

Diverting Organic Waste from Our Landfills, & Reducing Your Community's Greenhouse Gas Emissions



Introducing DaRT Systems 21st Century Organic Waste Solutions

CONFIDENTIAL

Strawman Proposal for Municipal Compliance with:
AB 1826 & SB 1383



- About OnSite Waste Solutions
- About our leading technology for organics diversion (DaRT* systems)
- Compliance with AB 1826/SB 1383 Goals
- Compliance Scenarios
 - Phase I: On-site at largest food waste generators
 - Phase II: Municipal scale: plant-sized facility

****DaRT: Dehydration and Recovery Technology***



OnSite Waste Solutions:

We provide state-of-the-art **dehydration** systems to food service organizations to help them divert up to 100% of their organic waste away from landfills.

Currently, 1,000+ installed dehydration systems divert over 45,000 tons of food waste away from USA landfills, each year.

We utilize technology proven worldwide to be an excellent method of organic waste diversion. Our systems are scalable, reliable, safe, odorless, easy to operate and provide a healthy / safe environment for employees.

Key advantages of our DaRT systems are:

Reduction & Recovery

- Waste reduction of **90%** in volume and weight with remaining 10% being a: (i) soil-like amendment, (ii) compost accelerant, (iii) fuel pellet or (iv) animal feed.
- Water recovery: **200** gallons of sterile, filtered water per each ton processed.

IMMEDIATE INCREASE IN AB 1826 & SB 1383 COMPLIANCE



DaRT System Overview

DaRT: Dehydration and Recovery Technology



Eight (8) in-vessel on-site models to meet client requirements from 200+ lbs. / day up to 2,000+ lbs. / day capacities



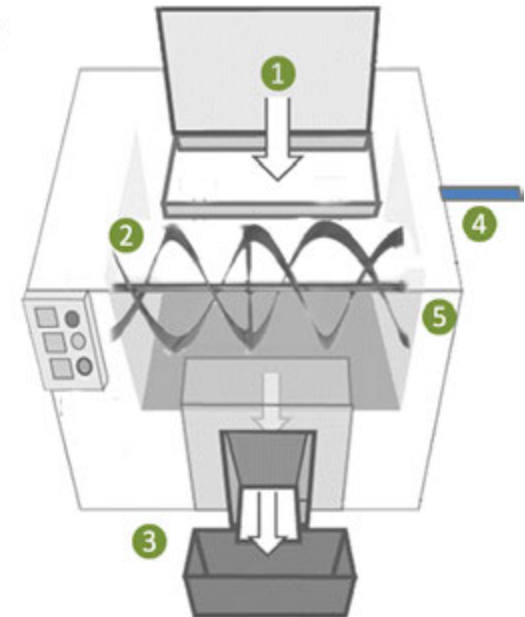
Custom “Plant-Sized Units” for multi-tonnage requirements from 5+ tons / day to 100+ tons / day capacities

Model GC 150
(similar technology for all platforms)

- ① Food Waste into Top Hatch & Lock, Press ON, Walk Away
- ② Shredders Macerate Food Waste
 - Heated to 180°C/357°F (kills seeds & pathogens)
 - Water extracted as steam, condensed, reusable
 - 330 pounds/day = Cycle time: ~9-10 hours
 - Helix shredder design for improved processing
- ③ Highly Concentrated Organics (HCO) exit front discharge door (~10% of original volume/weight)
- ④ Condenser Water Tubing
- ⑤ Daily Maintenance (5 to 10 minutes)
 - Rinse screen
 - Wipe down door seals

Power Usage: 120 kWh/Day = \$6 per cycle/\$12 day
(@US average “commercial rate” of 10¢ per kWh)

*Almost silent in operation.
Remains cool to the touch.
Little or no odor.*





DaRT Clients - Benefits to their Business



- NO Odors
 - NO Leaching
 - NO Pests
 - Reduced Sanitation Issues
- ...minimized hauler activities*



Recovered Assets

Output:



Hotel, city landscapers,
local farmers, employees



Hotel usage & landscaping



Compliance with AB 1826 & SB 1383

Phase - I : (Short term 60+ days)

- Utilize on-site DaRT models for largest food waste generators, or

Phase - II : (Long term 12+ months)

- Build a plant-sized DaRT System for:
 - Food Waste (Commercial & Residential)
 - Bio-Solids (Waste Water Treatment Facilities)

Benefits:

Bring more businesses into AB 1826 & SB 1383 compliance

Solve some obvious problems:

- Food Waste Diversion
- Bio-Solids Diversion
- GHG Reduction
- Odors
- Leaching

DaRT System in Action:

City of Melbourne helps 30 food service businesses divert organic waste from landfills; improves quality of life in a vibrant city center while eliminating odors, and reducing hauler visits.



[Click logo to watch](#)



Phase - I. (California Cities / Counties)

Implement a Grant Program for on-site DaRT Systems at major food waste generating sites.

- Set a minimum threshold:
 - 10 Participants with 880 lbs. / day (City / County determines guidelines)
 - Makes 10 new participants AB 1826 & SB 1383 compliant within 60 - 90 days
- Diverts 30+ tons / week from our landfills
- Reduces GHG emissions from our landfills

The DaRT users have water and soil-like amendment for reuse, plus...

- 100% Diversion of food waste
- ZERO GHG in city / county from waste hauling
- Less congestion & damage to freeways due to fewer hauler pickups



Compliance Scenarios

Phase – I. On-Site Solutions

Implement a \$ 500K Grant Program for Food Waste Solutions

Option # 1:

Ten DaRT Systems – Downtown area / High density food service areas

Identify & install equipment at 10 largest food waste generators

- 10 Model 400's (880 pounds / day each) in key strategic downtown locations or, a combination of other models.
- City / County provides reimbursement for 50% of the equipment cost via the Grant monies



Model GC 400

Immediate Benefits:

- Eliminates 110+ tons / mo. or, 1,300 tons / yr. from our landfills
- Eliminates 65 waste hauler pickups / month from downtown area
- Eliminates GHG emissions, congestion & road damage
- Reduces GHG by 900+ MTCO₂E / yr.
- Extends the useful life of our landfills and freeways
- Eliminates odors, pests and leaching issues for the generators
- Generates sales tax income of \$ 80K for the City
- Net cost to the city / county \$ 420K



Compliance Scenarios

Phase – I. On-Site Solutions

Implement a \$ 500K Grant Program for Food Waste Solutions

Option # 2:

Twenty DaRT Systems – Downtown area/high density food services area

Identify & install equipment at 20 largest food waste generators

- 20 Model 400's (880 pounds / day each) in key strategic locations or, a combination of other models.
- City / County provides reimbursement for 25% of the equipment cost via the Grant monies



Model GC 400

Immediate Benefits:

- Diverts 220+ tons / mo. or, 2,600 tons / yr. from our landfills
- Eliminates 130 waste hauler pickups / month from downtown area
- Eliminates GHG emissions, congestion & road damage
- Reduces GHG by 1,800+ MTCO₂E / yr.
- Extends the useful life of our landfills and freeways
- Eliminates odors, pests and leaching issues for the generators
- Generates sales tax income of \$ 160K for the City
- Net cost to the city / county \$ 340K



Phase – II. Years 2018-20: *Single, Custom-Designed Municipal DaRT System*



12 tons per day DaRT plant system



Compliance Scenarios

Benefits:

- Single processing center for XX tons / day for:
 - Food Waste
 - Bio-Solids
- Accelerates decomposition of food waste daily
- Reduces volume & weight by 90%, plus:
 - Reduction in carbon footprint
 - Significant reduction in daily waste odor, pest, leaching and health issues
 - Generates two viable by-products for reuse / recycling / re-sale
 - Use/Revenue from HCO by-product
 - Use/Revenue from sterile, filtered water
 - Potential Carbon / Diversion Credits (Value ?)



*25 Tons per Day Single Custom Designed
Plant Sized DaRT System*



Turning Waste into Energy

Fast Facts:

London Gatwick traffic (2016):

- 43 million passengers
- 280,000 aircraft movements

Airside waste per day:

- 10 tons

Recycling Rate:

- Forecast 85%, up from 49%

Recycle facility partners:

- DHL Supply Chain
- GAIA Corporation

- Gatwick Airport is processing around **10 tons of mixed food waste a day** at a new on-site £3.8m (\$4.8M USD) MRF and energy-from-waste (EfW) facility.
- Gatwick said it will be the first airport in the world to set up an on-site plant to deal with “Category 1” waste: *food, packaging, cups and meal trays from international flights*.
- The waste processing plant (GAIA Corp,) and biomass boiler, the result of a partnership with DHL Supply Chain, became operational in November, 2016. **The energy produced will power the plant, and provide heat for the North Terminal.**
- Gatwick said processing waste in this way would boost its recycling rate to around **85%** by 2020. Before installation, the rate stood at 49%.
- **The airport estimates the system will result in 210 fewer industrial-size waste bin collections a day.**
- Gatwick chief executive Stewart Wingate said: “*We expect others to follow our lead as we realise our ambition to become the UK’s most sustainable airport. Already we are one of only a handful of organisations in the country to achieve a triple series of Carbon Trust Standard awards, and more important environmental initiatives will follow soon.*”



London Gatwick Airport

GATWICK'S WORLD-BEATING WASTE PLANT

- The GAIA dehydrator is self powered using byproduct for fuel.
- The GAIA system recovers 538,000 gallons of water per year.



GAIA Corp: 10 ton per day food waste dehydrator plant at LGW (Feb 2017)





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