# Use of Holistic Approach to Evaluate Recovery, Ruse, and Recyling of Solid Waste

## Panel for NASEM, 4/16/2024

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Notice

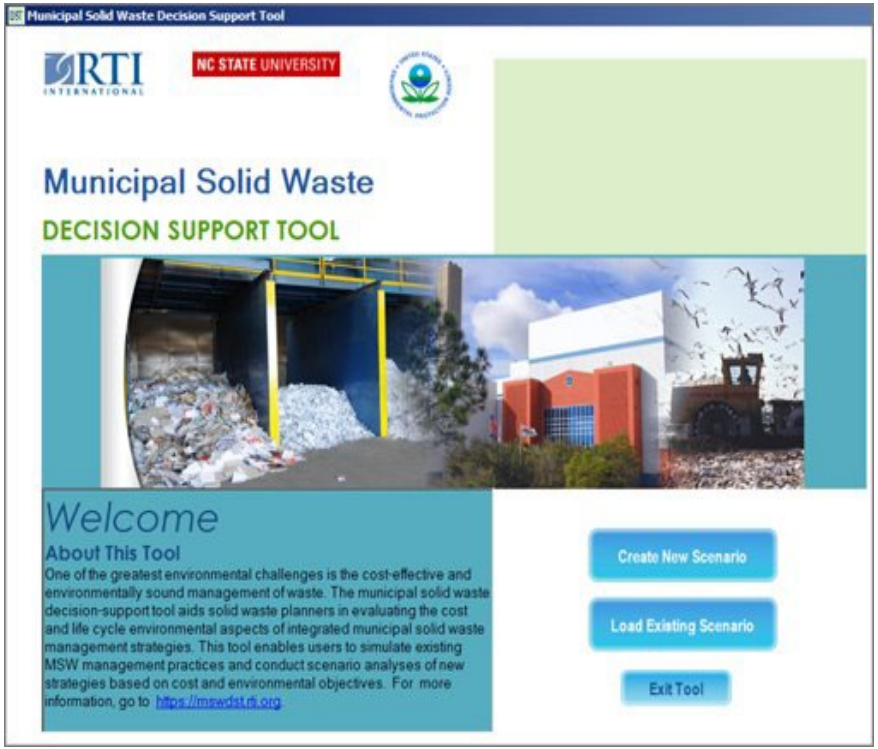
*This presentation contains PRELIMINARY Data. It has not been formally released by the U.S. Environmental Protection Agency and should not at this stage be construed to represent Agency policy. It is being circulated for comment on its technical accuracy and policy implications.*

Disclaimer

*The views expressed in this presentation are those of the authors and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency*

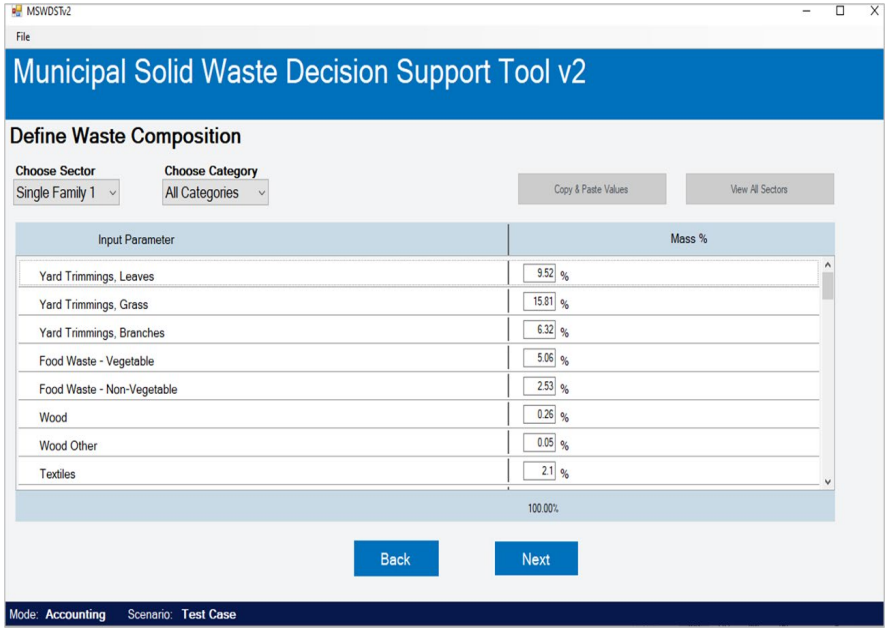
# Introduction

- Originally developed through EPA-RTI cooperative research agreement
- Built at request of cities to better understand tradeoffs and impacts
- Aid communities and solid waste planning to identify strategies to optimize cost and environmental performance



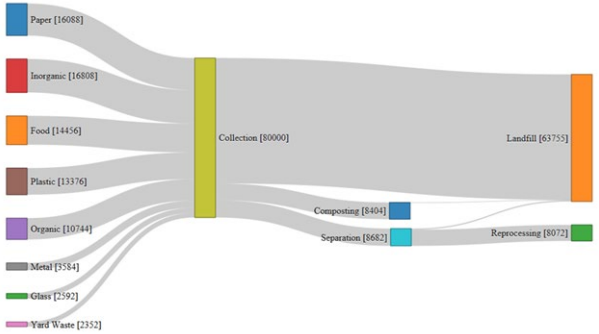
# Key Data Inputs and Assumptions

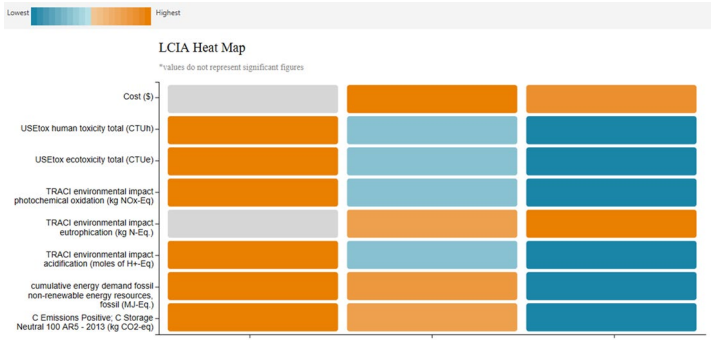
- Waste quantity and composition
- Electricity grid mix
- Transport distances
- Infrastructure design and operational parameters
- Market prices for energy, labor, land, materials, etc.
- US-based default data and assumptions built-in and tailorable
  - Sourced from US EPA, industry, facilities, equipment vendors, and laboratory analyses



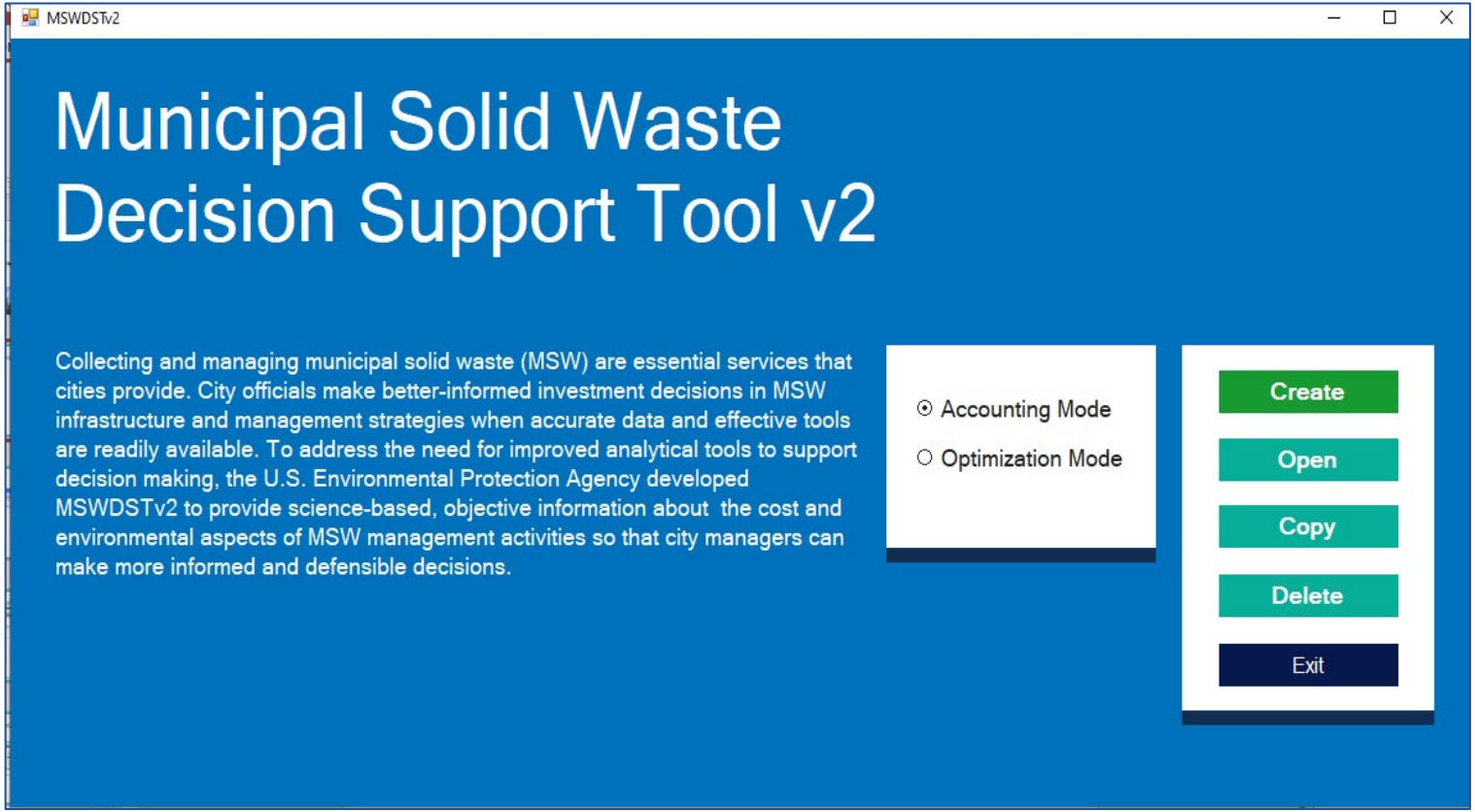
# Outputs

- Cost
- Energy consumption
- Air emissions
- Water emissions
- Health and environmental impacts
  - Based on EPA's TRACI model
- Results visualization tool back-end developed by EPA

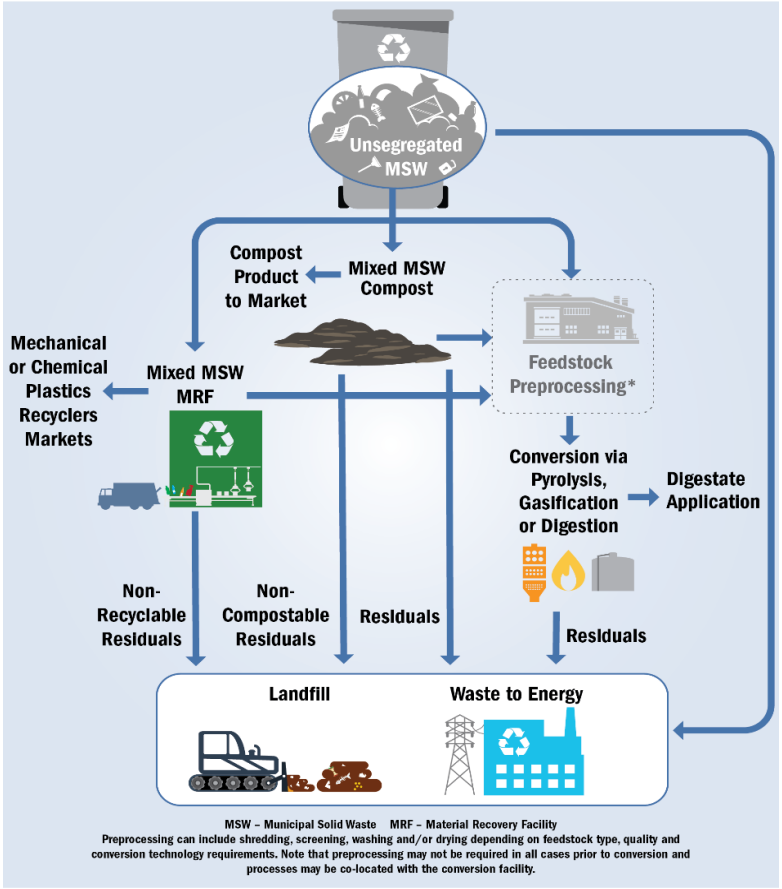


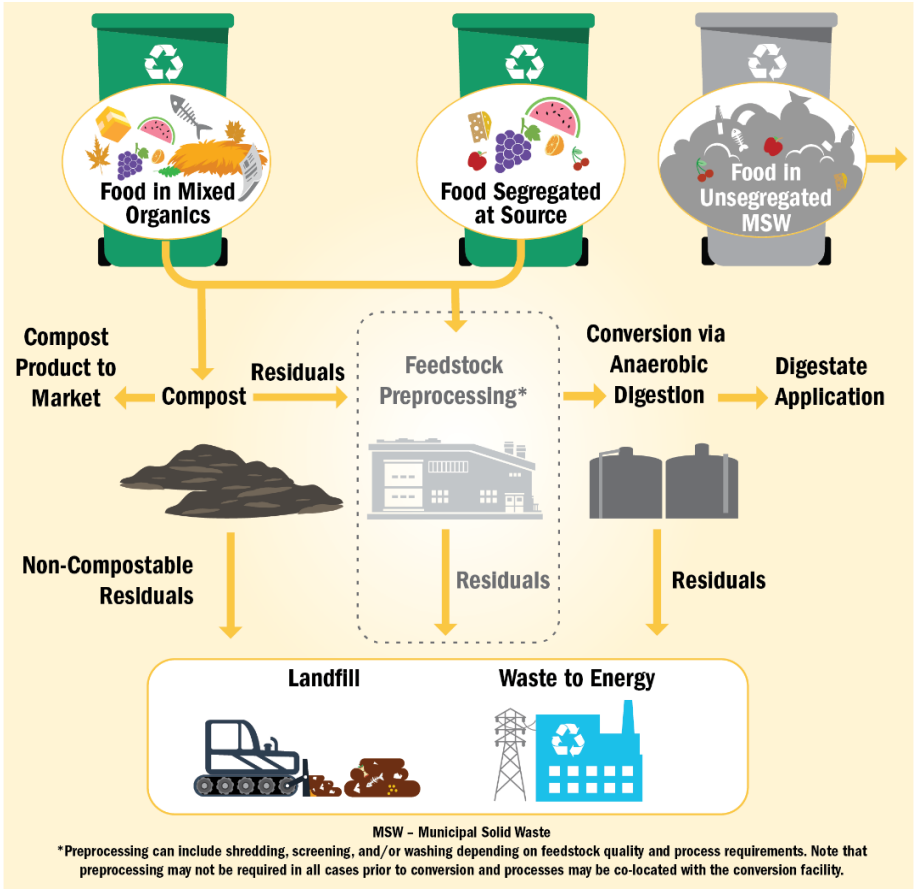



# Opening the MSW DST v2



# Solutions are Specific to the Waste Stream



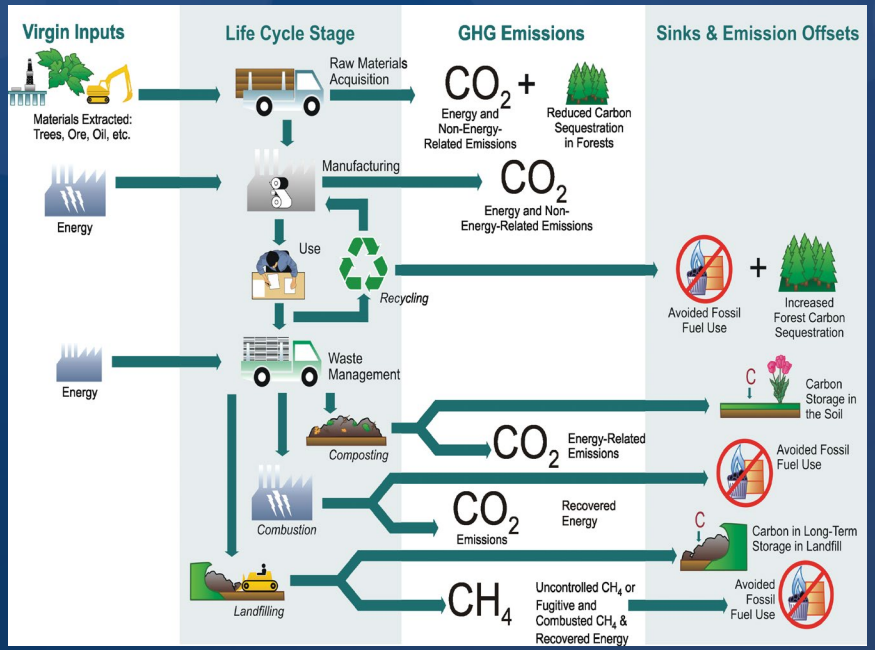



# MSW DST – Municipal Solid Waste Decision Support Tool

- MSW-DST freely available with full documentation, publications and tutorials
- Developed via stakeholder driven process
- Designed to evaluate holistic management of materials in municipal solid waste
- Used as a detailed planning tool with optimization capabilities
- Place-based analysis with multiple options for solid waste management (SWM)
- Wide-range of use cases and users
  - e.g., universities, NGOs, state environmental departments, cities, international organizations, military bases
- Expertise through various case studies conducted with the tool

**MSW-DST: https://mswdst.rti.org/resources.htm**

# MSW DST – Municipal Solid Waste Decision Support Tool




MSW DST features:

- **Lifecycle** emissions,
  - e.g., greenhouse gas (GHG), air, and water
  - **Full cost** accounting,

- **Process models can be tailored to** represent local system
- Can evaluate options for more sustainable and resilient SWM

**MSW-DST: https://mswdst.rti.org/resources.htm**