



## SB 1383 Procurement Case Study

### City of Manteca

#### [Waste to Fuel Program](#)

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City Population: 81,592 (2018 Census estimate)

Located in San Joaquin County, the City of Manteca provides collection services for its residents and businesses. To process organics, the city is developing a waste to fuel program involving anaerobic digestion of organics and production of renewable compressed natural gas (R-CNG) for its collection fleet. This R-CNG can support the city's compliance with the annual recovered organic waste product procurement requirements.

### SB 1383 Requirements

*"Commencing January 1, 2022, a jurisdiction shall annually procure a quantity of recovered organic waste products that meets or exceeds its current annual recovered organic waste product procurement target as determined by this article."*

– California Code of Regulations, Title 14, Section 18993.1.a

### Program Synopsis

The city's pioneering Waste to Fuel program will convert residential and commercial food scraps, as well as fats, oils, and grease (FOG), into R-CNG via anaerobic digestion at the city's wastewater quality control facility. The R-CNG will be used to power the city's growing waste collection vehicle fleet and will help the city meet its SB 1383 organic waste procurement target.

### Project Milestones and Associated Costs

**2015** Biosolids Master Plan and Solid Waste Master Plan complete; design began

**2017** Phase I construction began (digester improvements at its wastewater treatment Facility) Reported construction cost: \$21 million

**2018** Phase II construction began (compressed biogas fueling facility)

Reported construction cost: \$9 million

**2019** Phase I and Phase II construction completed

**2020** Awaiting completion of Phase III; the installation of a food separator for initial processing of the collected food scraps. Funding yet to be secured.  
Approximate construction cost: \$1 million

## Project Adoption Process

- The idea for the program was born in 2015 when the city was completing a biosolids/biogas utilization plan and a separate solid waste master plan.
- The biosolids/biogas study recommended that the city add new and repair existing wastewater treatment facility digesters, boilers, and flare. The solid waste study recommended that the city scale back its use of diesel for collection trucks and start planning for food scraps collection and processing to comply with AB 1826 and SB 1383.

The city saw synergy between the improvements needed at its wastewater treatment plant and the ability of the plant to process food waste and generate R-CNG. As Program Manager Bret Swain put it, “We could connect the dots and save money [with] economy of scope and scale.”

## How the System Works

1. Sewage sludge, food scraps, and FOG feed a digester at the city’s wastewater facility.
2. Generated biogas (mainly methane) is captured and processed into R-CNG.
3. An adjacent fueling facility stores R-CNG.

The R-CNG fueling facility will be used to supply fuel to the city’s collection vehicle fleet; and to make R-CNG available for public use.

## Lessons Learned

- During construction of Phase I and Phase II of the project, the city realized a slight disparity among its contractors: wastewater contractors were not very familiar with CNG fueling facilities and CNG contractors were not accustomed to working on public works projects.
- The city experienced several delays, including:
  - It took extra time to make sure various software systems were tuned properly.
  - The CNG contractor did not deliver project designs and commissioning timely.
  - The city anticipated securing funding for the Phase III food separator (the last piece of major equipment needed to get the system running) in 2017, but they have not yet done so as of January 2020.

*The city recommends building in extra time for unexpected delays during the planning process.*

## Next Steps

- The city is investigating how to better utilize its biogas waste stream which is a byproduct from processing biogas into vehicle fuel quality biomethane. About a third of this biogas processing waste stream is comprised of methane. The city currently

uses an ultralow-BTU boiler to incinerate the biogas waste stream, but they are considering the use of fuel cells instead. The city says the fuel cells could operate more consistently in methane ranges of 30-35 percent.

- After the city sets up the food separator system, they expect a six-month turnaround for getting the Waste to Fuel program up-and-running.

In addition to processing the city's collected food scraps, the city anticipates securing additional food scraps feedstock from nearby jurisdictions after the program is implemented.



*The city's new R-CNG Fueling Facility where the Waste to Fuel program will operate.  
Photo: City of Manteca*

## **BY THE NUMBERS**

Manteca's Waste to Fuel Program

**3,100**

Tons per year of food scraps processing capacity

**500**

Diesel gas equivalents (DGE) produced per day

**\$500,000 - \$1M**

Anticipated fuel cost savings per year

**\$4.89M**

Grant funding from the San Joaquin Valley Air Pollution Control District and the California Energy Commission