Creative Community-Based Solutions for Organics Recycling in New York City

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The Things Network October 2017

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THE STATE OF WASTE IN NYC

$1.6 Billion

2018 DSNY Fiscal Budget

$380+ Million

Spent on waste export from private vendors

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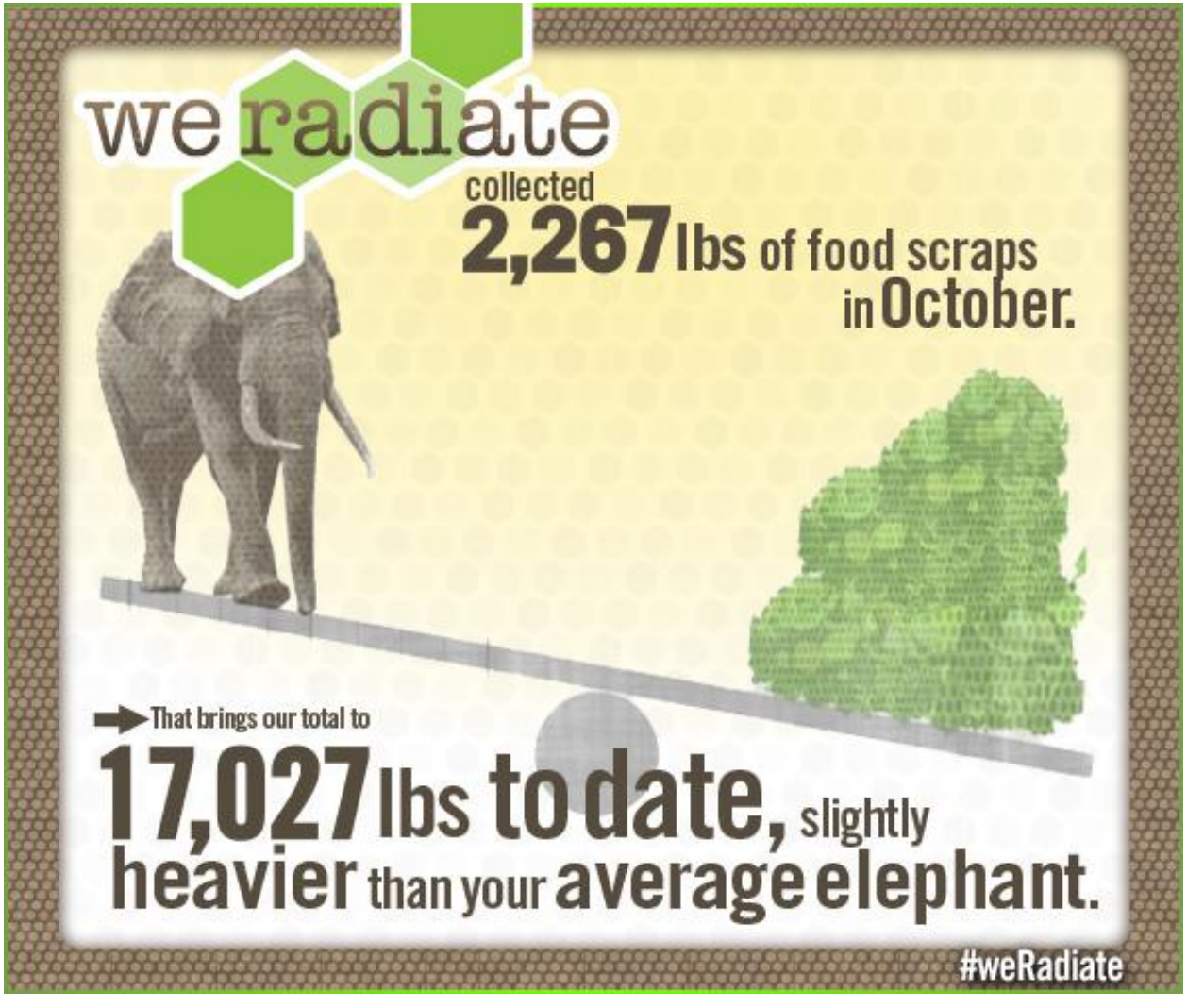

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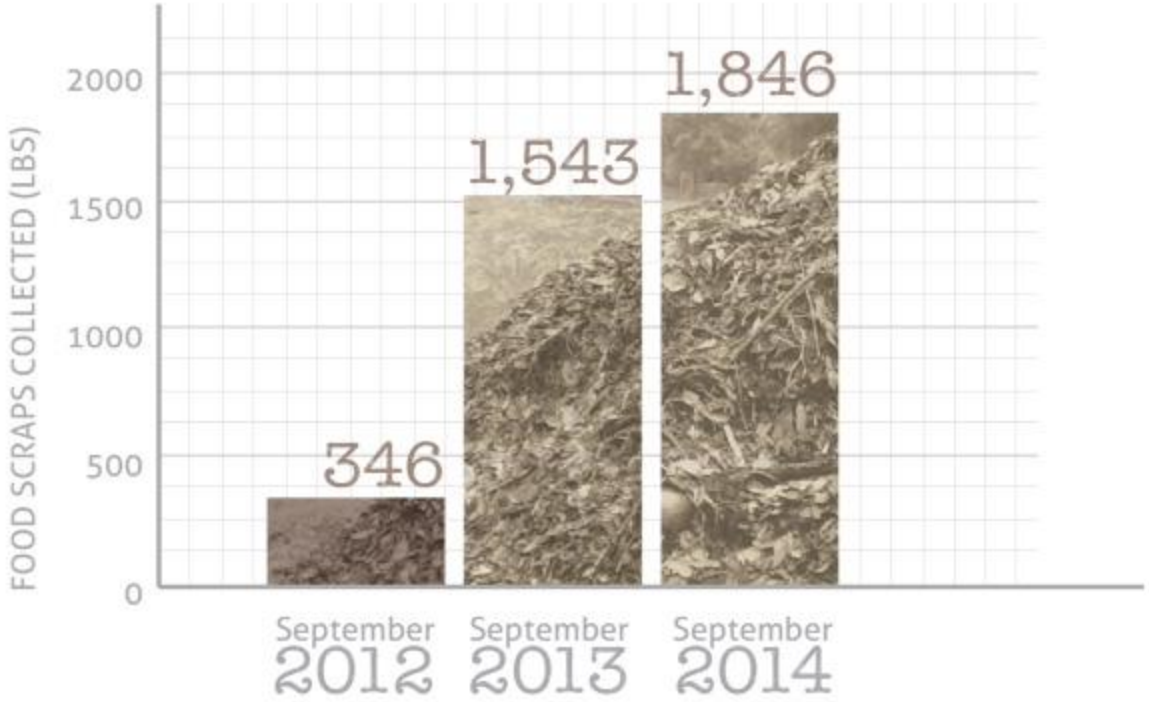
The amount of food scraps dropped off to the 462 Halsey Community Garden during September of 2012-2014



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THERMOSENSE 1.0

“ Changing the dynamic of our interaction with food waste as we transform it into nutrient rich soil ”

Smiling Hogshead Ranch, Queens

G. Lopez - Founding Member

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THERMOSENSE 2.0

1. Particle Photon microcontroller
2. Software in the sensor device written in C++
3. Thermistor 10k (manufactured by Vishay, part NTCLE100E3103JB0)
4. Moisture PCB
5. WiFI antenna
6. 4 AA batteries
7. Basic plastic enclosure

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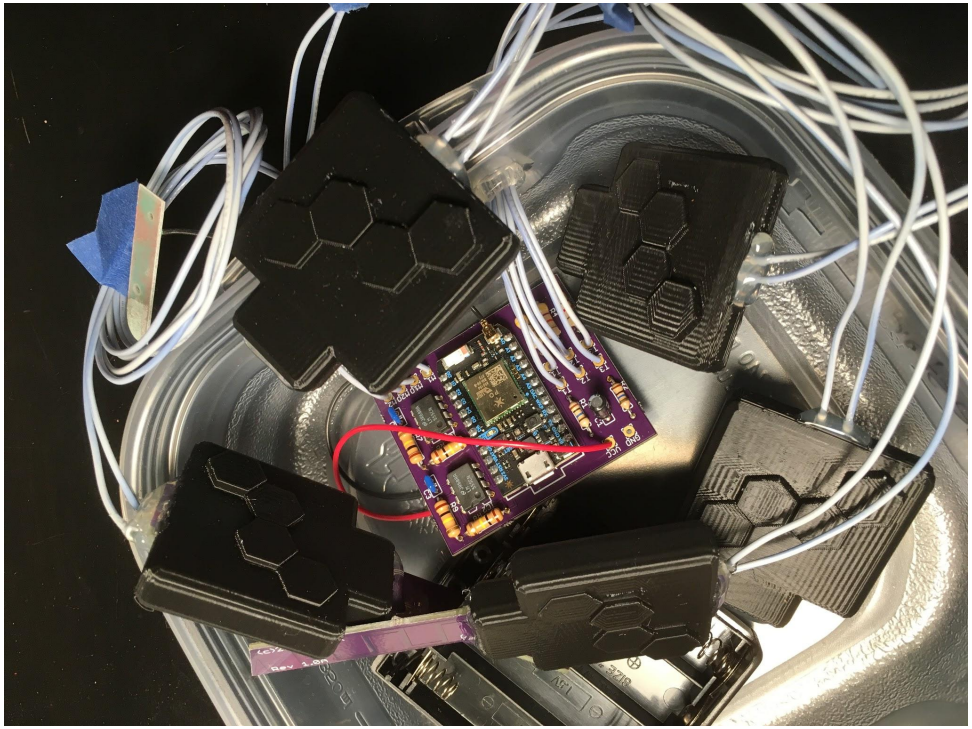
DATA COLLECTION



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FEATURES

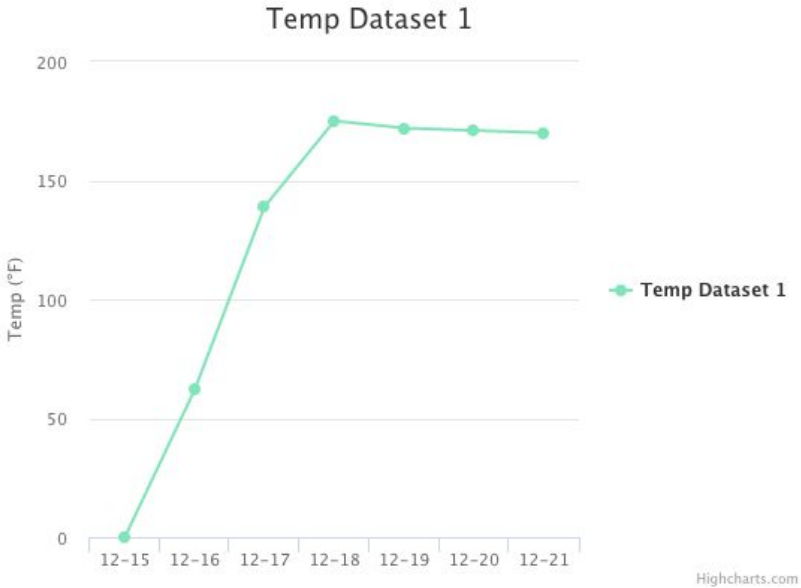
Realtime capture of ambient temperature and moisture

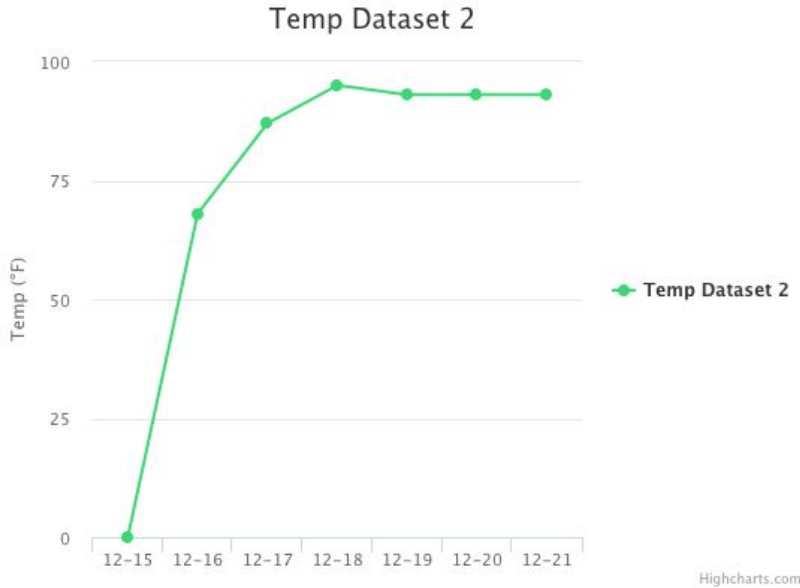
Visualization of compost data

GIS-maps integrated with NYC Open Data Food Scrap Drop Off Sites dataset

Email, SMS, Slack notifications

Filter: Last 6 Days | Last 4 Weeks | Last 24 hours (Yesterday) Date: 2016-12-22





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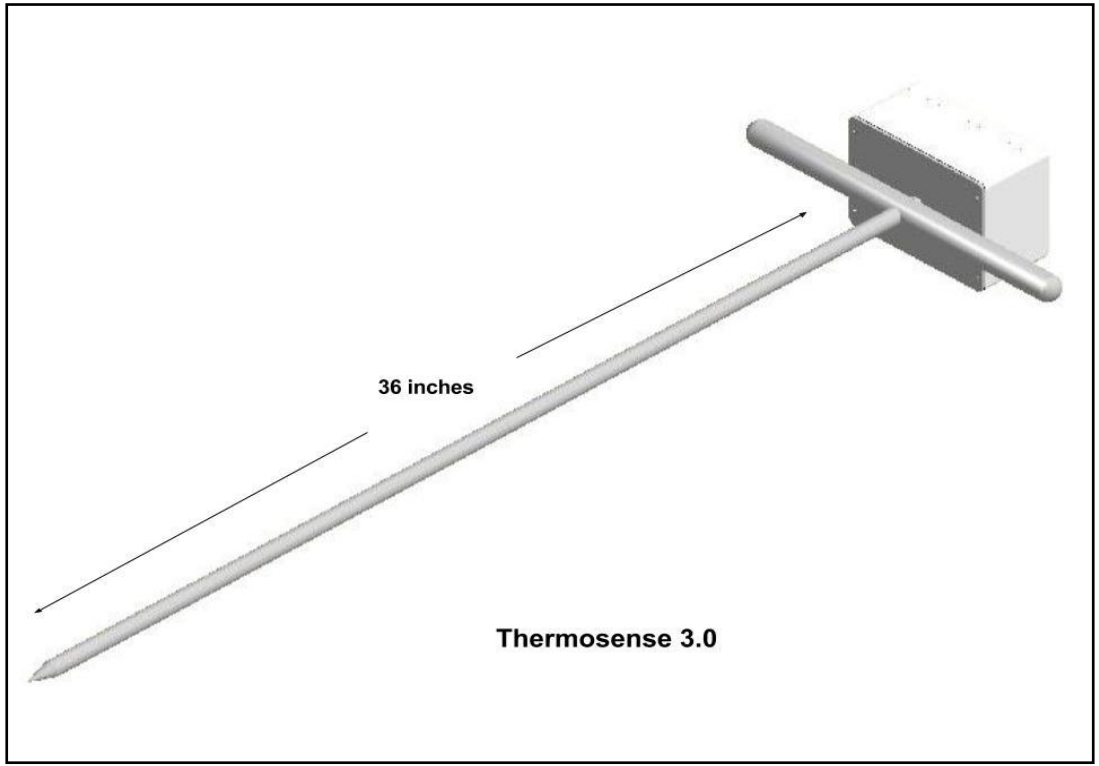
THERMOSENSE 3.0

(inspiration)

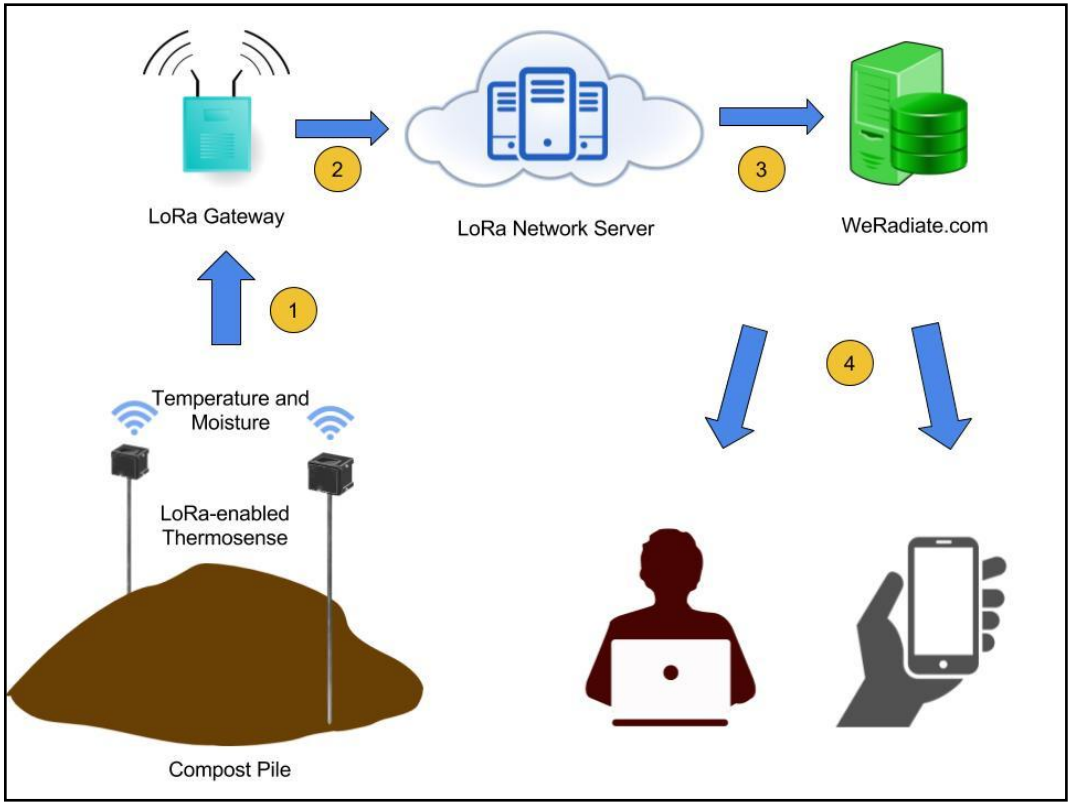


THERMOSENSE 3.0

Objectives

After multiple field deployments, the following items for enhancement were identified and planned for Thermosense 3.0:

- Lower power consumption
- Longer battery life for WiFi-enabled device
- Wider connectivity range
- LoRa capability
- WiFi-enabled for compost sites not within LoRaWAN
- Compact and sturdier enclosure against weather and corrosive organics



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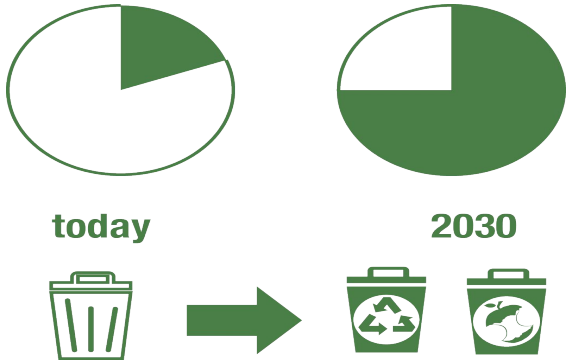
THERMOSENSE

Diagnostic tool to assist and predict compost efficiency and analytics of scale for citywide use

ZERO WASTE INITIATIVE



How does this support NYC's broader policy goals?

NYC has set a goal of diverting 90% of solid waste to recycling or composting by 2030. Composting our organic waste more efficiently is a crucial part of that strategy.

COMMUNITY COMPOST POTENTIAL

TOO MUCH ORGANIC WAST(ED) IN NEW YORK CITY

HOW MUCH COMPOSTING CAPACITY DO OUR COMMUNITY GARDENS HOLD?

we did some simple math:

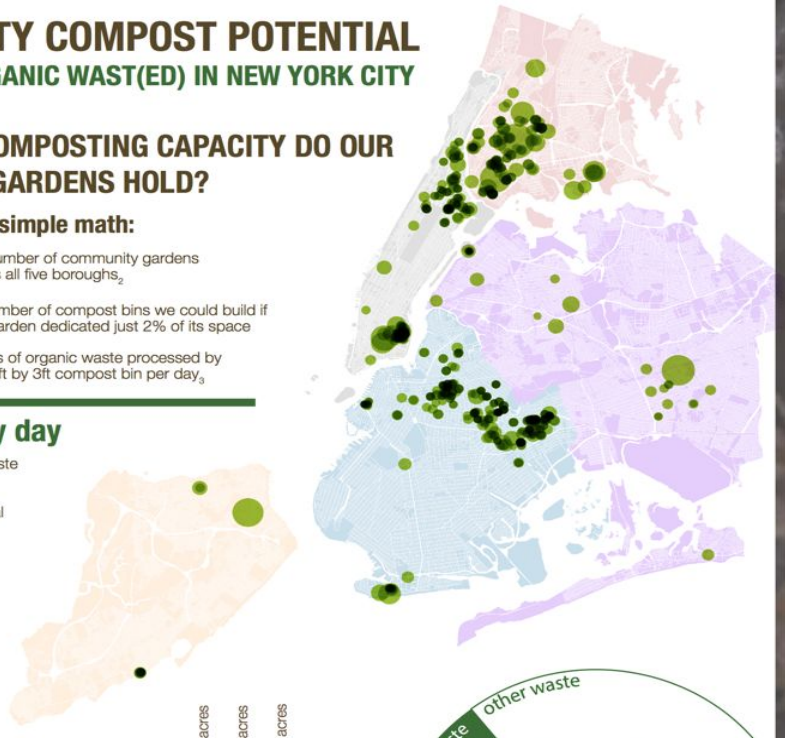
651 The number of community gardens across all five boroughs[2]

8,293 The number of compost bins we could build if each garden dedicated just 2% of its space

27 pounds of organic waste processed by each 3ft by 3ft compost bin per day[3]

113 tons every day

The amount of organic waste we could divert using community composting systems (5% of NYC's total organic waste)



Community Gardens by size

The average garden is about .15 acres, or 6,500 sf. For comparison, a typical manhattan block is about five acres.

Compost Capacity by Borough (tons/year)

brooklyn	16,661
bronx	9,083
queens	8,217
manhattan	4,527
staten island	2,976

How can we support NYC's broader policy goals?

NYC has set a goal of diverting 75% of solid waste to recycling or composting by 2030[4]. Composting our organic waste more efficiently is a crucial part of that strategy.

Altogether, the city pays approximately $330 million each year to transport this waste to landfills and processing sites as far away as Ohio and Virginia[1].

What can we gain through community composting?

$85.00 / Ton The cost of tipping fees to send waste to landfills[1]

41,465 Tons/Yr The amount of organic waste we could compost in community gardens

By diverting over 40,000 tons of waste each year, we could save over

$3.5 million per year in tipping fees and transportation | **and divert 6%** of NYC's total organic waste output

to create sanitation jobs, build compost facilities, and support community programs

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How can we make this happen?

Look out for more in this series of infographics as we explore the economic, environmental, and logistical challenges of decentralized composting in more depth.

How can you support this effort?

1. **Find a location near you and compost your organic waste:** *(www.opengreenmap.org/greenmap/nyc-compost-green-map)*
2. **Activate a vacant lot and create a community space** *(www.596acres.org)*
3. **Stay involved, volunteer time, or dedicate resources to We Radiate** *(WeRadiateNY@gmail.com)*

Sources:
1. NYC Department of Sanitation: http://council.nyc.gov/downloads/pdf/budget/2014/827_department_of_sanitation.pdf
2. www.596 Acres.org
3. 462 Halsey Street Garden
4. PlaNYC: http://waste.ccac-knowledge.net/sites/default/files/CCAC_images/City%20Assessment%20-%20New%20York%20City,%20USA.pdf

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NEXT STEPS

Develop web data portal that brings diverse compost-related data together from small-scale to mid-scale compost systems across New York City - Q2 2018

Deploy ThermoSense 3.0 to compost client sites across New York City - Q2 2018

Marketing and Sales of Final End-Product

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COMMUNITY ASKS

- Hardware assistance & development of LoRa-enabled compost sensor (ThermoSense 3.0)

- Ability to connect to Manhattan Gateway to field test ThermoSense 3.0

THANK YOU!

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