

Composting and Carbon Policy in Yolo County

Location: California

In-Country Partner Organization/Client: The City of Davis [Natural Resources Commission \(NRC\)](#) advises the City Council on the preservation, management, and enhancement of the city's natural resources, including by making recommendations pertaining to waste management.

Project Background: [Senate Bill \(SB\) 1383](#) mandates that California reduce landfill disposal of organic waste statewide by 75% from 2014 levels by 2025. Meeting these targets will require [dramatic expansion](#) of alternative-management strategies for organic waste. For many counties and municipalities, composting is the most feasible strategy. Yet composting is not necessarily a panacea for sustainable waste management. As Brown et al. (2007) observe, composting “is a source of GHG [greenhouse gas] emissions from the use of electricity and fossil fuels and through GHG emissions during composting.” Emissions can be minimized through thoughtful design of composting facilities and by tailoring composting operations to feedstock composition. Emissions can also be offset by optimizing end use of compost; for instance, by strategically applying compost to grassland and rangeland.

Project Problem Statement: In 2016, the City of Davis implemented a mandatory city-wide organics program. The City's organic waste is currently delivered to the Yolo County Central Landfill (YCCL) for processing. In 2017, the City contracted with Clements Environmental Corporation (Clements) to examine possible alternative arrangements. Clements concluded that a City-operated composting facility may be preferable to the status quo. Using the U.S. EPA Waste Reduction Model (WARM), Clements also concluded that annual GHG emissions would increase if the City were to switch from landfill disposal to composting. However, the WARM documentation notes that model inputs do not “consider the full range of...practices that could be used in combination with application of compost” for GHG mitigation. The NRC wants to know: could encouraging certain practices in Yolo County improve the carbon footprint of composting? Are there policies that the NRC could consider to encourage such practices?

Project Goals and Objectives:

1. Document Review
 - a. Examine the Organics Processing Facility Feasibility Analysis and WARM analysis prepared by Clements to understand how input assumptions affect model outputs.
 - b. Survey literature for compost-use practices that could be applied to improve the carbon footprint of large-scale composting in Yolo County.
 - c. Survey literature for policies that the City of Davis could enact to encourage beneficial compost-use practices in Yolo County.
2. WARM Update
 - a. Update the WARM analysis to reflect carbon-sequestration capacity associated with beneficial compost-use practices identified in the literature review.
3. Recommendations
 - a. Prepare a memorandum summarizing the results of (2) and (3) and recommending next steps to the NRC.

