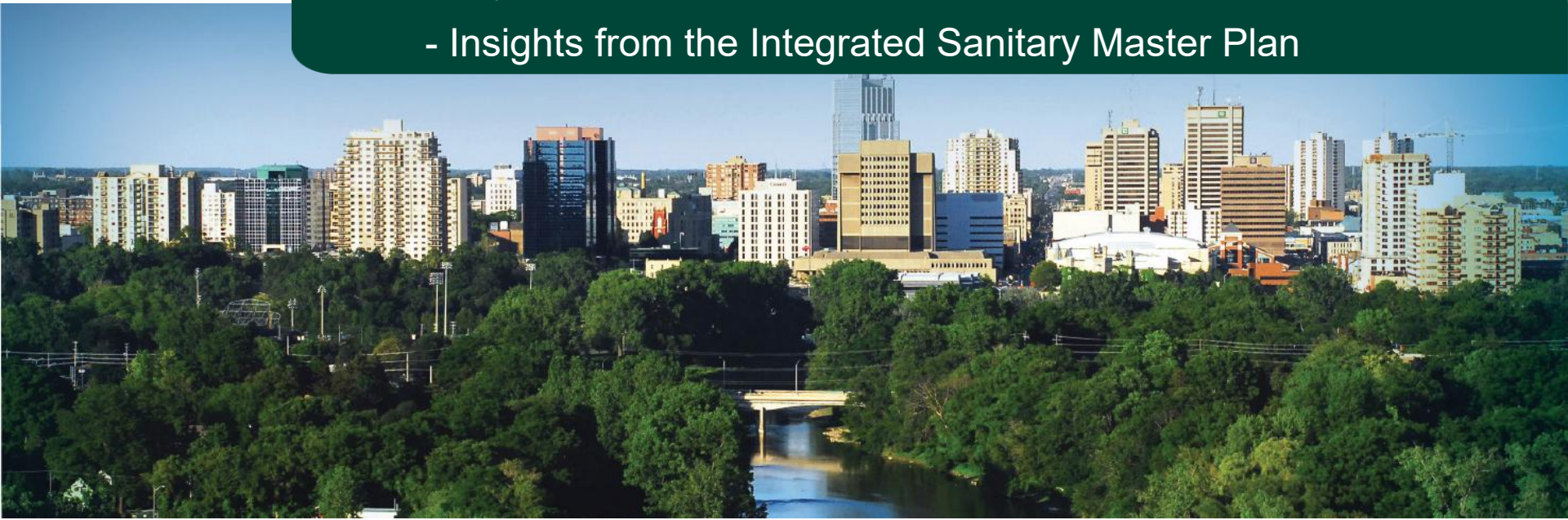
Bridging the Gap: From Strategic Planning to Capital Delivery in Sanitary Infrastructure

- Insights from the Integrated Sanitary Master Plan



Jean Hao - City of Kitchener

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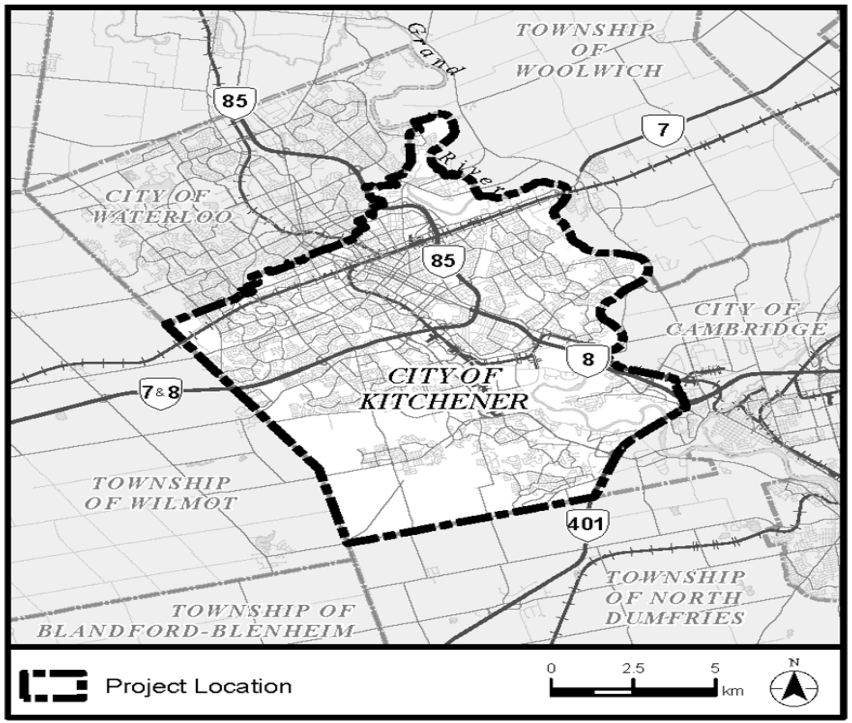
Urban Growth & Infrastructure Challenge



- **Urban growth**:

Population from 330K to 754K, increasing demand

- **Sanitary Infrastructure Load**:

850+ km pipes, 22 pumping stations, increased stress

- **Climate Change Impact:**

Extreme rainfall events driven by climate change increase the need for resilient and sustainable infrastructure solutions.

- **Master Plan Necessity**

Need a Master Plan to address current and future infrastructure challenges sustainably.

Purpose and Scope

- **System Assessment**

Evaluates the sanitary system to identify current challenges and future needs.

- **Planning and Projections**

Integrates new policies and growth forecasts to ensure capacity

- **Stakeholder and Data Integration**

Data analysis and stakeholder input

- **Guiding Capital Investments**

Directs investments and operational strategies for an effective sewer system

Key Findings and Issues

- **Capacity Limitations**

Faces capacity challenges that limit growth and strain existing systems.

- **Infrastructure Deterioration**

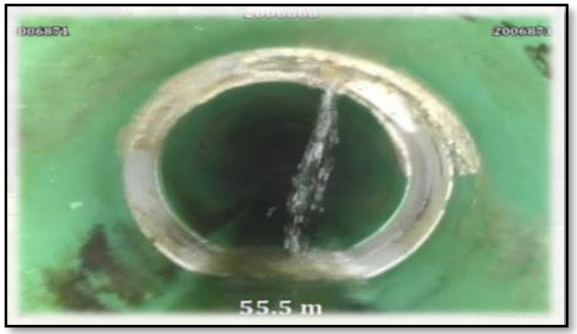
Aging and deteriorating infrastructure increased maintenance needs and potential failures.

- **Data Gaps and I/I Challenges**

Data gaps hinder informed decisions; inflow and infiltration issues worsen system efficiency.

- **Climate and Chemical Risks**

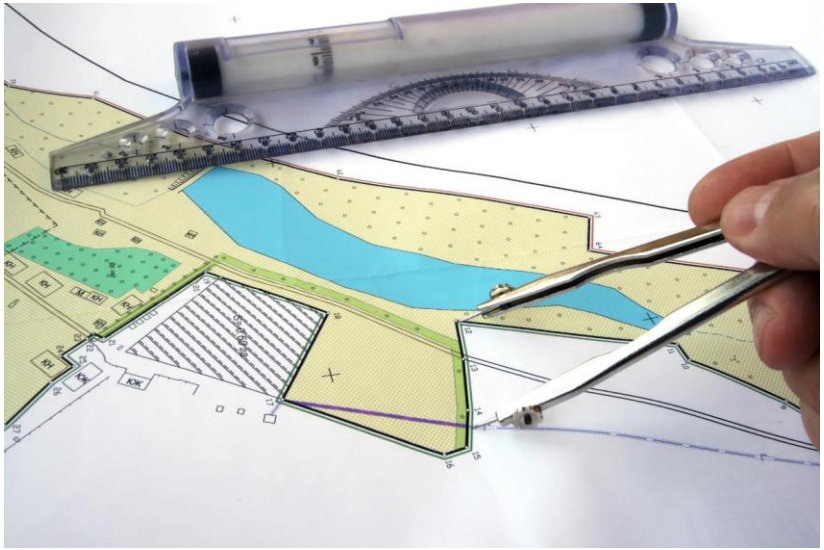
Climate change impacts and hydrogen sulfide damage present serious risks to infrastructure longevity.



Picture 1: Infiltration Gusher

Picture 2: Hydrogen Sulfide Damage

Evaluated Alternatives



- 1 – Do Nothing
- 2 – Shaping Community Growth
- 3 – Infrastructure Updates
- 4 – Data Acquisition Programs

Recommended Strategy

Shape Community Growth

Infrastructure Upgrades

Data Acquisition Programs

Shape Community Growth

- Monitor growth for projections.

- Timely reviews

Infrastructure Upgrades

Manchester Pumping Station

A. Capacity-based projects

Increase system capacity through targeted replacements to improve efficiency and support future growth.

B. Condition-based projects

Renew high-risk assets and upgrade aging infrastructure—scope to be confirmed through further investigation.

Data Acquisition Programs

- Rainfall & Flow Monitoring Program
- InfoWorks ICM Model Updates & Maintenance
- Sanitary Sewer & Forcemain Investigation Program
- Inflow and Infiltration (I/I) Reduction Program
- Hydrogen Sulfide Monitoring and Dosing Program

Technical Tools

Hydraulic Modeling (InfoWorks ICM)

- Simulate the operation of the sanitary sewer system
- Latest infrastructure, population, and other inflow data

- Capital planning, Operational assessment, and Decision-making

Growth Management Tool

- Tracks development and zoning applications at the sewershed scale to manage urban growth effectively
- Input the Development and Zoning Application information into a “balance sheet” at a per-sub-truck sewershed scale

Implementation Roadmap

- Environmental Study Report approval completed
- Identified projects and programs

- Ongoing community engagement

- Annual budget cycles driven by data

Financial Implications

- Funding allocated through the Water Infrastructure Program (WIP) 2023

- Additional need to 2051: $75 M

- New infrastructure priorities identified in data acquisition activities

Lessons Learned & Takeaways

- **Align Planning and Capital Programming**

Effective infrastructure delivery requires strategic alignment between planning efforts and capital investment programming.

- **Address Data Gaps**

Identifying and filling data gaps ensures accurate modeling and decision-making for infrastructure projects.

- **Modeling Tools as Living Resources**

Treat modeling tools as evolving resources that require continuous updates and stakeholder inputs for effectiveness.

- **Integrate Policy with Service Goals**

Successful infrastructure outcomes depend on synchronizing policy frameworks with service delivery objectives.

Q&A / Contact

Thank You!

Questions, ideas, or collaboration opportunities?

Email: Jean.Hao@kitchener.ca