CALEDONIA MASTER SERVICING PLAN UPDATE

Public Open House

Welcome to this Public Open House for the **Caledonia Master Servicing Plan Update.**

We want to hear from you.

Please fill out the comment sheet provided at today's **Public Open House** and leave it in one of the boxes provided.

Additional information is available on the project website at www.haldimandcounty.ca

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Haldimand County

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Problem / Opportunity Statement

The purpose of this Master Servicing Plan (MSP) Update is to evaluate Caledonia's long-term infrastructure needs to match the growth in Caledonia over the near-term (10 year) and long-term (25 year) future. Four servicing components will be evaluated through this MSP Update:

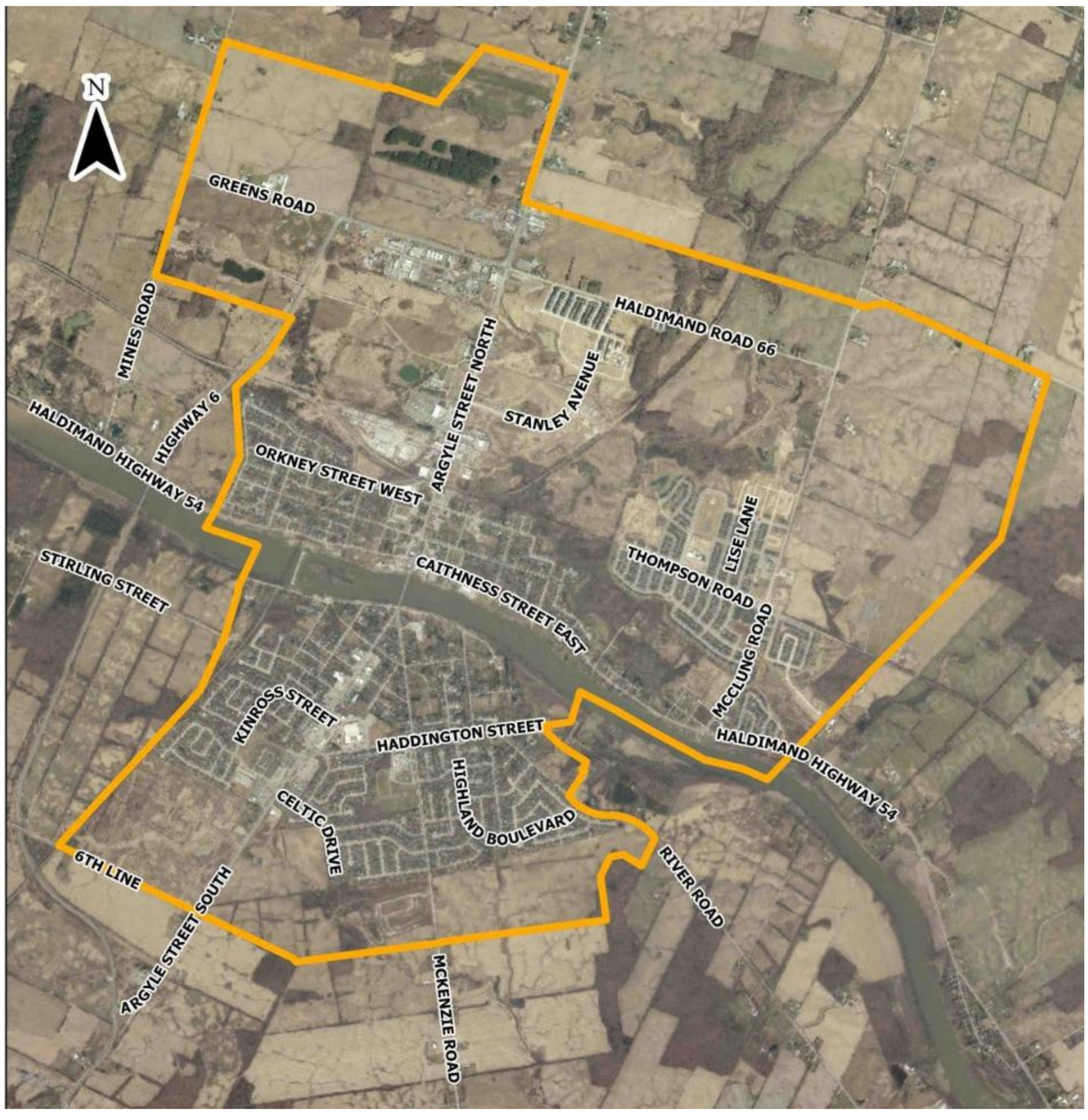
WATER

WASTEWATER

STORMWATER

TRANSPORTATION

Through consultation with participating stakeholders and rightsholders, the MSP framework will enable the consideration of options and identify preferred infrastructure solutions that are environmentally, socially, and financially responsible and sustainable.



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MSP Study Approach

Phase 1: Existing Conditions Analysis

- Collect data and update models
- Establish existing conditions and identify servicing constraints
- **Consult with First Nations and Public (Public Open House #1)**

We Are Here

Phase 2: Future Conditions

- Confirm forecasted growth and development
- Identify servicing constraints based on near-term, long-term and future scenarios

Phase 3: Alternative Solutions

- Develop and evaluate alternative servicing solutions
- Identify recommendations
- **Consult with First Nations and Public (Public Open House #2)**

Phase 4: Implementation Plans and Final Reports

- Prepare a risk-based implementation plan including financial analysis
- Present to Council

Project materials are available on County web page. Public, First Nations and Stakeholder comments are welcome throughout the study and will be documented.

TRANSITION TO THE NEW FRAMEWORK

Ontario is replacing the Municipal Class Environmental Assessment (MCEA) process with the Municipal Project Assessment Process (MPAP) effective January 1, 2027. As this study began prior to January 1, 2027, it will be completed under the applicable transition requirements. Future infrastructure projects identified through the MSP update will proceed in accordance with the legislation and approval requirements in effect at that time.

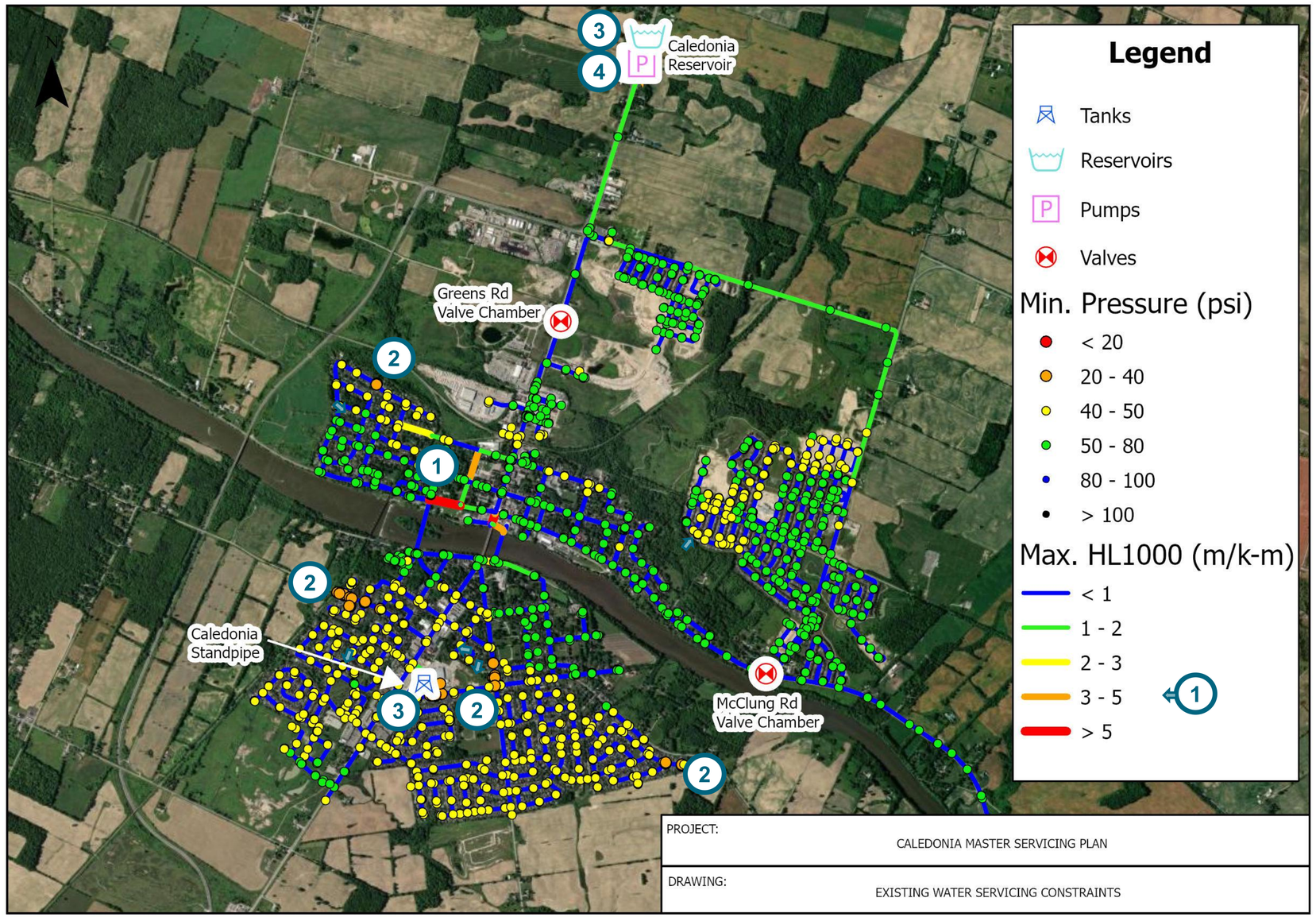
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Existing Water Servicing Conditions



1 **Watermains** – Areas of high headlosses with existing water demands include the following:

- Orkney St
- Shetland St
- Caithness St
- Argyle St
- Forfar St

2 **Water Pressure –** Areas of higher elevation experience minimum pressures less than 40 psi. This is due to the top water level of the existing standpipe.

3 **Water Storage** – There is an existing storage deficit. Upgrades to the Caledonia Reservoir are underway to address immediate needs.

4 **Water Supply** – Caledonia has an existing water supply agreement with Hamilton. The agreement and Caledonia Reservoir pumping capacity are sufficient to meet existing water demands.

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Existing Wastewater Servicing Conditions



1

Capacity constraints under existing conditions have been identified for gravity sewers in the following areas:

- Upstream of Nairne and Main pumping stations
  - All wastewater from North Caledonia flows through the Narine Pumping Station; which has limited pumping capacity
- Celtic Drive

2

The **Wastewater Treatment Plant** has sufficient treatment capacity under existing conditions:

- Currently operating at approximately 48% of its rated capacity

3

Inflow & Infiltration (I&I) Flow data collected indicates higher I&I at the McClung Pumping Station than is typical. Further study to confirm.

Note: These results are preliminary. Ongoing dynamic modelling will provide a more detailed understanding of system performance and the extent of the capacity constraints shown may change.

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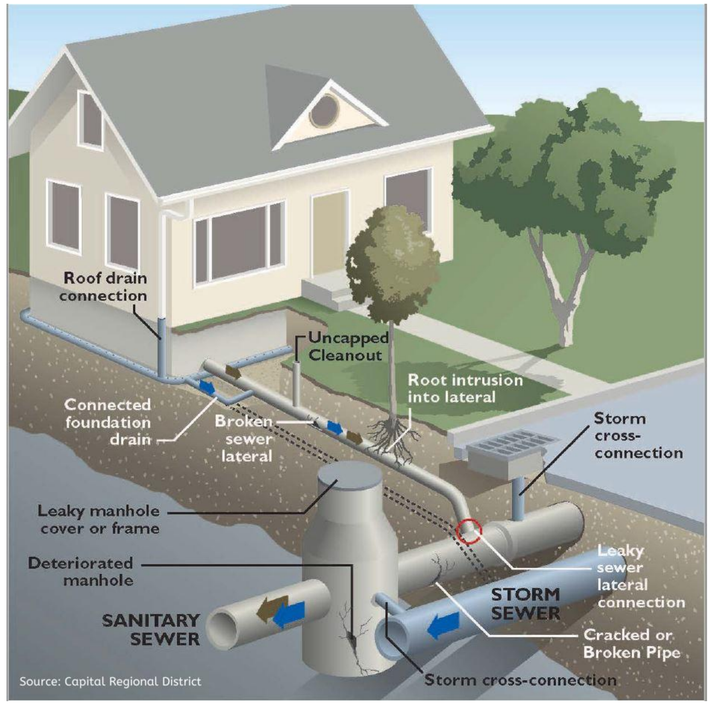
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Inflow and Infiltration

Flow data collected indicates a higher than typical response in the system to wet weather events. This has impacts on the capacity of the sanitary sewer system and the performance of the WWTP.



Understanding the Sanitary Sewer System:

What is a Sanitary Sewer?

A sanitary sewer is a relatively small diameter pipe, usually located under the road, that is designed solely to collect and transport wastewater from sanitary fixtures (such as sinks, toilets or bathtubs) and floor drains inside your home, to Haldimand County's Wastewater Treatment Plant.

What is a storm sewer?

A storm sewer is a relatively large diameter pipe, often located beneath the road or boulevard, that is designed to carry rain water and related runoff. In many areas, the storm sewer system also includes roadside ditches and culverts. Storm sewers are normally much larger than sanitary sewers because they are designed to carry much larger amounts of flow. Storm water runoff does not require the same treatment as sanitary sewage and results in unnecessary treatment costs if permitted to infiltrate the sanitary sewage system.

What is a sewer lateral?

A sewer lateral is a small pipe (usually 4" to 6" in diameter) that runs from your house to the main sewer. All properties serviced by County sanitary sewers have a sanitary sewer lateral. Some properties, but not all, depending on their age and the presence of local storm sewers, also have a storm sewer lateral.

The community shares the Sanitary Sewer System.

What is Inflow and Infiltration?

Inflow and Infiltration (I&I) is defined as storm water and groundwater that enters the sanitary sewer system.

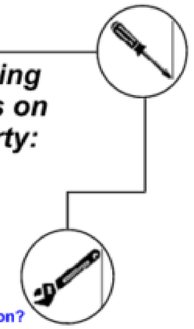
Inflow is water from rainfall or snow melt that enters the sanitary sewage system through direct sources such as roof downspouts, foundation drains, cross-connections with storm drains, (all of which are not allowed under the County's Sewer Use By-law #1443/14), and manhole covers. Peak inflow usually occurs during heavy rainfall or snow melt events and can result in sewer backups or system overflows.

Infiltration is groundwater that enters through holes and cracks in manholes, laterals, and sewer pipes. Infiltration quantities often exhibit seasonal variations in response to groundwater levels.

What is sewer surcharging and how can it cause basement flooding?

During storm events, the addition of storm water, through illegal connections, to the normal sanitary flow could exceed the capacity of the sanitary sewer resulting in a "surcharged" sanitary sewer. As flow to the surcharged sewer increases, pressure within the sewer builds and seeks to relieve itself through any means possible. One way is by backing up private sanitary sewer laterals into basements and crawl spaces, leaving a flood of sewage. If your home has sanitary fixtures or floor drains at a height below the surcharge level, basement flooding can occur.

Understanding Connections on your Property:



What is an illegal connection?

An illegal connection is a connection that permits inflow and infiltration to enter the sanitary sewer system. Storm water should be directed to the storm sewer or allowed to soak into the ground without ever entering the sanitary sewer.

Examples of illegal connections include connections of down spouts, sump pumps, foundation drains and area drains to the sanitary sewer or private service lateral. In addition, defective service laterals can cause extraneous water to enter the sanitary sewer, thus they are also illegal connections.

These connections have always been there. How is it that they are illegal?

These types of connections were allowed in the past, and older sanitary sewers were designed to accommodate a certain amount of rainwater. Haldimand County enacted a new Sewer Use By-Law that will prohibit connection of rainwater sources to the sanitary sewer system.

Is the requirement to remove illegal connections unique to Haldimand County?

No. In response to various Provincial and Federal Acts and Regulations, many municipalities have adopted or are considering ordinances or codes prohibiting storm water infiltration to sanitary sewers.

Do illegal connections really contribute large amounts of extraneous water to the sanitary sewer system?

Yes. For example, an eight-inch sanitary sewer can handle domestic water flow from up to 465 homes; however, it takes only twelve sump pumps operating at full capacity to overload an eight-inch sanitary sewer.

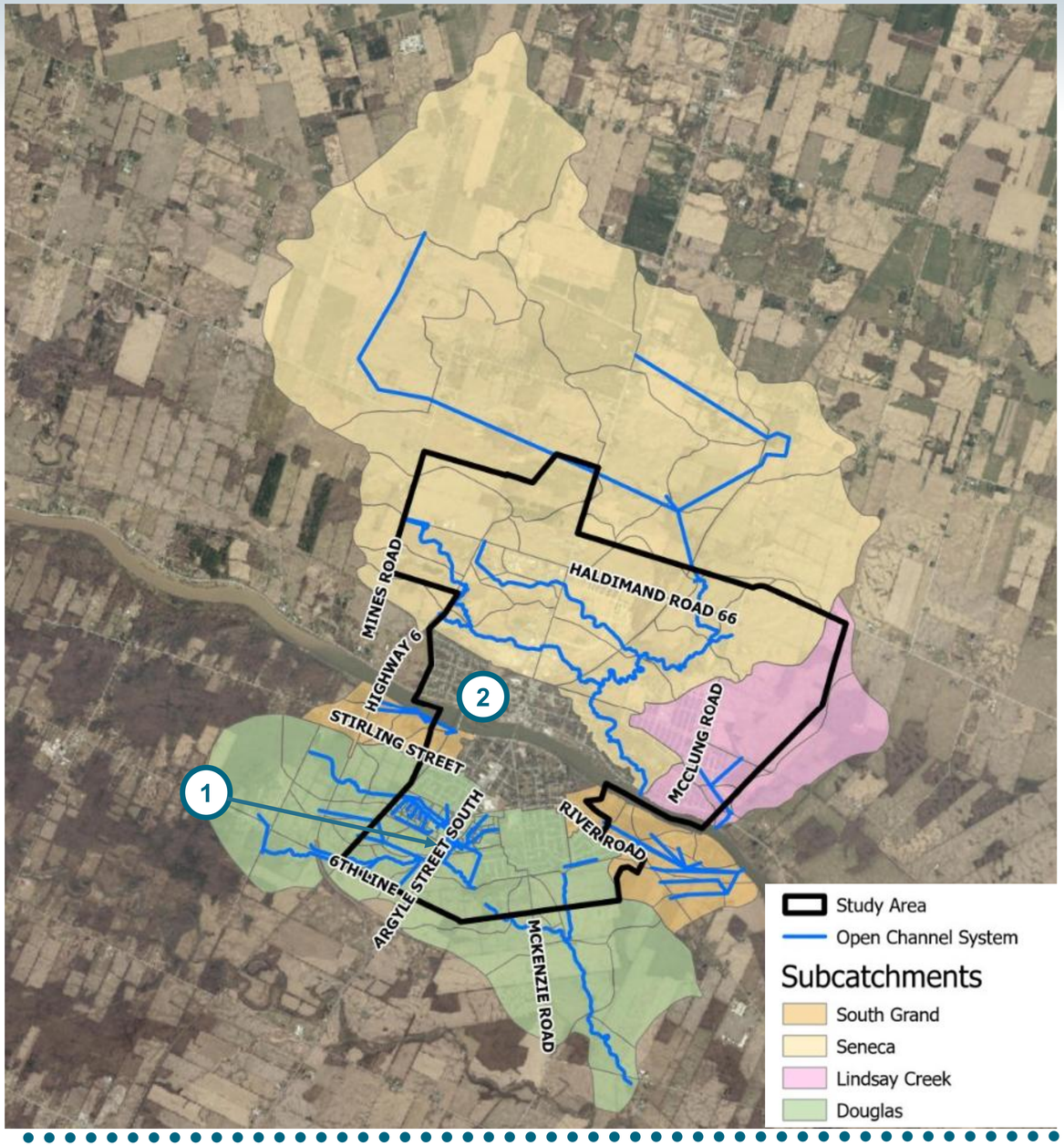
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Existing Stormwater Servicing Conditions



1

Paisley Pumping Station:

- Localized ponding has been reported at **the Paisley Pumping Station**

2

Inverness/Sutherland/Caithness:

- **Backyard flooding** has been reported in the **Inverness/Sutherland/Caithness area**; the county has planned reconstruction projects to address these drainage concerns.

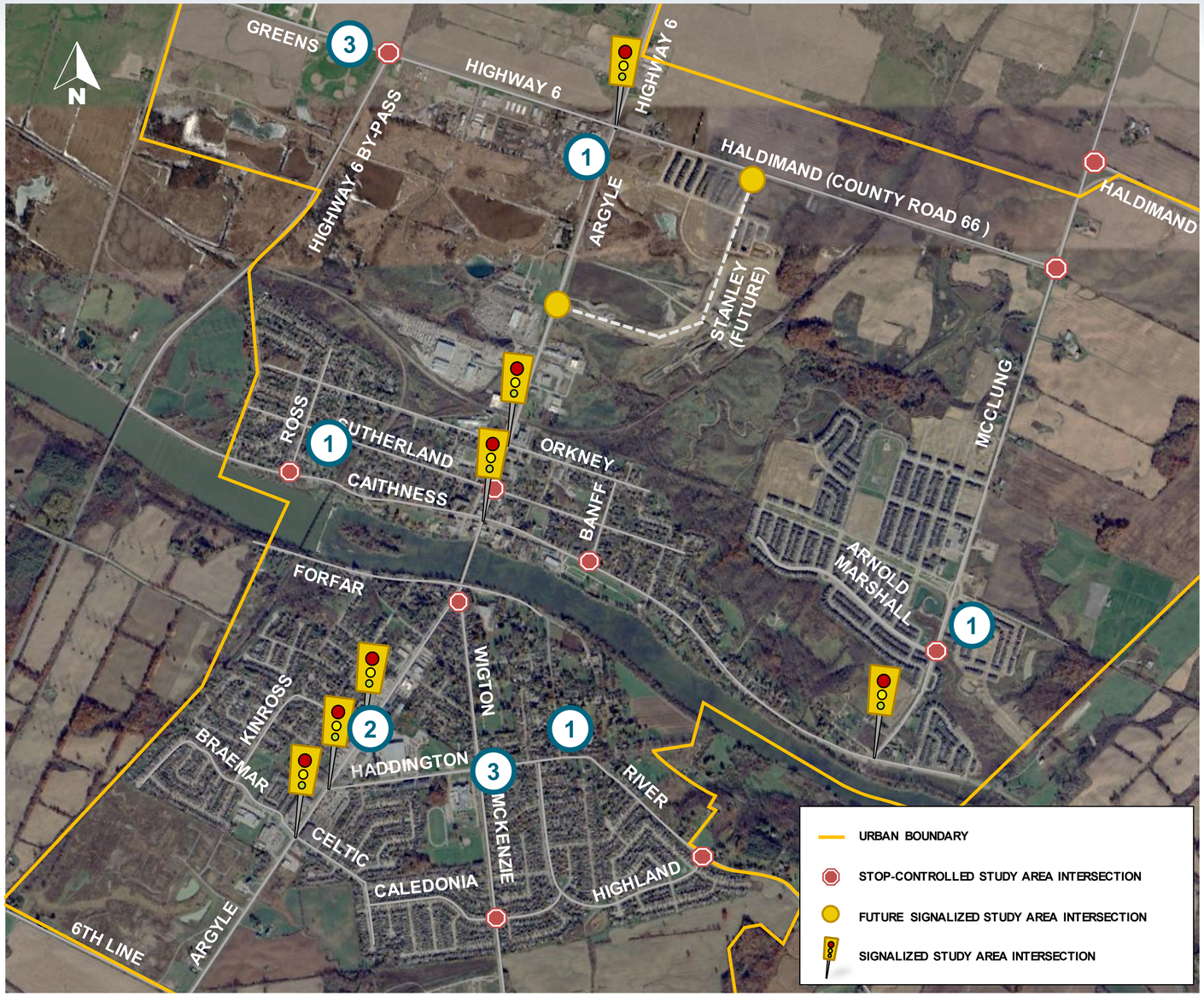
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Existing Transportation Servicing Conditions



1

Sidewalk Gaps – Four (4) sidewalk gaps identified along:

- Sutherland Street W
- Haddington Street
- Argyle Street
- McClung

2

Collision Activity – Collision activity is concentrated along the Argyle Street corridor

- Argyle & Kinross noted as the highest injury proportion

3

Intersections – Most intersections are operating with acceptable volumes of traffic.

- Capacity constraints exist at Highway 6 & Greens Road and Wigton & Haddington
- Argyle corridor intersections have longer wait times
- Planned signal detection and software upgrades are expected to improve intersection operations

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Future Development – North Caledonia

Near-term Residential Growth

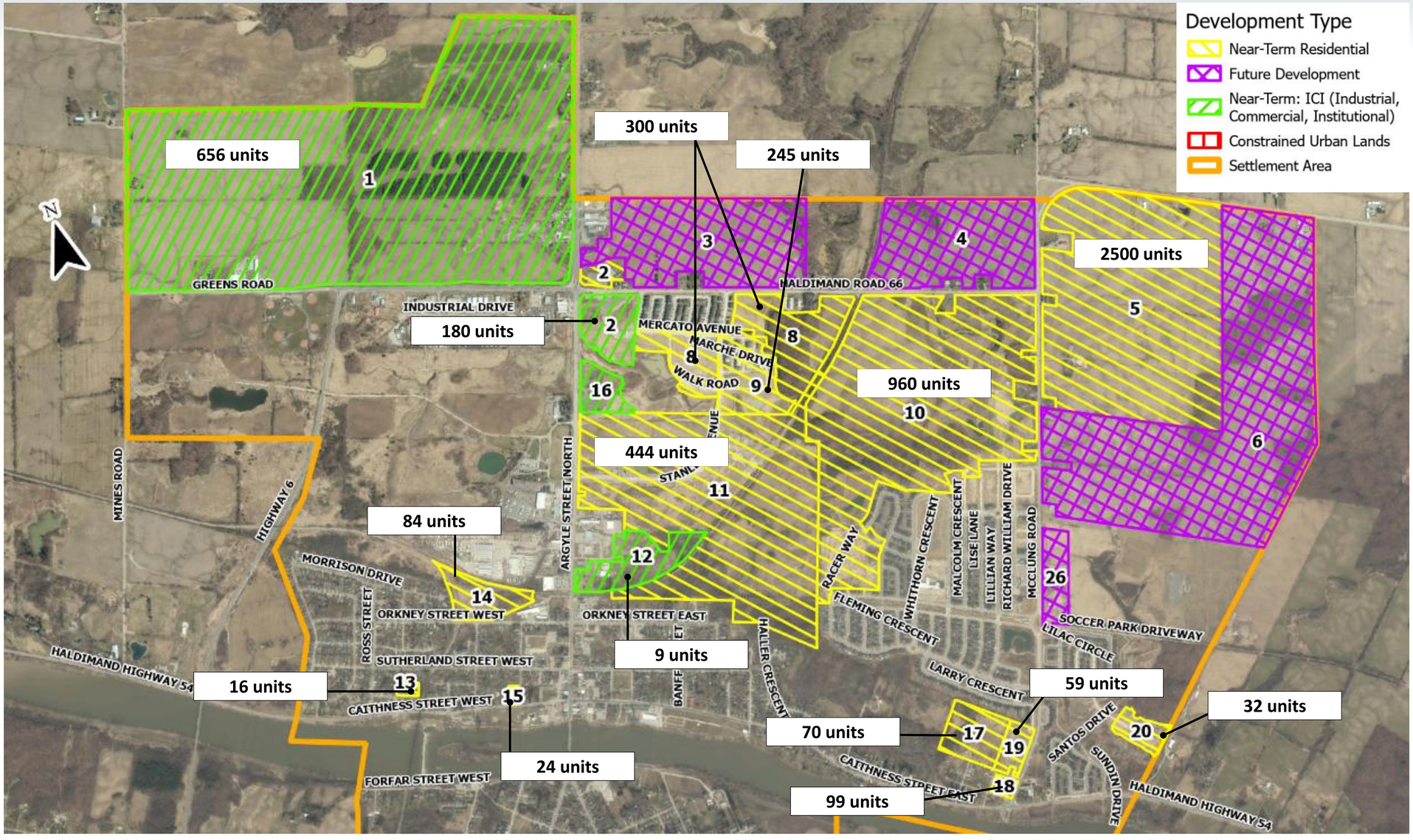
4,833

Equivalent Units

Near-term Industrial, Commercial, or Institutional (ICI) Growth

845

Equivalent Units



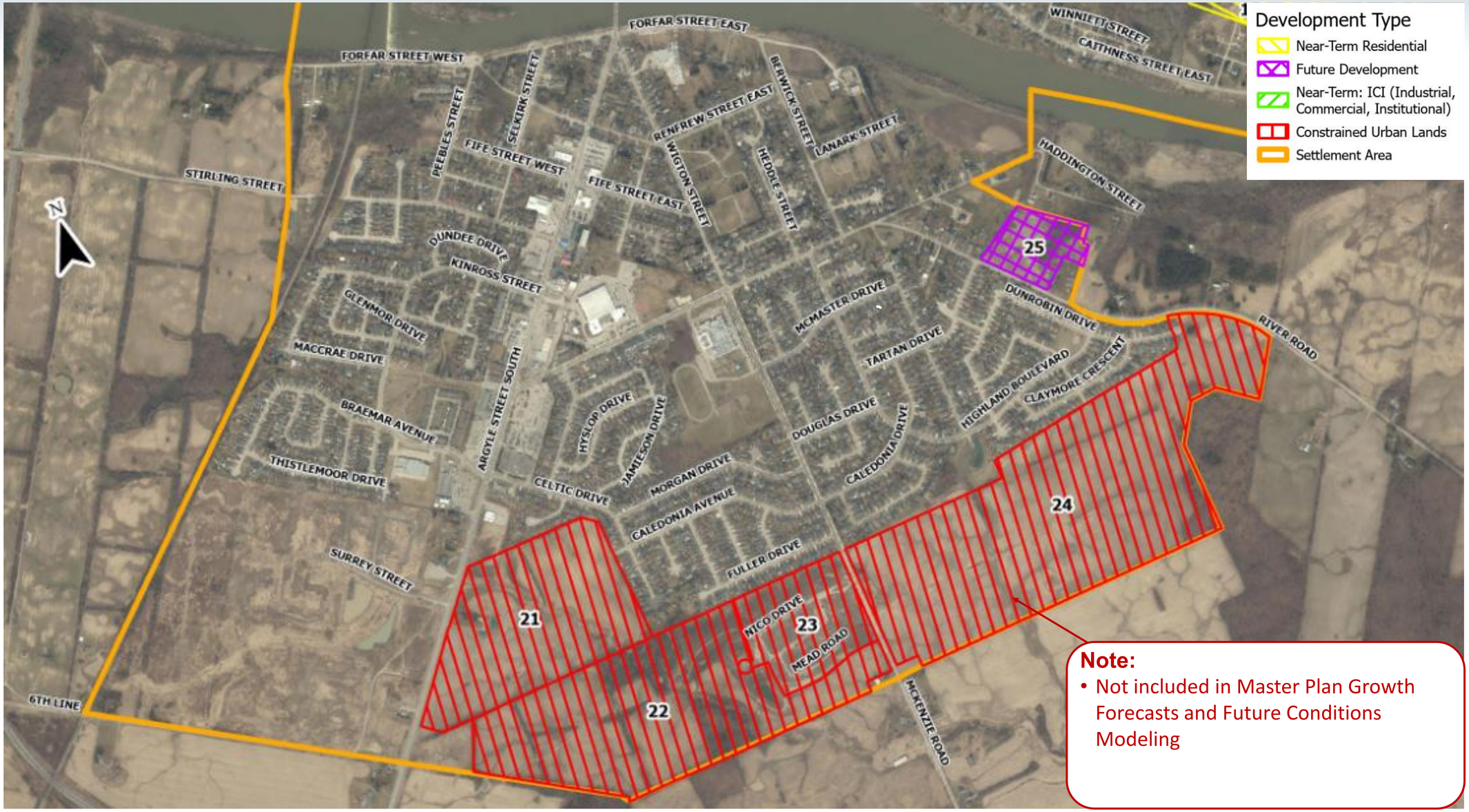
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Future Development – South Caledonia



Note:

- Not included in Master Plan Growth Forecasts and Future Conditions Modeling

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Climate Change Impacts, Mitigation, and Adaptation

Impacts of Climate Change

- **Higher precipitation** from extreme weather
  - Increased **Inflow and Infiltration,** impacting sanitary system and treatment plant performance
  - **Higher flows** and **runoff,** impacting stormwater system performance
  - **Higher nutrient loading** and **algal blooms,** impacting drinking water treatment performance
  - **Flooding** of infrastructure
- **Water level fluctuations** in lakes and groundwater table impacting water supply
- **Evaporation** due to extreme heat
- **Energy usage** during extreme weather

Mitigation and Adaptation

- Once proposed infrastructure alternatives are identified, climate change mitigation and adaptation measures will be identified and assessed
- **Potential Mitigation and Adaptation Measures:**
  - Working with Conservation Authority, Provincial, and Federal **climate change adaptation initiatives**
  - **Renewable energy generation** and backup power
  - Building **resilient infrastructure**
  - Account for **climate impacts** during the design of future infrastructure

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Indigenous and First Nations Consultation

Haldimand County neighbours two distinct and vibrant Indigenous communities; Six Nations of the Grand River First Nation and the Mississaugas of the Credit First Nation.

Haldimand County recognizes the need to conduct meaningful consultation with those Indigenous communities on matters that may impact them to ensure a process where their rights and interests can be protected.

Throughout this project, JLR will closely collaborate with Haldimand County staff responsible for Indigenous consultation.

Our Approach:

Plan Engagement

Prepare a consultation plan, agendas and project materials.

Share and Discuss

Issue notices, provide relevant information and hold meetings with Indigenous communities.

Listen and Document

After outlining the proposed process, listen and then respond to the questions and concerns raised by the Indigenous communities relating to the potential impacts on their rights and interests. Follow-up as necessary with each question or concern, to develop an appropriate consultation record.

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Get Involved

How Do I Get More Information?

- Complete the sign-in form to join the study mailing list
- Check the website (Caledonia Master Servicing Plan Update) for study updates
- Plan to attend the next Public Open House, details to follow.
- If you have questions regarding the study, or have any accessibility requirements in order to participate in this project, please contact one of the individuals below at any time:

Jane Wilson, M.Sc. P.Eng.
Director of Municipal Infrastructure & Planning
Phone: 226-780-7487
Email: jwilson@jlrichards.ca

J.L. Richards & Associates Limited
107-450 Speedvale Avenue West
Guelph, ON N1H 7Y6

Jessica Davidson
Project Manager – Water and Wastewater Capital Projects
Phone: 905-318-5932 ext. 6272
Email: jdavidson@haldimandcounty.on.ca

Haldimand County
Administration Building, 53 Thorburn Street South
Cayuga, ON N0A 1E0