

LACSD Food Waste Recycling Project Update

Presented to:

Alternative Technology Advisory Subcommittee

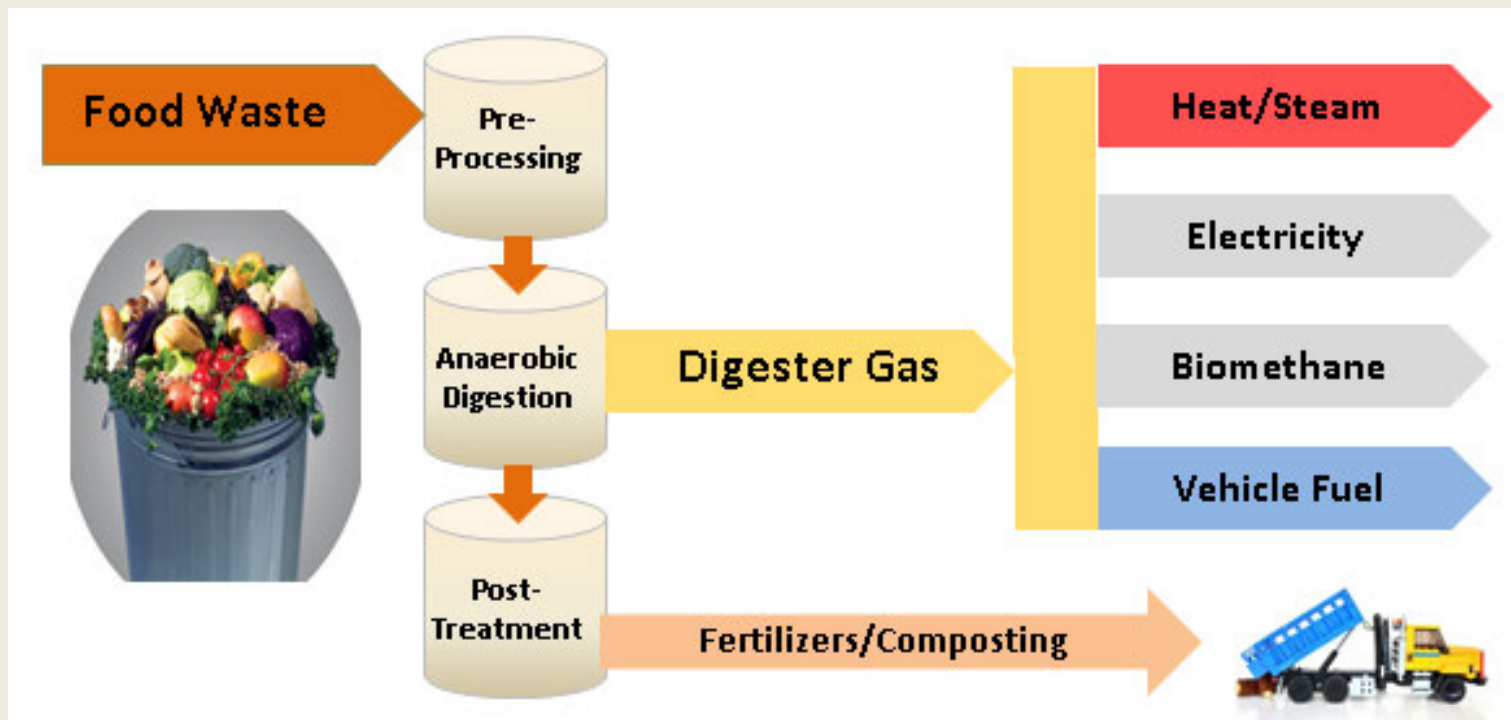
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Los Angeles County Sanitation Districts**

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Food Waste Recycling Steps





Three Processes Requiring Project Development and Construction

1. Food waste processing at Districts Solid Waste facilities
2. Food waste receiving and digestion at Districts Joint Water Pollution Control Plant in Carson
3. Energy recovery from additional digester gas created from food waste



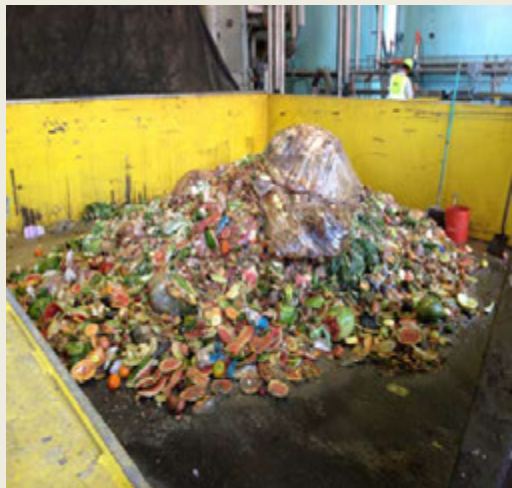
Food Waste Receiving and Processing at Puente Hills MRF

- Current
 - Receiving about 80 tpw source separated food waste at PHMRF
- Near term
 - Installation of Doda system at PHMRF*
 - Capacity up to 165 tpd
 - Will use all available space at PHMRF
- Long term
 - Other MRFs



Food Waste Processing-Following the Waste Management Model

- Food waste is collected from sources such as restaurants, food processing plants, cafeterias and grocery stores. Tipped material is inspected prior to processing.
- Food waste is processed to remove physical contamination (e.g., utensils, cans, packaging, and heavies) using a Doda two-stage bioseparator.
- The processed food waste is loaded into tanker trucks for delivery to the Districts Joint Water Pollution Control Plant in Carson.





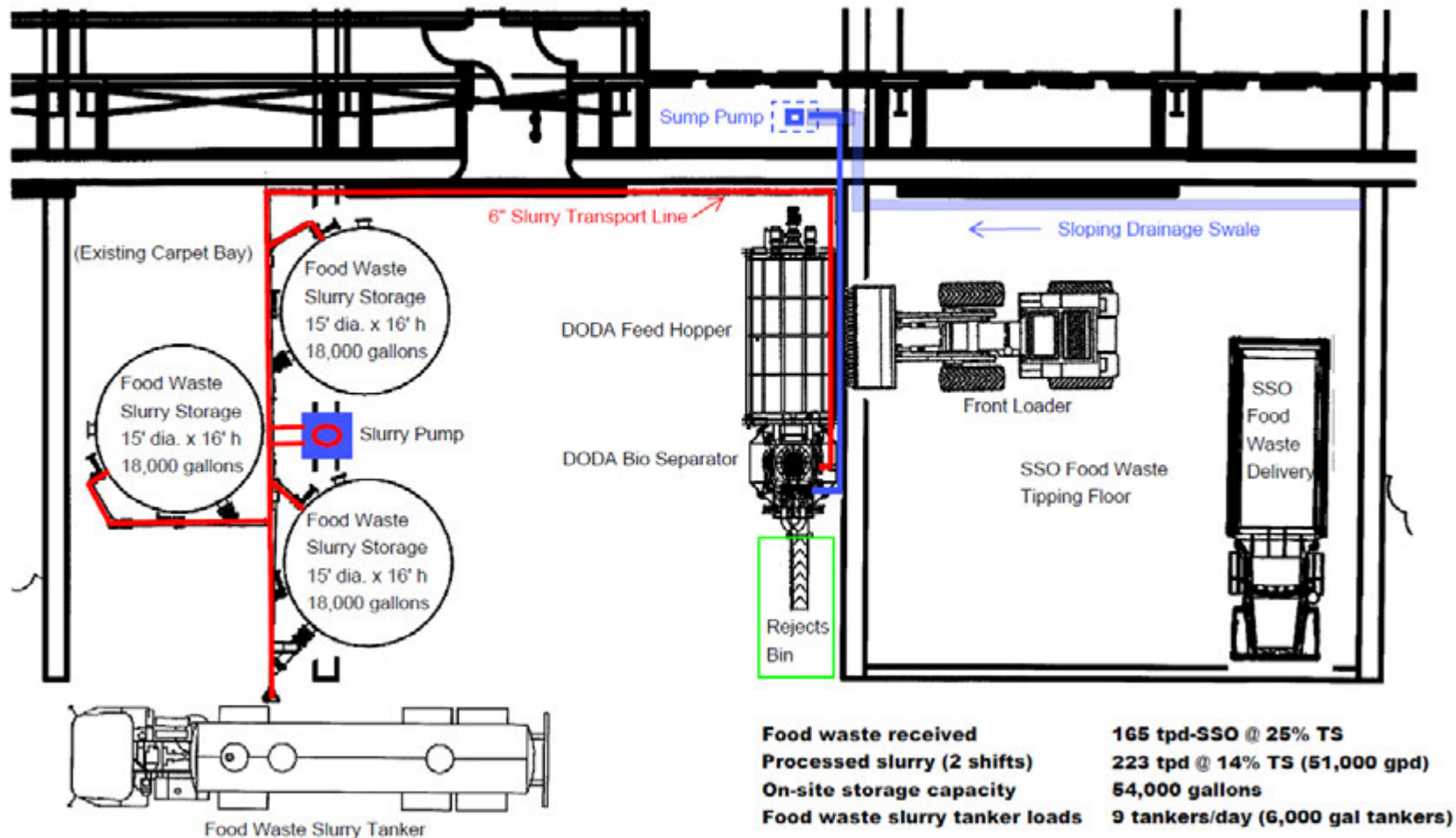
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Food Waste Processing at PHMRF

PHMRF SSO Food Waste Receiving and Processing - Conceptual Layout Design



Processes up to 165 tpd SSO => 2 shifts, 7-hours per shift

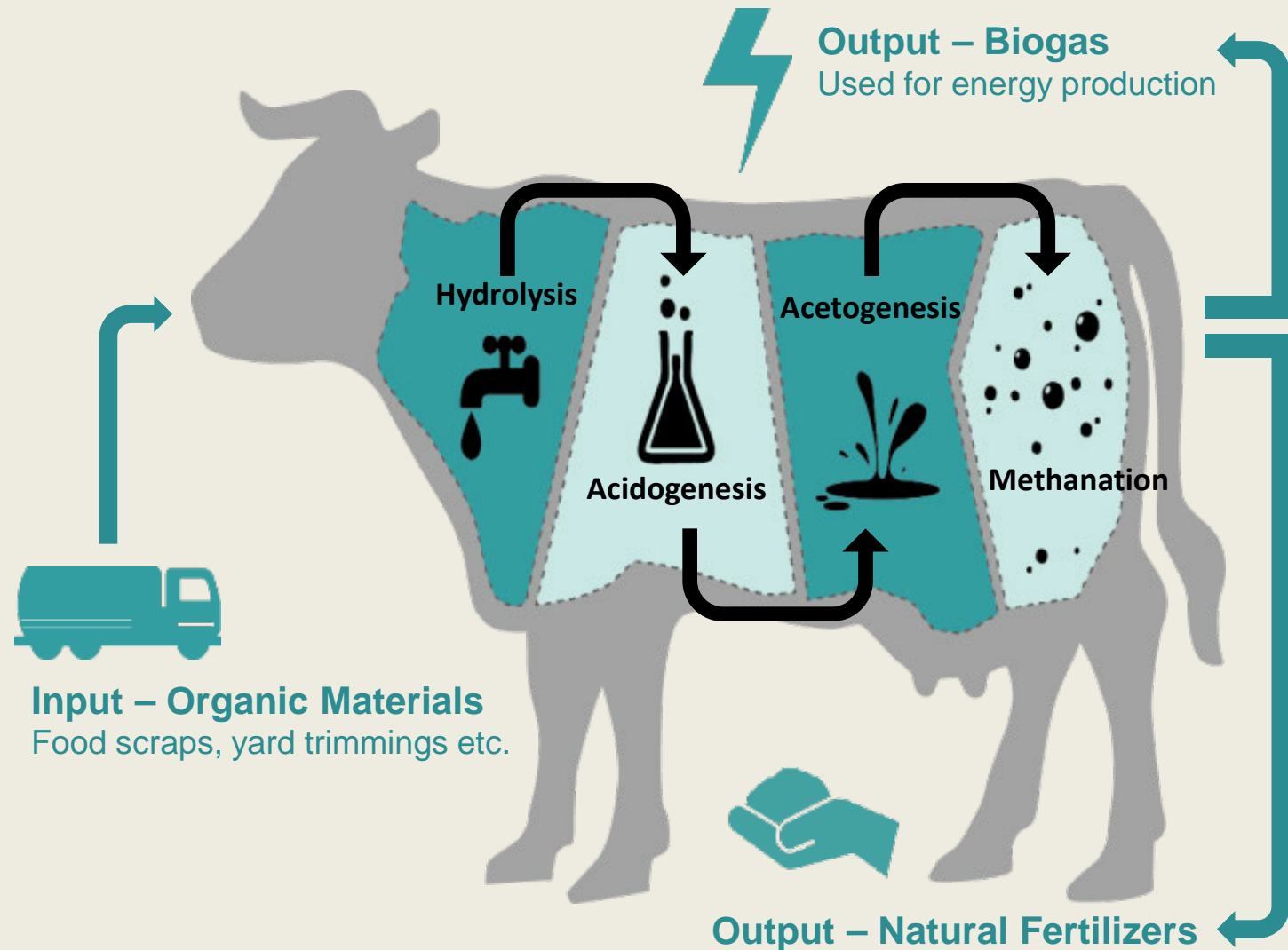


Digesting the Waste



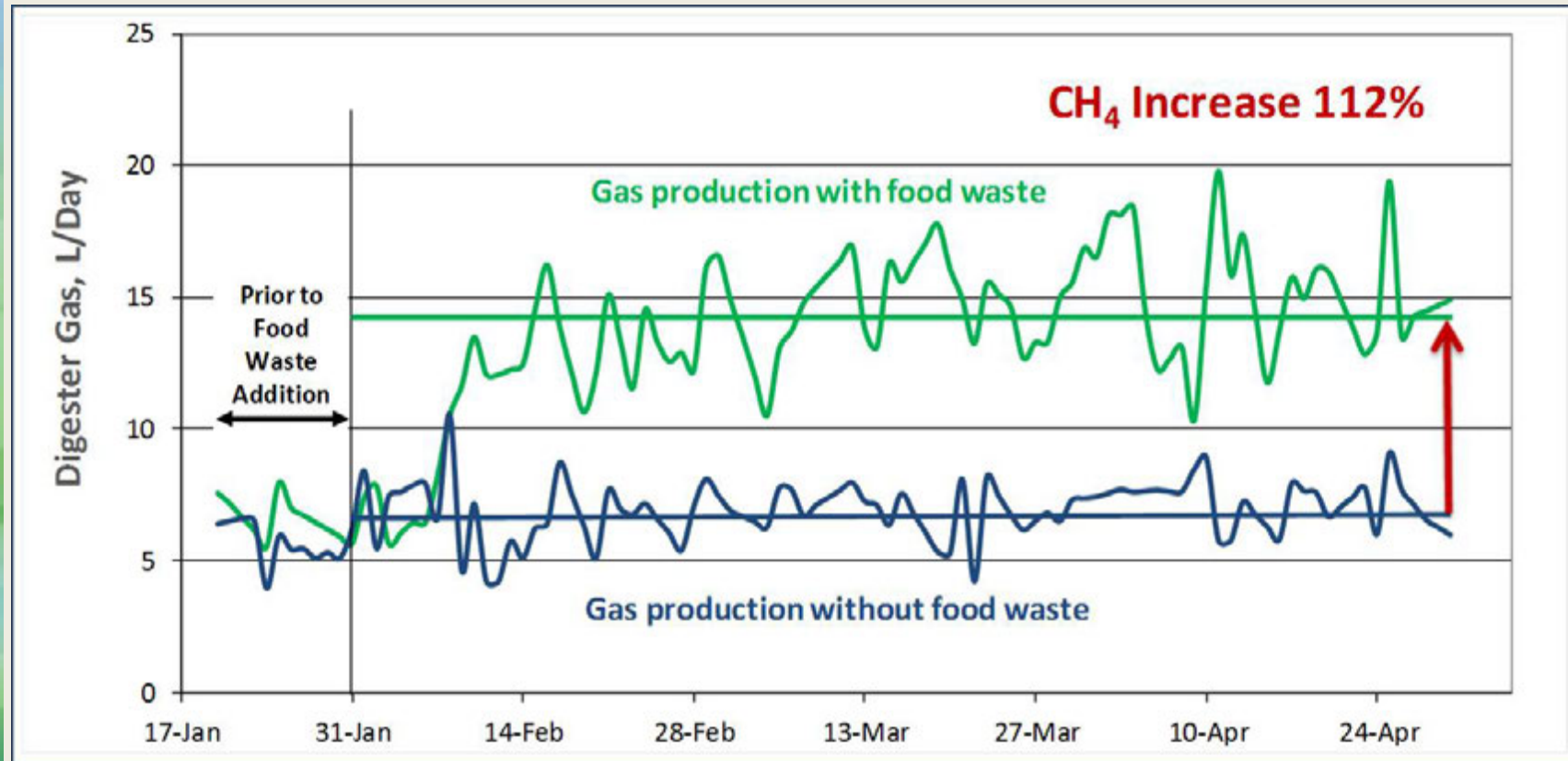


How a Digester Works





Adding Food Waste to Digesters Increases Biogas Production



Adding 10-12% (v/v) food waste slurry to sludge could double biogas production



Existing Demonstration Program

- The Districts and Waste Management entered into a demonstration program agreement
- WM is processing food waste slurry at off-site location and delivering to JWPCP, with a target food waste diversion rate of 62 tons per day
- AT JWPCP, the slurry is injected into one digester for co-digestion at 9% food waste slurry on a liquids basis and 30% food waste on a solids basis
- The program demonstrated that co-digestion of food waste at a wastewater treatment plant is feasible and does not significantly impact treatment plant operations



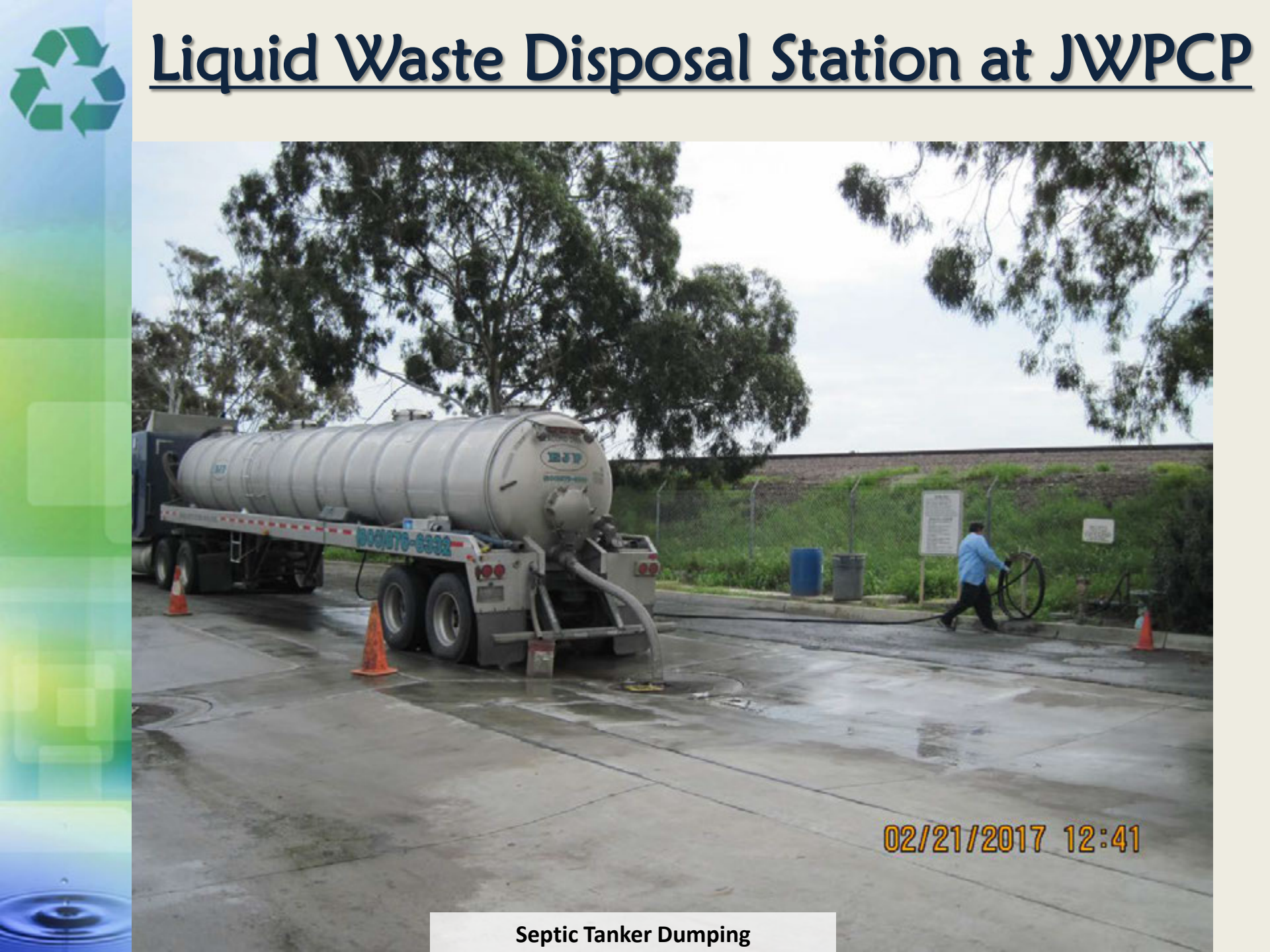
Food Waste Receiving and Digestion at JWPCP

- Currently (2014-present)
 - Receiving 62 tpd from Waste Management
 - Developing commercial tipping fee structure
- Near term (summer 2017)
 - 335 tpd food waste capacity at liquid waste disposal station
- Long term (2020)
 - 310 tpd direct injection into the five south digesters and use of LWDS for excess



Food Waste Receiving at JWPCP

- Currently exceeding 62 tpd, one digester capacity
- Liquid Waste Disposal Station viewed as a bridge project
 - Up to 335 tpd standalone
 - Estimated 240 tpd in conjunction with 310 tpd to digesters
- Upgraded food waste receiving facilities
 - Designing for 310 tpd (capacity of 5 south digesters)
 - Requires demo of rect digester and entrance improvements.



Liquid Waste Disposal Station at JWPCP



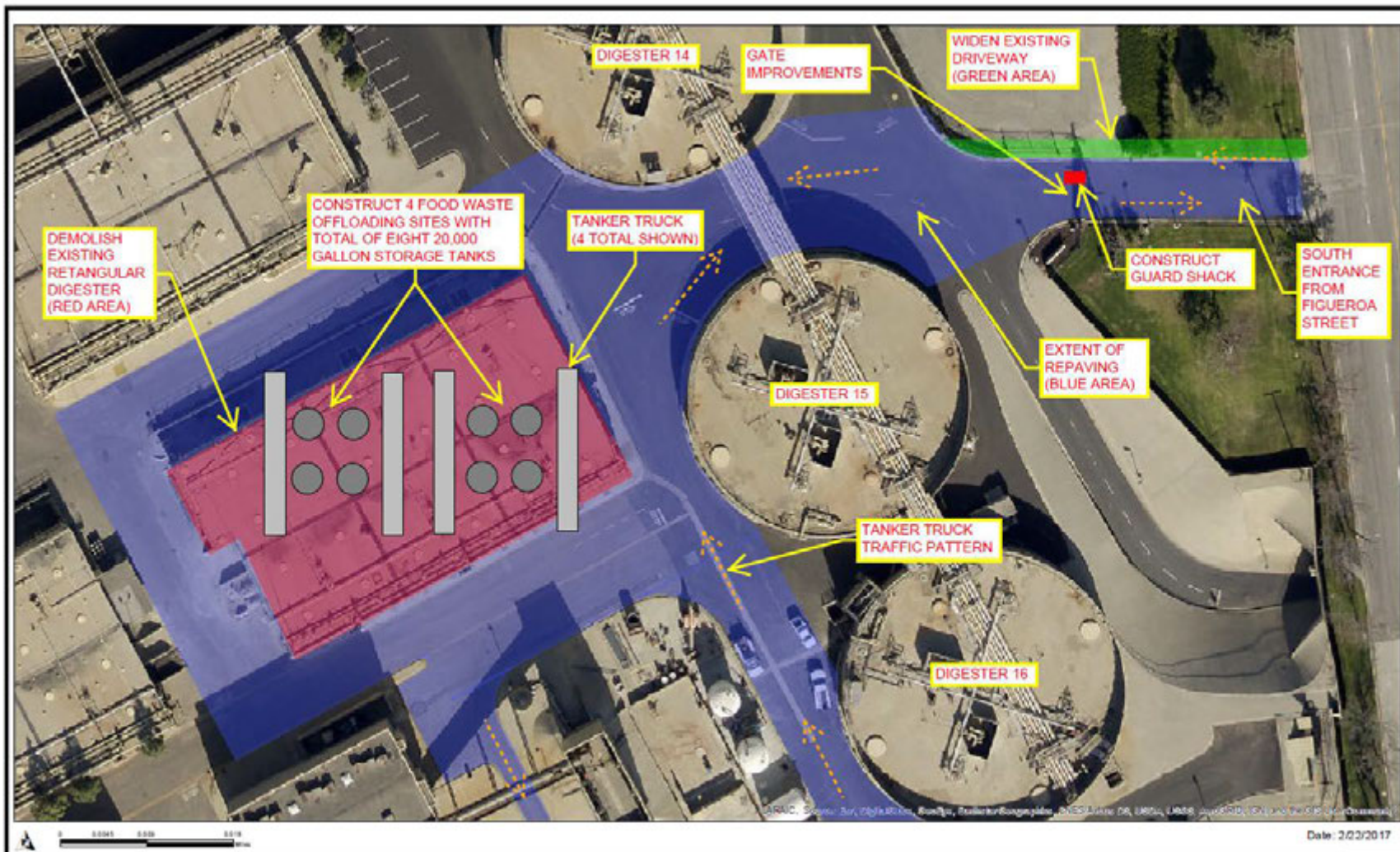
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Septic Tanker Dumping



Food Waste Receiving at JWPCP

New Receiving Station for South Digesters



CONCEPTUAL LAYOUT OF FOOD WASTE RECEIVING STATION AT JWPCP FOR FIVE SOUTH DIGESTERS





Energy Recovery

- Currently
 - 300-700 kW additional power at TEF from food waste digestion (\$20-30K per month)
- Near term
 - Convert digester gas to 2300-3500 gge/day CNG for vehicle fueling
 - Expand existing fueling station if contracts can be negotiated with haulers or other fleets
- Long term
 - Options include pipeline injection, electricity, hydrogen, biosolids drying



Biogas Condition & Station Expansion at JWPCP

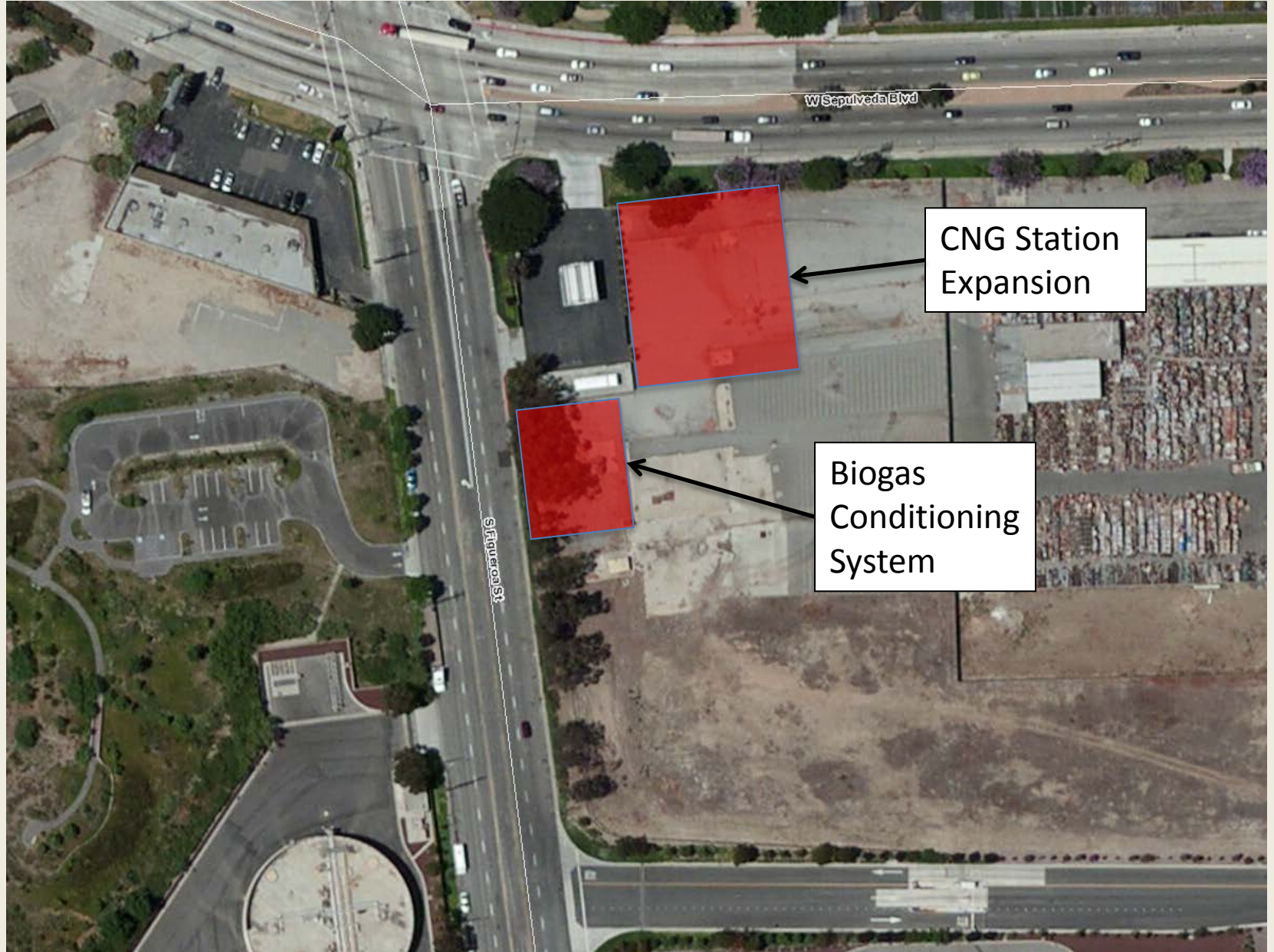
- Potential to take current CNG fueling from 1425 GGE/day to 2325 GGE/day or to 3500 GGE/day RNG fueling

	400 scfm 2325 GGE	600 scfm 3500 GGE
Biogas Conditioning System Capex	\$5 million	TBD
Fueling Station Expansion Capex	TBD	TBD

- \$2.5 million grant received from California Energy Commission
- CEQA has been initiated



CNG Vehicle Fueling Project at JWPCP





Moving Forward-Summary of Current Projects

- Food processing equipment at Puente Hills MRF
 - Equipment purchased
 - In design
 - Startup March 2018
- Food waste receiving at JWPCP
 - Start receipt at LWDS late 2017
 - Full scale receiving station in preliminary design
 - Startup early 2020
- Phase I energy recovery-digester gas to vehicle CNG
 - RFQ to technology providers May 2017
 - Balance of system in design
 - Startup late 2018
- JWPCP capacity estimated at 550 tpd diverted food waste by 2019



Thank you. Questions?

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"So, this Humpty Dumpty guy falls off the wall and I think, Dang, ain't lettin' this go to the food waste bin."