Life Cycle Assessment

Proposed Meadowview Material Transfer Facility

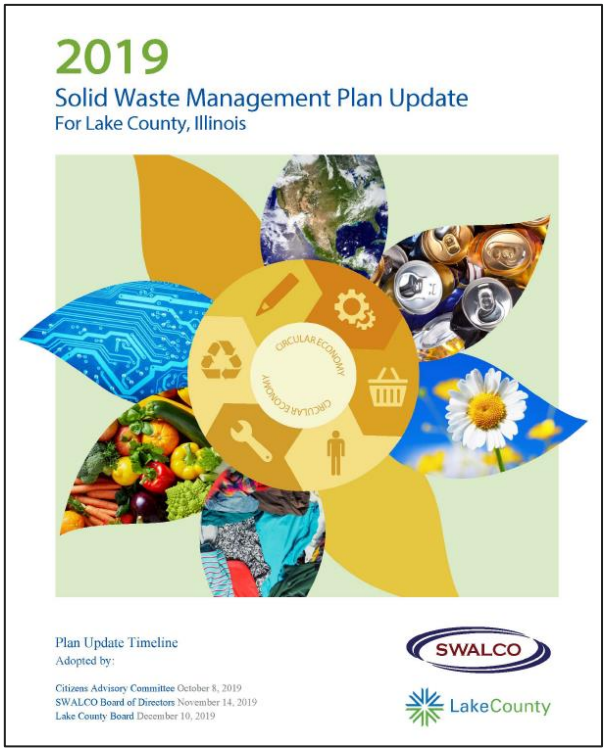
Waste Management of Illinois, Inc.

May 29, 2024

2019 Lake County SWMP - Life Cycle Assessment

Proposed Meadowview Material Transfer Facility

- Life Cycle Assessment (LCA) prepared for the Meadowview Transfer Facility (Facility) as required by the 2019 Lake County Solid Waste Management Plan Update (SWMP)
- LCA followed accepted SWALCO LCA methodology



2019 SWMP LCA Requirements

- The Facility is superior to the current system for carbon dioxide (CO_2) emissions and at least two of the remaining three parameters
  - Nitrogen oxide emissions (NO_x)
  - Sulfur oxides emissions (SO_x)
  - Net annual energy consumption
- LCA results and input data to be provided to SWALCO (and posted on Lake County & SWALCO websites) at least 30 days prior to a public meeting
- Presentation of LCA results at a public meeting

SWALCO Life Cycle Assessment – Methodology

Two scenarios were evaluated over 20-year and 30-year time periods

1. No Build Scenario (Facility not developed) assumptions
   - Countryside Landfill closes in 2027
   - Lake County waste will be hauled to
     1) Zion Landfill
     2) Lake Transfer Station and then transferred to landfills
     3) Nearby out of county transfer stations and then transferred to other landfills
2. Build Scenario (Facility developed) assumptions
   - Facility will begin operating in 2027 upon closure of Countryside Landfill
   - Lake County waste will be hauled to
     1) Zion Landfill
     2) The Facility or Lake Transfer Station and then transferred to landfills
     3) Nearby out of county transfer stations and then transferred to other landfills

SWALCO Life Cycle Assessment – Methodology (Cont'd)

Calculations

- Total vehicle miles traveled (VMT) for each scenario
- Emission factors of SO_x, NO_x and CO_2 for vehicle emissions utilizing the USEPA Motor Vehicle Emission Simulator (MOVES3)
- MOVES3 emission factors were applied to the VMT to determine the SO_x, NO_x and CO_2 emissions
- Emissions from heavy equipment and electricity usage at the Facility
- Net energy consumed by the vehicles and heavy equipment in both scenarios

SWALCO Life Cycle Assessment – Results

- Operation of Facility results in reductions of NO_x and CO_2 emissions and net energy consumption (diesel gallons)
- SO_x emissions increased slightly due to Facility heavy equipment operation and electricity usage in the Build Scenario

20-Year Results

- CO_2 emissions decrease 16,971 tons
- NO_x emissions decrease 47 tons
- SO_x emissions increase 0.61 tons
- Diesel fuel consumed decreases 3,838,021 gallons

30-Year Results

- CO_2 emissions decrease 26,415 tons
- NO_x emissions decrease 73 tons
- SO_x emissions increase 0.92 tons
- Diesel fuel consumed decreases 5,972,699 gallons

- LCA input data and results were reviewed and found acceptable by third-party consultant (APTIM) hired by SWALCO
- LCA demonstrates the Facility is superior to the current system and satisfies the Lake County 2019 SWMP requirement

Questions?