THE CORPORATION OF THE TOWNSHIP OF WELLINGTON NORTH
SPECIAL COUNCIL MEETING SUPPLEMENTARY AGENDA
MARCH 3, 2021 @ 2:00 P.M.
MUNICIPAL OFFICE COUNCIL CHAMBERS, KENILWORTH

PAGE NUMBER

ADOPTION OF THE AGENDA

Recommendation:
THAT the agenda and the supplementary agenda for the March 3, 2021 Regular Meeting of Council be accepted and passed.

PRESENTATIONS

a. Frank Vanderloo, BM Ross and Associates Limited
   - Mount Forest Sanitary and Water Servicing Technical Update 001

   Recommendation:
   THAT the Council of the Corporation of the Township of Wellington North receive the Mount Forest Sanitary and Water Servicing Technical Update.

b. Ray Kirtz and Dustin Lyttle, Triton Engineering Services Limited
   - Arthur Water and Sanitary Systems Technical Study 009

   Recommendation:
   THAT the Council of the Corporation of the Township of Wellington North receive the Arthur Water and Sanitary Systems Technical Study.

TOWNSHIP OF WELLINGTON NORTH

MOUNT FOREST
SANITARY AND WATER SERVICING TECHNICAL UPDATE
PRESENTATION TO COUNCIL

MARCH 3, 2021

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Agenda

- Study Scope
- General Study Conclusions
- Water Storage
- WWTP/NWS-SPS
- Questions

Technical Update Scope

- Reliance on Third Party information
- Update GIS database (sanitary sewer & watermain)
- Water distribution system model update
- Well supply capacity evaluation
- Water storage capacity expansion alternative evaluation (preliminary)
- Sewage Pumping Station (SPS) capacity evaluations
- Select capital costs
- Exclusions: Class EA; WWTP evaluation

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General Study Conclusions

- Well supply firm operational supply reserve capacity >50 years
- Water quality acceptable and no known trends
- Water storage expansion within the next 5-10 years.
- Water distribution system upgrades to service growth
- Water booster pumping station SE corner of town
- Sanitary sewer extensions to service growth
- Some growth areas will require a SPS (by Developers)
- Cork Street and Durham Street SPS reserve capacities anticipated to be >20 years
- WWTP & NWS-SPS capacity expansion within 10 years

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Water Storage Alternatives

- Evaluation outcome: Two possible alternatives,
  - A single new E.T. at the existing site (Alternative #1); $5.6M
  - Existing Standpipe (35 years old) & BPS (13 years old) + a 2nd new E.T. north end of town (Alternative #2); $5.0M, including recoating existing standpipe and large diameter watermain loops to connect 2nd E.T. to Industrial Drive and Main Street
- Lifecycle analysis (50± years) – Alternative #2
- Pros/Cons

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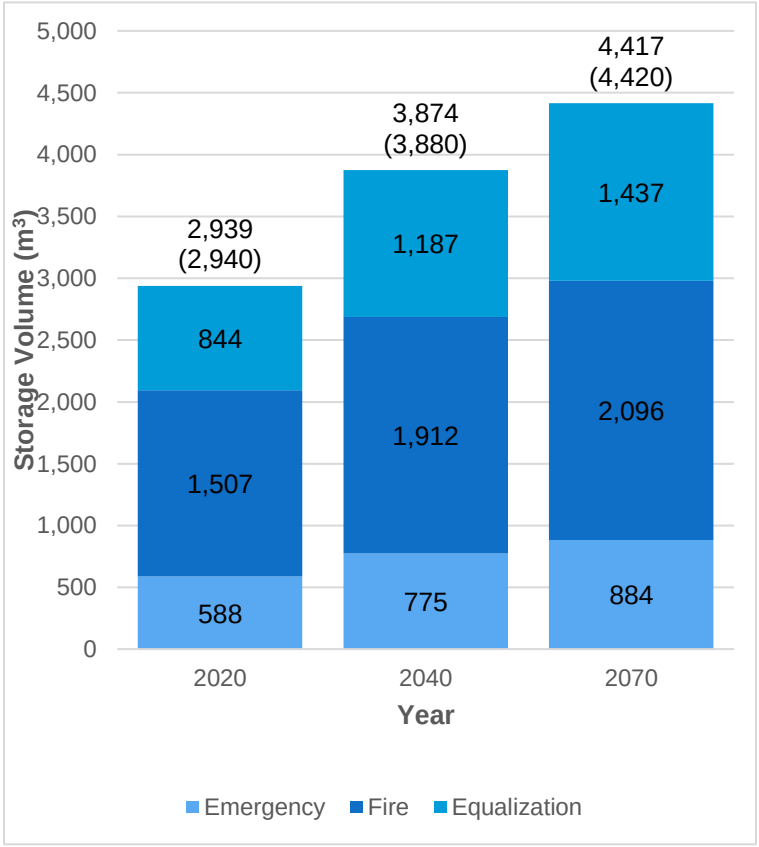
Water Storage Timeline

- Existing standpipe 2,000m^3
- Guidelines: 2,940m^3 now
- Guidelines: 4,420m^3 in 50 years
- Well supply surplus
  - Equalization storage met to Yr. 2031
  - Fire storage Yr. 2031 = 1,826m^3
  - 174m^3 left for Emergency storage
    vs. 719m^3 per guidelines
- Expand storage before Yr. 2031?



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WWTP & NWS-SPS

- WWTP 2,818m^3/d current approved capacity
- WWTP & NWS-SPS capacity expansion by Yr. 2031
- Co-treatment of leachate may advance that by a year or two
- Complete the Receiver Impact Assessment in support of 3,500m^3/d WWTP capacity, and then reassess expansion timelines

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Thank you.

Questions?

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ARTHUR WATER AND SANITARY SYSTEMS

Technical Study

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GROWTH PROJECTIONS

Vertical Infrastructure

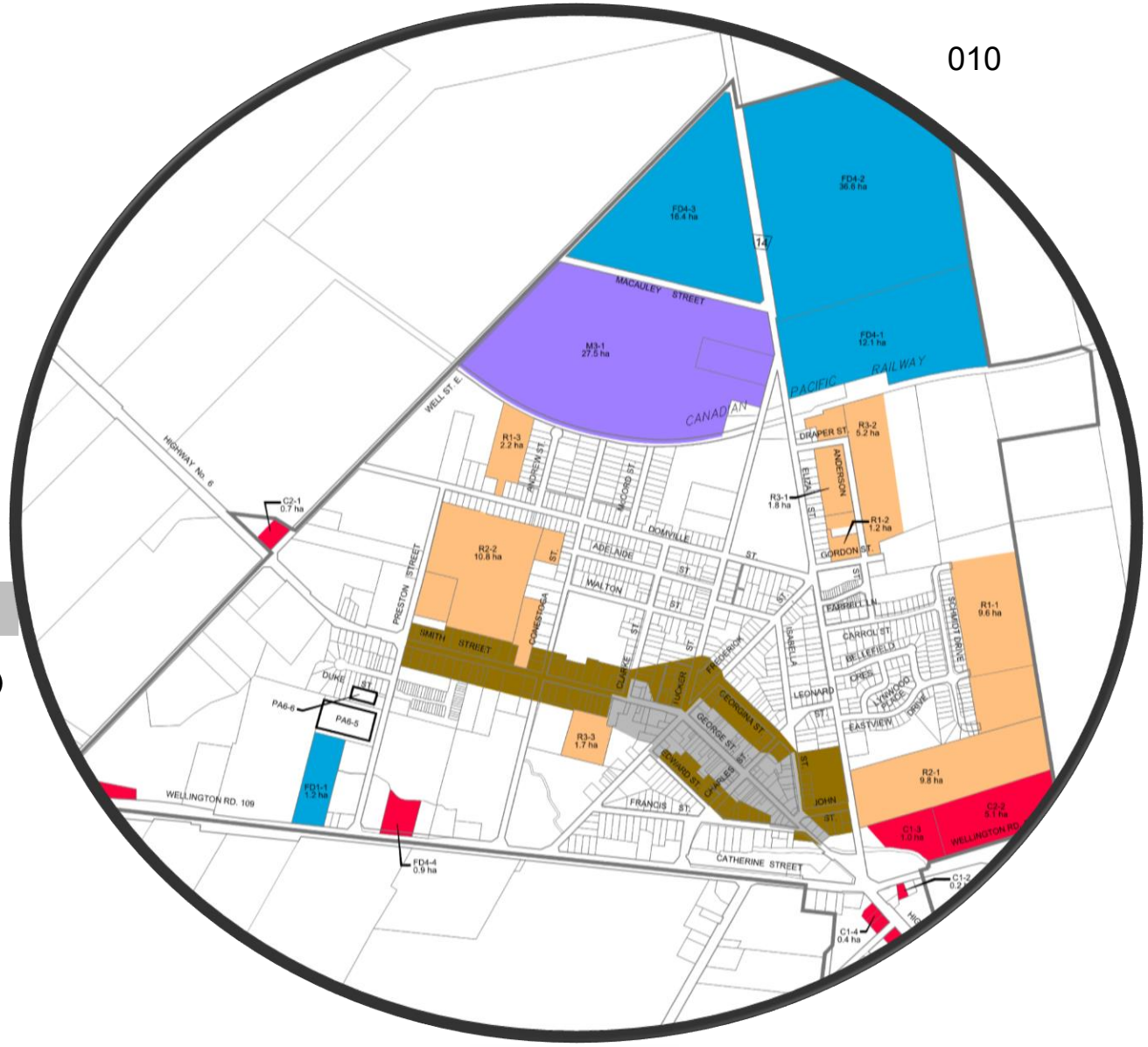
- Based on Growth Projections

Linear Infrastructure

- Based on Development Land Availability

Table 2.2 - Arthur Growth (Interpolated)

Arthur Growth (Interpolated)				
Year	Population (Capita)	Households (ERUs)	Capita per ERU	Growth (Capita/Year)
2020	2,410	970	2.5	-
2025	3,351	1,242	2.7	69.5
2030	3,698	1,370	2.7	69.5
2035	4,046	1,499	2.7	69.5
2040	4,391	1,639	2.7	69.0
2045	4,736	1,768	2.7	69.0



WATER SYSTEM

Technical Review of the Arthur Water System

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THE TOWNSHIP OF WELLINGTON NORTH

WATER SUPPLY & TREATMENT

Annual Water Reserve Capacity Calculations

- Schedule: Annually

Well Exploration Program (On-going)

- Schedule: 2020 – 2021

Evaluation of Existing Municipal Wells

- Schedule: 2021 - 2022
- Estimated Cost: $10,000

Commission Additional Source:

- As dictated by the annual reserve capacity calculations, current estimate 2040.
- Estimated Cost: $3 - $5 Million

Table 3.2 – Summary of Water Usage Projections and Reserve Capacity

Year	Population (Capita)	Households (ERU)	MDD (m^3/day)	Source Reserve Capacity (m^3/day)	Firm Reserve Capacity (m^3/day)
2020	2,410	949	1,572	2,644	683
2025	3,351	1,242	1,675	2,541	580
2030	3,698	1,370	1,849	2,367	406
2035	4,046	1,499	2,023	2,193	232
2040	4,391	1,639	2,195	2,021	60
2045	4,736	1,768	2,368	1,848	-113

WATER STORAGE

Single New Tower (Preferred Alternative)

Decommission the existing towers and construct a new 2,000m^3 tower at a higher operating level.

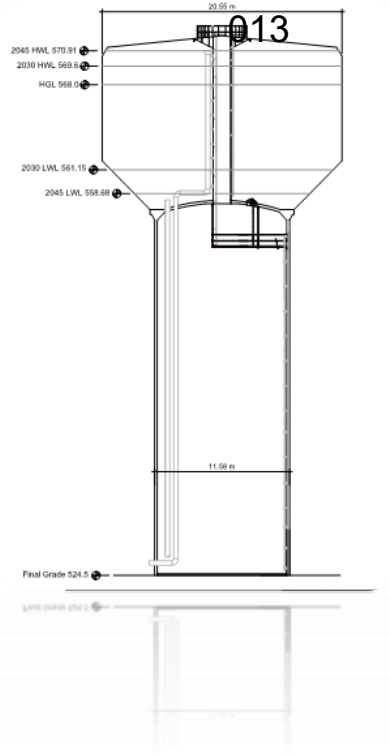
- Schedule:

  Annually: Continue to monitor demands and growth projections and complete annual storage assessment.

  2025: Initiate Class EA to confirm preferred alternative and establish design details. Timing based on annual assessment.

  2030: Construct new tower

Estimated Cost: $3,675,438.00

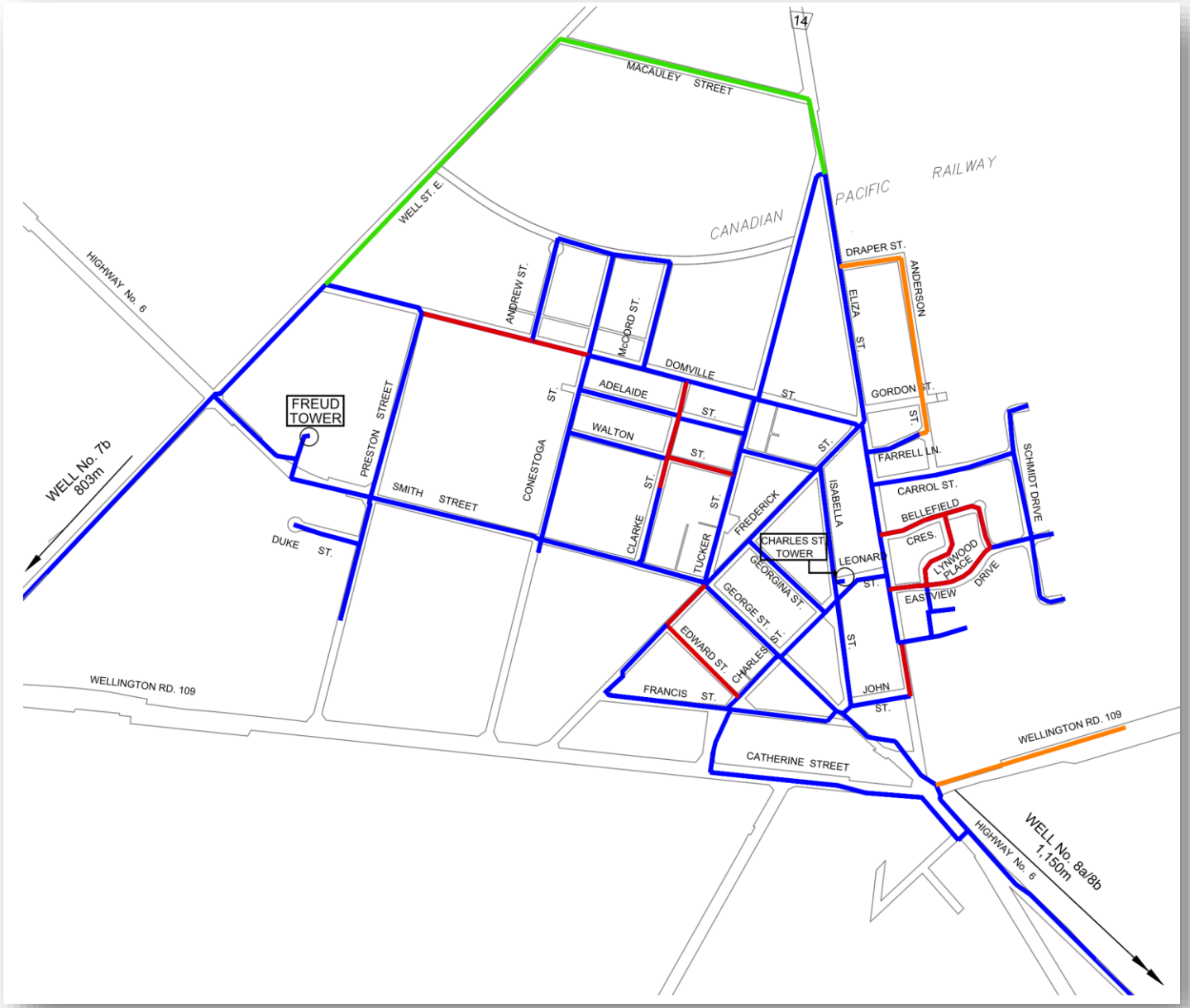


Existing Storage: 1,364m^3

Table 3.3 - Water Storage Requirement Summary

Year	MDD (m^3/day)	Recommended Fire Flow (L/s)	Storage Required (m^3)
Current (2020)	1,572	100	1,391
2025	1,675	110	1,514
2030	1,849	120	1,658
2035	2,023	120	1,712
2040	2,195	130	1,856
2045	2,368	130	1,910

WATERMAIN UPGRADES & EXTENSIONS



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SANITARY SYSTEM

Technical Review of the Arthur Sanitary System

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WASTEWATER TREATMENT CAPACITY & PUMPING STATIONS

Phase 1 Plant Upgrades

- Capacity 1,860m³/day
- Completed 2020.

Phase 2 Plant Upgrades

- Capacity 2,300m³/day
- Required by 2025.
- Additional capacity required beyond 2045.

Existing Plant Capacity: 1,465m³/day

Table 5.1.6 – Future Sanitary Reserve Capacity

Year	Population (Capita)	Households (ERU)	ADF (m³/day)	Phase 1 Reserve Capacity		Phase 2 Reserve Capacity	
				m³	ERU	m³	ERU
Rated Capacity				1,860m³		2,300m³	
2020	2,410	949	1400	460	402		
2025	3,351	1,242	1777	83	69		
2030	3,698	1,370	1915	-55		385	317
2035	4,046	1,499	2055	-195		245	202
2040	4,391	1,639	2193	-333		107	89
2045	4,736	1,768	2331	-471		-31	-25

Recommendations

- Ensure adequate oversight during linear infrastructure construction.
- Monitor annual Wastewater Reserve Capacity against Growth projections

Sewage Pumping Stations

- Wells Street SPS
- Fredrick Street SPS

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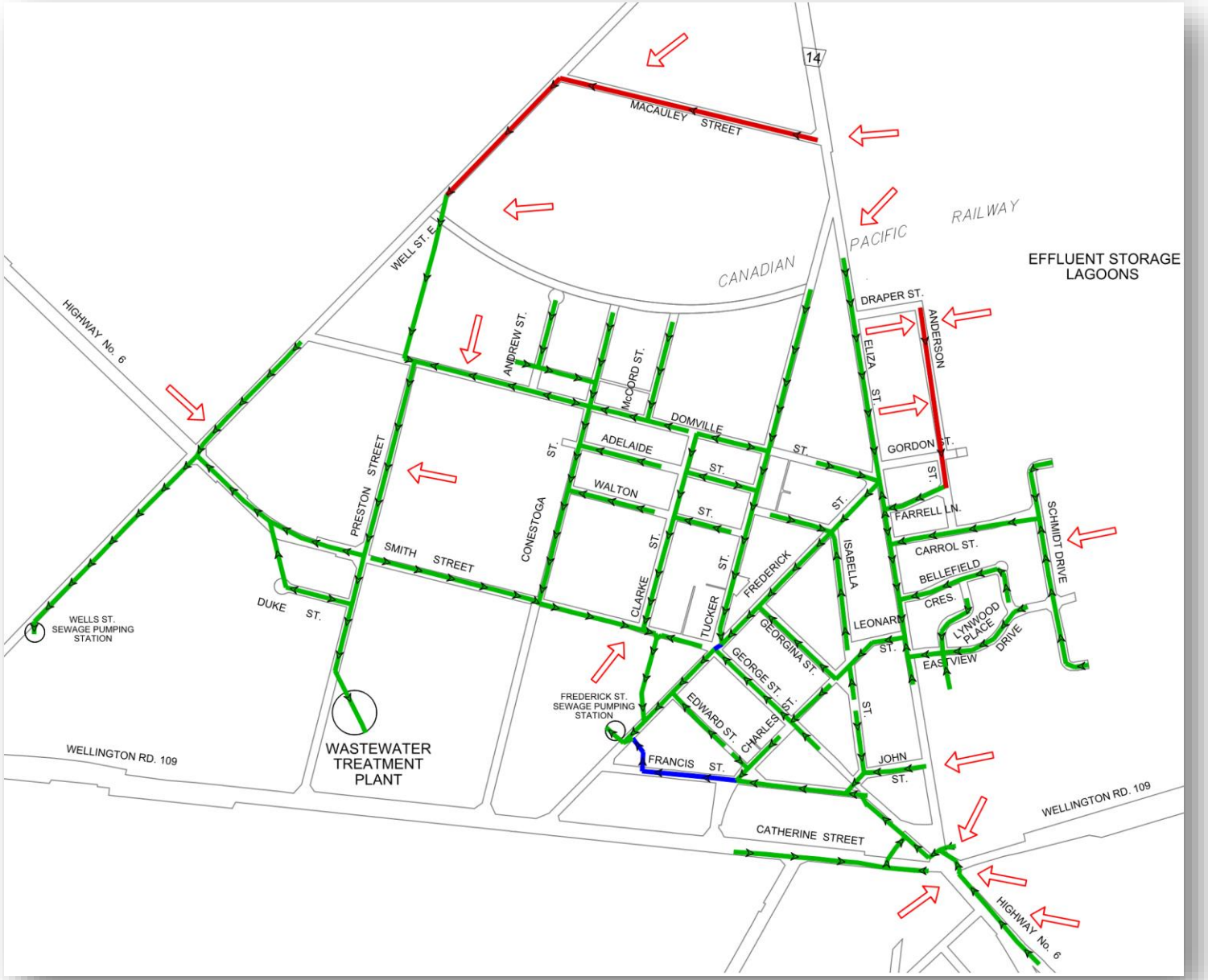
SANITARY UPGRADES & EXTENSIONS



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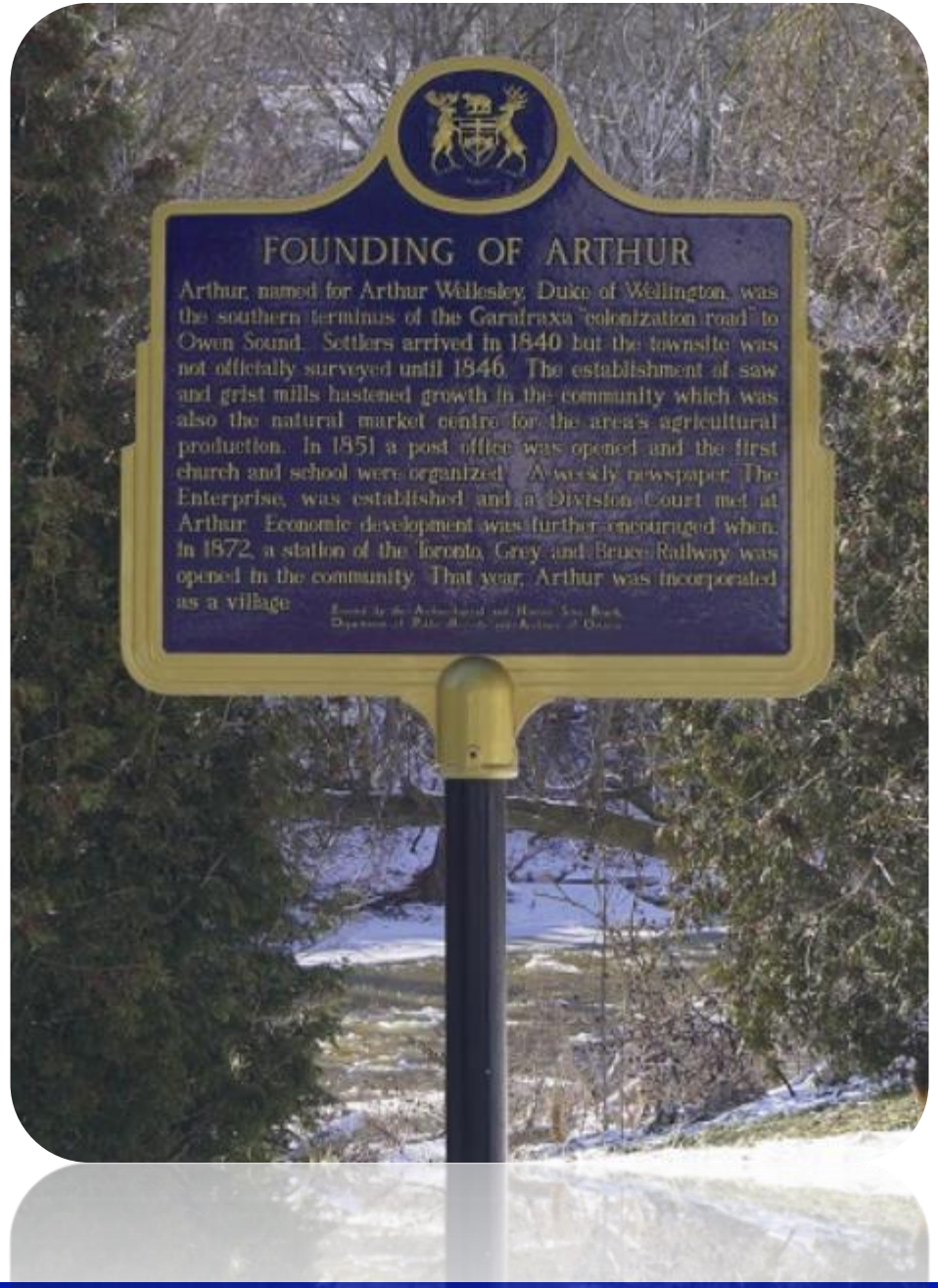

THANK YOU

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