



How the City of Monterey is Converting Organics into Marketable Products

The Monterey Regional Waste Management District in Marina, California, leverages community partnerships to convert its organics waste stream into marketable resources.

By Theresa Cottom | November 28, 2019

When it comes to zero waste pursuits, many tout composting as the most viable solution for diverting organics from landfill.

But at the Monterey Regional Waste Management District (MRWMD) in Marina, California, composting is just one piece of a much larger puzzle as the agency leverages a handful of partners to turn as much of its waste stream into resources as possible.

The district's facilities are located on a 475-acre property at the Monterey Regional Environmental Park, which includes a 315-acre landfill, a 126-acre buffer area and 20 acres of resource recovery facilities. There, each component is pivotal for assuring the nearly 63,000 tons of organic waste taken in by the facility annually not only stay out of the landfill, but also are converted into assets for the agency and its partners.

"The success has been that this agency has enjoyed very low rates over time for very high levels of diversion activity. We have the lowest rates in about a 100-mile radius, along with the most diversion activities of any other facility," says Tim Flanagan, the general manager of MRWMD. "We have accomplished this because we've been able to invite private sector partners to take up residence on our property and make their business and their enterprise work successfully for them at the same time that it works for us."

Beginning with trimmings

Commercial carriers, contractors and the public bring nearly 48,000 tons of yard trimmings and 8,000 tons of wood waste to MRWMD's material recovery facility (MRF) each year.

MRWMD provides no collection services to its nearly 170,000 customers across a service area of more than 850 miles. Instead, it contracts with four main private haulers in Monterey, as well as several other regional haulers, that collect material and bring it to the facility for processing.

Yard waste processing was MRWMD's first organics-related initiative back in the mid-1990s. Most of the yard waste comes source-separated, so once it arrives on site, it heads straight to the MRF for processing.

The yard waste travels through an electric Peterson grinder that is powered by gas collected from MRWMD's landfill, which grinds the material into mulch. From there, the mulch moves to compost windrows, where one of the agency's longest-standing partners takes over.

MRWMD has partnered with Keith Day since his time working with the agency's initial composting partner company in the 1990s. Day went on to start his own business, Keith Day Company Inc. of

Salinas, California, which MRWMD now partners with to process the organics and market the end products.

“Keith’s been part of our family. ... He leases the land, processes material at an affordable cost and turns it into material that he sells,” Flanagan says. “We were able to have the land and material and the permits, and Keith is able to give the energy, the input, the product mix and the knowledge to make it sellable.”

Day and his company have land on MRWMD’s site, where they tend to the compost windrows, ensuring they remain at a proper temperature and turning them consistently over their 90-day processing period. The resulting product is compost certified for organic agriculture.

Processing the wood waste is a quicker process, though it does come in mixed loads and requires some manual sorting on the front end. The wood also passes through the Peterson grinder, as well as through a screen to remove large pieces, and finally through a magnet to remove nails and other metals.

The end result is clean wood chips that Day also markets himself.



Food in the mix

In the mid-2000s, MRWMD added food waste composting to its organics processing offerings.

“The interesting part there is that composting was really driven by the community and a number of local businesses and institutions that wanted to be able to compost their food waste,” Flanagan says.

The agency now receives 7,000 tons of food waste annually. Up until about five years ago, that food had all been mixed in with the yard waste to produce a rich compost mixture.

But in 2012, the agency was approached with another opportunity. Zero Waste Energy LLC (ZWE), a company based in Pleasant Hill, California, that provides solid waste handling and composting solutions, had received funding to install an anaerobic digester at a site of its choice. Flanagan had previously established a personal relationship with an employee there, so naturally, ZWE approached MRWMD with the idea.

“This was a unique opportunity Zero Waste Energy had for us,” Flanagan says. “Our district had a very short timeframe to make a decision. We took a little bit of a leap of faith, and we made this a joint venture between us and Zero Waste Energy.”

The anaerobic digester, which uses SmartFerm technology created by German-based Eggersmann Anlagenbau Concept GmbH that is licensed to ZWE, began operations in 2013. It now takes in about

7,000 tons of organic waste per year, which is a combination of about 80 percent food waste and 20 percent yard waste.

The waste is mixed and loaded into one of the digester's four fabricated steel storage chambers, where naturally occurring microorganisms are introduced to help break the food down over a 21-day process. This produces methane gas (and a small amount of carbon dioxide), which is then filtered and transported to another partner of the agency: the neighboring Monterey Regional Water Pollution Control Agency.

The water pollution agency uses the gasses for roughly 10 percent of its electricity needs. That leaves MRWMD with a digestate byproduct, which Day introduces back into the compost windrows.

"One of the reasons we wanted to pilot this type of technology is to see how it handled contamination because we were all curious to see how it worked," Flanagan says. "It's actually been very tolerant of contamination. It does have to be screened out on the back end, but the process works fine."

While most of the food waste moving through MRWMD's facilities comes from commercial customers, the agency has a residential component as well. About once a quarter, it offers several different composting workshops to residents so they can learn to divert food scraps from landfill at home.

Once they complete the workshops, MRWMD offers steep discounts on compost bins, which are on sale at the agency's Last Chance Mercantile shop along with the organics byproducts created from the waste stream.

At the Last Chance Mercantile, which MRWMD has run since 1991, it sells reusable goods that have either been donated or salvaged by its employees, who recover nearly 600 to 700 tons of resalable items per year.

Among books and boats, scrap lumber and furniture, Day also sells the compost and wood chips he processes from the organics waste stream that moves through the facility.

"It's been a good partnership, and I think with the way the future's going, it's just getting better. We help them and they're helping us, so it works both ways," Day says. "It's just a little bit of everything now, and things have kind of led to more and more recycling and diversion."

Looking ahead

As California Assembly Bill 1826 reaches its final phase of rollout in the state, requiring most businesses to recycle their organic waste, MRWMD has outgrown its anaerobic digester and is looking toward implementing its next organics recycling initiative.

"This will be a busy year for us in terms of getting to the next step," Flanagan says.

Flanagan says new regulations are requiring all composting facilities to be covered, so the agency is anticipating spending anywhere from \$30-50 million over the next few years taking its existing operations indoors. He says he also hopes to begin using a continuous feed process rather than the system's current batch feed process.

In addition, Flanagan says MRWMD is looking to add additional anaerobic digestion capacity to its operations. At the moment, he's eyeballing his next potential partner: an adjacent sewer treatment facility, which has a spare empty anaerobic digester that Flanagan is hoping to make use of.

"We'll probably be partnering with them and other inter-regional customers as well," Flanagan says.

Whatever the next steps may be for MRWMD, the agency will likely build on the relationships it has formed over the years to continue promoting ways to turn organic waste into resources. Flanagan says that the gradual build-up of the program and its network of partners have been the keys to its success.

“We’ve taken these things in measured steps. We’ve had the luxury of doing things somewhat sequentially, and each program built off itself,” Flanagan says. “This takes a community to support.”

This article originally appeared in the October issue of Waste Today. The author is the assistant editor for Waste Today magazine and can be reached at tcottom@gje.net.