

# County of Los Alamos

## Food Waste Composting Feasibility Project

January 20, 2022



# AGENDA

- Technologies Evaluation
- Facility Costs
- Environmental Impact Analysis
- Collection methods
- Collection Costs
- Next Steps

# Technologies Evaluation

- Windrow composting
- Aerated Static Pile (ASP)
- Covered Aerated Static Pile (CASp)
- In-vessel composting
- Anaerobic Digestion
  - Dry AD
  - Wet AD\*

| Criteria   | Technology Score      |                   |                    |                         |                  |
|--|-----------------------|-------------------|--------------------|-------------------------|------------------|
|  | WINDROW<br>COMPOSTING | ASP<br>COMPOSTING | CASP<br>COMPOSTING | IN-VESSEL<br>COMPOSTING | DRY<br>ANAEROBIC |
|  | Total Score           | Total Score       | Total Score        | Total Score             | Total Score      |
| <b>A. TECHNOLOGICAL CRITERIA</b>   | <b>54</b>             | <b>55</b>         | <b>58</b>          | <b>63</b>               | <b>53</b>        |
| Status of technology   | 10                    | 10                | 10                 | 10                      | 10               |
| Space required for technology  | 2                     | 2                 | 2                  | 2                       | 2                |
| Years of operating history   | 8                     | 8                 | 8                  | 8                       | 4                |
| Feedstock Material   | 16                    | 16                | 16                 | 16                      | 12               |
| Manure accepted  | 1                     | 1                 | 1                  | 1                       | 1                |
| Biosolids accepted   | 1                     | 1                 | 1                  | 1                       | 1                |
| Quantity of water required   | 2                     | 2                 | 2                  | 2                       | 2                |
| Power requirements   | 3                     | 1                 | 1                  | 3                       | 1                |
| In compliance with Federal and State emission and other regulations      | 8                     | 8                 | 8                  | 8                       | 8                |
| Potential to emit Odors  | 3                     | 3                 | 6                  | 6                       | 6                |
| Potential to attract Wild Life / Vector                                  | 0                     | 3                 | 3                  | 6                       | 6                |
| <b>B. FINANCIAL CRITERIA</b>   | <b>29</b>             | <b>23</b>         | <b>19</b>          | <b>13</b>               | <b>9</b>         |
| Capital costs (total including permitting, site improvements, equipment) | 8                     | 8                 | 4                  | 4                       | 0                |
| Unit operating cost  | 6                     | 3                 | 3                  | 0                       | 0                |
| Tipping fee (based on reference facility(ies))                           | 6                     | 3                 | 3                  | 0                       | 0                |
| By-Product revenue   | 3                     | 3                 | 3                  | 3                       | 3                |
| Markets for By-Products  | 6                     | 6                 | 6                  | 6                       | 6                |
| <b>TOTAL</b>   | <b>83</b>             | <b>78</b>         | <b>77</b>          | <b>76</b>               | <b>62</b>        |

# Environmental Impact Analysis

| Criteria  | Rating Scale (potential level of adverse environmental impact) | Point Scale (0 - 2) <sup>1, 2</sup> | Weight |
|---|--|-------------------------------------|--------|
| <b>POTENTIAL ENVIRONMENTAL IMPACTS</b>  |  |                                     |        |
| Odors   | High   | 2                                   | 4      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Sensitive Receptors (e.g., residents, schools, hospitals)   | High   | 2                                   | 4      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Attraction of Wildlife and/or Vectors   | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Pathogen Generation   | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Water Consumption   | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Surface Run-Off   | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Air Quality/Dust Control  | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Greenhouse Gas Emissions Reductions Using U.S. EPA WARM (high emission reductions = low adverse environmental impact) | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Energy Consumption  | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |
| Noise   | High   | 2                                   | 3      |
|   | Medium   | 1                                   |        |
|   | Low  | 0                                   |        |

| Criteria  | COMPOSTING TECHNOLOGY |                          |                         |                  |
|---|-----------------------|--------------------------|-------------------------|------------------|
|   | WINDROW<br>COMPOSTING | ASP / CASP<br>COMPOSTING | IN-VESSEL<br>COMPOSTING | DRY<br>ANAEROBIC |
|   | Score                 | Score                    | Score                   | Score            |
| <b>POTENTIAL ENVIRONMENTAL IMPACTS</b>  |                       |                          |                         |                  |
| Odors   | 8                     | 4                        | 0                       | 0                |
| Sensitive Receptors (e.g., residents, schools, hospitals)   | 8                     | 8                        | 4                       | 4                |
| Attraction of Wildlife and/or Vectors   | 6                     | 3                        | 0                       | 0                |
| Pathogen Generation   | 3                     | 3                        | 3                       | 0                |
| Water Consumption   | 3                     | 3                        | 3                       | 0                |
| Surface Run-Off   | 6                     | 6                        | 3                       | 0                |
| Air Quality/Dust Control  | 3                     | 0                        | 0                       | 0                |
| Greenhouse Gas Emissions Reductions Using U.S. EPA WARM (high emission reductions = low adverse environmental impact) | 0                     | 0                        | 0                       | 0                |
| Energy Consumption  | 0                     | 6                        | 6                       | 3                |
| Noise   | 3                     | 3                        | 0                       | 0                |
| <b>TOTAL SCORE</b>  | <b>40</b>             | <b>36</b>                | <b>19</b>               | <b>7</b>         |

# Facility Capital Costs (estimated)

|                          | WINDROW            | ASP                | IN-VESSEL          | AD                 |
|--------------------------|--------------------|--------------------|--------------------|--------------------|
| <b>SITE IMPROVEMENTS</b> | \$800,000          | \$1,500,000        | \$1,600,000        | \$2,500,000        |
| <b>EQUIPMENT</b>         | \$1,200,000        | \$1,500,000        | \$4,200,000        | \$4,900,000        |
| <b>TOTAL</b>             | <b>\$2,000,000</b> | <b>\$3,000,000</b> | <b>\$5,800,000</b> | <b>\$7,400,000</b> |

# Collection Options



Collect in Existing  
Carts/Container



Collect in New, Separate  
Cart/Container



Drop-off collection

# Residential Collection Options

## Food in Waste Cart

- Loose, No Composting (Existing System)
- Bagged, In Cart

## Food in Green Waste Cart

- Loose
- Bagged, in cart

## Food in Separate, New Cart

- Loose
- Bagged, in cart

## Drop-off Site

- Eco Station
- Overlook Park

# Commercial Collection Options

## Food in Waste Container

- Loose, No Composting (Existing System)
- Bagged, In Container

## Food in Separate, New Container

- Loose
- Bagged, in container

# Collection Costs Estimates

- In progress
- Based on County budget inputs
- Includes capital costs for equipment, vehicles, fuel maintenance, and labor
- Does not include savings from collection/material reductions from other programs
- Scenarios assume bags to be provided by County
- Scenarios assume 100% participation rate

# Next Steps

- Complete Cost Model
- Prepare Summary Table
  - Technologies
  - Siting
  - Environmental Impacts
  - Costs
- Prepare Draft Report with recommendations