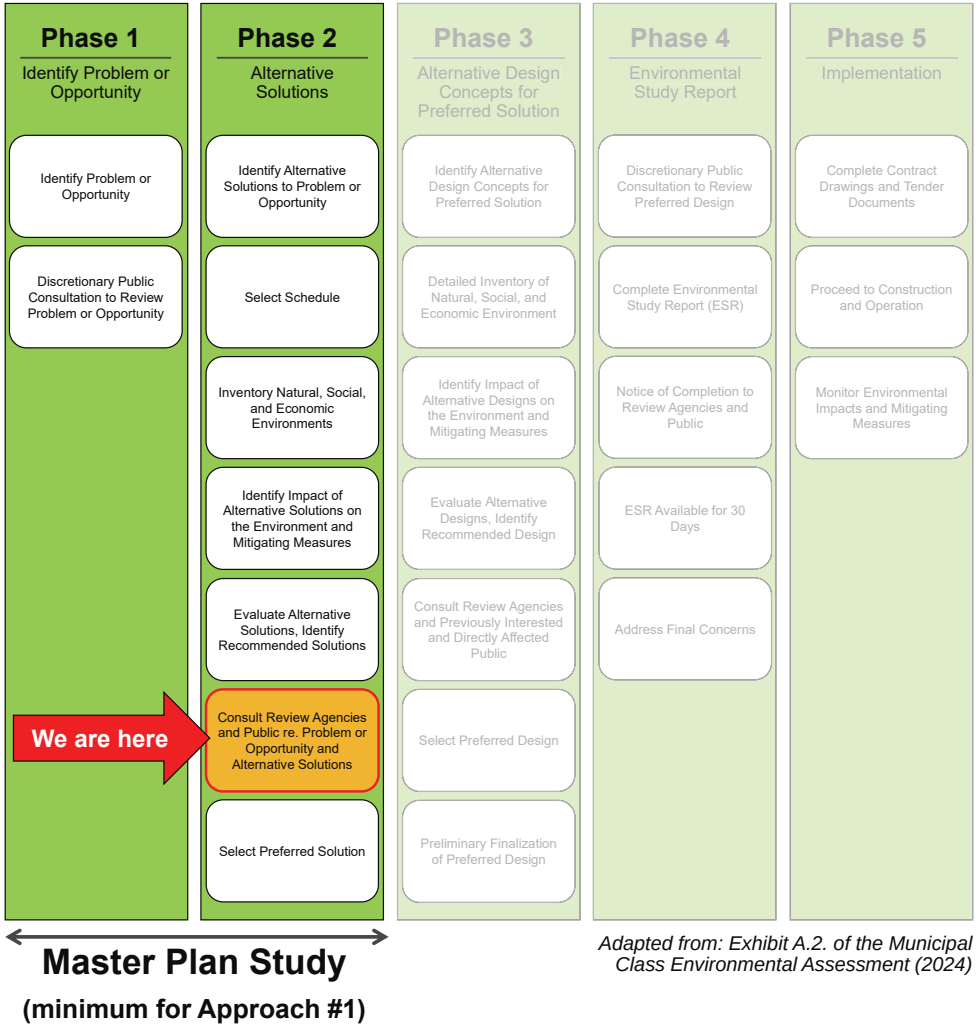
Land Acknowledgement

We are gathering on lands that have been home to First Nations Peoples from time immemorial. We acknowledge that what we now call Richmond Hill is on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation and the Mississauga and Chippewa Nations of the Williams Treaty. We also recognize that we are on part of the traditional territories of the Haudenosaunee and the Huron Wendat.

We would also like to acknowledge all First Nation, Inuit and Métis peoples from across North America, also known as Turtle Island, who now reside in the City of Richmond Hill. We are committed to rebuilding constructive and cooperative relationships.

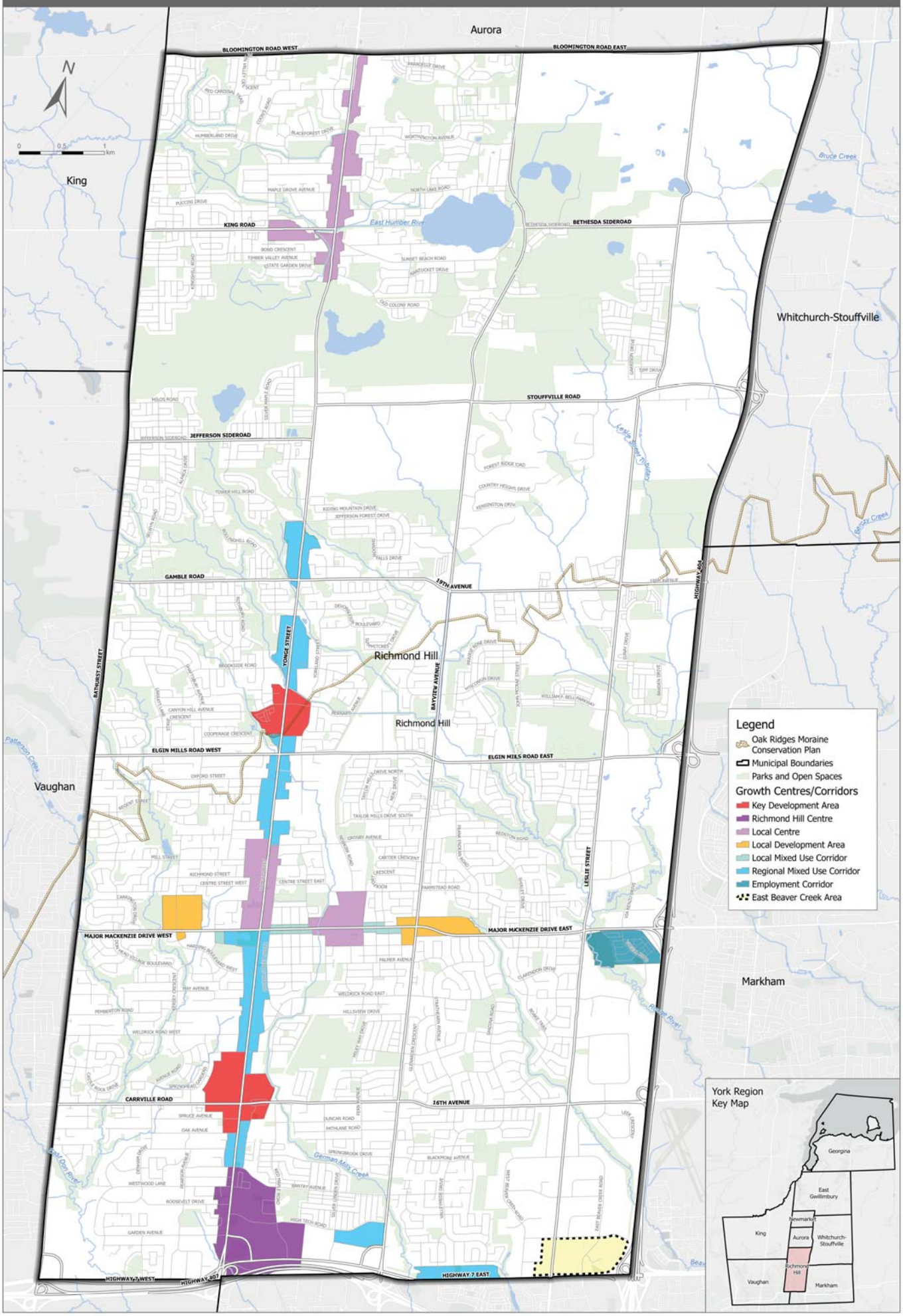
Municipal Class EA Process

- A Municipal Class EA (MCEA) is a process for planning municipal infrastructure projects, in accordance with Ontario's *Environmental Assessment Act (EAA)*
- Master Plans integrate infrastructure requirements for existing and future land use with EA planning principles
  - Involve broad scopes and level of assessments, undertaken on a city-wide scale
  - Broader inventories of natural, social and economic environments



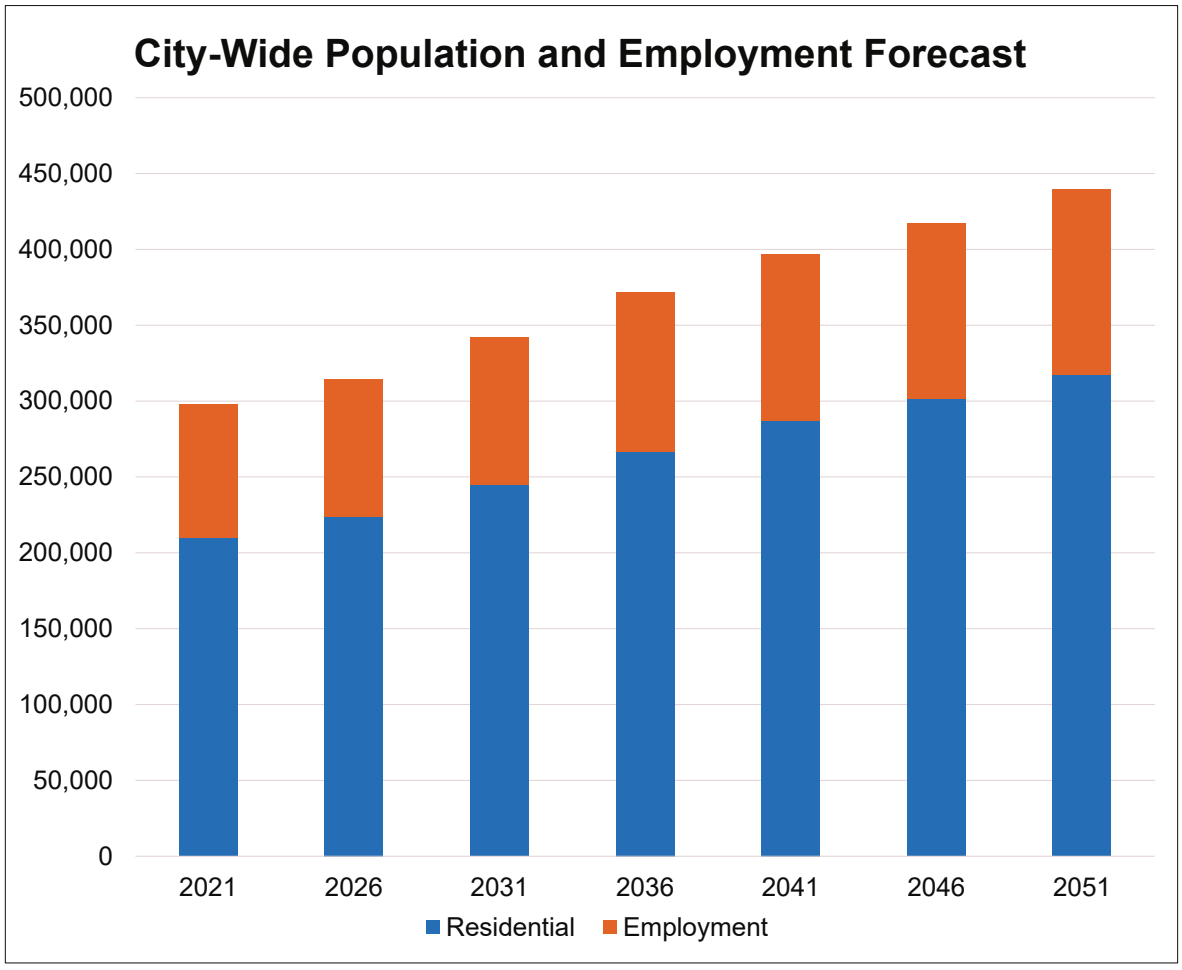
Adapted from: Exhibit A.2. of the Municipal Class Environmental Assessment (2024)

Study Area


Aurora
BLOOMINGTON ROAD WEST
BLOOMINGTON ROAD EAST
King
KING ROAD
BETHESDA SIDEROAD
Whitchurch-Stouffville
STOUFFVILLE ROAD
JEFFERSON SIDEROAD
GAMBLE ROAD
19TH AVENUE
HIGHWAY 404
YONGE STREET
BAYVIEW AVENUE
BATHURST STREET
Richmond Hill
Richmond Hill
ELGIN MILLS ROAD WEST
ELGIN MILLS ROAD EAST
LESLIE STREET
Vaughan
MAJOR MACKENZIE DRIVE WEST
MAJOR MACKENZIE DRIVE EAST
Markham
CARRVILLE ROAD
16TH AVENUE
HIGHWAY 7 WEST
HIGHWAY 407
HIGHWAY 7 EAST
East Humber River
Bruce Creek
Patterson Creek
Rouge River
German Mills Creek
Legend
Oak Ridges Moraine Conservation Plan
Municipal Boundaries
Parks and Open Spaces
Growth Centres/Corridors
Key Development Area
Richmond Hill Centre
Local Centre
Local Development Area
Local Mixed Use Corridor
Regional Mixed Use Corridor
Employment Corridor
East Beaver Creek Area
York Region Key Map
Georgina
East Gwillimbury
Newmarket
King
Aurora
Whitchurch-Stouffville
Richmond Hill
Vaughan
Markham

Population Projections

- York Region's Official Plan forecasts substantial population increases in the City through 2051
- Recommendations from the Water and Wastewater Master Plans are required to accommodate the City's projected growth to ensure that sufficient servicing can be provided in the future
  - Interim performance assessments guide infrastructure phasing and investment as the City grows
  - All infrastructure to be sized for buildout (ultimate) condition



Source Data: 2025 Growth Analysis by Traffic Zone – City of Richmond Hill (Watson & Associates Economists Ltd., 2025)

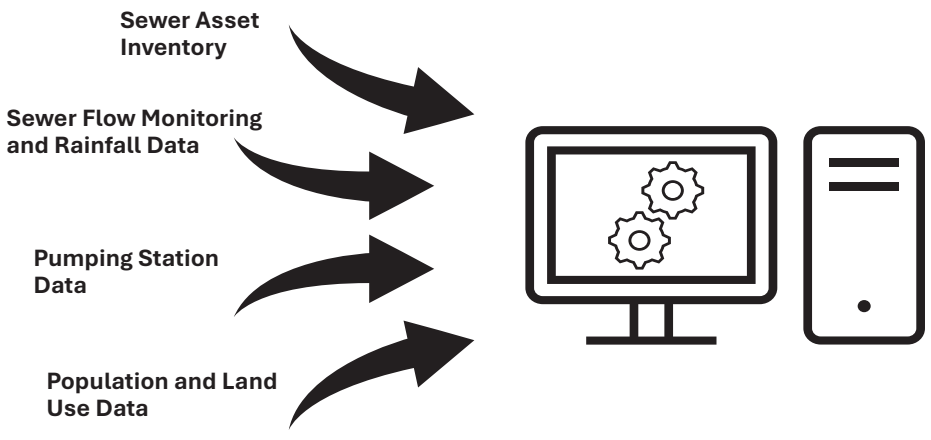
Wastewater System Problem and Opportunity Statement

The City of Richmond Hill is undertaking a City-wide Wastewater System Master Plan with the aim of developing a long-term strategy to support the projected future growth (to 2051) across the City while maintaining or enhancing performance levels in a financially responsible manner.

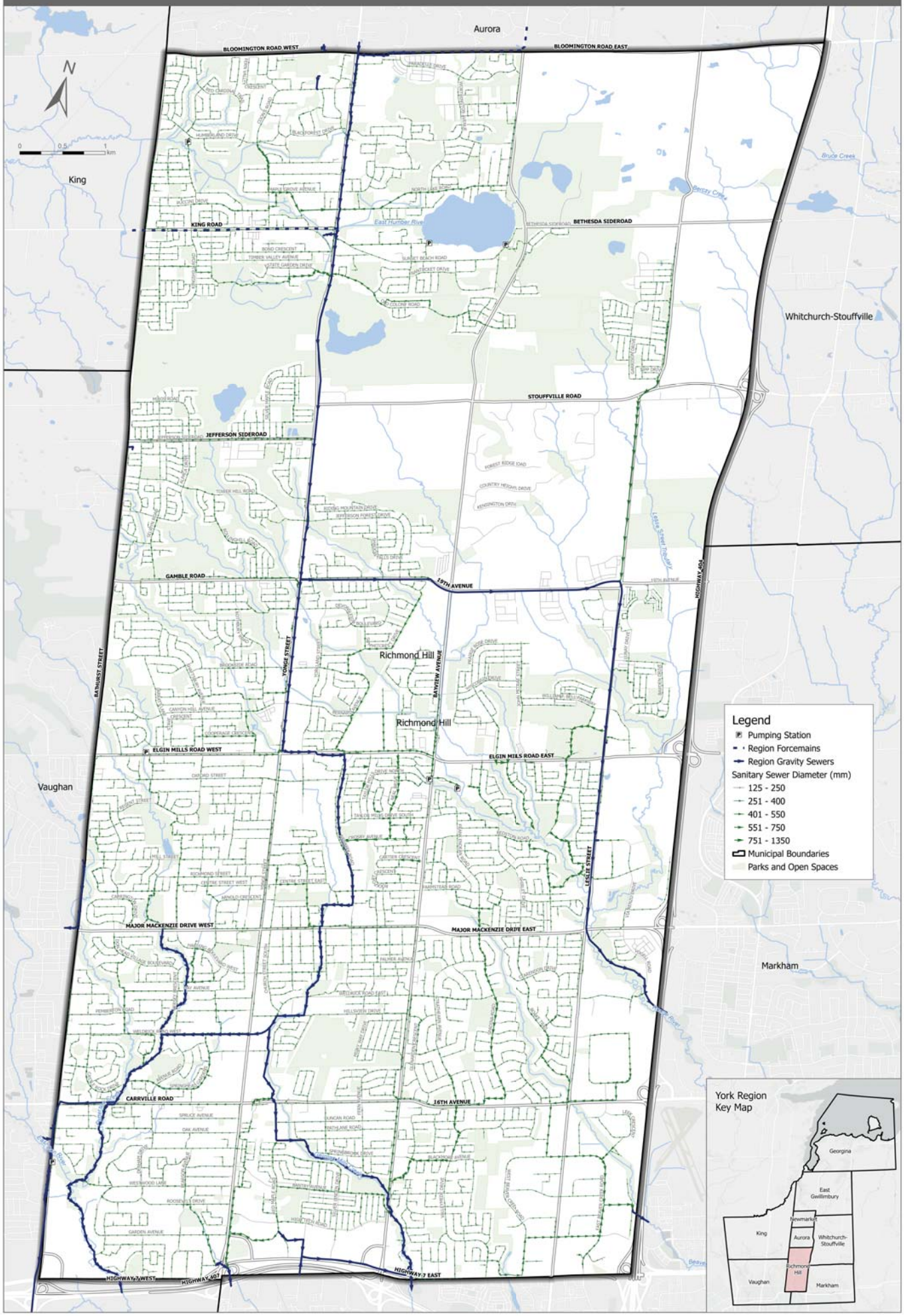
The Master Plan will provide City staff and decision makers with a framework and guide for future wastewater infrastructure investment.

Wastewater System and Computer Model

- Sanitary (wastewater) sewers in the City are part of a two-tier structure
  - City is responsible for operating and maintaining local sewers, service connections and pumping stations
    - 619 km of local sanitary sewers
    - 9,700 maintenance holes
    - Six (6) wastewater pumping stations
    - +47,500 service connections
  - York Region is responsible for trunk sewers and centralized treatment facilities
    - Trunk sewer system and centralized treatment facilities are part of the York-Durham Sewage System (YDSS), jointly owned and operated with Durham Region
    - Wastewater is treated at the Duffin Creek Water Pollution Control Plant in the City of Pickering; treated effluent is discharged into Lake Ontario
- City-wide wastewater system hydraulic model was developed in 2022 and updated as part of this Master Plan Study

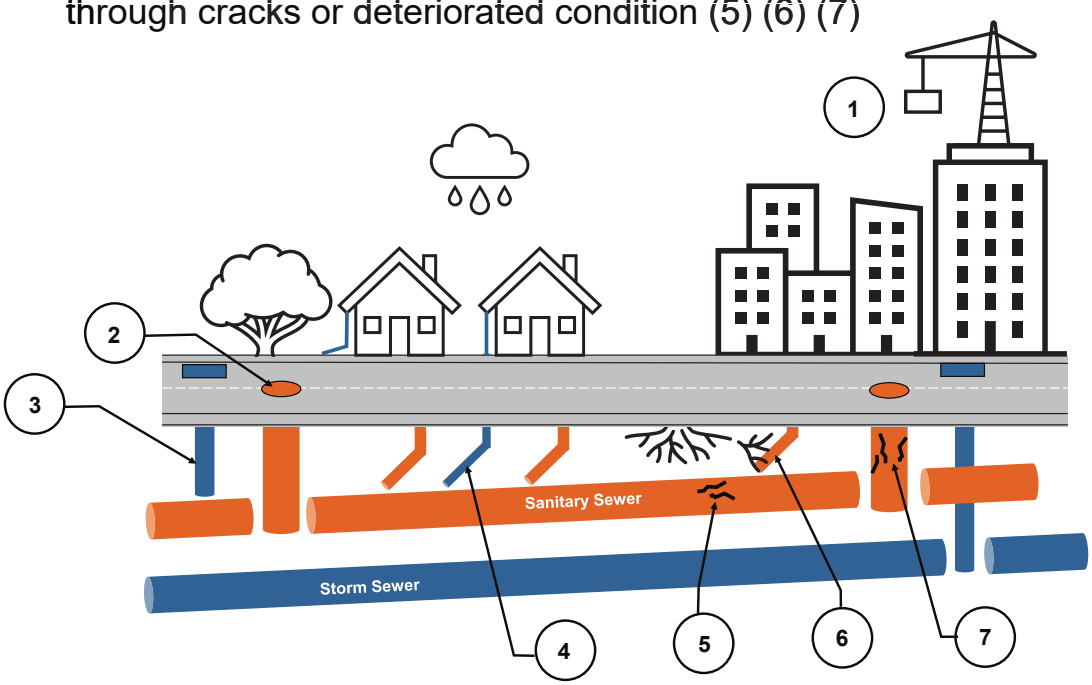


Existing Wastewater System



Wastewater System Performance Challenges

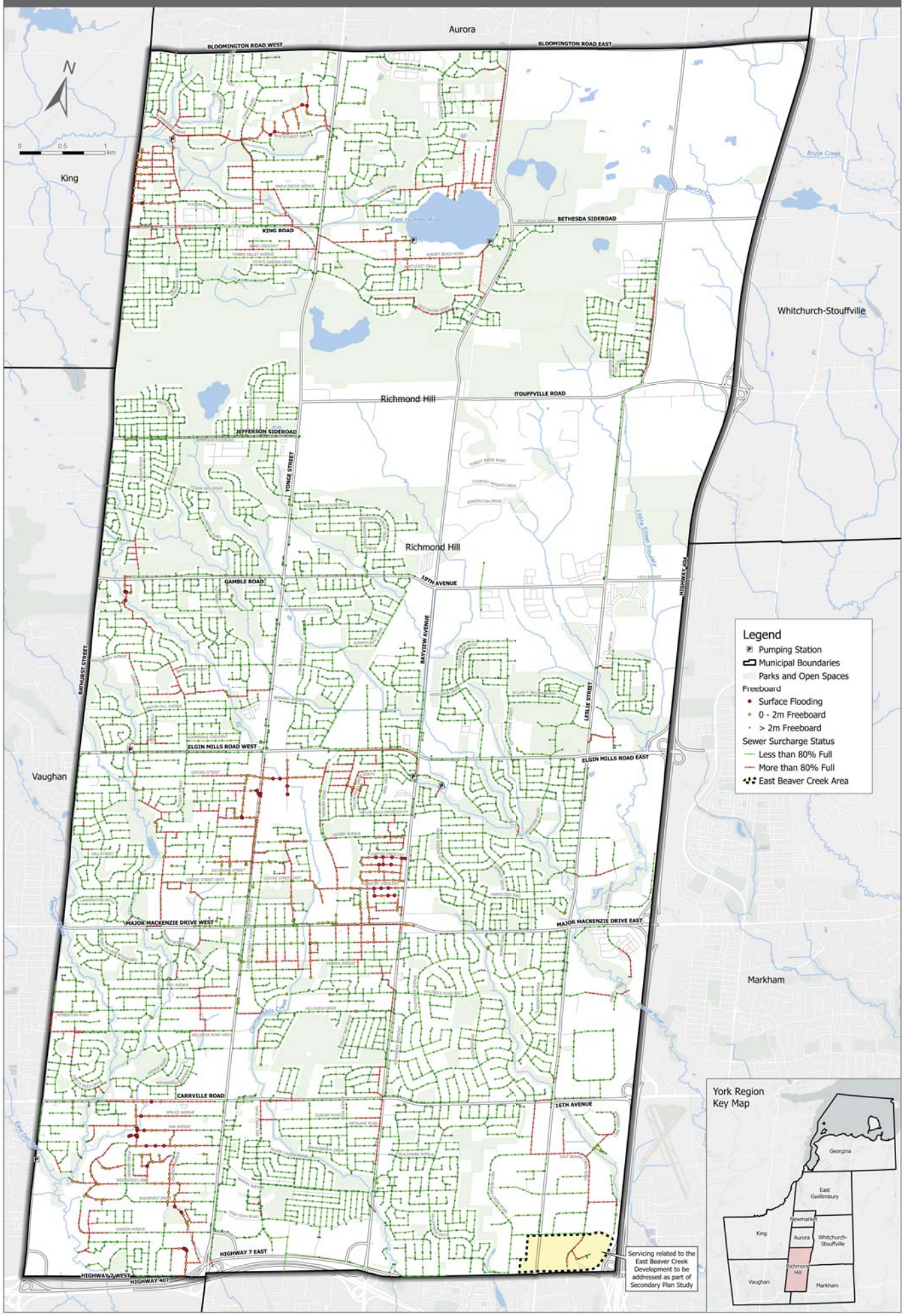
1. **Population Growth**
   - New developments and population growth increase wastewater volume and peak flow, reducing capacity (1)
2. **Inflow and Infiltration**
   - Unwanted groundwater and stormwater can enter the sanitary sewer system, taking up valuable spare capacity
   - **Inflow**: Water (rainfall runoff) entering sanitary sewers from external connections (2) (3) (4)
   - **Infiltration**: Groundwater entering sanitary sewers and laterals through cracks or deteriorated condition (5) (6) (7)



Future System Analysis Results

- Computer simulations show some areas of the City's wastewater system can handle future growth, but others will need increased capacity
- Older neighborhoods are more susceptible to inflow and infiltration
- Required upgrades are influenced by
  - Increased sanitary flow (from population growth)
  - Inflow and infiltration

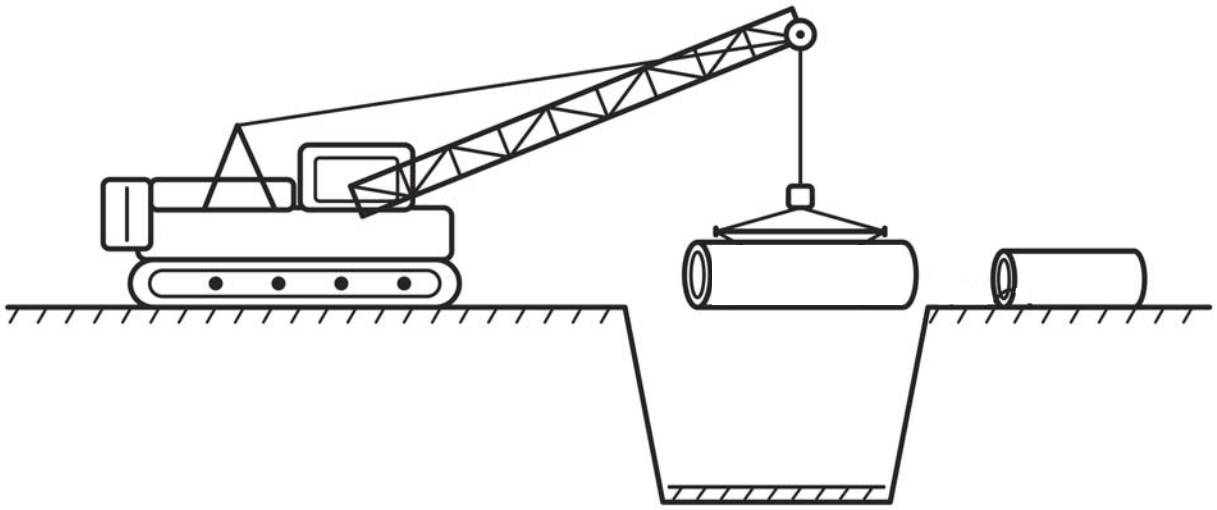
Wastewater System Performance 2051 Under the 100-Year Design Storm



Wastewater System Alternative Solutions

1. **Do Nothing**
2. **Inflow and Infiltration Investigation and Remediation**
3. **Infrastructure Upgrades – Alignment #1**
4. **Infrastructure Upgrades – Alignment #2**

- Four (4) alternatives were developed for each sub-sewershed (small area within a sewer system, where all sewers flow to a common point)
- The Inflow and Infiltration (I&I) Investigation and Remediation alternative quantified the amount of I&I to be removed to fully resolve performance deficiencies. Remediation measures may include:
  - Sewer lining, cured-in-place pipe
  - Maintenance hole sealing, and frame and cover repairs
  - Downspout disconnection, catchbasin or area drain redirection
- The main differences between the Infrastructure Upgrades alternatives are:
  - **Alignment #1**: New or replacement sewers along the most direct flow paths
  - **Alignment #2**: New or replacement sewers exclusively within the existing right-of-way



Wastewater System Alternative Solution Evaluation Criteria

Natural Environment Considerations

- Natural heritage features
- Fisheries and aquatic resources
- Vegetation and flora
- Wildlife resources and linkages
- Surface water and groundwater

Cultural Heritage and Indigenous Communities Considerations

- Archaeological resources and areas of archaeological potential
- Built heritage and cultural heritage landscapes
- Reserve lands and traditional land use areas
- Aboriginal and treaty rights

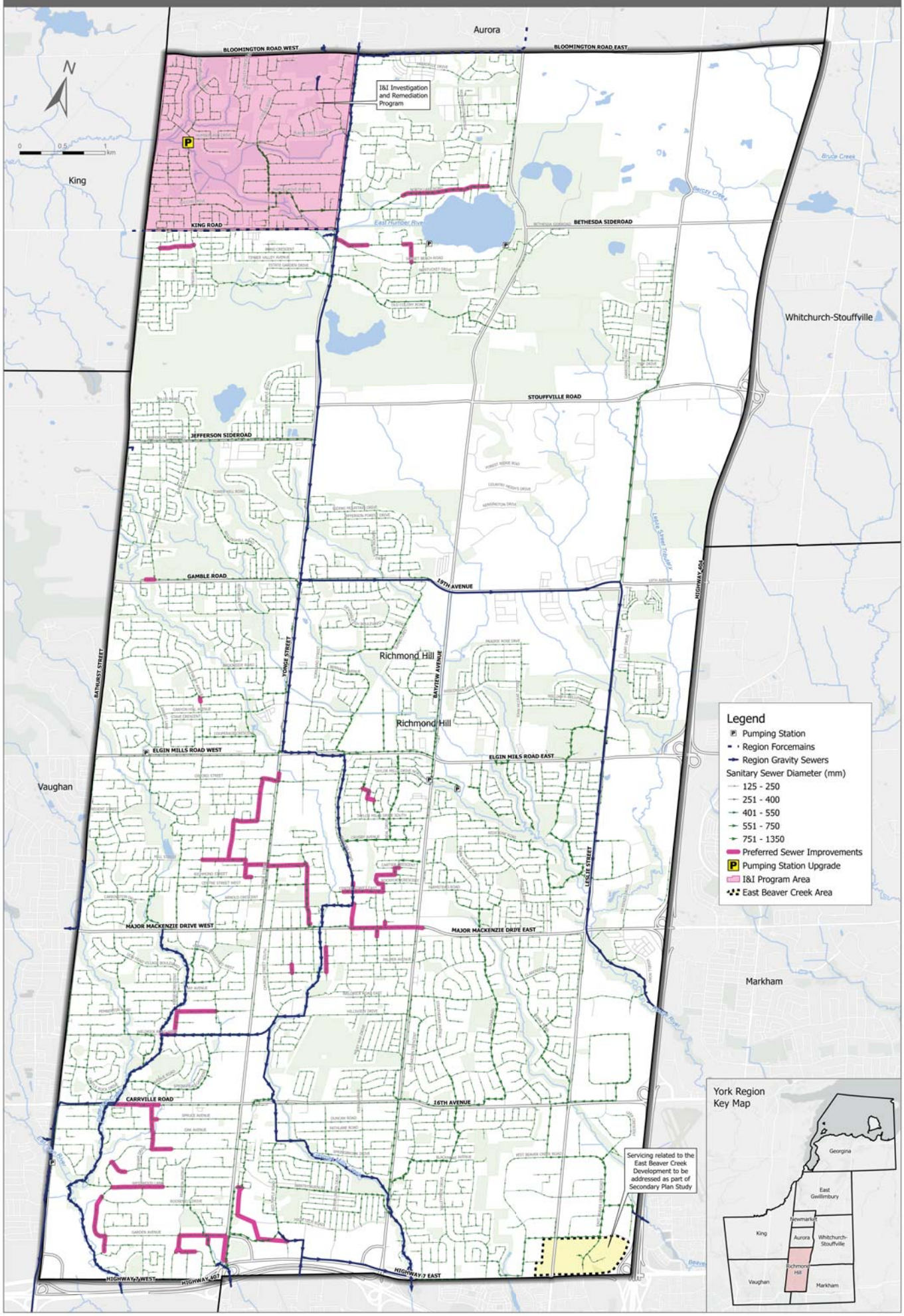
Socio-Economic Considerations

- Existing communities, including residential and recreational areas
- Air quality and aesthetics
- Existing and planned land uses
- Existing and future transportation networks

Technical and Cost Considerations

- Constructability
- Effectiveness
- Easement and/or property acquisition
- Coordination opportunities with existing and planned infrastructure
- System redundancy
- Capital and maintenance costs

Wastewater Preferred Recommendations 2051 Horizon



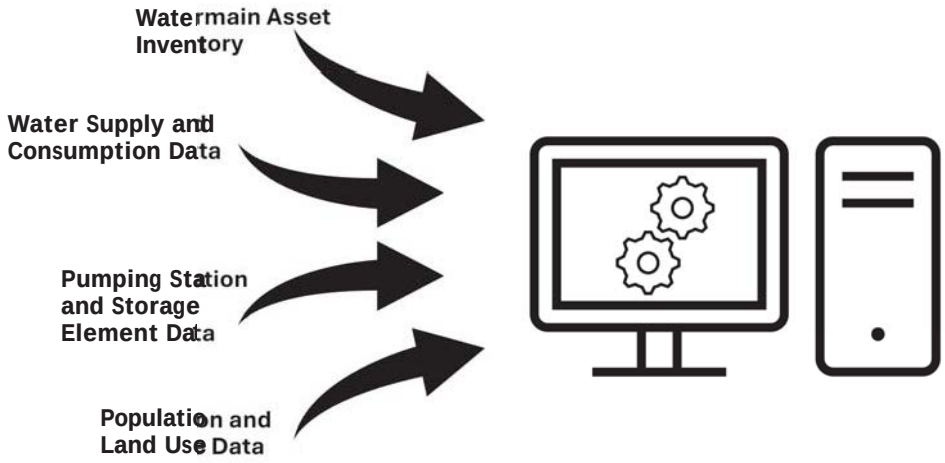
Water System Problem and Opportunity Statement

The City of Richmond Hill is undertaking a City-wide Water System Master Plan with the aim of developing a long-term servicing strategy that meets current needs and supports growth while pursuing the objectives of maximizing existing system capacity and implementing new infrastructure in an economically efficient and financially sustainable manner.

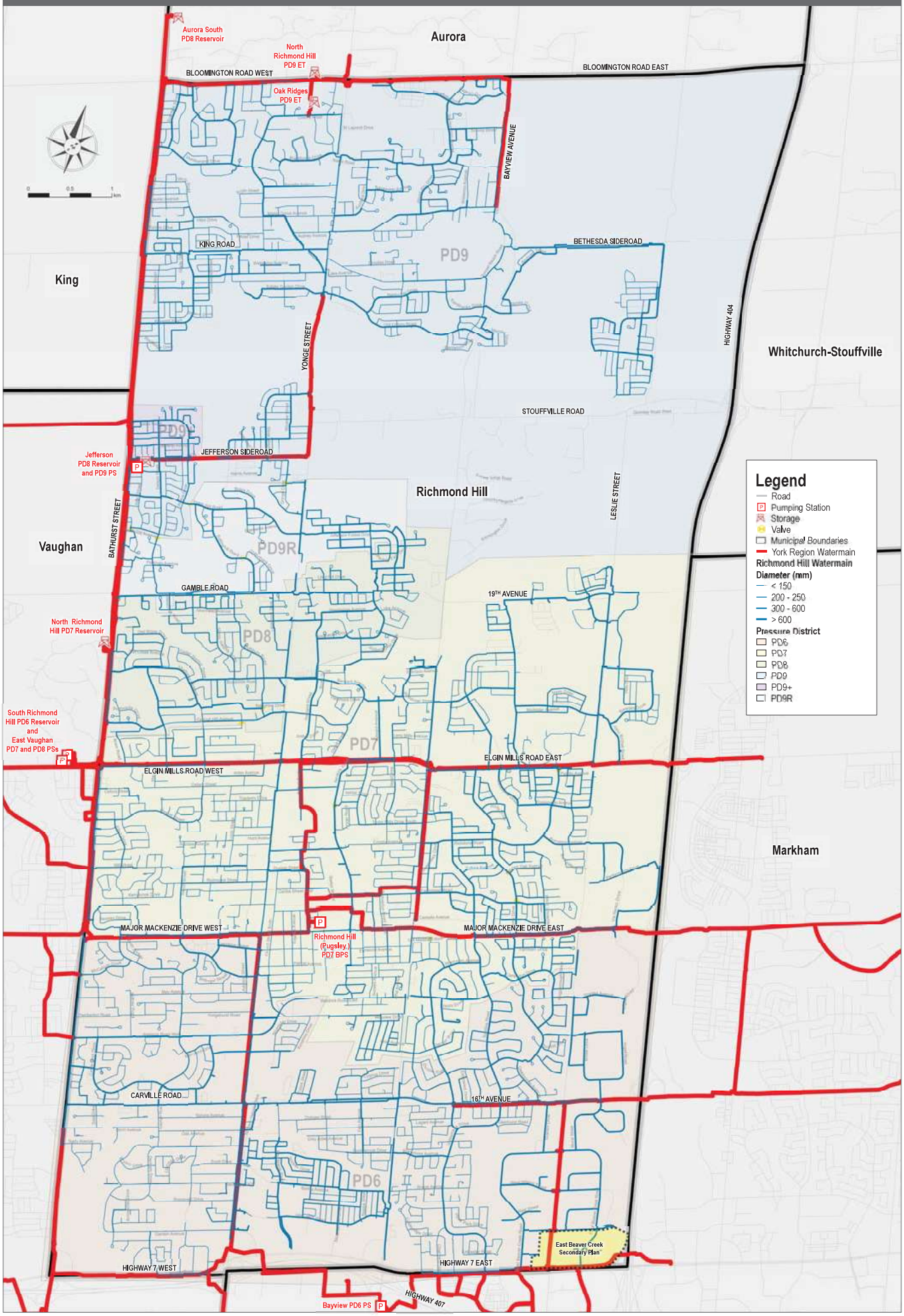
The Master Plan will provide City staff and decision makers with a framework and guide for future water infrastructure investment.

Existing Water System and Computer Modelling

- The two main functions of the water supply system are to provide:
  - Adequate pressures for daily use
  - Sufficient flow for fire suppression
- Water supply for the City is part of a two-tier structure:
  - City is responsible for operating and maintaining local watermains, valves, hydrants, connections and booster pumping facilities
    - 635 km of watermain
    - 5,000 fire hydrants
    - 7,130 valves
    - 1 booster pumping vault
  - York Region receives treated water from the City of Toronto and Peel Region, and is responsible for large-scale pumping, transmission and storage
    - 9 pumping stations
    - 10 storage elements, including 8 reservoirs and 2 elevated tanks
    - A network of large diameter transmission mains
- City-wide water system hydraulic model was developed in 2021 and has been updated as part of this Master Plan Study



Existing Water System



Forecasted Growth in Water Demand

Peak hourly demand is expected to grow across Richmond Hill over time relative to existing conditions as illustrated below.

Visualization of Forecasted Growth in Peak Hourly Demand Across Richmond Hill Over Time

The most significant growth is expected to be concentrated along Yonge Street and other key transportation corridors.

Water System Impacts

The impacts of increased water demand include:

- Reduced water pressures during peak demand periods
- Wider fluctuations in water pressures which will result in:
  - Variable performance
  - Increased stresses on watermains and household piping/appliances
- Reduced fire flow capacity

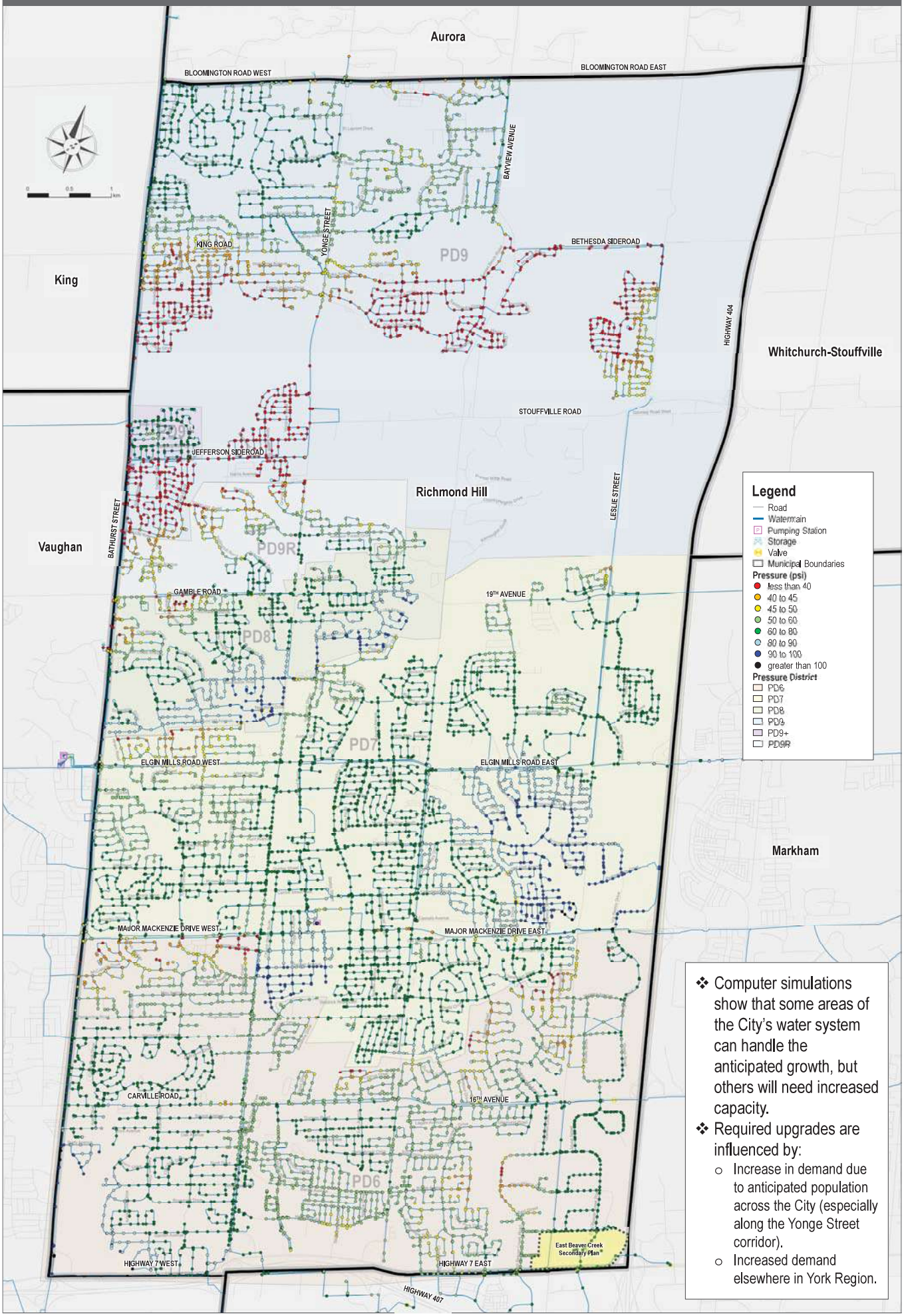
Other Challenges

Aging water infrastructure is often associated with increased **leakage** in the system

- Additional and unnecessary demand on the system
- Difficult to detect and find
- Often costly to repair

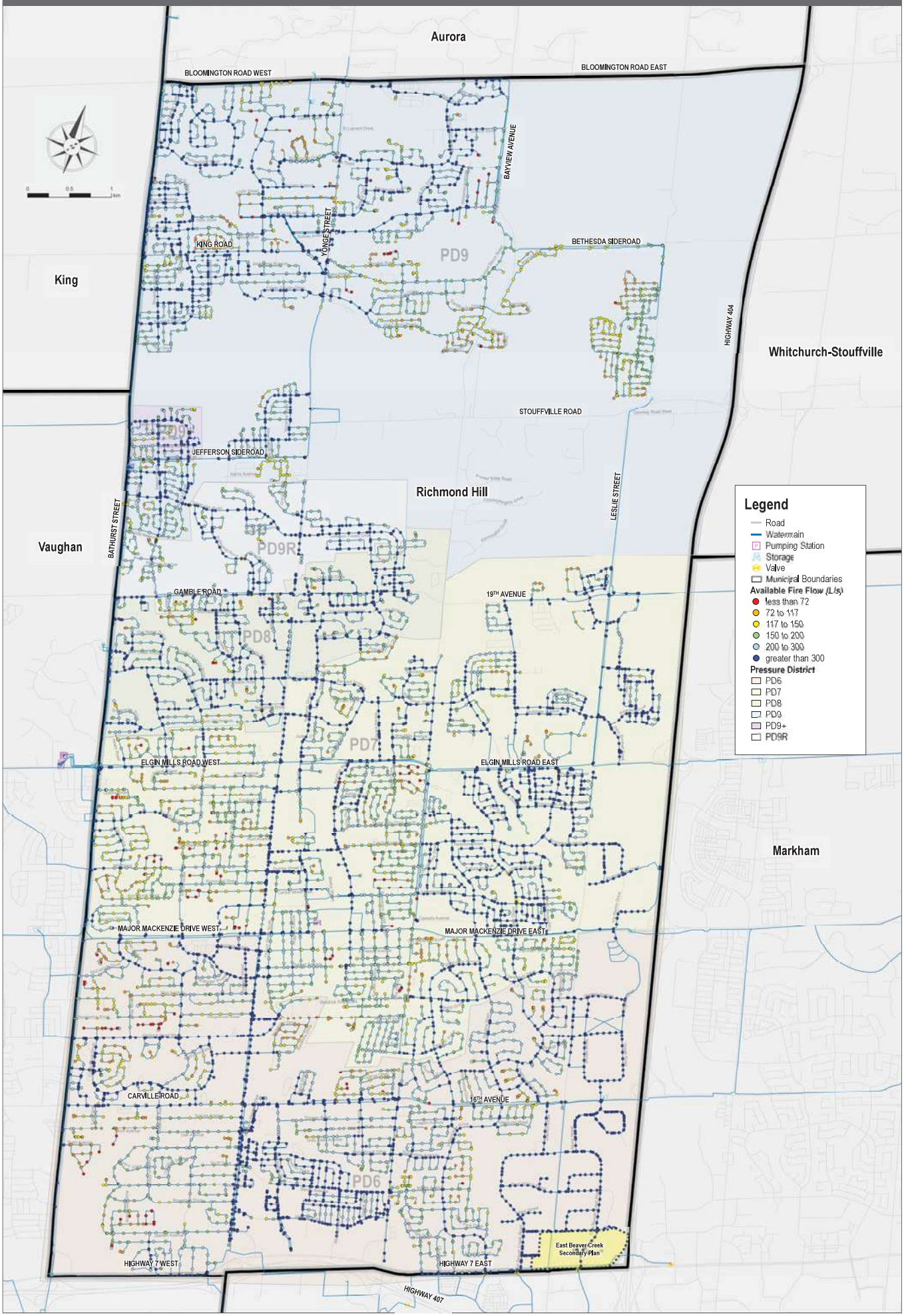
Leak at Pipe Joint

Water System Performance 2051 - Pressures



- Computer simulations show that some areas of the City's water system can handle the anticipated growth, but others will need increased capacity.
- Required upgrades are influenced by:
  - Increase in demand due to anticipated population across the City (especially along the Yonge Street corridor).
  - Increased demand elsewhere in York Region.

Water System Performance 2051 – Fire Flows



Water System Alternative Solutions

1. Do Nothing
2. Water Conservation and Leakage Reduction
3. Infrastructure Expansions
4. Infrastructure Upgrades

Four (4) alternatives were developed for each of the pressure districts:

- Water conservation and leakage reduction target efficiency improvements in the existing system and may include:
  - Water-efficient fixtures in homes and businesses
  - Increased awareness and enforcement of outdoor water use restrictions
  - Leak detection and repair
- Infrastructure expansions bring new watermains to currently undeveloped areas of the City that will experience growth
- Infrastructure upgrades seek to improve:
  - The capacity of the water supply system in currently developed areas of the City which will be needed for growth through intensification
  - Standards and practices as well as available monitoring, control and management systems

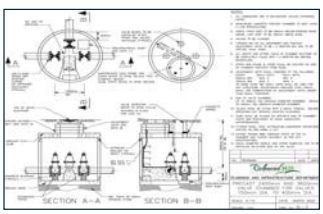
Watermain Improvements
- New watermains
- Watermain replacements
- Increasing watermain size
- Improving connectivity

Supply Improvements
- New supply points
- New pumping stations
- Increased pumping capacity
- New storage elements
- Increased storage capacity

Water Use Management
- Efficient water use practices
- Leak detection and repair

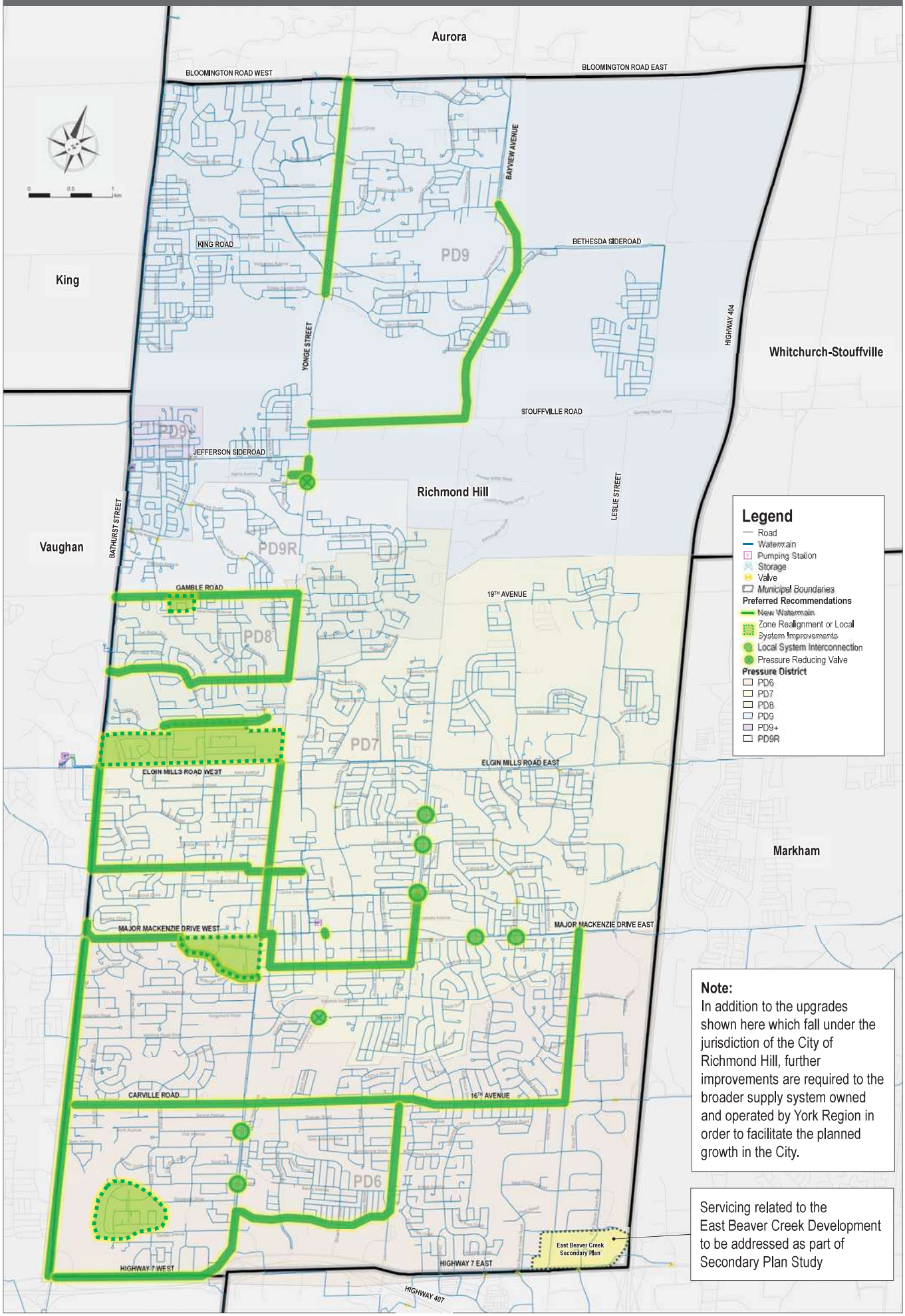
System Monitoring and Control
- Performance data collection
- Pressure and flow monitoring
- Field testing
- Pressure management

Updating Standards
- Design criteria
- Performance criteria
- Improving standards



Management Tools
- Database mining
- Performance analytics
- Predictive modelling
- Digital "twin"

Water System Preferred Recommendations 2051 Horizon



Note:
In addition to the upgrades shown here which fall under the jurisdiction of the City of Richmond Hill, further improvements are required to the broader supply system owned and operated by York Region in order to facilitate the planned growth in the City.

Servicing related to the East Beaver Creek Development to be addressed as part of Secondary Plan Study

Next Steps

July 2026	Review and respond to Public and stakeholder comments
July 2026 – August 2026	Continue to engage Indigenous Communities and consult with the Public and stakeholders
August 2026	Finalize recommended solutions
September 2026	Prepare Master Plan reports
Q4 2026	Post Master Plan reports for Public comment

* Tentative Schedule

City of Richmond Hill

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