HASTINGS
Centre Hastings
COUNTY

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Madoc Water, Wastewater and Stormwater Master Plan

Public Information Centre #1

February 27th, 2024

Welcome! Please sign in.

The Municipal Class Environmental Assessment Master Plan Process

Class EA Process

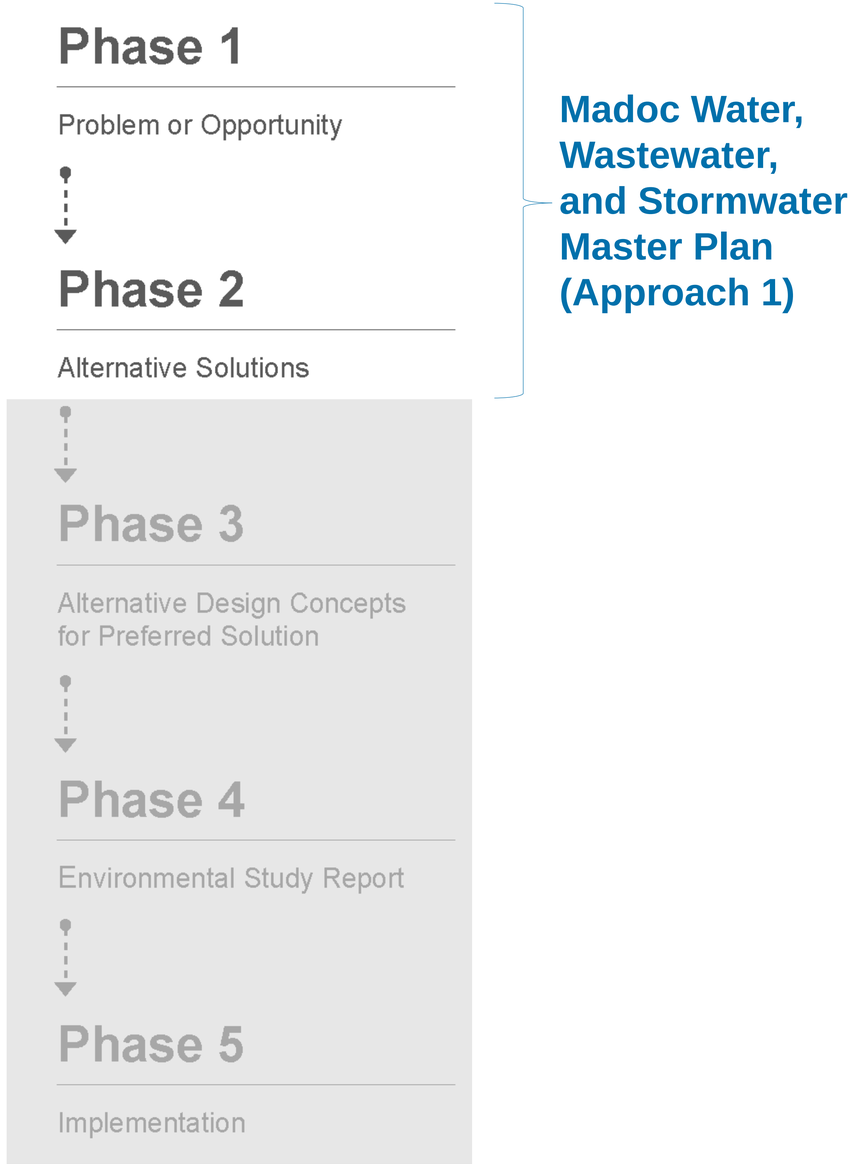
The *Ontario Environmental Assessment (EA) Act*, R.S.O., 1990 requires that projects corresponding to municipal infrastructure projects, including roads, water, and wastewater projects follow an approved planning process set out in the Municipal Class EA document prepared by the Municipal Engineers Association (MEA).

Master Plan Process

Master Plans are conducted under the framework of the MEA Class EA Process. They are a planning tool that identifies infrastructure and other requirements for the existing and future land use, through the application of environmental assessment principles. The current Master Plan is intended to satisfy Phases 1 and 2 of the Municipal Class EA process (i.e., *Approach 1*).

Master Plan Approach 1

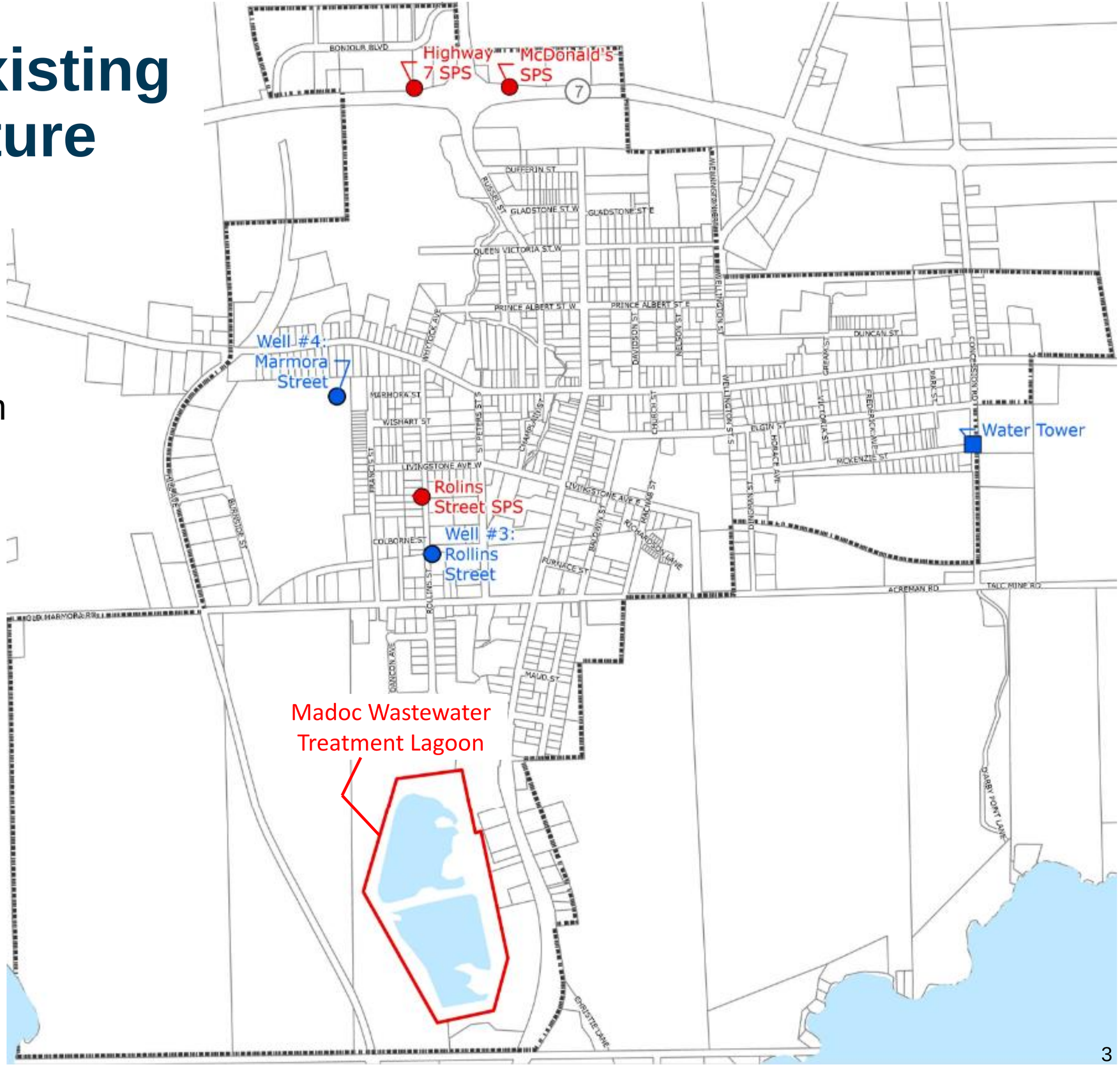
This approach concludes at the end of Phases 1 and 2. With this approach, the Master Plan is being completed at a broad level of assessment and may require further detailed assessment at the project-specific level.



Overview of Existing Key Infrastructure

- Rollins Street Well #3
- Marmora Street Well #4
- Water Tower
- Water Distribution System
- Sanitary Collection System
- Three Sewage Pump Stations (SPS)
- Wastewater Treatment Lagoon
- Stormwater System

The existing serviced population in the Village of Madoc is approximately 1,500.



Objectives of the Madoc Water, Wastewater and Stormwater Master Plan Phase 1

- Establish short-term, mid-term, long-term and build-out growth projections;
- Provide a description of existing conditions and constraints associated with water, wastewater and stormwater infrastructure;
- Determine the residual capacity for water supply/treatment and sewage lagoons;
- Estimate timing for when rated capacity of each system will be reached;
- Establish design basis for future servicing;
- Identify land use, planning, and natural environment constraints;
- Consult with public and stakeholder agencies, and
- Define a Problem/Opportunity Statement.

Master Plan Methodology and Timeline

<u>Master Plan Phase 1 – Identify Problem or Opportunity</u>

Tasks:

- Review and collect background information.
- Develop residential, institutional, commercial, and industrial development and population growth projections for short, mid, long-term and build-out scenarios.
- Define level of service for existing conditions.
- Review water supply and wastewater treatment lagoon capacity.
- Model water distribution, sanitary collection, and stormwater.
- Undertake public consultation activities.
- Finalize Master Plan Phase 1 Report.

<u>Master Plan Phase 2 – Identify and Evaluate Alternative Solutions</u>

Tasks:

- Identify servicing needs under future growth scenarios.
- Develop alternative servicing solutions.
- Develop an implementation/phasing plan.
- Undertake public consultation activities.
- Finalize Master Plan Phase 2 Report.
- Publish Master Plan Report for 30-day public review.

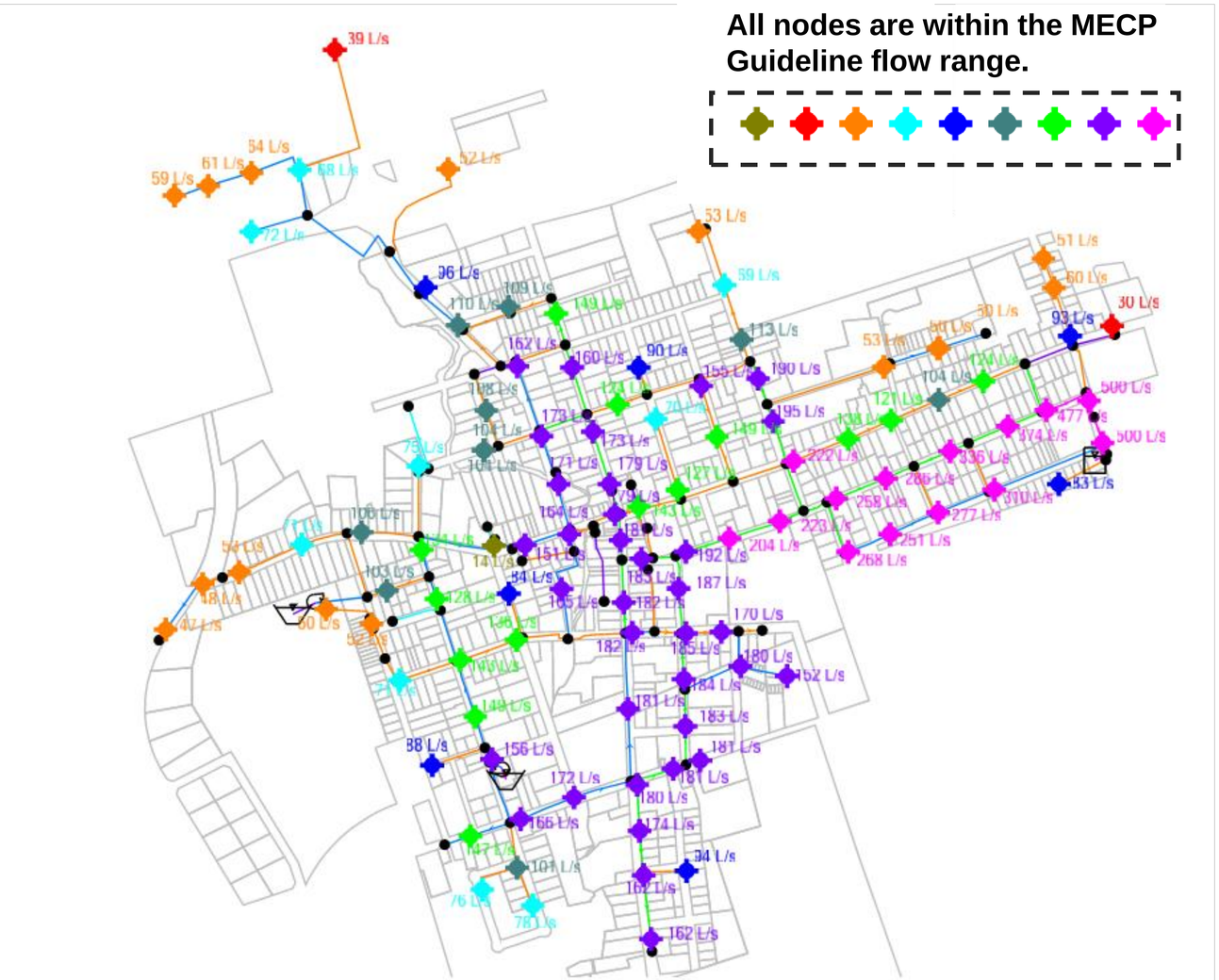
<u>Project Timeline</u>

Existing Water Distribution System

Water Distribution WaterCAD ® Modelling Results:

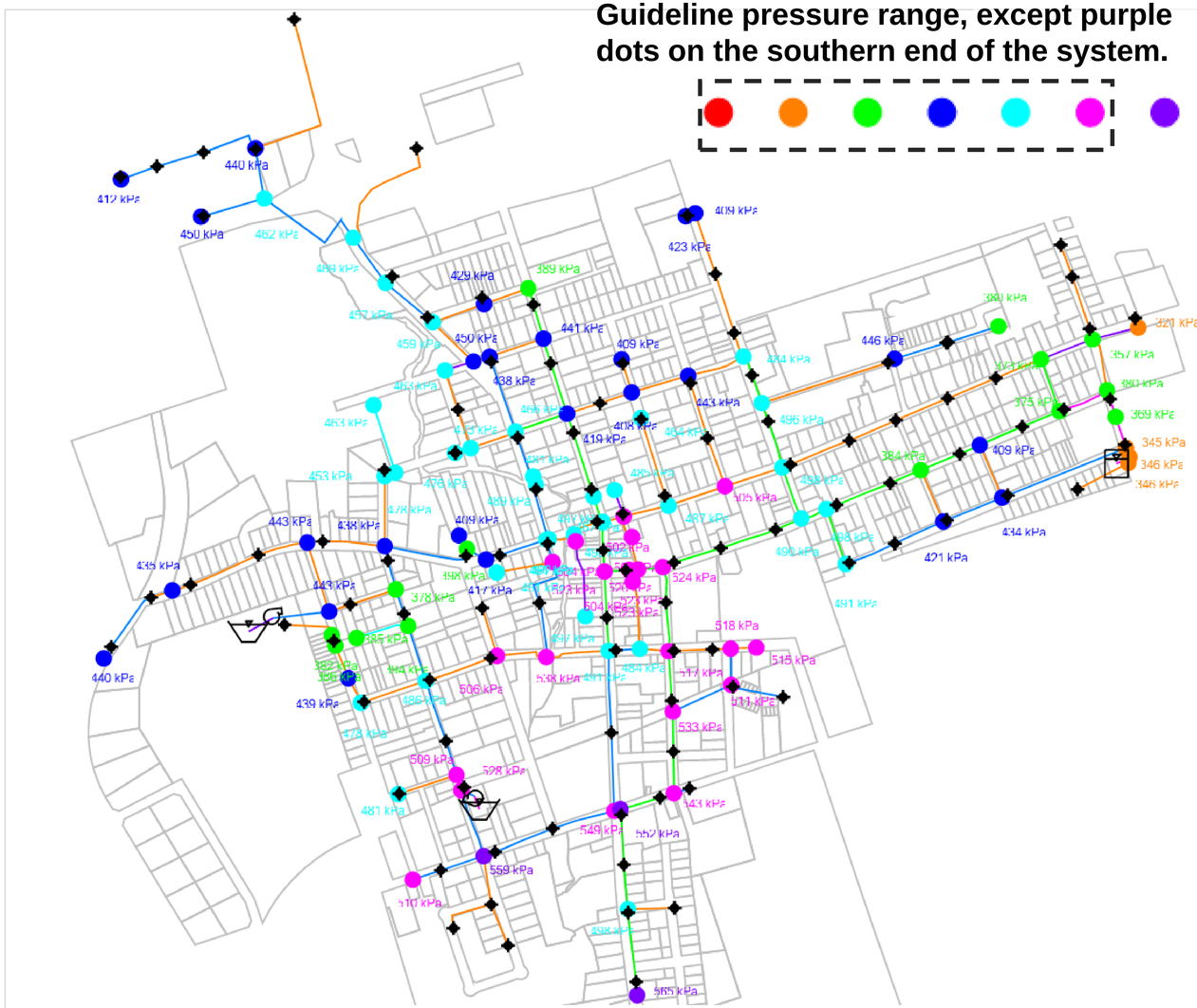
- The existing water distribution system overall is operating in general accordance with the pressure and flow recommendations of the Ministry of Environment, Conservation and Parks (MECP) design guidelines.

All nodes are within the MECP Guideline flow range.



Water Distribution Flows under Existing Maximum Day Demand + Fire Flow

Most nodes are within MECP Design Guideline pressure range, except purple dots on the southern end of the system.

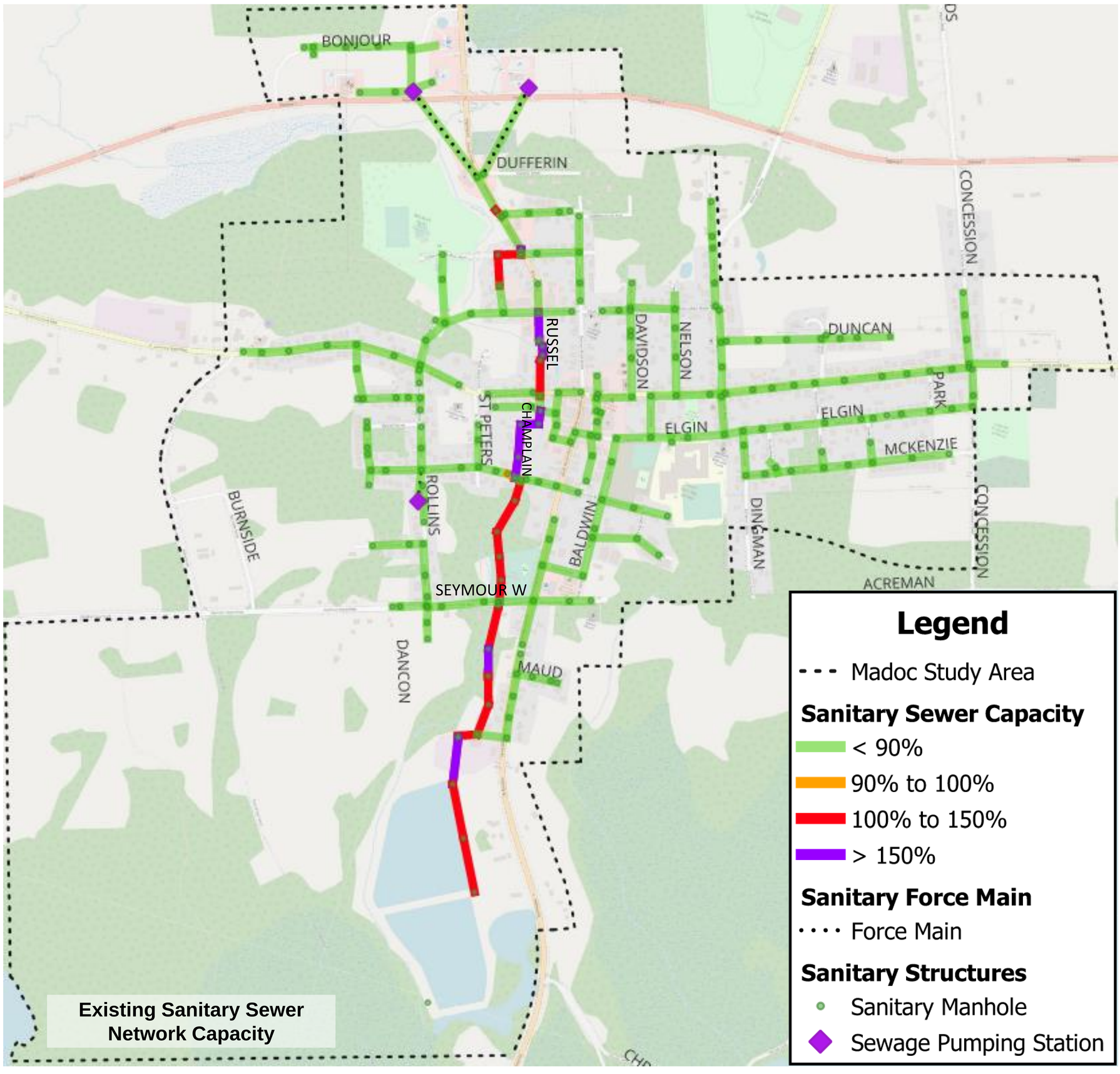


Water Distribution Pressure under Existing Peak Hour Demand

Existing Sanitary Collection System

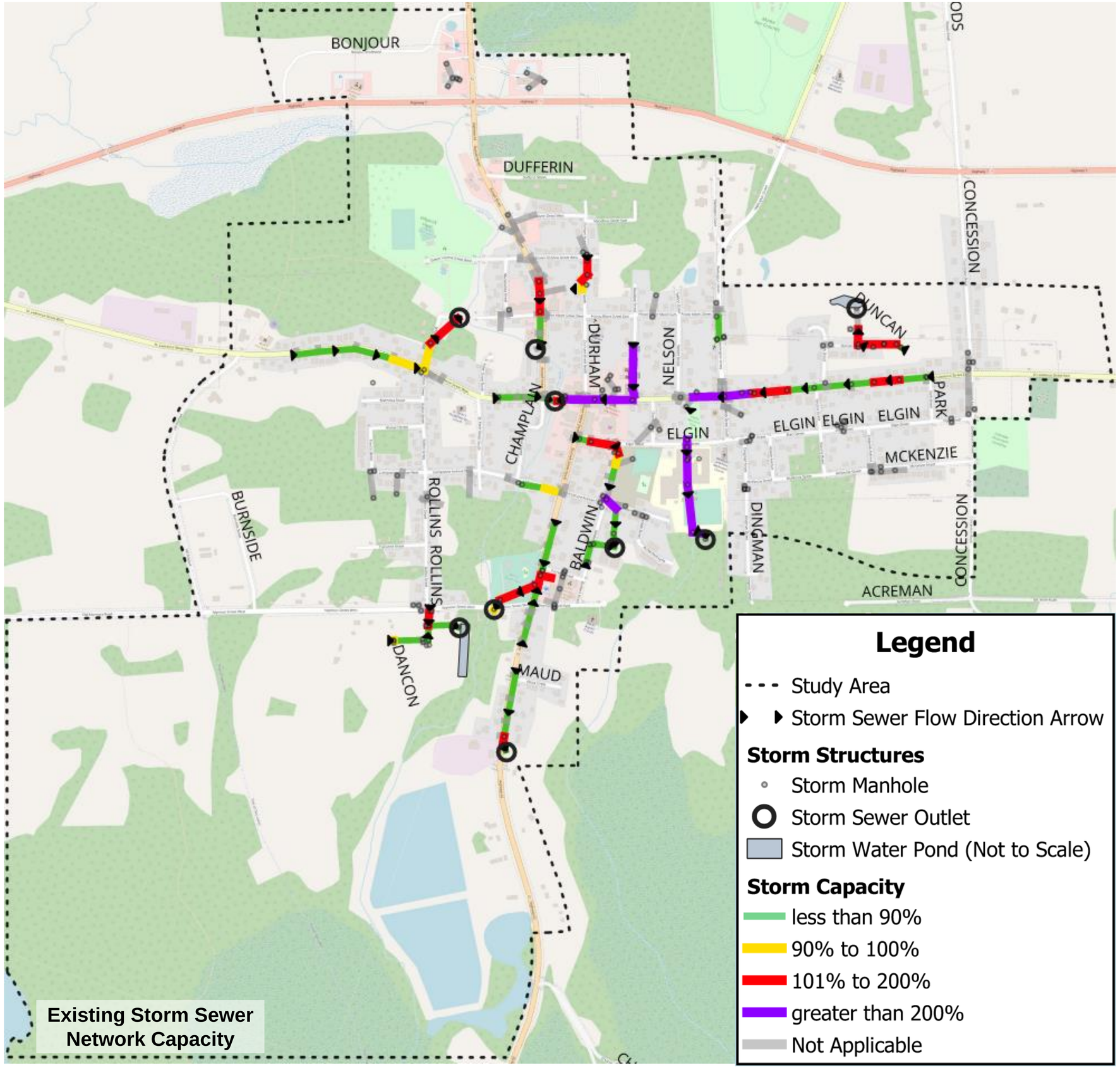
- Sanitary sewer modelling shows insufficient capacity along:
  - Russel St.
  - Champlain St.
  - Trunk sewer line south of Seymour St. W

- Some pipe segments have a slope and velocity which do not meet current MECP design guidelines

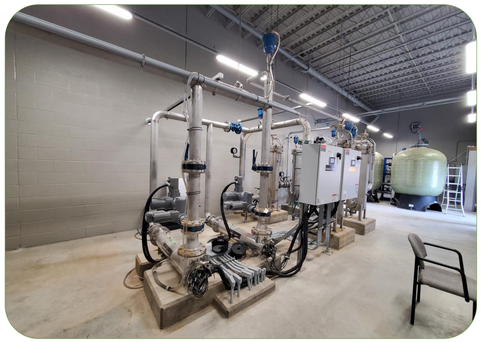


Existing Storm Collection System

- Stormwater modelling shows insufficient capacity along:
  - St. Lawrence St. E
  - Durham St. N
  - Russel St.
  - Davidson St.
  - Baldwin St.
  - Durham St. S.



Existing Water and Wastewater Facilities



Water Supply and Treatment

- Both water supply wells are under the direct influence of surface water with a combined allowed water taking rate of 2,620 cubic metres per day (m^3/d) or 30.3 litres per second (L/s).
- Operates under Permit to Take Water No. 2660-B5FQPP, Drinking Water Works Permit No. 153-201 and Municipal Drinking Water License 153-101.
- Currently operates at 35% capacity.

Water Storage

- Provides equalization storage, fire protection and emergency storage.
- Currently operates at 80% capacity.
- 100% capacity will be reached in the short-term (0-5 years).

Wastewater Treatment Lagoons

- Discharges to Deer Creek. Operates under Environmental Compliance Approval 1652-BRKT58 with a rated capacity of 1,008 m^3/d or 11.7 L/s.
- Seasonal discharge lagoons currently operating at 73% capacity.
- Historically the lagoons have provided treatment above and beyond compliance requirements.

Overview of Estimated Future Growth

Residential Developments

Development Timeframe	Additional Units	Estimated Population Increase
Short-Term (0-5 Years; 2024-2029)	155 units	400 people
Mid-Term (5-10 Years; 2029-2034)	341 units	891 people
Long-Term (10-20 Years; 2034-2044)	852 units	1,233 people
Build-Out (20- 30 Years; 2044-2054)	1,032 Units	3,353 people

Institutional / Commercial / Industrial Developments

Development Timeframe	Development Type	Estimated Growth
Short-Term (0-5 Years; 2022-2027)	Long Term Care	128 Beds
Mid-Term (5-10 Years; 2027-2032)	Commercial	3.8 Hectares
Long-Term (10-20 Years; 2034-2044)	Commercial and Typical Industrial	10.3 Hectares
Build-Out (20-30 Years; 2044-2054)	Commercial	2.5 Hectares

Maps of future developments are available

Please see a member of the project team.

Future Servicing Constraints

	Water Supply and Treatment	**Water Storage**	**Wastewater Lagoon**	**Water Distribution, Sanitary Sewer, and Storm Sewer**
Short-Term (0-5 Years)	Reach 59% of the existing capacity	Reach 112% of the existing capacity	Reach 104% of the existing capacity	Future servicing requirements will be identified in Phase 2 of the Master Plan
Mid-Term (5-10 Years)	Reach 88% of the existing capacity	Reach 144% of the capacity	Reach 146% of the existing capacity	
Long-Term (10-20 Years)	Reach 144% of the existing capacity	Reach 266% of the existing capacity	Reach 211% of the existing capacity	
Build-Out (20-30 Years)	Reach 230% of the existing capacity	Reach 350% of the existing capacity	Reach 345% of the existing capacity	

Natural Environmental Constraints

Legend

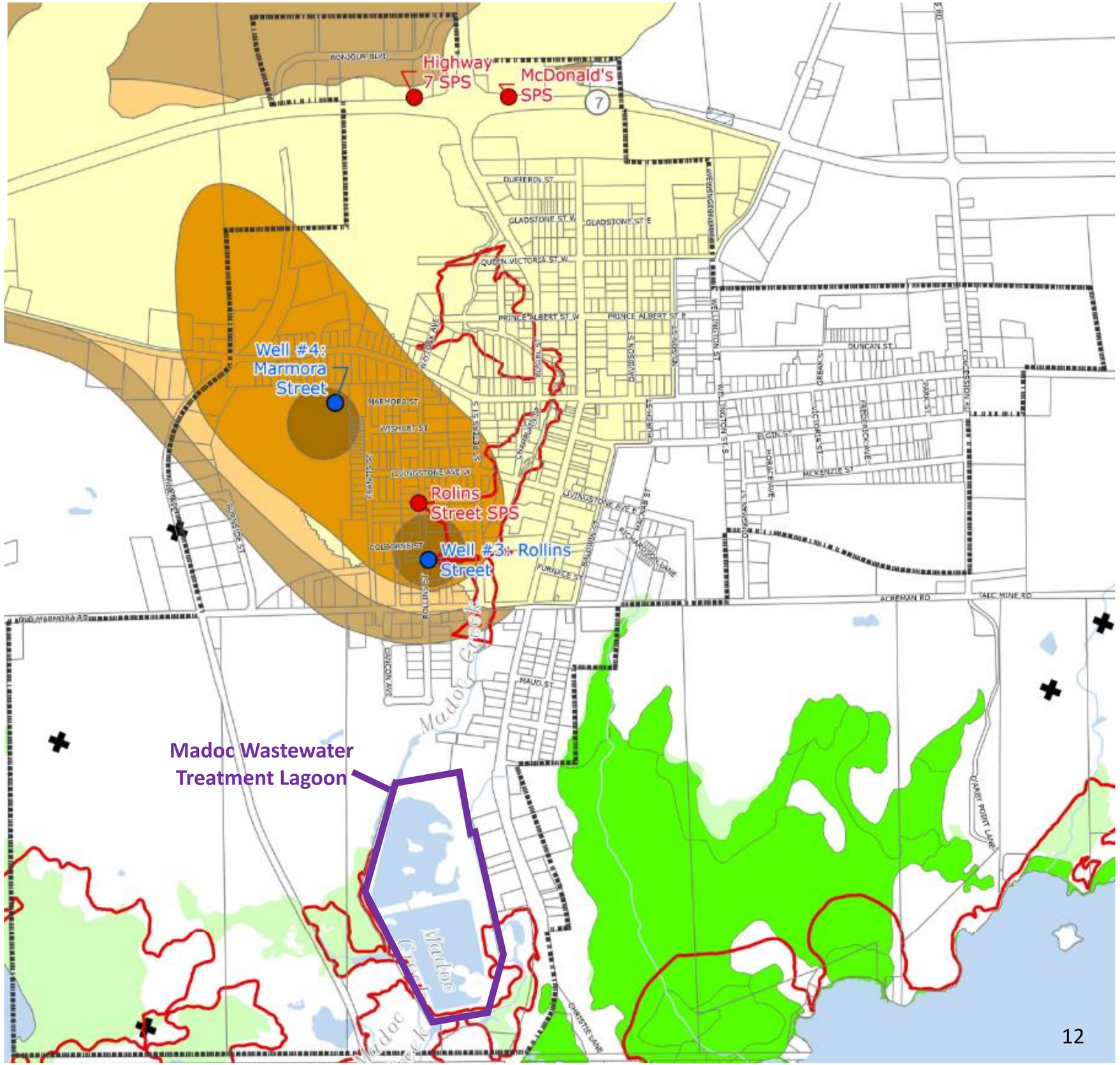
- Abandoned Mines Information System Sites
- Floodline
- Watercourse
- Waterbody
- Wastewater Treatment Lagoon
- Wells
- Sewage Pumping Station (SPS)
- Study Area
- Area of Natural and Scientific Interest, Earth Science

Wetland

- Evaluate - Locally Significant
- Not Evaluated

Wellhead Protection Areas

- A - 100m radius around well
- B - pollution reached in 2 years
- C - pollution reached in 2-5 years
- D - pollution reached in 5-25 Years
- E - direct pollution pathway to water source



Problem/Opportunity Statement

The following Problem/Opportunity Statement has been developed based on the work completed during Phase 1 of the Master Plan process:

Madoc is serviced by communal water and wastewater systems consisting of Well #3 and Well #4, a water tower, over 16km of watermains, a sewage treatment system, three sewage pumping stations, over 16km of sanitary sewers, and minor storm systems on main road corridors. Water supply, treatment, treated water storage and lagoon treatment systems will not be sufficient to support projected growth within the Madoc servicing area for the next 20 years and beyond. In addition, there are various locations within the sanitary sewer and storm sewer systems that currently experience capacity constraints.

There is an opportunity through the Master Planning process to review the water, wastewater, and stormwater systems holistically and develop a strategic plan that can be prioritized and implemented logically with the intended goal of addressing future servicing needs and ensuring appropriate performance and reliability of Madoc's water, wastewater, and stormwater systems for the upcoming planning period of 20 years and beyond.

Next Steps

Collect and address comments from Public Information Centre #1.

Finalize Phase 1 of the Master Plan Report.

Begin Phase 2 of the Master Plan (Future Servicing Needs, Alternative Servicing Solutions, Implementation and Phasing Plan).

Collect and address comments from Public Information Centre #2 (Spring 2024).

Finalize recommendations of the Phase 2 Master Plan and Publish for 30-day Public Review (Summer 2024).

How to Participate

- Send written comments to the project contacts at Ontario Clean Water Agency and J.L. Richards listed below. Please respond by March 12, 2024.

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- Visit the Municipality website at **https://www.centrehastings.com/masterplan** for more updates.