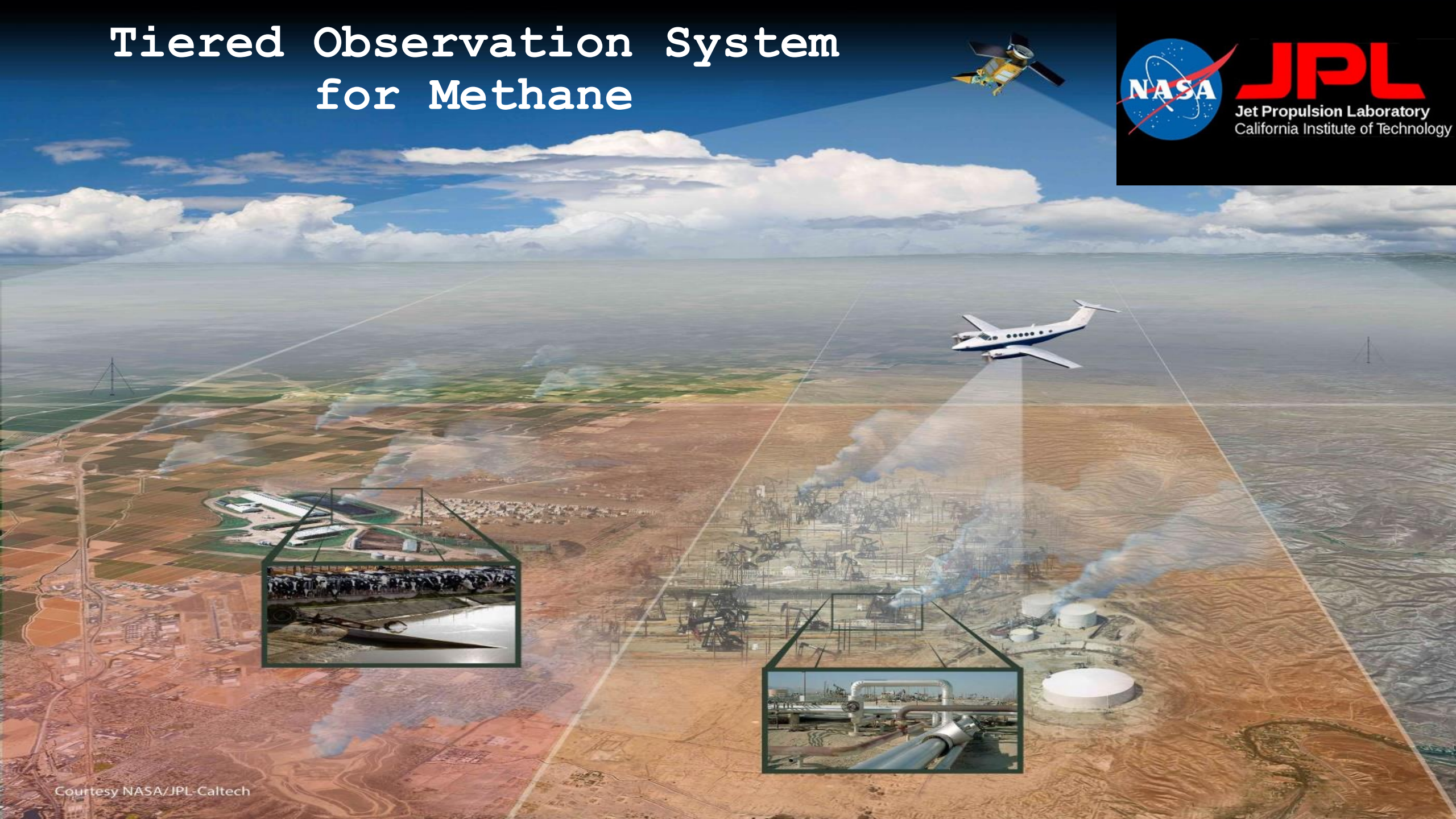
City of Los Angeles
Local Enforcement Agency

Overview of the Impact of Solid Waste Management on Climate Change

Eugene Tseng, JD

E. Tseng and Associates, Inc.
City of Los Angeles Local Enforcement Agency
California State University at Northridge, Autotomy Research Center

Tiered Observation System for Methane



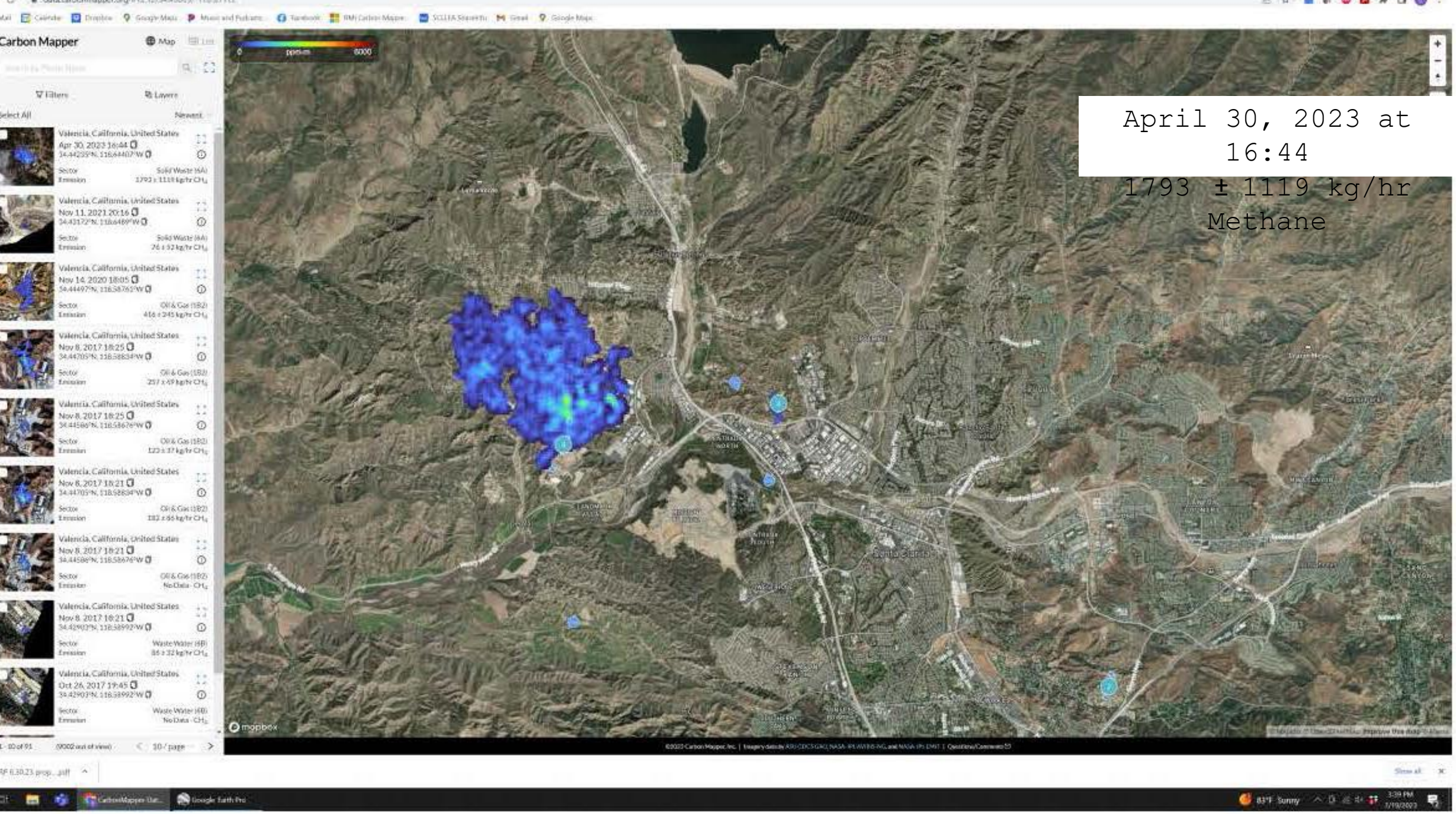
NASA Methane Survey Findings (California)

- The California Methane Survey quantified a point source methane budget in California (solid waste management, manure/enteric fermentation, oil/gas, energy, wastewater treatment);

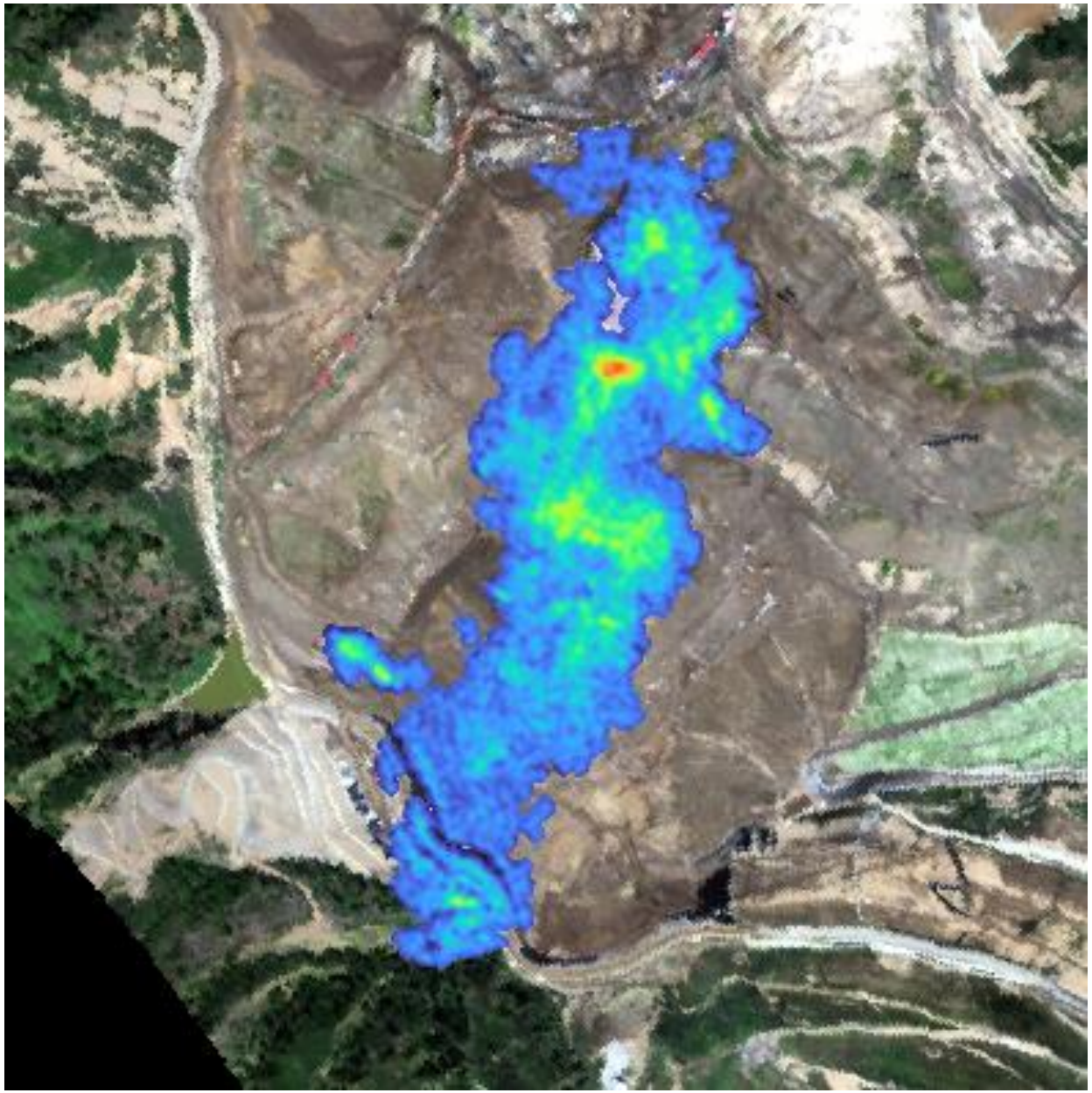
- Less than 0.2% of infrastructure elements in the state (based on a survey of 272,000 facilities and components) are responsible for 34–46% of total methane emissions in California;

- **Waste management is the largest methane point source emission sector in California (41% of our study total), driven by a small fraction of landfills;**

- Largest super-emitters in California are about 35 landfills – typically with average fluxes in the few thousand kgCH_4/hr range. Qualitatively higher than super-emitters in other sectors which tend to be in the few hundred kg/hr range.


Carbon Mapper
Map
Filters
Layers
Select All
Newest
Valencia, California, United States
Apr 30, 2023 16:44
Valencia, California, United States
Nov 11, 2021 20:16
Valencia, California, United States
Nov 14, 2020 18:05
Valencia, California, United States
Nov 8, 2017 18:25
Valencia, California, United States
Nov 8, 2017 18:25
Valencia, California, United States
Nov 8, 2017 18:21
Valencia, California, United States
Nov 8, 2017 18:21
Valencia, California, United States
Nov 8, 2017 18:21
Valencia, California, United States
Oct 26, 2017 19:45
April 30, 2023 at 16:44
1793 ± 1119 kg/hr Methane
mapbox

Carbon Mapper / NASA / JPL April 16 – 17, 2024 SCL Flyover



Video of Landfill Gas Extraction Well (November 2023)

NASA Flyover of Sunshine Canyon Landfill (November 11, 2020)

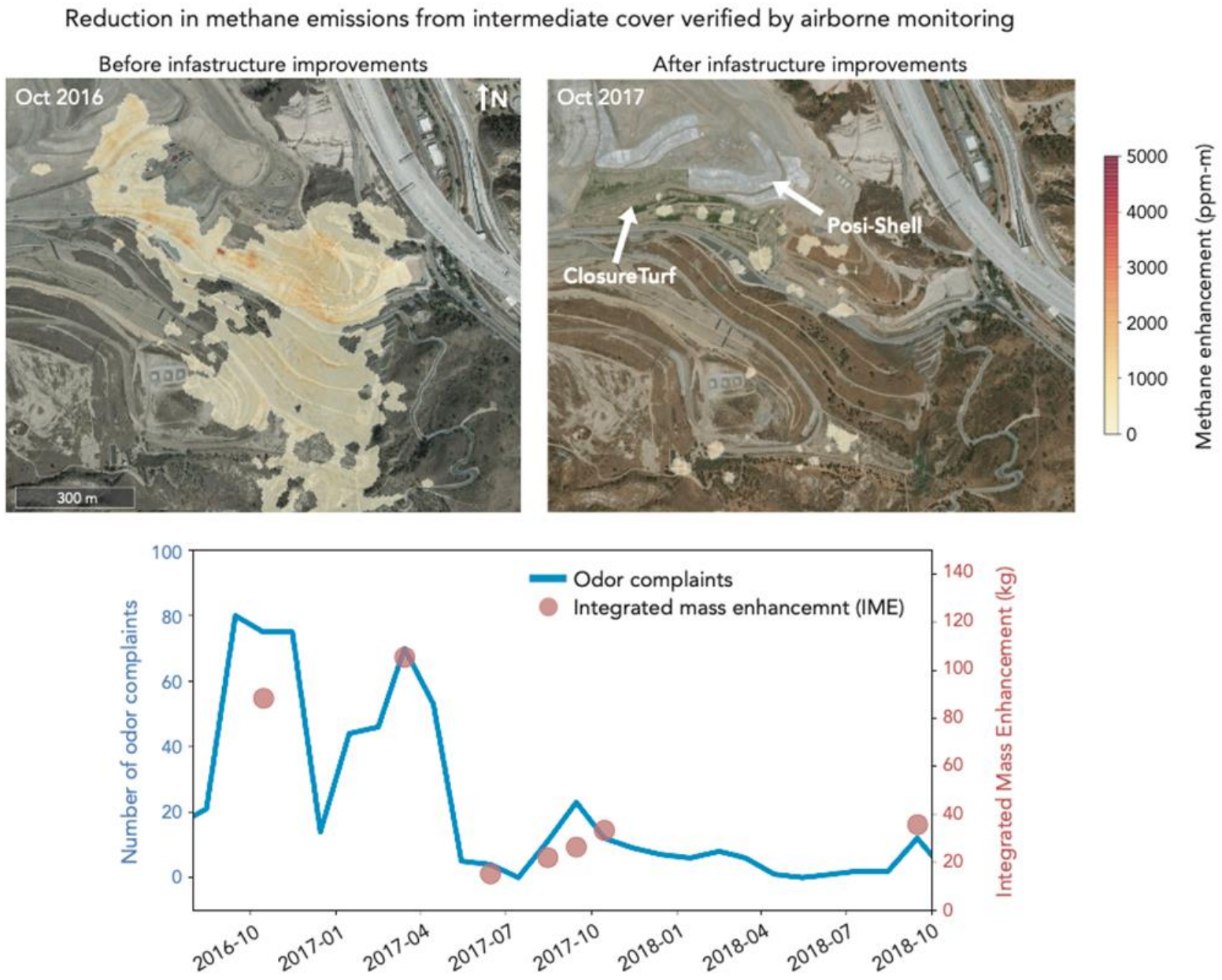
NASA Flyover (11/11/2020)

SCL Flyover by Republic Services (Spring 2020)

Utilization of Methane Flyover Images/Data

The landfill operator, Republic Services, went to the area where the NASA/ARB flyover indicated surface emissions. The foam plugs around the landfill gas well heads were reinstalled.

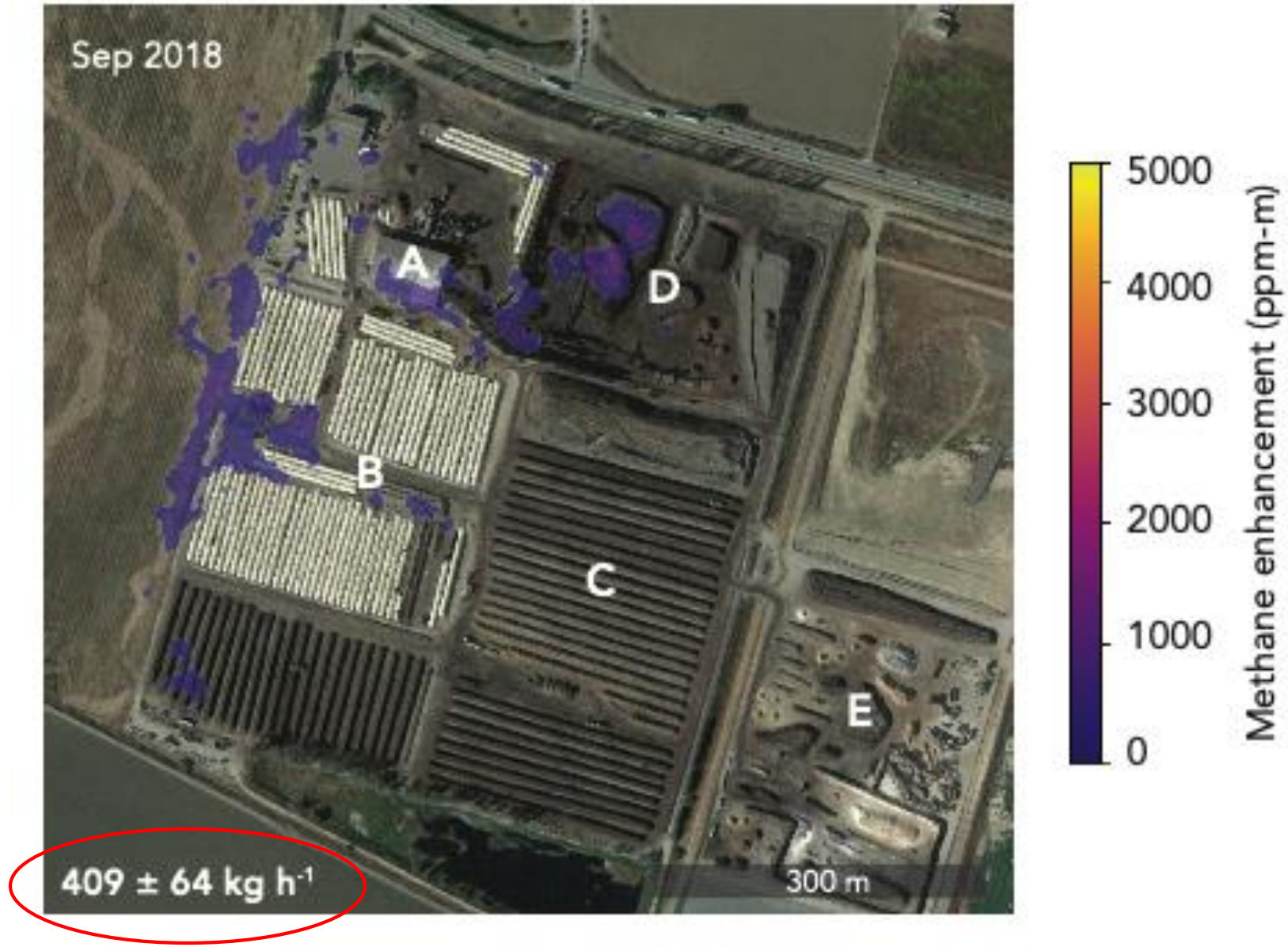
NASA (Cusworth 2019)



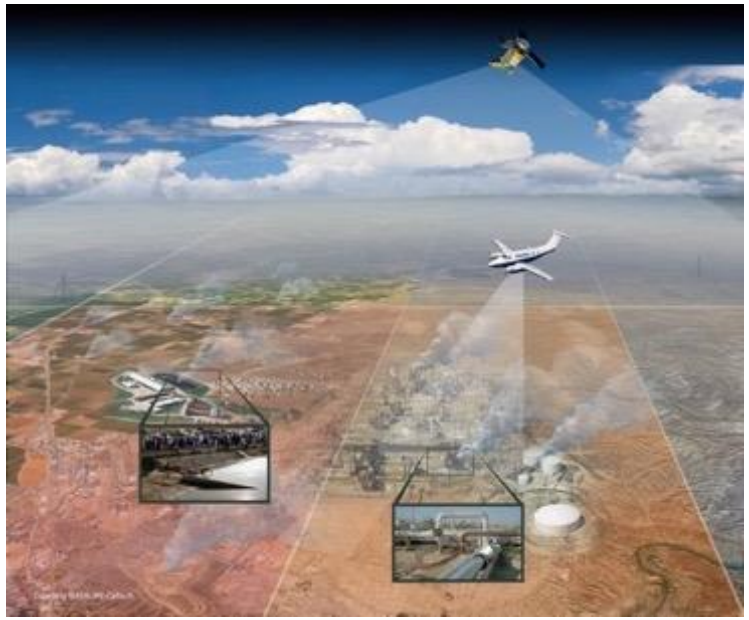
Freeze Frame at 2:52:00 PM

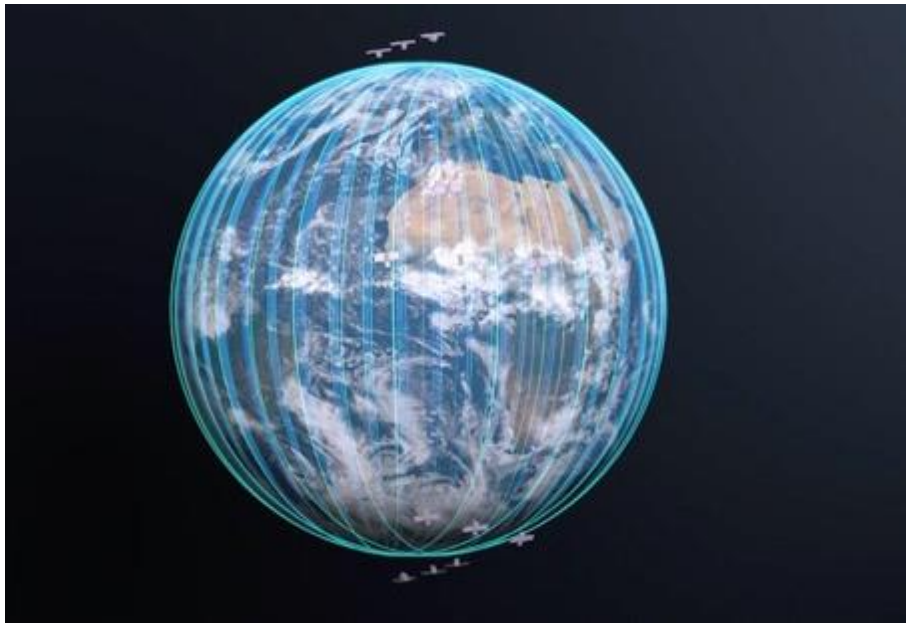
Freeze Frame at 2:52:30 PM

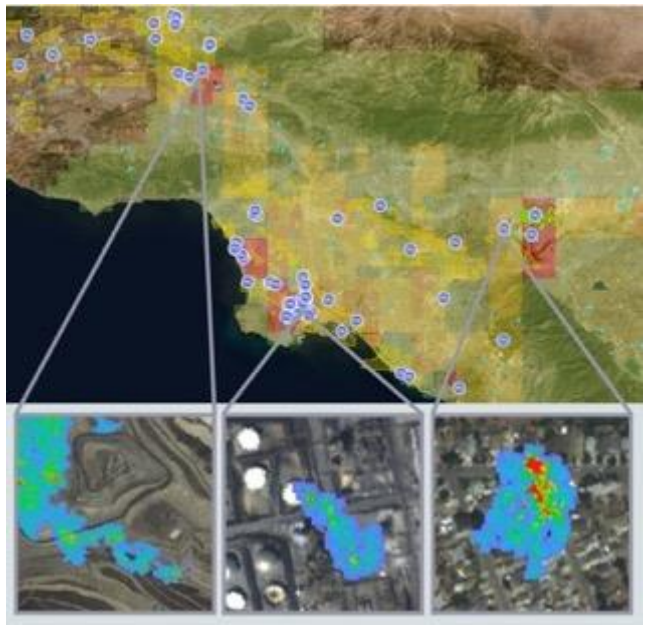
Aerated windrow composting



Carbon Mapper: Operational Monitoring of Facility-Scale Methane and CO2 from Space







Acknowledgements: contributions from Riley Duren, Dan Cusworth, Andrew Thorpe and many others, support from NASA Carbon Monitoring System and AIST programs, US Climate Alliance, RMI, EDF, U. Arizona, and Carbon Mapper donors

RMI / Carbon Mapper / IG3IS White Paper's:
Sunshine Canyon Landfill Best Management Practices

RMI

CARBON MAPPER

IG3IS Integrated Global Greenhouse Gas Information System

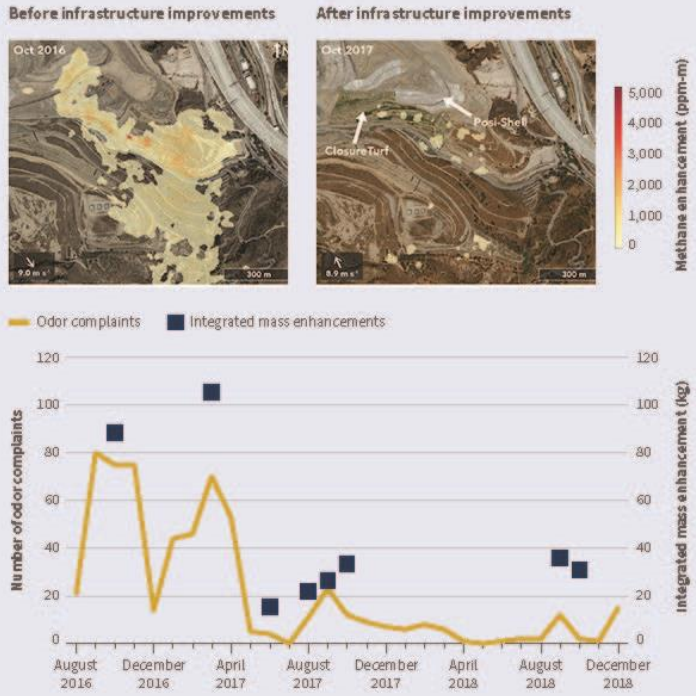
Key Strategies for Mitigating Methane Emissions from Municipal Solid Waste

Report / July 2022

Enabling Levers

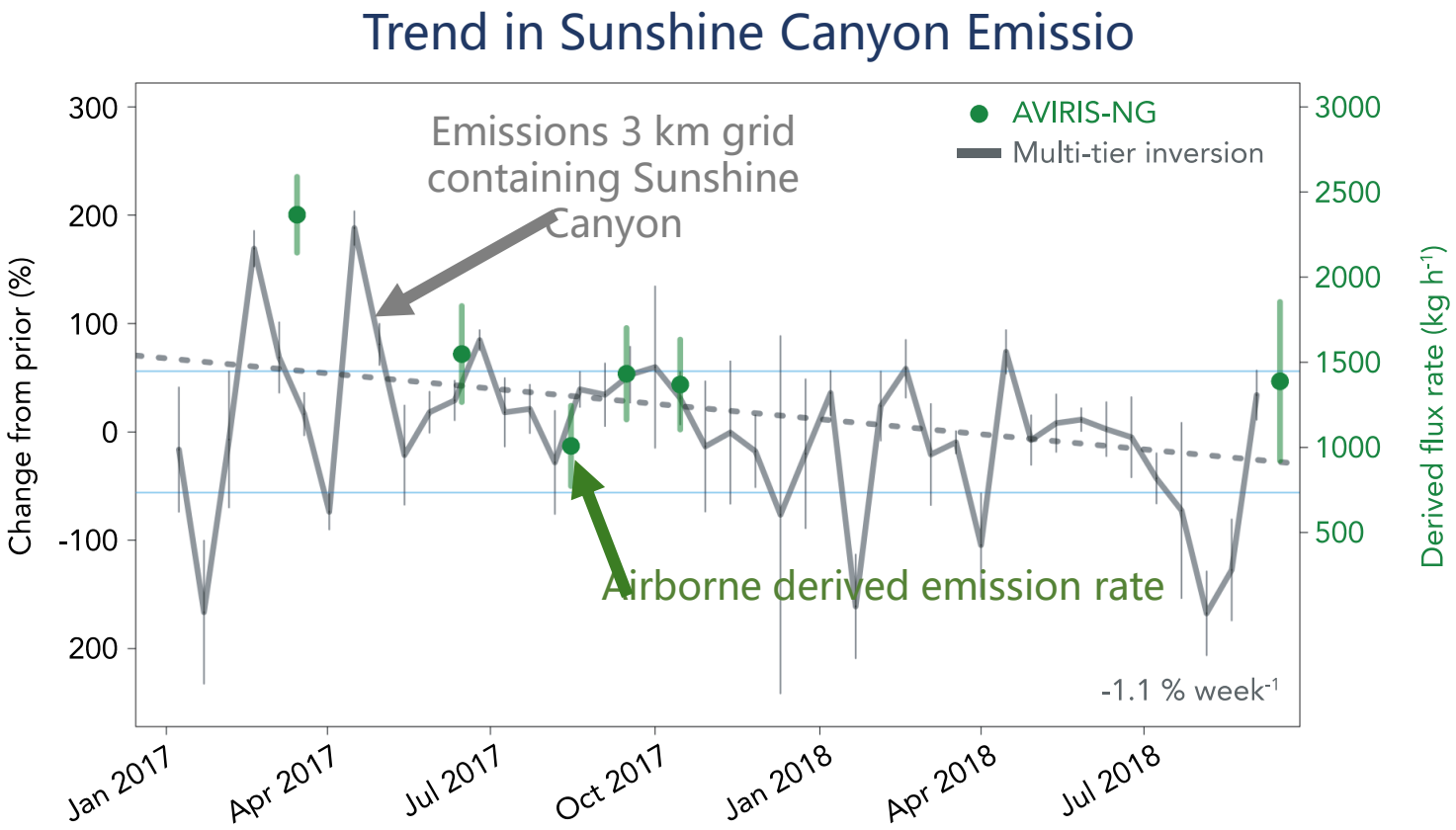
- Comprehensive emissions monitoring and quantification
- Regulatory environment focused on addressing community complaints
- Close coordination between the observational system operator, landfill operator, and SCL LEA
- Holistic design of mitigation measures

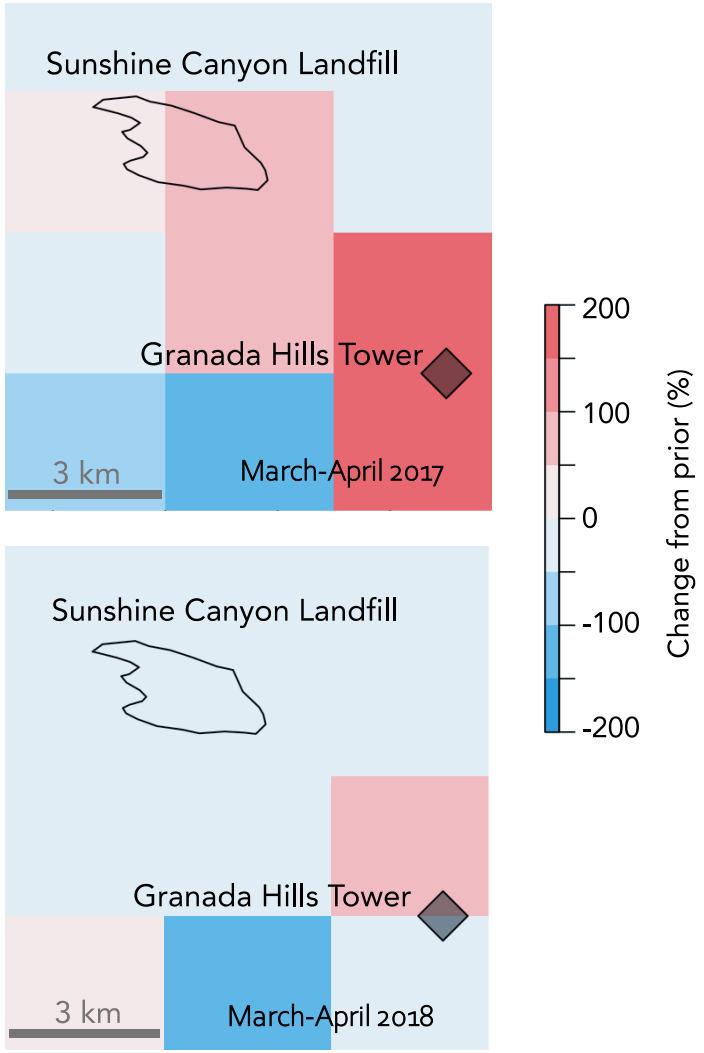
Exhibit 13 **Methane Plumes Imaged at Sunshine Canyon Landfill**



Source: Daniel H. Cusworth, Riley M. Duren, Andrew K. Thorpe, Eugene Tseng, David Thompson, Abhinav Guha, Sally Newman, Kelsey T. Foster, and Charles E. Miller, "Using Remote Sensing to Detect, Validate, and Quantify Methane Emissions from California Solid Waste Operations," *Environmental Research Letters* 15 (5): 054012, 2020, https://doi.org/10.1088/1748-9326/ab7b99

Sunshine Canyon: Mitigation Efforts Verified by Airborne Monitoring and Nearby Air Quality Towers





Tower network maintained by the LA Megacities Carbon Project

Equipment Setup

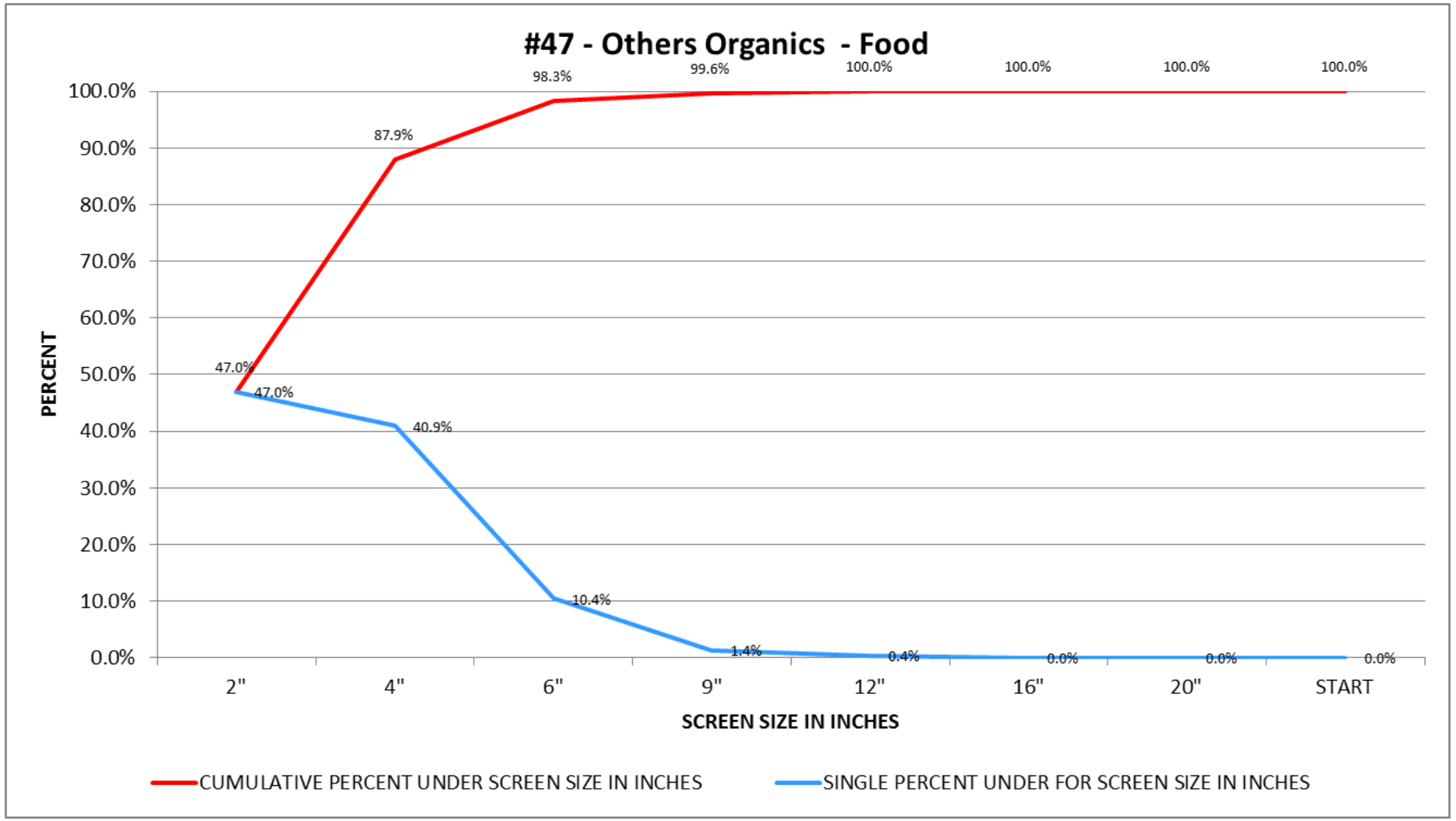
Cumulative Sizing Analysis of "Material Types" for MRF Facility Equipment Vendors

2” Screen (Coffee K-Cup / Pods)

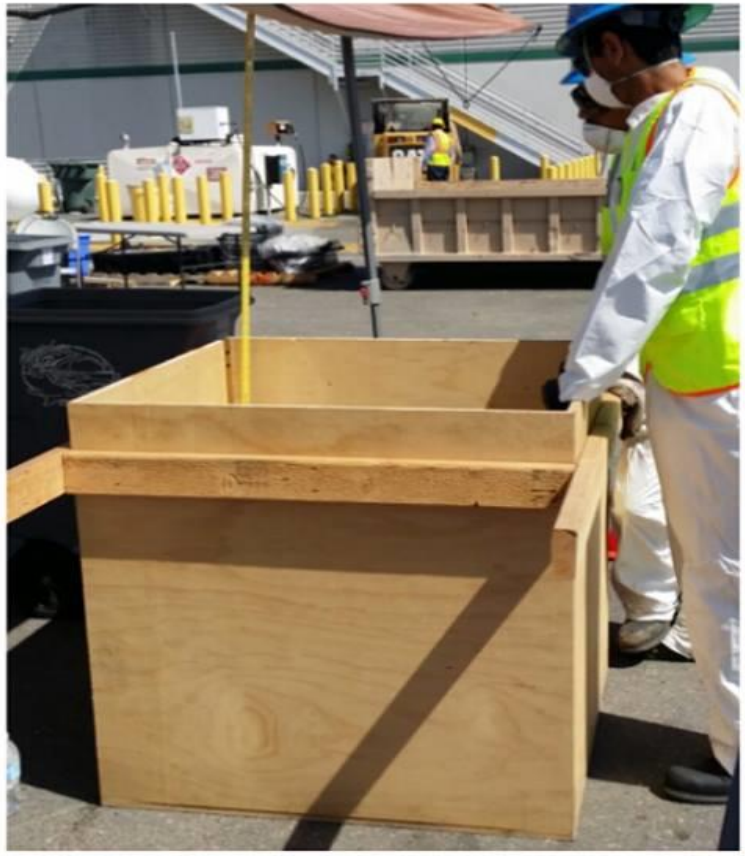
City of Oxnard: Food Waste Cumulative Sizing (March 2014)

CUMULATIVE PERCENT UNDER SCREEN SIZE IN INCHES							
2"	4"	6"	9"	12"	16"	20"	START
47.0%	87.9%	98.3%	99.6%	100.0%	100.0%	100.0%	100.0%

SINGLE PERCENT UNDER FOR SCREEN SIZE IN INCHES							
2"	4"	6"	9"	12"	16"	20"	START
47.0%	40.9%	10.4%	1.4%	0.4%	0.0%	0.0%	0.0%

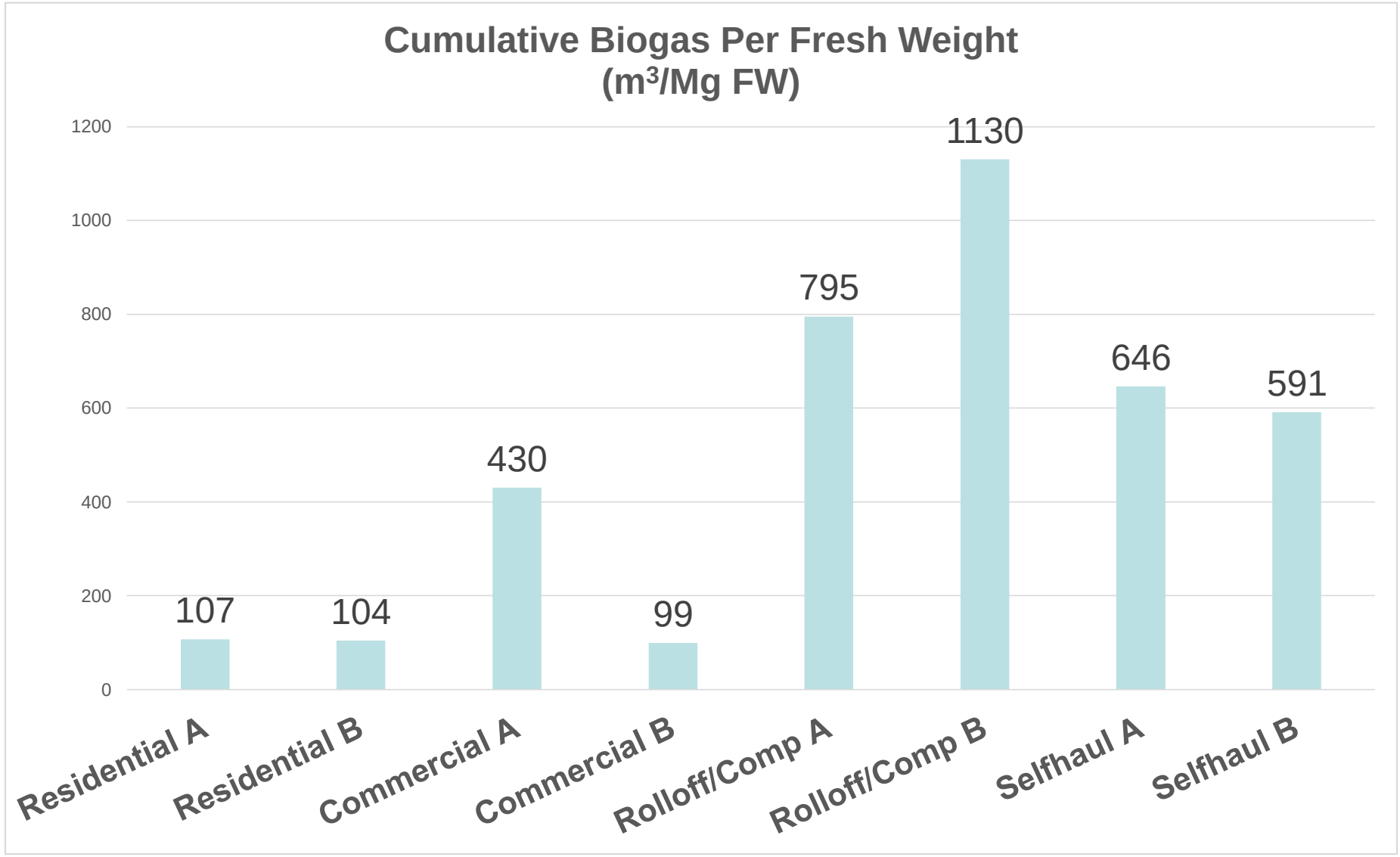


Density Measurement



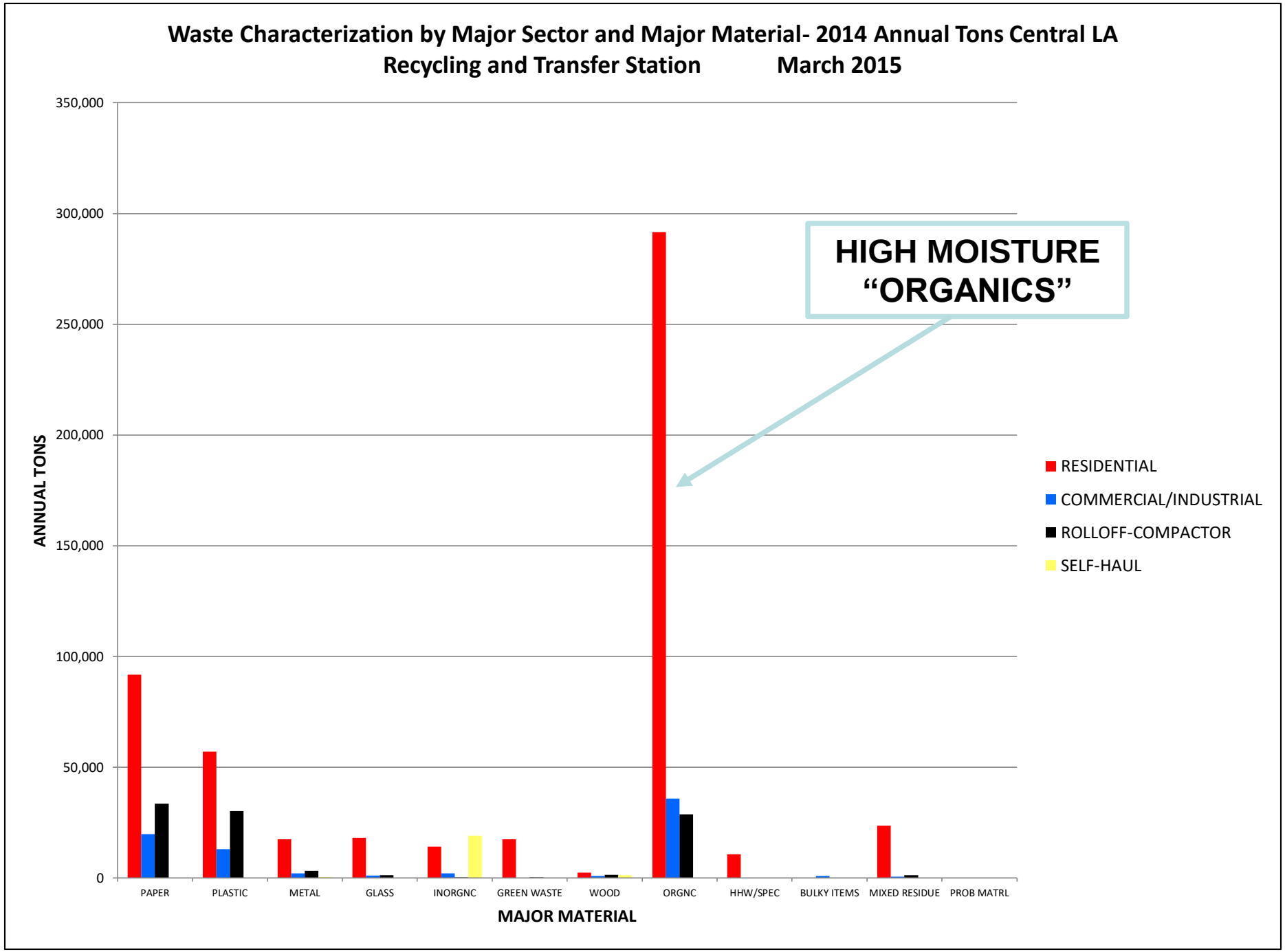
Packing of Samples (Dry Ice/Insulated)

Biological Methane Formation Potential



High Moisture Content

Sample ID:	Sample Date & Time		Lab #:	Moisture, Total wt%	As R
31. Food	2/24/15	n/a	T1500336-016	73.73	
32. Textiles & Leathers	2/24/15	n/a	T1500336-017	13.41	
33. Rubber	2/24/15	n/a	T1500336-018	16.48	
34. Carpet/Padding	2/24/15	n/a	T1500336-019	3.62	
35. R/C Misc. Organics	2/24/15	n/a	T1500336-020	67.31	
45. Mixed Residue	2/24/15	n/a	T1500336-021	34.93	


Waste Characterization by Major Sector and Major Material- 2014 Annual Tons Central LA
Recycling and Transfer Station March 2015
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
ANNUAL TONS
HIGH MOISTURE
"ORGANICS"
RESIDENTIAL
COMMERCIAL/INDUSTRIAL
ROLLOFF-COMPACTOR
SELF-HAUL
PAPER
PLASTIC
METAL
GLASS
INORGNC
GREEN WASTE
WOOD
ORGNC
HHW/SPEC
BULKY ITEMS
MIXED RESIDUE
PROB MATRL
MAJOR MATERIAL


#191
LUGER

Waste Characterization


E 65 2/4

Hiding from the sandstorm during the landfill waste composition study..!

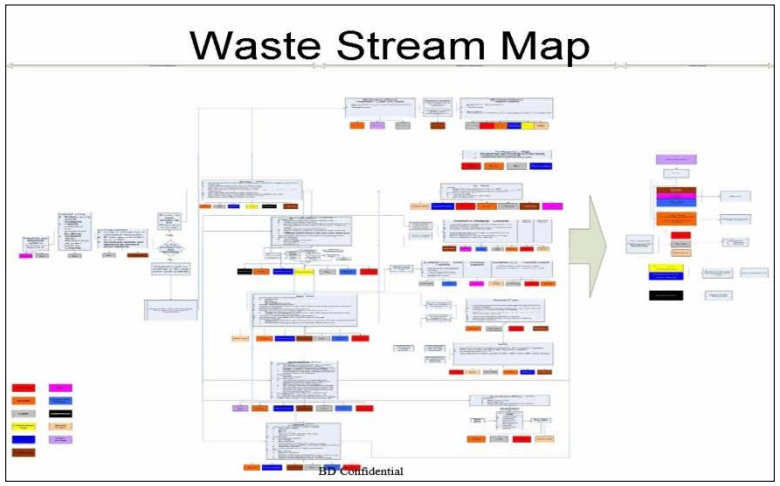
City of LA Waste Composition Protocols for Zero Waste Planning (2009 – 2010)

City of Los Angeles Waste Composition Study (2009)		Services Medical / Health
ID #	Classification Description	
1	CONTAINERS & PACKAGING	28.3%
1A	Ferrous / Steel	0.5%
1B	Aluminum	0.3%
1C	Glass	0.0%
1D	Ceramic / Glass-Ceramic	0.1%
1E	Paperboard (e.g. groundwood)	3.3%
1F	Cardboard / Kraft Paper	4.0%
1G	Other Paper	1.1%
1H	Plastic #1 PETE	0.7%
1I	Plastic #2 HDPE	0.9%
1J	Plastic #3 PVC	1.1%
1K	Plastic #4 LDPE	0.1%
1L	Plastic #5 PP	0.8%
1M	Plastic #6 PS	3.5%
1N	Plastic #7 Other	0.6%
1O	Plastic Film	2.3%
1P	Plastic Trash Bags	4.9%
1Q	Plastic Grocery / Mdse Bags	0.4%
1R	Wood (e.g. crates, boxes, etc.)	0.0%
1S	Metal Composite / Combo	0.1%
1T	Paper Composite / Combo	1.7%
1U	Plastic Composite / Combo	2.2%
1V	Glass Composite / Combo	0.1%
1W	Other Mat'ls / Composite Pkgng	0.0%
2	DURABLE GOODS	0.1%
2A	Ferrous / Steel	0.1%
2B	Aluminum	0.0%
2C	Other Non-Ferrous Metals	0.0%
2D	Glass	0.0%
2E	Ceramic / Glass-Ceramic	0.0%
2F	Plastic (Durable Plastic Items)	0.0%
2G	Wood	0.0%
2H	Wood Pallets	0.0%
2K	Metal Composite / Combo	0.0%
2L	Paper Composite / Combo	0.0%
2M	Plastic Composite / Combo	0.0%
2N	Glass Composite / Combo	0.0%
2O	Other Materials / Composite	0.0%
2P	Tires	0.0%
2I	Carpet / Padding	0.0%
2J	Bulky Items (Furniture)	0.0%

City of Los Angeles Waste Composition Study (2009)		Services Medical / Health
ID #	Classification Description	
3	NON-DURABLE GOODS	67.2%
3I	Ferrous / Steel	0.2%
3J	Aluminium	0.0%
3K	Other Non-Ferrous	0.0%
3A	Newspaper	1.0%
3B	White Paper	2.7%
3C	Colored Ledger	0.0%
3D	Computer Paper	0.3%
3E	Mixed Paper/Other Ofc Paper	1.1%
3F	Magazines / Directories	1.3%
3G	Personal Paper / Wipes	8.4%
3H	Other / Composite Paper	0.8%
3P	Non-Durable Plastic Goods	3.9%
3M	Food Waste	20.1%
3N	Clothing / Textiles	10.0%
3O	Rubber and Leather	3.9%
3L	Wood	0.0%
3Q	Metal Composite / Combo	8.2%
3R	Paper Composite / Combo	2.2%
3S	Plastic Composite / Combo	3.1%
3T	Glass Composite / Combo	0.0%
3U	Other Materials / Composite	0.0%
4	OTHER WASTES	4.4%
4A	Ash / Sludge	0.0%
4B	Yard Waste	3.3%
4C	Manure	0.0%
4D	Agricultural Waste	0.0%
4E	Misc/Remnder Composite Organic	0.5%
4F	C & D Concrete	0.0%
4G	C & D Asphalt Paving	0.0%
4H	C & D Asphalt Roofing	0.0%
4I	C & D Soil / Fines	0.0%
4J	C & D Drywall / Gypsum	0.0%
4K	C & D Wood	0.0%
4L	Misc/Remnder Composite Inorganic	0.0%
4M	HHW Paint	0.0%
4N	HHW Vehicle/Equipment Fluids	0.0%
4O	HHW Used Oil / Use Oil Filters	0.0%
4P	HHW E-Waste	0.0%
4Q	HHW Batteries	0.1%
4R	Other HHW	0.1%
4S	Mixed Residue	0.4%

Kaiser Permanente

Waste Flow Process Mapping

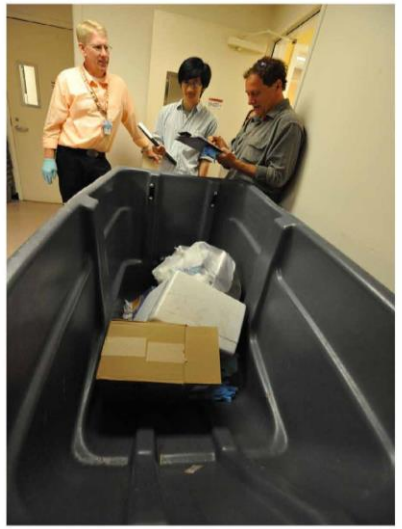


Identify Opportunities for Reducing Disposal and Increasing Recycling

Shrink Wrap / Cardboard Recycling

Pallet and Metal Recovery/Recycling

Conduct Detailed On-Site "Functional Assessment"



Opportunities for Improvement, Communication, and/or Education

Hollywood Prop

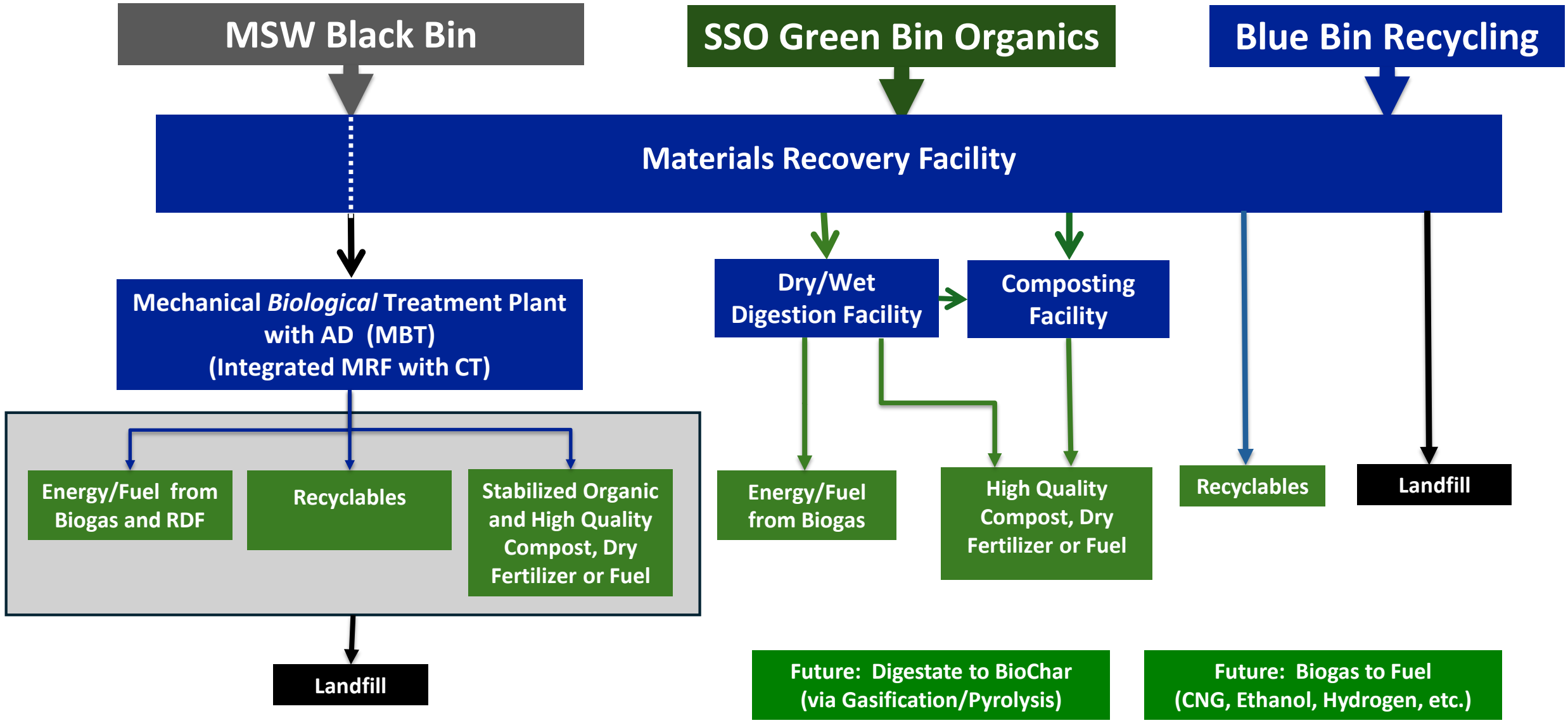
Targeted Wastestream Materials by Statute (Statutory Overlap of Targeted Materials)

Material Type	Name of California Statute			
	AB 939	AB 341	AB 1826	SB 1383
PAPER				
Uncoated Corrugated Cardboard	X	X		X
Paper Bags	X	X		X
Newspaper	X	X		X
White Ledger Paper	X	X		X
Other Office Paper	X	X		X
Magazines and Catalogs	X	X		X
Phone Books and Directories	X	X		X
Other Miscellaneous Paper - Compostable	X	X	X	X
Other Miscellaneous Paper - Other	X	X		X
Remainder / Composite Paper - Compostable	X	X	X	X
Remainder / Composite Paper - Other	X			
GLASS				
Clear Glass Bottles and Containers	X	X		
Green Glass Bottles and Containers	X	X		
Brown Glass Bottles and Containers	X	X		
Other Glass Colored Bottles and Containers	X	X		
Flat Glass	X	X		
Remainder / Composite Glass	X			
METAL				
Tin/Steel Cans	X	X		
Major Appliances	X	X		
Used Oil Filters	X	X		
Other Ferrous	X	X		
Aluminum Cans	X	X		
Other Non-Ferrous	X	X		
Remainder / Composite Metal	X	X		
ELECTRONICS				
Brown Goods	X			
Computer-related Electronics	X			
Other Small Consumer Electronics	X			
Video Display Devices	X			
PLASTIC				
PETE Plastic Containers	X	X		
HDPE Plastic Containers	X	X		
Miscellaneous Plastic Containers	X	X		
Plastic Trash Bags	X	X		
Plastic Grocery and Other Merchandise Bags	X	X		
Non-Bag Commercial and Industrial Packaging Film	X	X		
Film Products	X	X		
Other Film - Other	X	X		
Durable Plastic Items - #2 and #5 Bulky Rigids	X	X		
Durable Plastic Items - Other	X	X		
Remainder / Composite Plastic	X			

Material Type	Name of California Statute			
	AB 939	AB 341	AB 1826	SB 1383
OTHER ORGANIC				
Food	X	X	X	X
Leaves and Grass	X	X	X	X
Prunings and Trimmings	X	X	X	X
Branches and Stumps	X	X	X	X
Manures	X	X		X
Textiles	X	X		X
Carpet	X	X		X
Remainder / Composite Organic	X			X
INERTS OTHER				
Concrete	X	X		
Asphalt Paving	X	X		
Asphalt Roofing	X	X		
Clean Dimensional Lumber	X	X	X	X
Clean Engineered Wood	X	X		X
Clean Pallets & Crates	X	X	X	X
Other Wood Waste	X	X		X
Gypsum Board	X	X		
Rock, Soil and Fines	X	X		
Remainder / Composite Inerts and Other	X	X		
HHW				
Paint	X			
Vehicle and Equipment Fluids	X			
Used Oil	X			
Batteries	X			
Remainder / Composite Household Hazardous	X			
SPECIAL WASTE				
Ash	X			
Treated Medical Waste	X			
Bulky Items	X	X		
Tires	X	X		
Remainder / Composite Special Waste	X			
Mixed Residue	X			

Note: Statutory overlap refers to how different statutes have targeted the various materials for diversion and or disposal reduction. The "X" indicates that the specific material type when diverted by a designated program, programmatic credit can be taken under the multiple statutes identified.

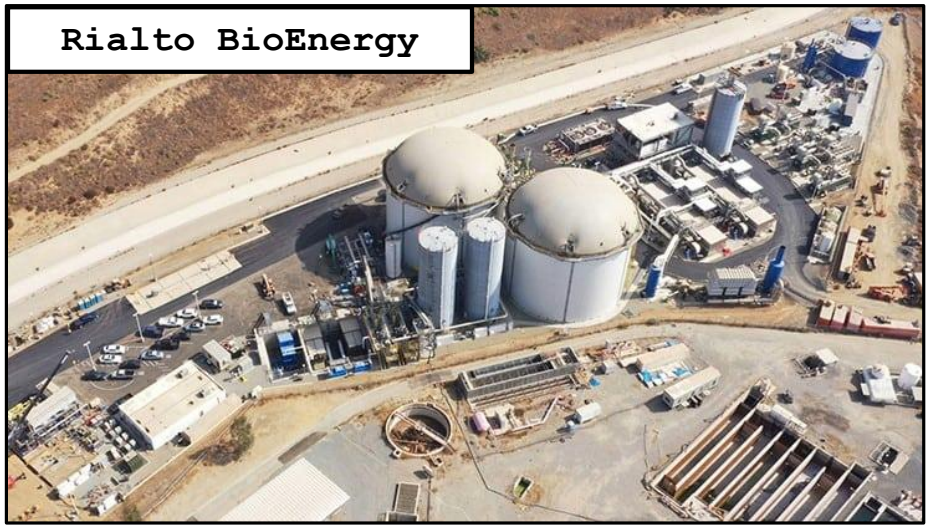
BASIC ORGANICS INFRASTRUCTURE PROCESSING OPTIONS



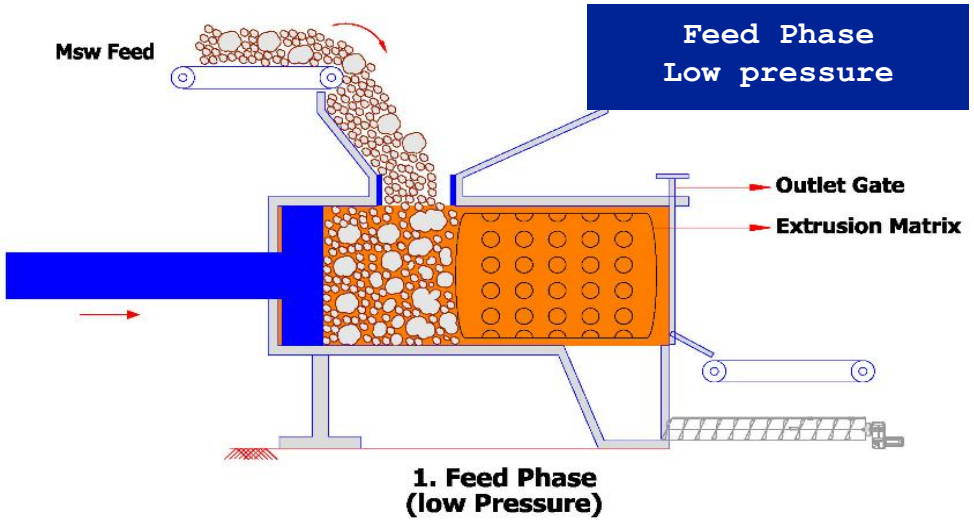
Sun Valley CA, Commercial SSO & MSW Processing Line

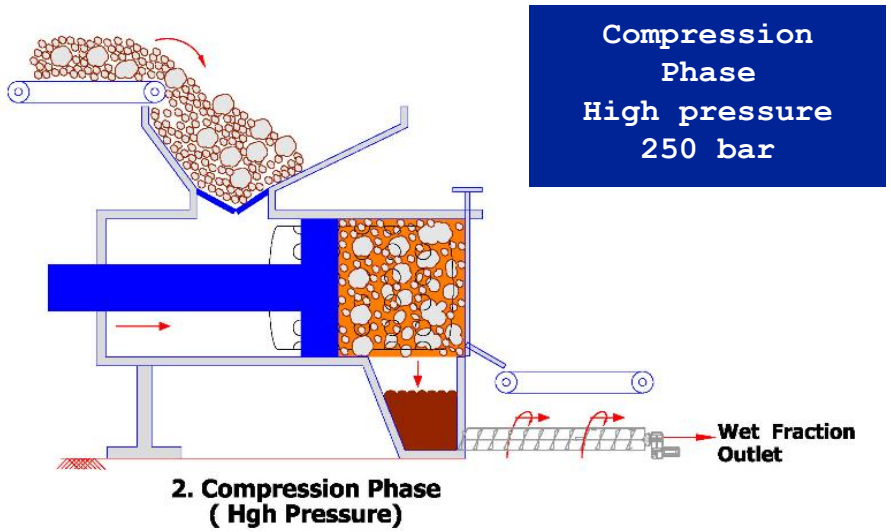
Examples of Potential Destinations for Organics

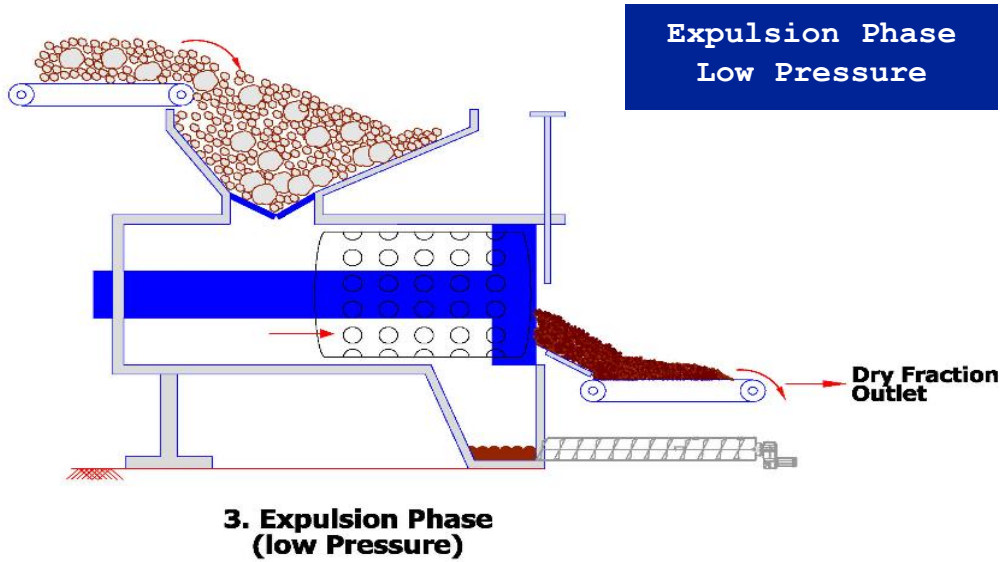
- Traditional Recycling Markets for Paper, Wood, etc.
- Landscaping and Nursery Applications
- Food to Animal Feed Outlets (Generator Program)
- Edible Food Recovery Organizations (Generator Program)
- Composting Facilities
- Wastewater Treatment Plant (Existing / Retrofitted Digesters)
- Regional Anaerobic Digestion Facilities
- Biomass Energy Facilities
- Waste to Energy Facilities
- Cement Kiln



OREX Compressive Force Operating Principle







90%+ Putrescible
Organics Recovery

Clean SSO Collection

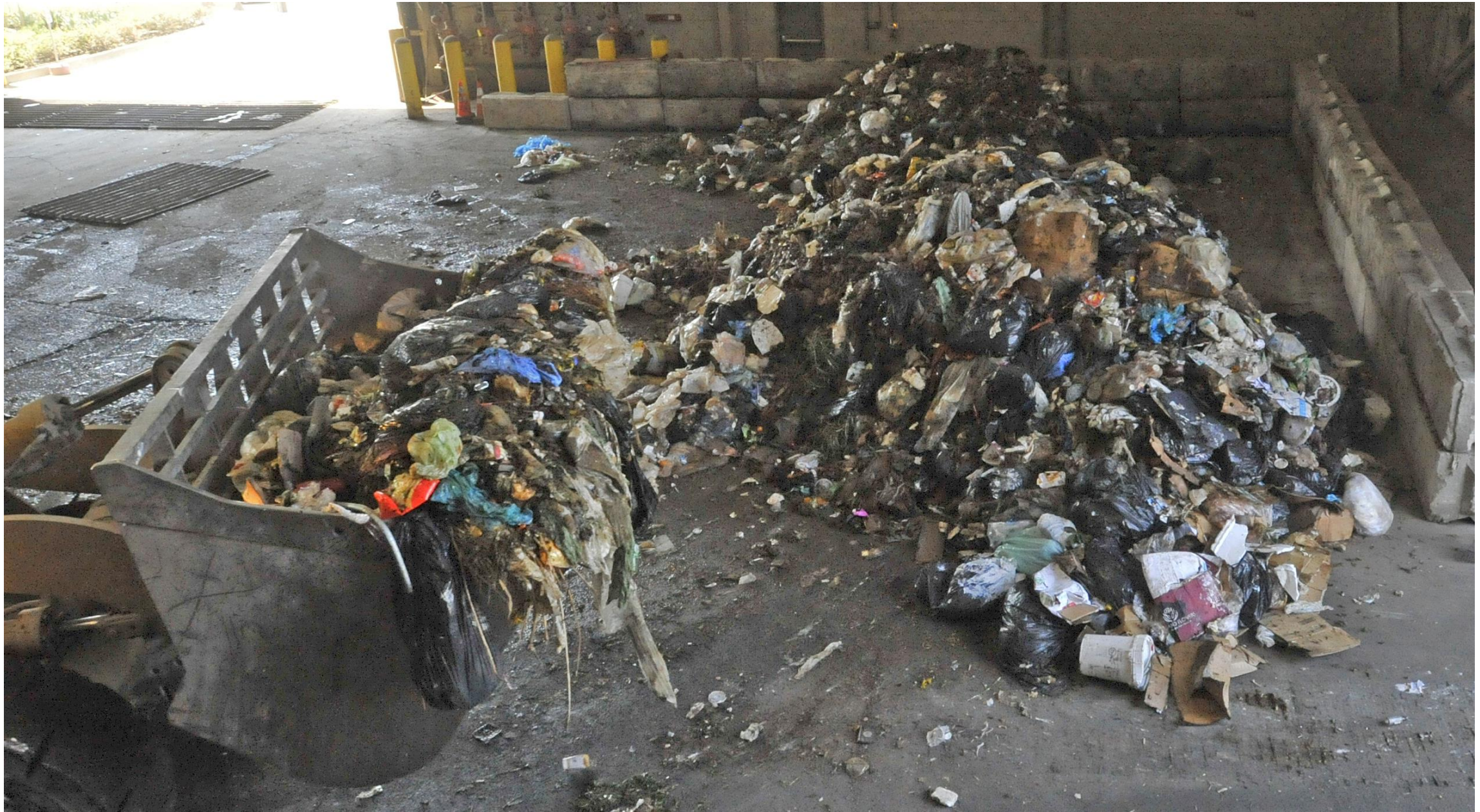
Clean SSO Collection

Food Waste Slurry (Puente Hills MRF)

Food Waste Receiving

Food waste is pumped from WM tanker trucks into closed, sealed storage tanks, controlling odors.

SSO Green Bin (Organics Route)



Supermarket Trim and Cull (SSO)

Clean SSO Collection

Source Separated Organics (SSO)

Cake to Rialto Digestion Facility

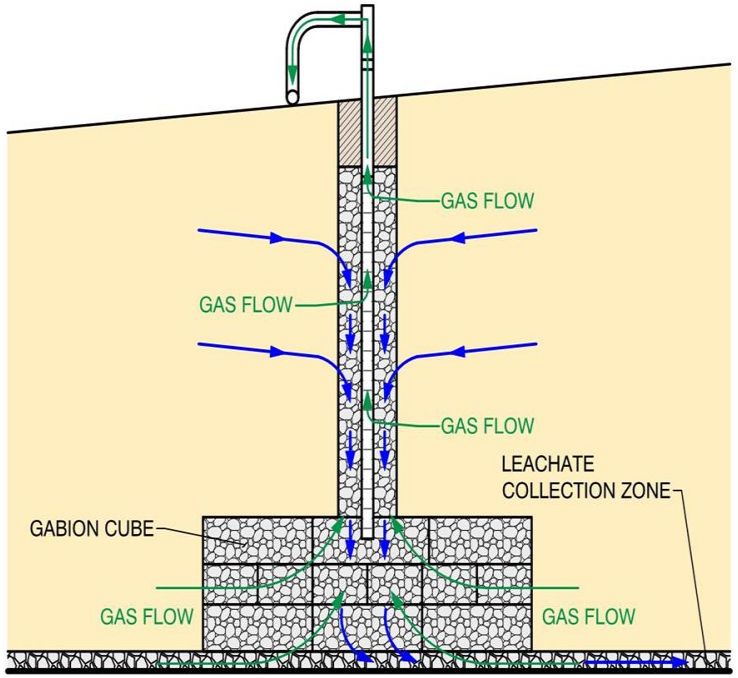
Disposal (Dry Fraction)

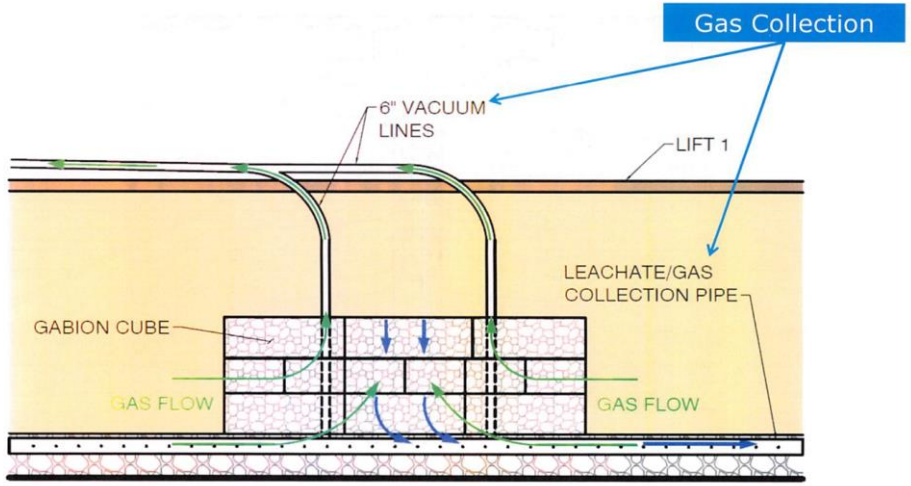
Food Waste in Input vs Residue

Food Waste in Residue Samples Typically Dry, Fibrous, and or "Solid"

Separating "Incompatibles" from Organics Compost / Biomass Feedstock

New Cell CC5A Development with Gabion Cubes and Horizontal LFG Collection (May 2024)





Application of Posi-Shell (from Low Position)

Closure Turf Installation (June 2017)

Closure Turf Installation (June 2017)

Closure Turf Installation (June 2017)

Closure Turf Installation (June 2017)

LFG Collection Wells in ADC-Only Cell CC3

Details of LFG Well and Closure Turf

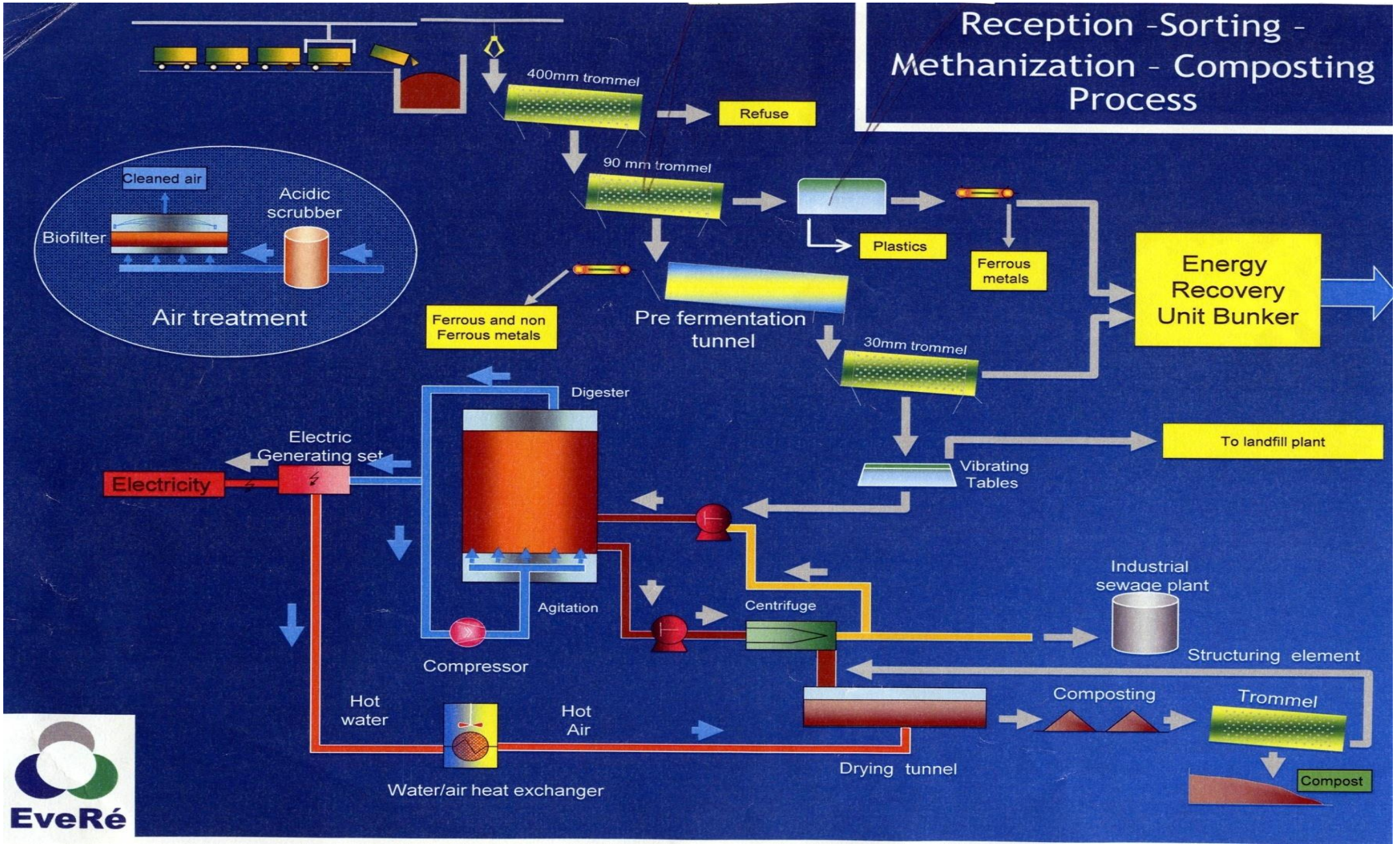
Removable
Stainless Steel Ring
Clamp and Seal

Sleeve

Sleeve Seal

Closure Turf Installation (June 2017)

EveRe (France) Integrated MSW Treatment Facility

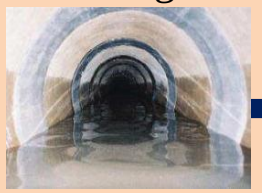


Combination of MSW and Sewage (Energy Efficiency Improvement)

■MSW

■Kitchen Waste

■Sewage

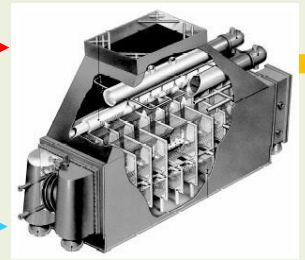


Waste to Energy

Steam

Steam Turbine Generator

Turbine Exhaust Condenser

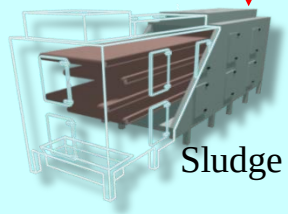


Waste Heat

Treated Water

Bio Gas

Sludge Fuel



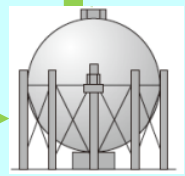
Sludge Dryer

Digestive Sludge

Sewage

Sludge

Digester Tank



Gas Holder

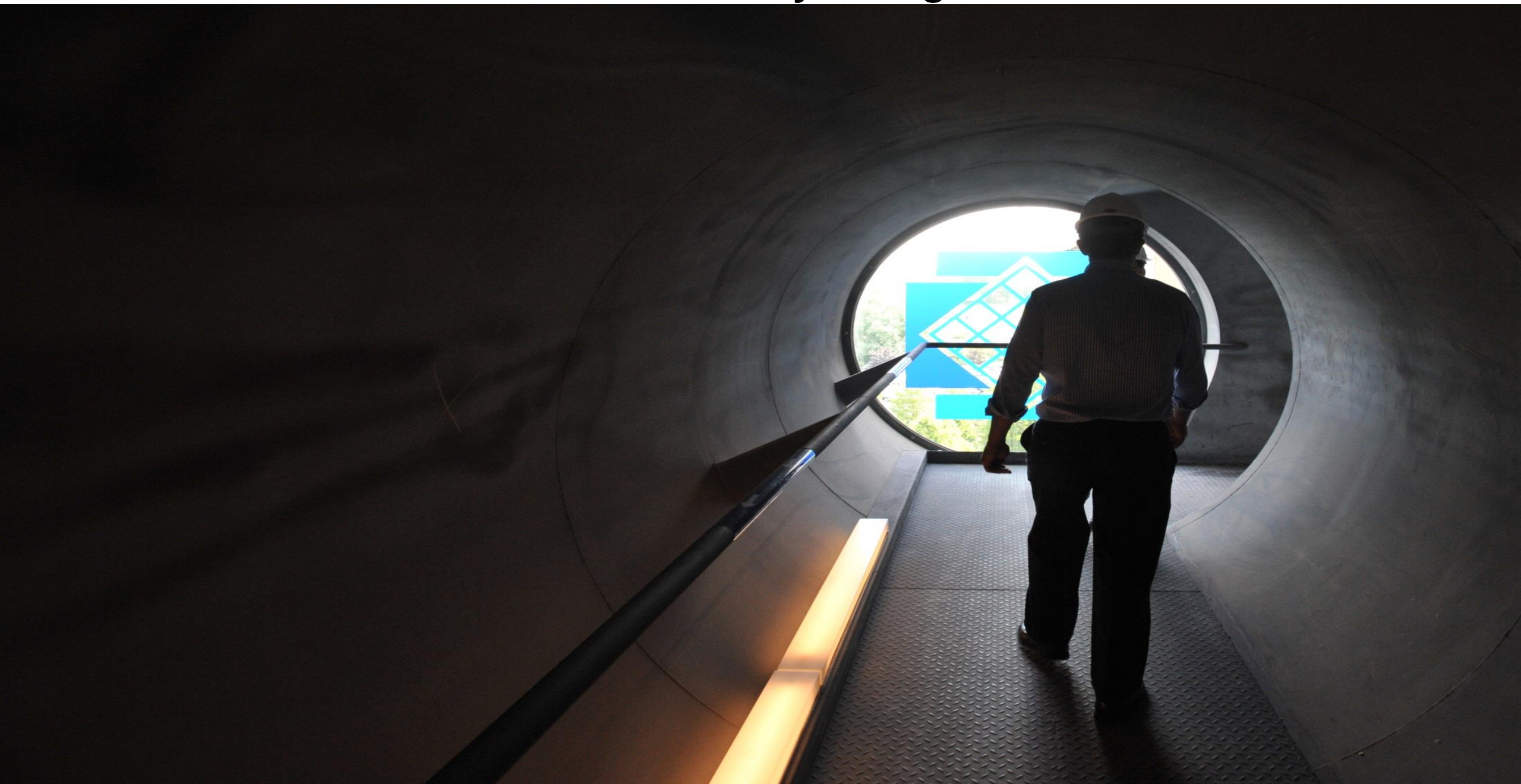
Valdemingomez Technology Park Education Center

Valdemingomez Technology Park Education Center

Valdemingomez Technology Park Education Center

ISVAG Facility, Belgium

ISVAG Facility, Belgium



Control Room (Pit and Crane Operations Viewing Area)

Incinerator

Explanation Poster

Bali Incinerator, Taiwan (I.M. Pei)

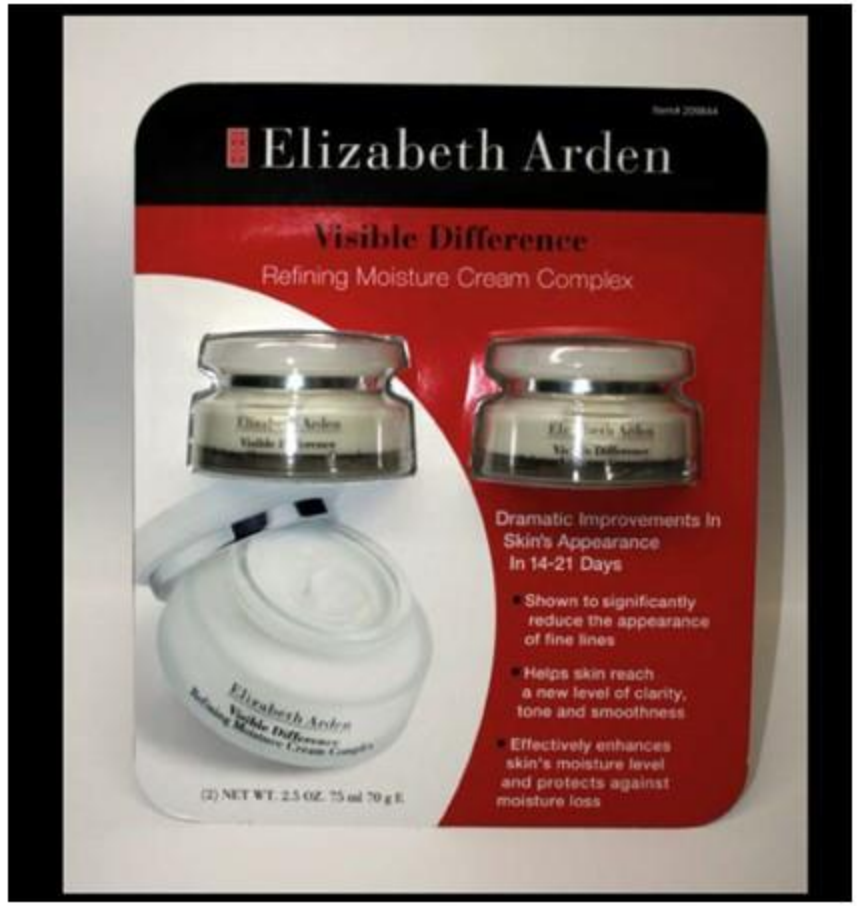
Bali Incinerator, Taiwan (I.M. Pei)

Sustainable Packaging Design
UCLA Recycling/MSW Management Class Project

Before

After

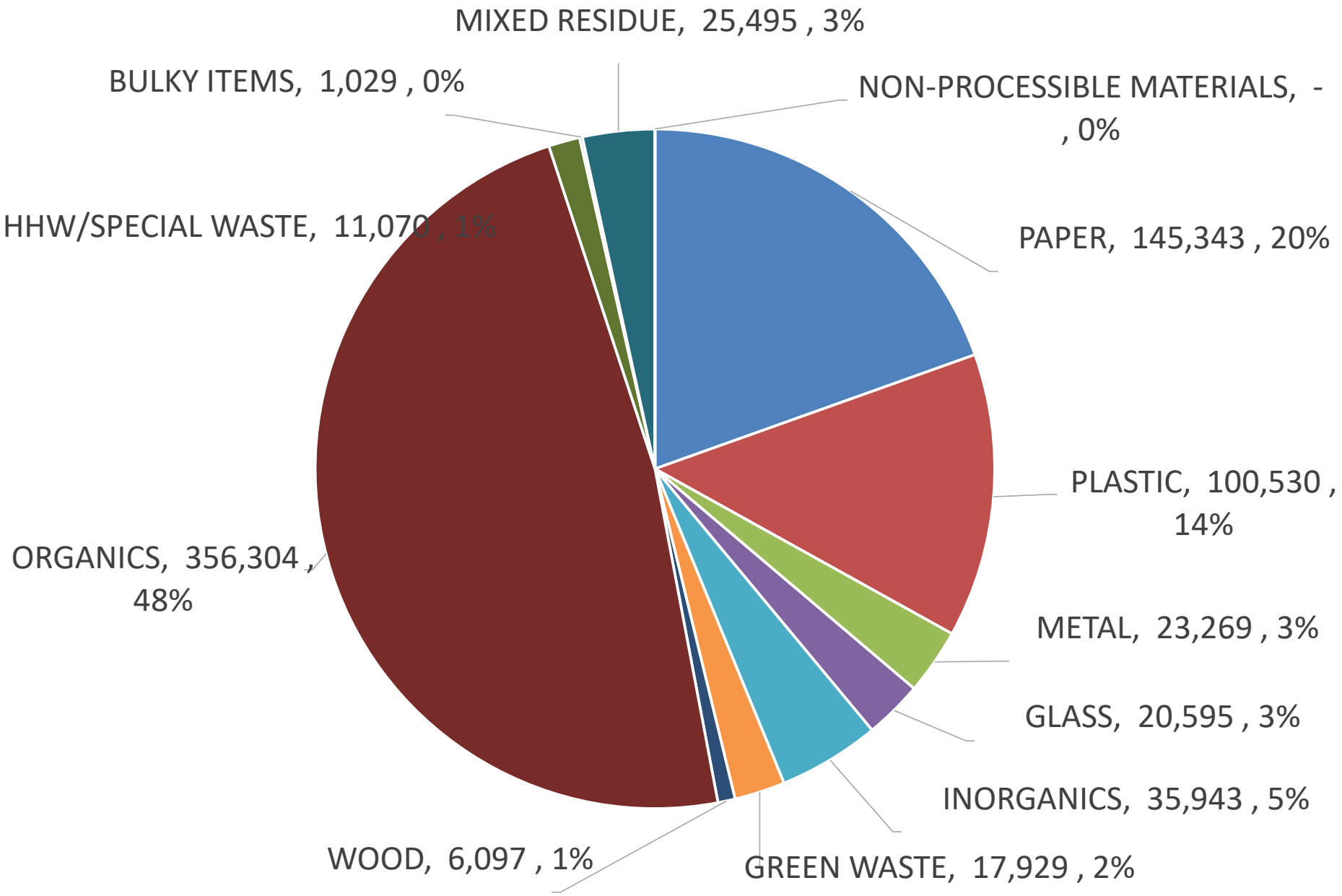
Sustainable Packaging Design
UCLA Recycling/MSW Management Class Project



Before

After

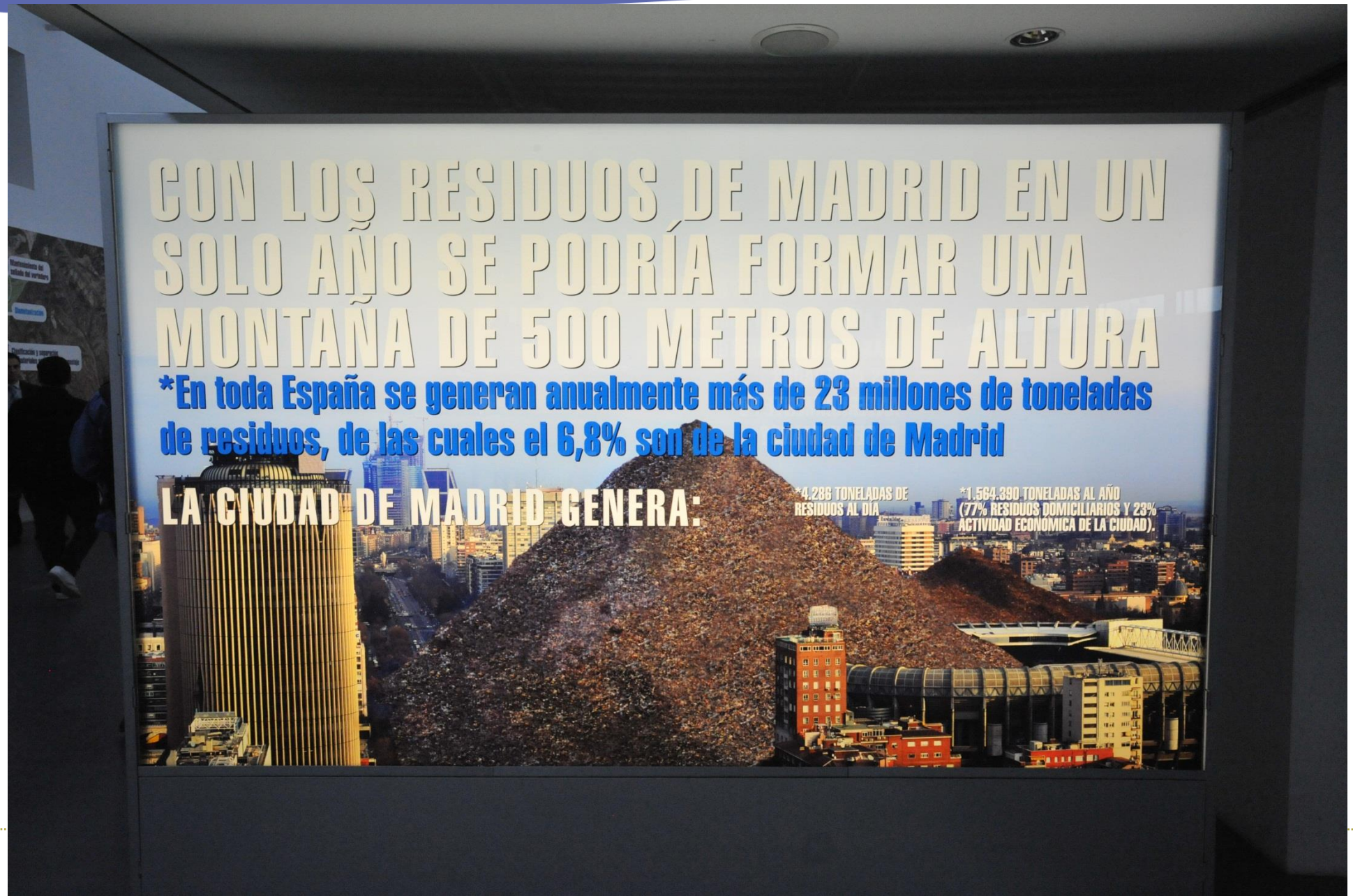
Weight Results by Major Material Type



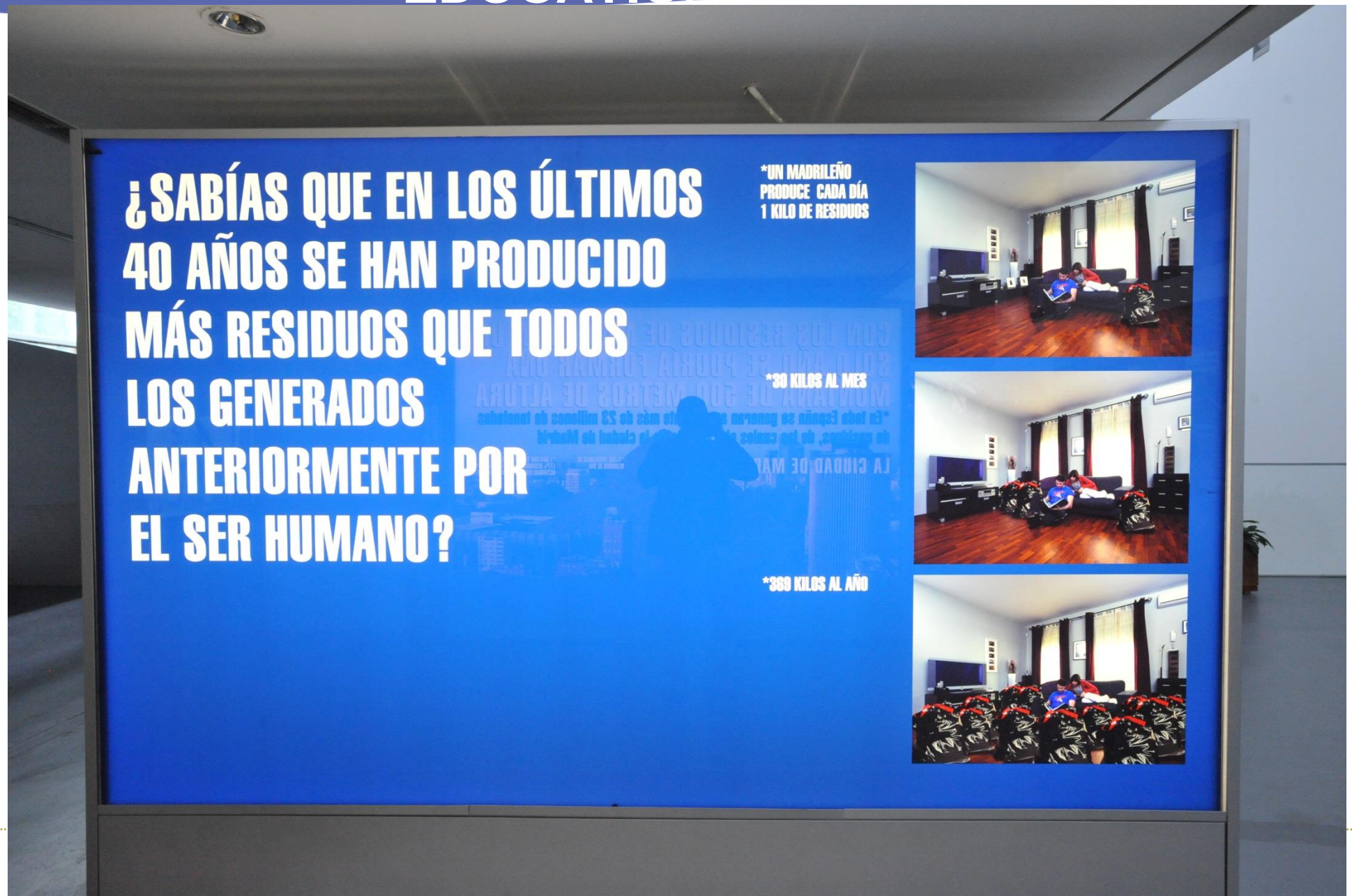
“Waste Pie” (March 2014)

1.13 Tons / Resident / Year Disposed in Landfill

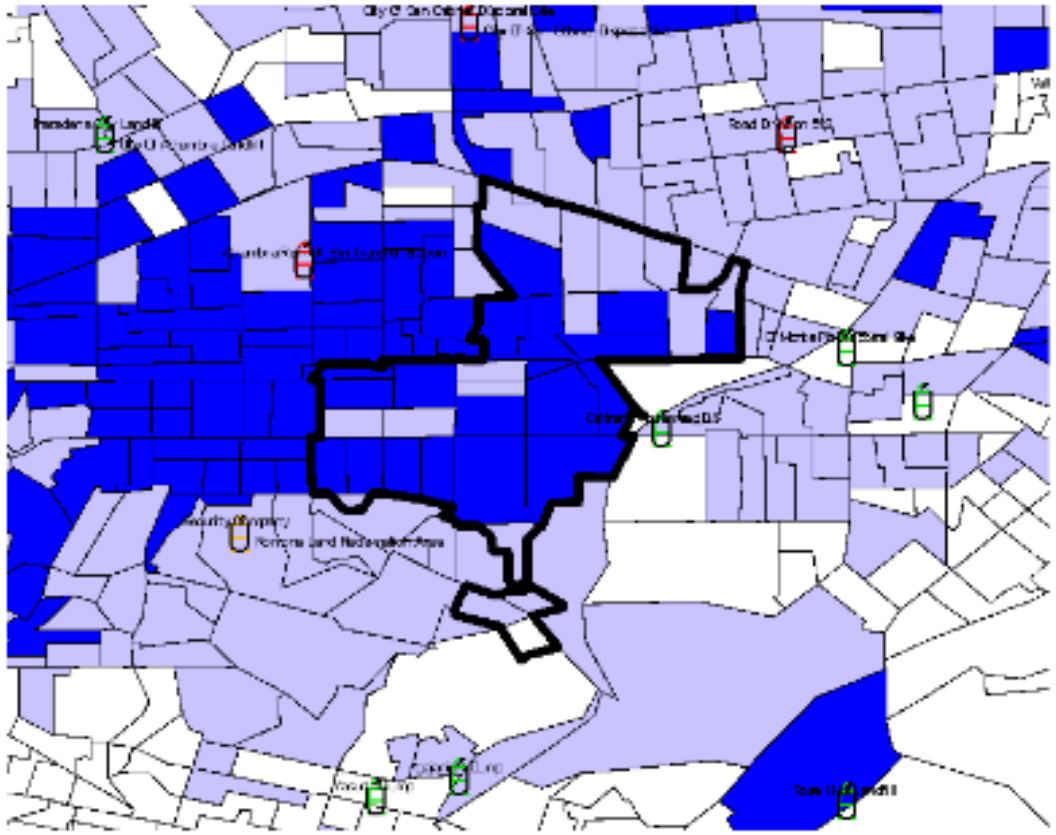
VALDEMINGOMEZ TECHNOLOGY PARK EDUCATION CENTER



VALDEMINGOMEZ TECHNOLOGY PARK EDUCATION CENTER



BUILDING ON BEST PRACTICES WITH PROVEN RESULTS



Dark Blue “Census Blocks”: Linguistic Isolation Factor

- Build awareness (outreach function, recognizing the issues)
- Provide education (what to do and why)
- Importance of what you are doing
- Motivate the business / people
- Address Cultural / Socio-Demographic Factors
  - Environmental Justice requirements
- Motivating the business/staff to incorporate long term waste reduction and recycling practices to be their standard operating procedure and institutional infrastructure

Extensive Source Separation of Recyclables

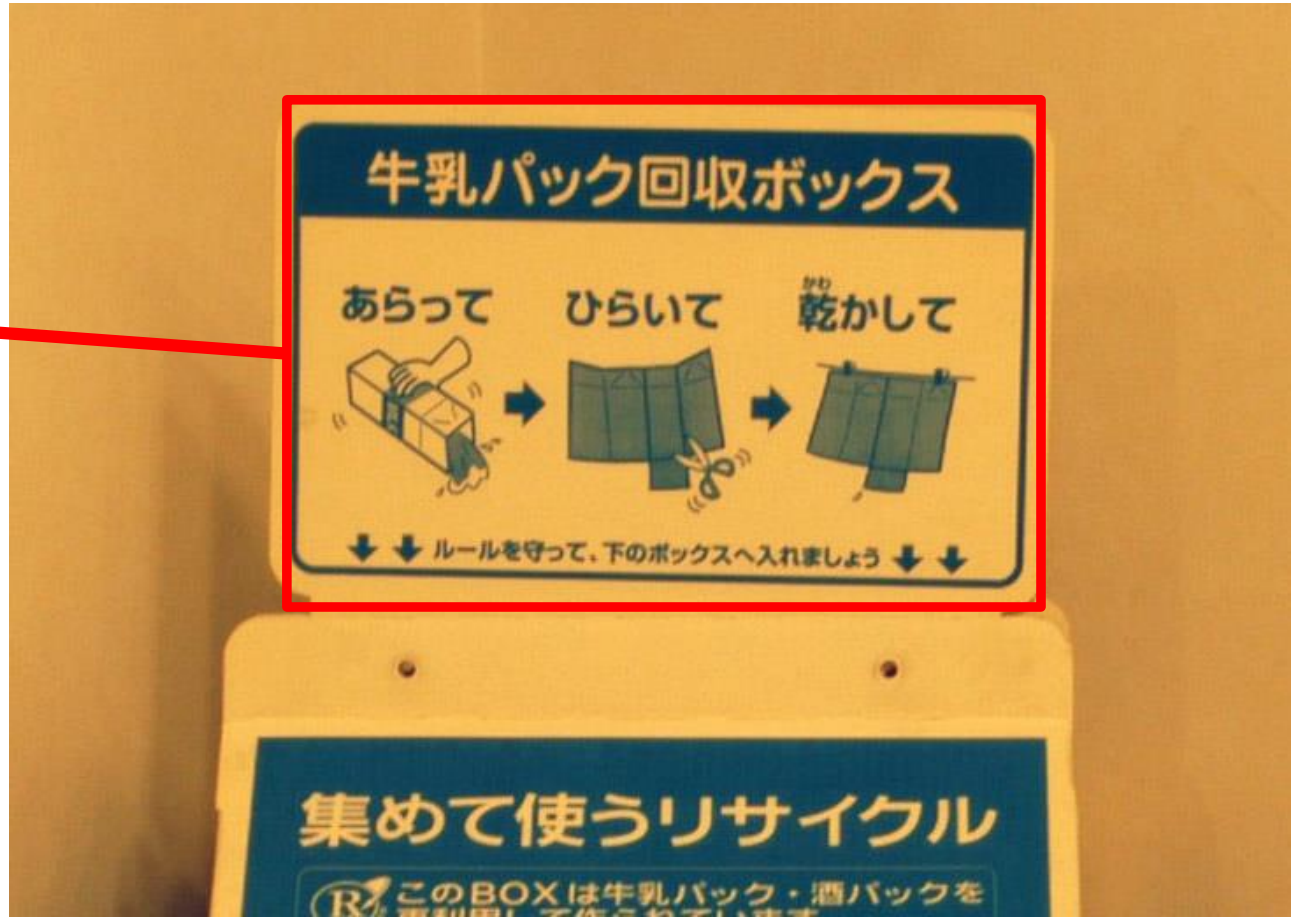
Extensive Source Separation of Recyclables

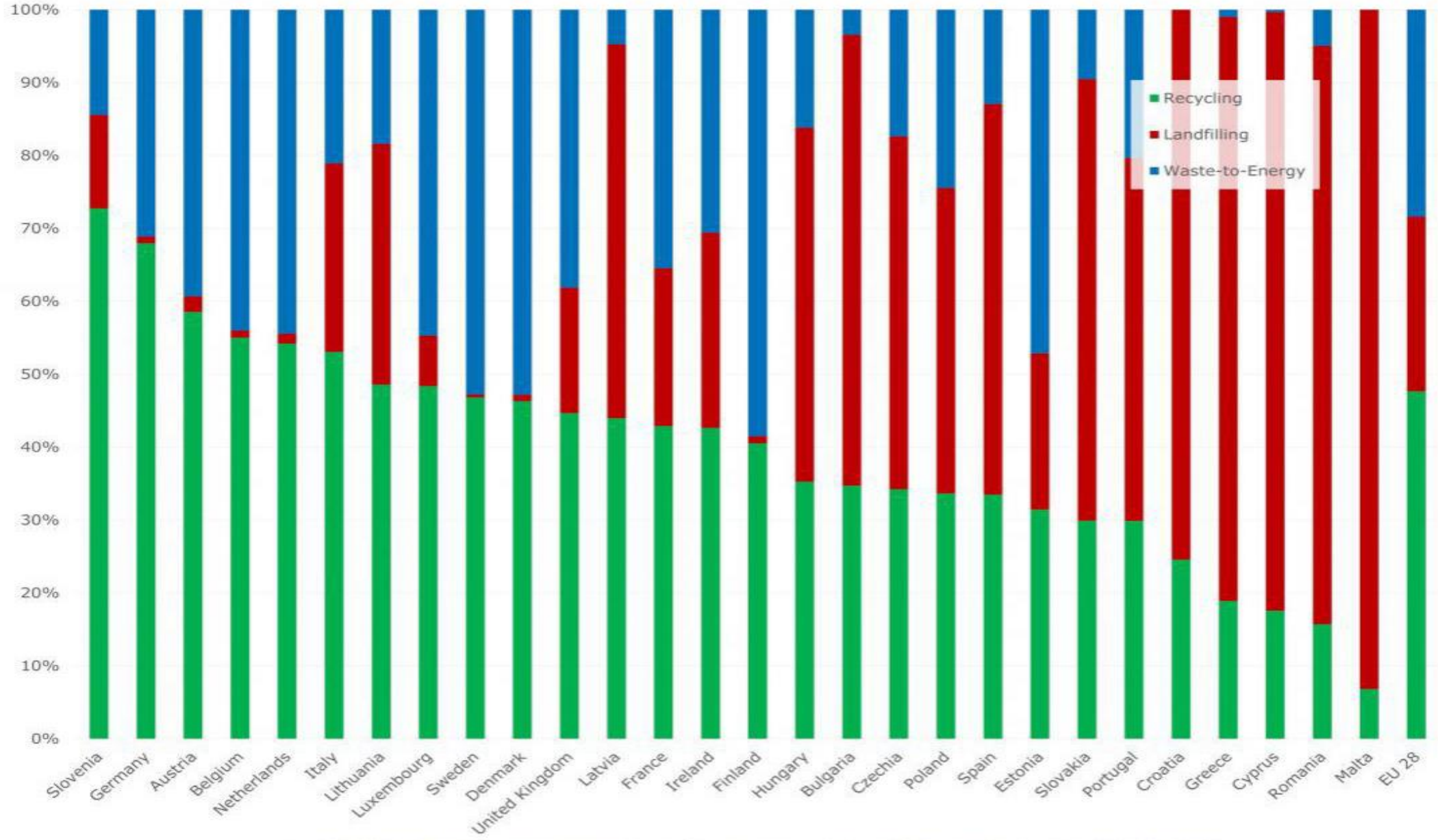
Extensive “Pre-Processing” at Source

Source Separated Food Waste Collection Program (Taiwan)

Example of Japanese Recycling Program

“Social Processing”





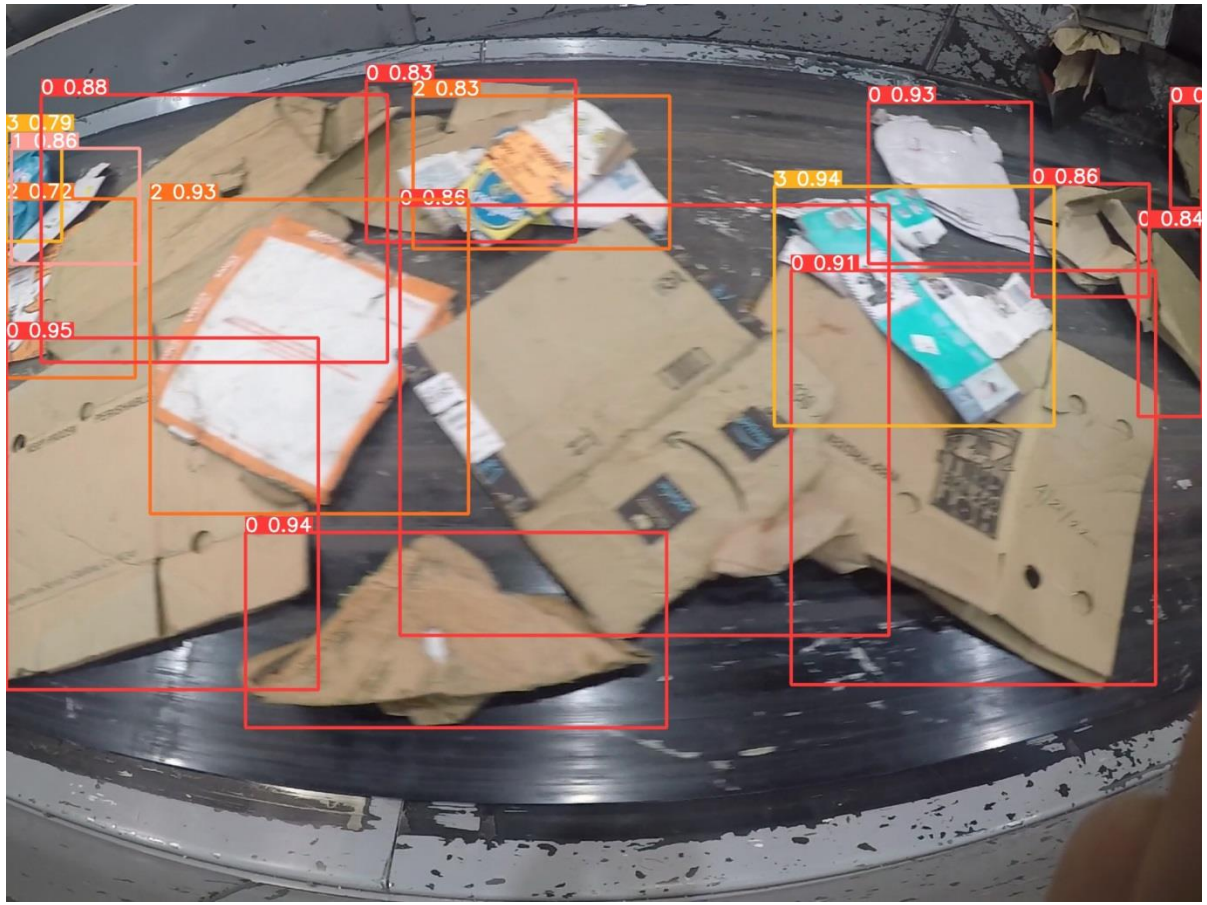
EU 28 Municipal waste treated 2017

Ireland: 2016 values
EU28: Waste-to-Energy values from 2016
Portugal: Waste-to-Energy values from 2014

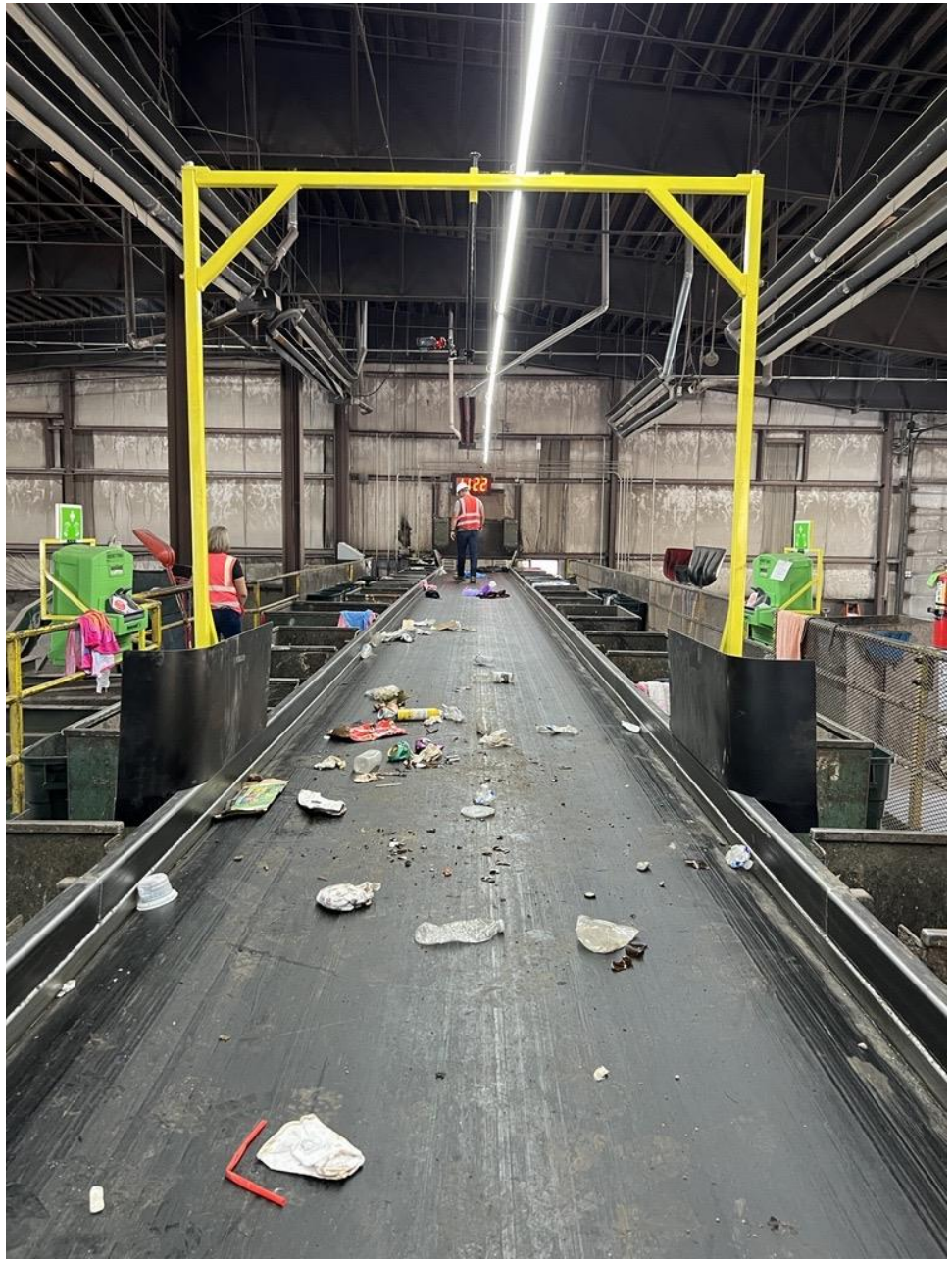
Source: Eurostat 2017

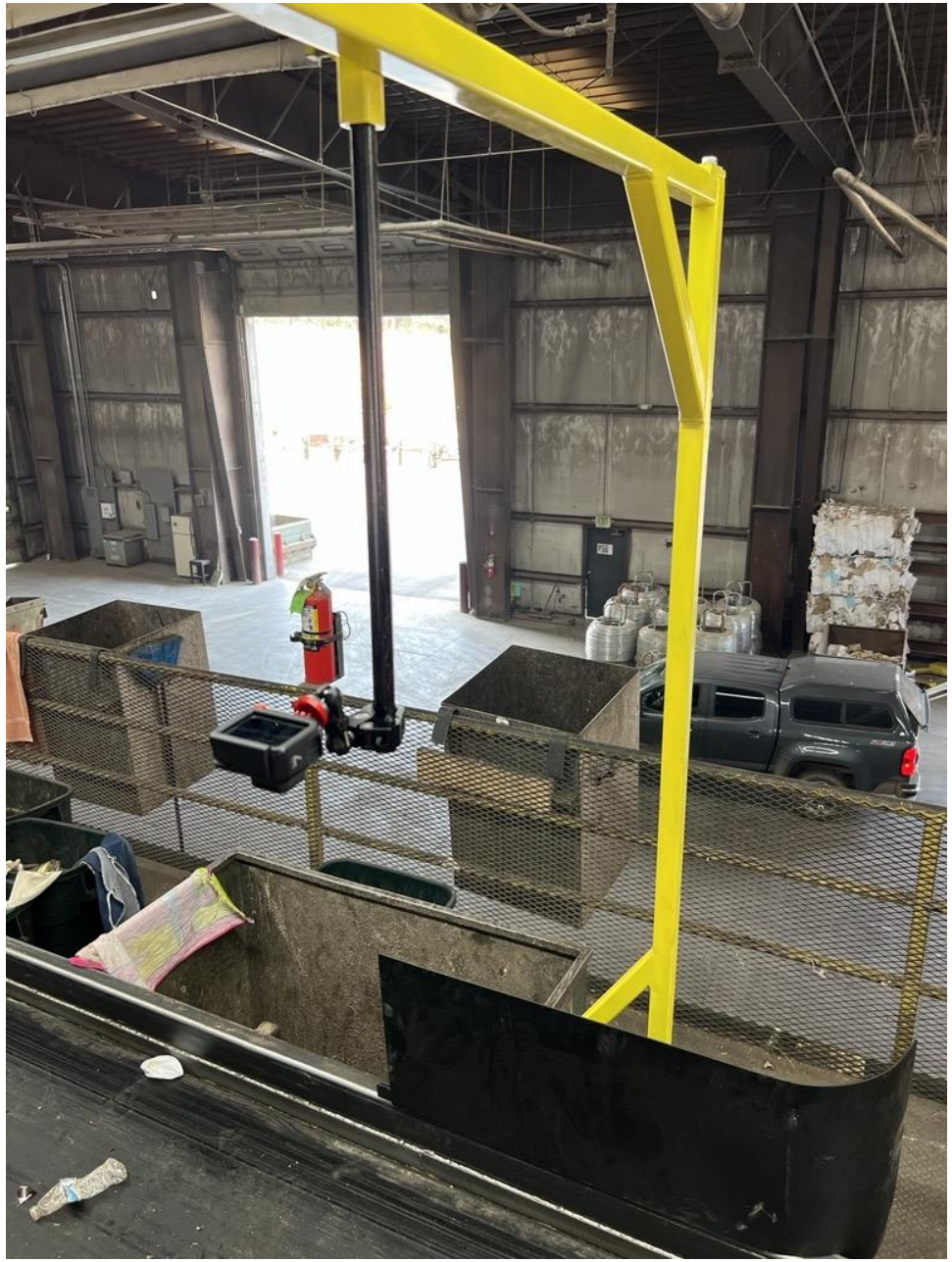
National Science Foundation / NASA CSUN ARCS:
Solid Waste Management and Organics Processing Infrastructure

Object Detection (Automated Waste Characterization (You Only Look Once (YOLO))

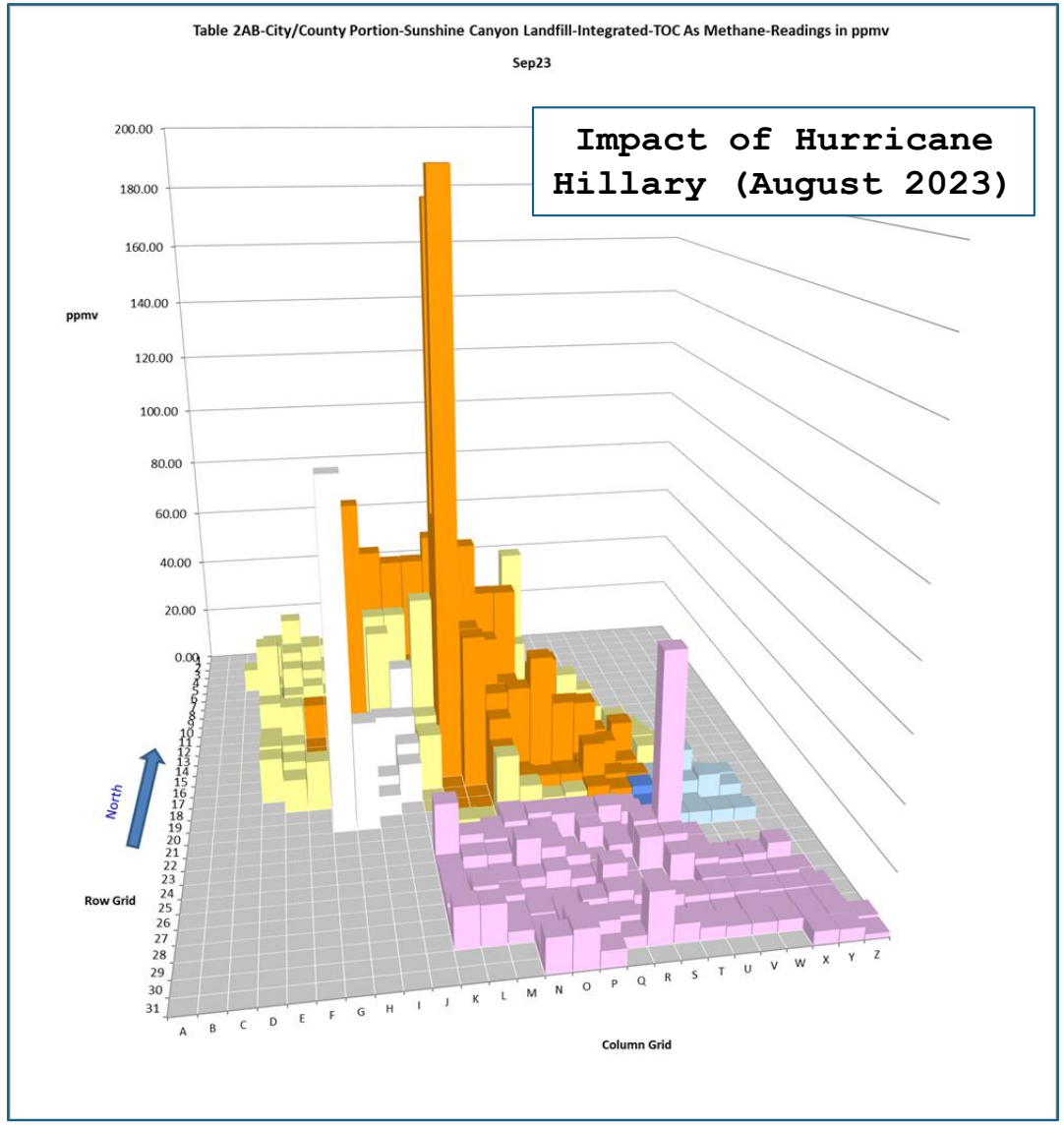


NSF Object Recognition Video Camera Mounting at MRF





Sharing SCL LEA Data Mining/Analytics with Republic, SCAQMD, County DPW, and County Public Health



Selecting Priority Grids for Cover Enhancements

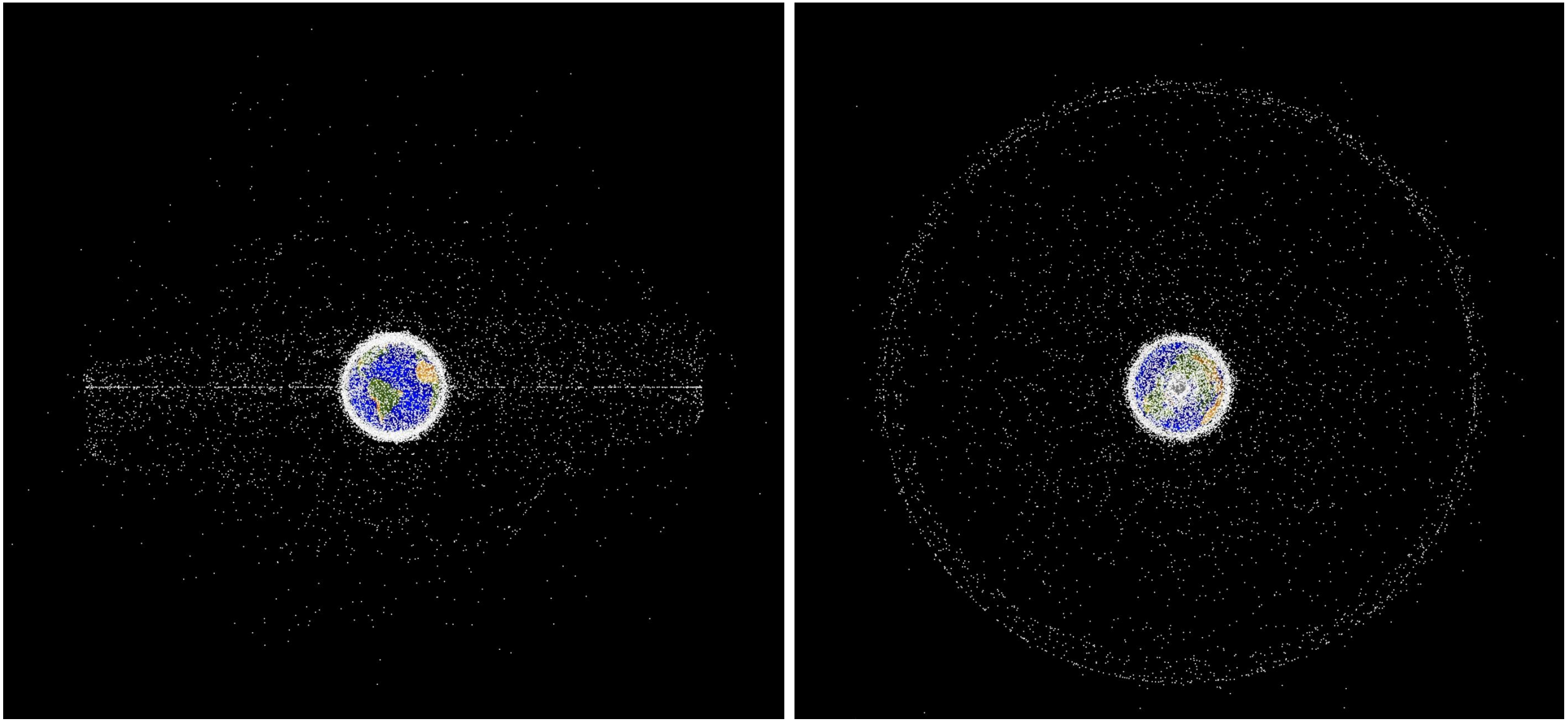
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3				19.84	18.59	17.59				15.37	14.6	13.32														
4			17.87	20.5	11.78	11.46	14.37	10.54	10.15	12.54	16.23	15.47	15.63	16.37												
5			7.3	8.55	11.91	22.38	6.33	7.91	9.73	4.31	3.93	3.23	21.28	12.85												
6				39.95	5.78	21.36	7	6.8	5.62	4.67	3.8	5.68	7.07	5.94	7.8											
7				85.55	23.69	19.99	4.51	4.43	3.42	3.6	4.13	3.13	2.43	2.16	4.03											
8				11.58	18.72	13.71	14.18	12.68	13.66	13.98	14.21	16.36	8.93	6.59	7.99	3.58										
9				41.87	39.27	22.67	11.13	13.22	14.49	15.96	16.87	25.21	20.07	24.6	15.23	35.93										
10				24.43	22.09	50.27	7.82	6.72	6.08	23.82	13.67	30.3	11.53	44.61	18.7	55.76	38.1									
11				15.43	18.19	38.27	27.81	5.49	9.26	8.93	11.73	21.95	111.11	59.71	55.77	26.75	13.91	7.37								
12				54.42	32.34	20.18	21.16	21.56	16.99	10.99	20.44	15.01	36.66	79.02	40.46	13.34	10.09	8.13	4.36							
13				9.85	18.02	20.27	18.2	33.87	28.83	21.61	25.95	54.23	63.97	67.53	45.22	51.81	31.44	13.08	6.76	12.85						
14				12.2	21.26	12.32	16.95	22.78	65.82	134.71	173.62	113.72	55.64	152.66	56.87	5.99	7.03	9.93	7.81	4.76	3.91					
15				15.53	24.08	15.28	26.83	23.4	ctiveTrac	ctiveTrac	ctiveTrac	101.2	114.66	37.38	974.66	12.73	9.97	11.86	23.5	282.84	10.16					
16				31.57	25.96	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	82.16	68.9	41.32	28.05	14.99	11.93	11.53	11.91	23.61	8.45				
17				26.6	33.87	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	24.03	39.93	31.87	30.74	33.43	21.73	12.32	10.05	13.45	14.72	8.13				
18					13.86	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	23.44	24.23	35.65	64.72	30.36	26.87	24.69	13.69	12.77	10.55	4.99	9	7.25			
19						ActiveTrac	ctiveTrac	ctiveTrac	ctiveTrac	5.65	2.34	7.65	11.39	26.95	8.79	5.5	13.47	20.39	14.24	12.75	7.08	9.63	10.15	7.74		
20						ActiveTrac	ctiveTrac	8.17	9.3	20.08	207.35	389.94	16.01	7.81	8.59	7.94	9.82	13.5	10.54	8.38	9.92	8.93	8.33			
21											126.96	40.5	17.72	18.36	11.28	4.98	5.05	8.92	9.52	14.96	11.37	9.49	9.31			
22											54.22	21.65	21.9	17.63	15.91	13.21	13.66	17.64	15.33	28.65	21.33	16.47	11.2			
23										14.94	11.08	10.77	11.75	11.41	15.82	12.57	12.66	Active	Active							
24										9.88	1.64	6.61	10.48	7.65	6.9	7.81	9	8.43	9.94	Active						
25										4.5	3.95	4.28	5.18	5.97	5.59	7.79	5.63	29.57	17.07	5.67	Active	Active				
26										4.37	4.22	5.77	5.38	5.19	6.54	5.12	4.37	7.56	0.52	7.84	7.21	7.85	10.42	Active		
27										4	4.22	4.16	12.27	12.02	11.78	8.1	4.57	3.72	3.04	2.51	2.01	2.13	2.66	Active		
28										8.98	8.24	9.3	8.45	8.63	11.55	7.09	30.14	6.82	4.41	1.73	1.25	1.13	4.14	3.43		
29										1.86	2.83	4.48	4.88	5.21	5.13	6.85	12.86	13.57	9.2	16.6	8.4	6.81	7.7	8.91		
30													7.44	6.45	6.76	7.75	9.2	8.11	2.95	1.2	5.01	6.52	4.1	4.54	1.91	
31													7.65	6.17	11.99								4.38	4.09	4.96	

December 2023 Integrated-TOC As Methane-Readings in ppmv

Innovative Pilot Program: Collaboration on Surface Emissions Data Collection Rover

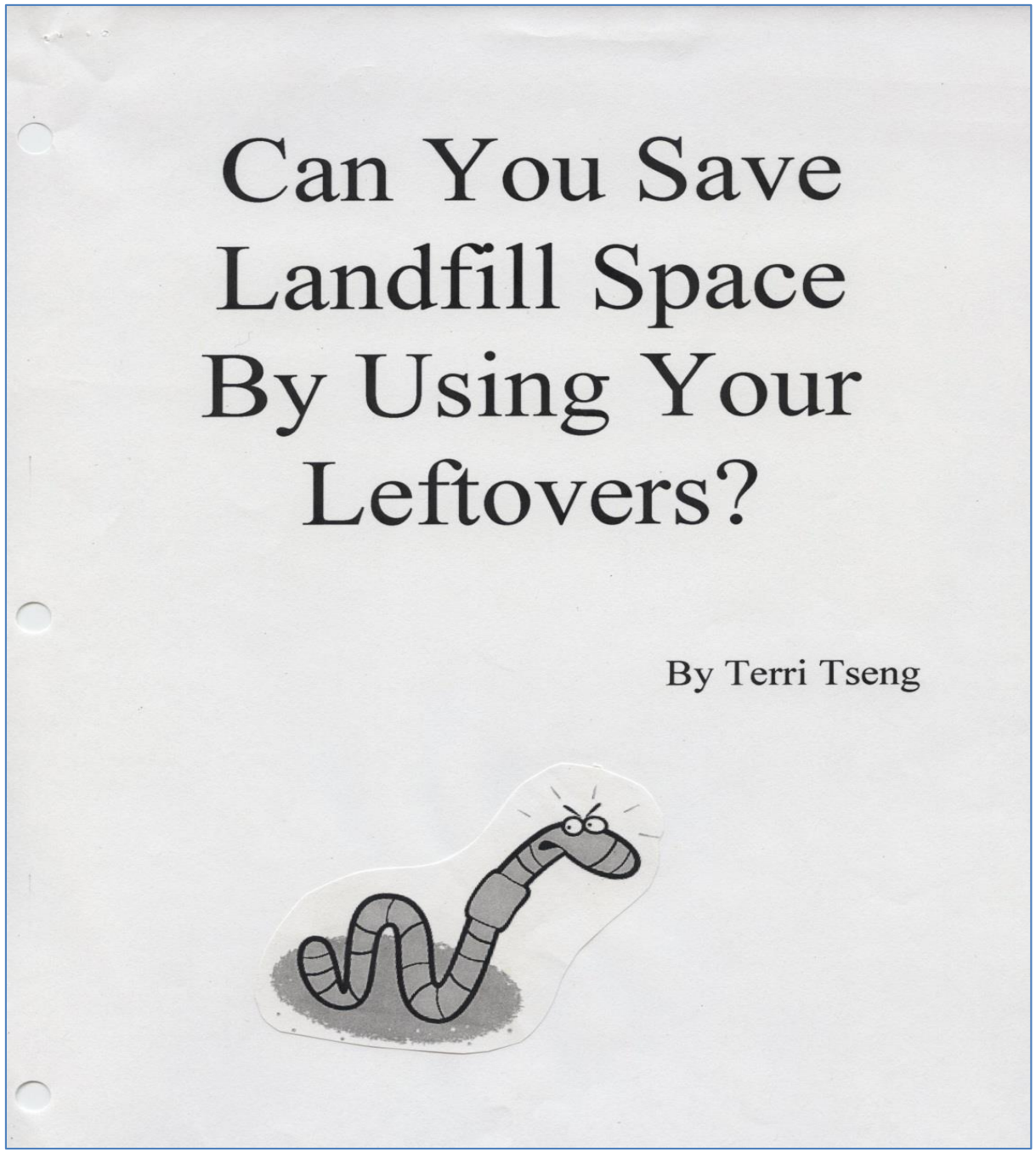
- **NASA Developed Technology for Commercialization**
  - **Provide REAL TIME data for "Preventative Measures"**
  - **EPA Approved use of drones (December 2022)**
  - **Go to Places where not safe for humans**
  - **Can Monitor at Night (Drones and Humans Cannot)**

US Space Force / CSUN NASA ARCS: Space Trash



Over 128 million pieces of debris smaller than 1 cm (0.39 in) as of January 2019. There are approximately 900,000 pieces from 1 to 10 cm. The current count of large debris (defined as 10 cm across or larger) is 34,000.

Garbage is challenging interesting, fun, has lots of opportunities for innovation and needs good people..!



Daughter's High School Thesis Paper

Justin Tseng
September 15, 1998
Writing

What I Want out of Life

I figure that life is very precious so I want to make the most of it. I have a long list of things I want to be but I will write down the ones that I want the most. First I want to be an astronomer. Second I want to be a writer. Third I want to be a scientist developing new software and computer parts. But one thing is for sure. I DO NOT want to be an environmentalist that jumps in the dumpsters and sorts out the trash like my dad!

So far I have read a lot of books from most categories that I know pretty much about the jobs I described in the first paragraph. I am very happy that I have already won a writing contest.

I like classical music and play the piano. I know I do not seem like Joe Average, but that's just me. I plan on getting a nice and cozy house just like the one I live in now. One goal that I have is to be happy, healthy and live to an old age.

I hope to have contributed to my community and the world by preventing asteroid impact, brining laughter to homes and by making things in life more efficient before I die.

City of Los Angeles
Local Enforcement Agency

CSUN ARCS AUTONOMY RESEARCH CENTER FOR STEAHM

Thank You

Eugene Tseng, JD
E. Tseng and Associates, Inc.
etseng375@gmail.com