# Overview of Waste Management Capital Projects

Waste Management Planning Steering Committee

April 19, 2021

Niagara Region

# SCADA Design and Implementation

**ISSUE**

- Leachate Collection Systems (LCS) – Mountain Road, Bridge Street, Line 5, Elm St, Glenridge Quarry - previously run using floats

- Manual monitoring required by contractors/operations staff, highly sensitive to environmental factors, limited data accuracy

**PURPOSE**

- SCADA provides programmable logic controller (PLC) connected to Region SCADA network. Allows for remote monitoring, control of pump stations / pumping wells and alarms if operating out of normal settings

**SOLUTION / OUTCOME**

- SCADA provides remote access, greater insight and increases environmental reporting efficiency due to precise record keeping capabilities.

- WM Staff partnered with WWW SCADA Team - implemented WIN911
    - Mobile app which allows staff to check SCADA alarms from cell phone – long term plan to roll this version of WIN911 to WWW as well.

**TIMELINE** – Just completed

**BUDGET** - $800K

# Humberstone Infrastructure Upgrades

**ISSUE**

- Environmental Assessment (EA) completed to expand landfill capacity to 4.6 million m$^3$ requires infrastructure per Environmental Compliance Approval (ECA)

**PURPOSE**

- Meet ECA requirements, infrastructure upgrades for vertical expansion began in 2019.

**SOLUTION**

- Phase 1 of Infrastructure Upgrades were completed in May 2020 including:
  - Phase II of LGCCS
  - SCADA system for LCS pumping system
  - Storm Water Management Pond # 3 connected to LCS to align with other three ponds

- Phase 2 of Infrastructure Upgrades began 2020 and will be fully complete mid 2021. Key upgrades completed under Phase 2:
  - Secondary LCS
  - Stormwater Pond Expansion – Ponds 1-4
  - Ditch Lining to reduced storm water infiltration into LCS

**TIMELINE** – Completion in 2021

**BUDGET** - $10.5M to date (incl. EA, Design and Construction)

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# Drop Off Depot Upgrades

**ISSUE**

- Initiated to address operational concerns at our Waste and Recycling Drop-Off Depots – Humberstone, Niagara Road-12, Bridge Street.

**PURPOSE**

- Upgrades aim at increasing functionality – reduced lineups, queuing off-site, increasing customer service, extending useful life of drop-off depots.

**SOLUTIONS**

Bridge Street:
- Asphalt by-pass lane for leaf and yard waste
- New Scale and scale house
- New concrete dump-pad / Restoration of Drop-Off Depot wall

Humberstone:
- Granular by-pass roadway with token-arm
- Re-grading south of container station for to mitigate dust generation and improve operations

Niagara Road-12:
- New concrete dump-pad / Restoration of Drop-Off Depot wall
- New By-pass road to new dump-pad

**TIMELINE** – Design 2021, Construction 2022 subject to MECP approval
**BUDGET** – $2.8M

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# Glenridge Passive Gas Venting System (PGVS)

**ISSUES**

- Elevated levels of methane gas were found in gas probes east of PGVS, indicating bypassing of PGVS

- Higher gas concentrations have been identified in two gas probes along southern property boundary leading to concerns of migration.

**PURPOSE**

- Review pathways of gas migration and design infrastructure to remain complaint with MECP requirements

**SOLUTION**

- Complete investigation to determine pathway of gas to facilitate design and install PGVSs or alternate infrastructure to reduce/eliminate gas concentrations

**TIMELINE** – Design 2021, Approvals 2022, Construction 2023

**BUDGET** - $780K (incl. Phase 1 & 2 - East Side, Phase 1 - South Side)

# Glenridge Leachate Collection System (LCS) Improvements

**ISSUE**

- LCS currently functioning poorly in south-eastern portion of site proven by elevated leachate levels, seeps

**PURPOSE**

- LCS improvements to improve capture effectiveness, reduce elevated leachate levels, and ensure compliance

**SOLUTION**

- Re-design drainage on top of landfill to promote run-off

- Design and install of pump within MH8A and associated piping/forcemain to direct leachate to MH7A.

- Review potential to combine flows from two pipes leaving site and if feasible design how flow can be redirected to groundwater collection trench

**TIMELINE** – Design 2021, Approvals 2022, Construction 2023

**BUDGET** - $2M

# Mountain Road LCS Improvements

**ISSUE**

- LCS capture is limited - gravity portion of the system is crushed.

- Pumping containment wells (PW) – large amounts of groundwater being captured and discharged to sanitary sewer limiting downstream capacity for leachate

- PW4 accounts for 45% average total discharge from site

**PURPOSE**

- Decrease flow to the sanitary sewer by on-site treatment of groundwater from PW4

- After on-site treatment resolved, attempt to improve LCS capture.

**SOLUTION**

- Completion of Municipal Class EA. Determine best treatment method for groundwater from PW4 and LCS upgrades

- Design new on-site treatment for PW4 and LCS upgrades on west side of site

- Construct approved upgrades

**TIMELINE** – Design 2021, Approvals 2022, Construction 2023

**BUDGET** - $1.5M, subject to increase as design advances

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# Quarry Road Landfill
# Leachate Treatment Upgrades

**ISSUE**

- The current leachate treatment system (wetland) is not functioning as designed to reduce the leachate impact on an adjacent stream down to acceptable levels.

**PURPOSE**

- Upgrade the leachate treatment system to reduce leachate impact on the stream to meet or exceed Provincial regulatory standards.

**SOLUTION**

- Completed Municipal Class Environmental Assessment to investigate alternatives.

- Preferred solution is to process leachate impacted water with ozone to oxidize contaminants into solid particles, and remove particles through a filter system prior to discharging treated water to stream.

**TIMELINE** - Design 2021, Approvals 2022, Construction 2023

**BUDGET** - $650K, subject to increase as design advances

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# Capital Budget – 2022

- WM capital budget is fully funded from the Waste Management capital reserve fund

- Capital Budget request for 2022 will take into account reserve funding / work load within division amongst other variables

- Capital projects across Corporation are run through Corporate Asset Management Resource Allocation Model (CAMRA)

- As long as reserve funds exist for WM capital projects, they will be self funded / prioritized within WM

**Niagara** Region

# THANK YOU

# QUESTIONS?