



Lehigh County
Pennsylvania

OFFICE OF THE CONTROLLER

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ESSAY

CONCERNING

Lehigh County Jail Food Waste

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Why Food Waste Matters?

As we attempt to tackle the issue of climate change, the issue of food waste and its myriad of consequences can't go unaddressed. Food waste is a major contributor to methane emissions, climate change, and presents one of the greatest challenges in conservation moving forward.

Food waste in the United States is a sizeable problem with Americans wasting about 40% of the food they purchase in a given year. The typical person will waste about 1,250 calories per person per day or about 400 pounds of food annually.ⁱ This food inevitably ends up in a landfill, and wasted food will contribute to the proliferation of greenhouse gases and climate change.

Decaying food emits methane which represents between 6%-8% all human related emissions of greenhouse gases nationally; the same impact of adding an additional 32.6 million cars to the road. Worse still is the highly effective rate at which methane warms the planet and contributes to climate change.

The Environmental Defense Fund finds that methane possesses 80 times the warming power of carbon dioxide in the first 20 years of its life and accounts for about 25% of human related climate change.ⁱⁱ

Thus, efforts to reduce food waste on a municipal, state, and federal level have significant implications for our efforts to reduce our impact on the environment. The higher degree of effectiveness exhibited by methane as a warming agent and the sheer volume of food waste nationwide demands local solutions and definitive action.

At the county level, jail and prisons are significant and regular producers of food waste given their consistent need to feed those housed within their cells and facilities. County efforts to reduce local food waste would send a strong signal about local commitments to reducing the impact of food waste.

County Jails: Key Contributor to Local Food Waste

Within the dimension of local government, county jails can be significant producers of food waste. For one, they have a consistent and sizeable population that is fed daily. According to CalRecycle, the average inmate can produce between .5 to 1.2 pounds of food waste per day.ⁱⁱⁱ These rates can vary depending on the type of feeding program provided by the local jail or prison, but none the less demonstrates that even a small population of incarcerated individuals





can account for a significant amount of wasted food. For example, a facility housing up to 4,000 inmates can produce more than a ton of food waste per day according to Cal Recycle.

More importantly, as a percentage of waste, food is one of the leading contributors to the solid waste disposal costs at jail facilities further amplifying the importance of this report. One of the Controller's first responsibilities is to identify innovative cost-saving opportunities.

While there are limited studies about the breakdown of waste composition at jails and prisons, the few that exist vindicate the importance of focusing on reducing food waste at county jails. A 2004 study of Florida's correctional system and a 2014 survey of California prisons found that on average food waste contributed to 30% of a jail's solid waste costs. The second leading contributor was paper. Collectively, these two accounted for 70% of the total solid waste costs accounted for at prisons and jails.^{iv}

Therefore, Lehigh County has both a compelling cost and ethical imperative to pursue a concerted effort to reduce food waste at its correctional facility. Success here has the potential to produce additional savings at other large facilities operated by the county including Cedarbrook sites which care for over 600 seniors.

Lehigh County Jail: Potential Climate Impact

At present Lehigh County has a total jail census of 729 inmates which is not far from the census recorded on February 3rd, 2021 which put the total population at 700.^v An important caveat is that Lehigh County sometimes temporarily houses inmates in transit or one from outside our jurisdiction for short durations which can skew the overall number.

For the purposes of simplicity, we'll utilize the 700-inmate figure which was taken during a pandemic peak and coincided with efforts to significantly reduce the number of incarcerated individuals. The stability of that figures allows us to determine a sounder estimate about the potential volume of food waste and therefore the total amount of methane released.

Using the higher end estimate of food waste from California, a single inmate at Lehigh County can be expected to produce about 438 pounds of food waste per year. That means that a jail with a total inmate population of approximately, 700 inmates would produce about 306,600 pounds of food waste per year. More specifically, that's about 153 tons of waste per year from the Lehigh County jail.





This amounts to a significant amount of waste and environmental damage. For example, every 100 pounds of food waste produces approximately 8.3 pounds of methane.^{vi} That means that Lehigh County's total methane foot print would total roughly 25,448 pounds per year in methane released. It is important to keep in mind this total carbon footprint stems only from the jail. Lehigh County's other service-based facilities also likely contribute significantly to wasted food.

In more practical terms, it might be easier to compare Lehigh County's jail food waste against more common household benchmarks like energy consumption. The Department of Environmental Protection uses a greenhouse gases equivalencies calculator to determine the breakdown of various emissions.

For example, Lehigh County's 25,448 pounds of methane released each year is the equivalent to the energy use of 34.8 homes for a full year or driving one's car almost 725,247 miles.^{vii} The average American drives just 13,500 miles a year.^{viii} Thus, despite having a relatively small jail population, Lehigh County does contribute to climate change in a sizeable way from the perspective of a local community (graphic provided on page 8).

Fortunately, there is an effective local model for reducing food waste which has been employed by local jails and facilities across the country, including a local corrections center in the City of Philadelphia. Through the process of composting, Lehigh County's jail can not only reduce food waste and reduce the cost of solid waste pick-ups. It can create a potential stream of revenue for the jail and the opportunity to create a pipeline for future employment by allowing inmates to develop job skills and receive potential credentials which could help with future employment.

Composting: Environmental Stewardship and Employment Opportunities

Criminal justice should revolve around two key priorities, ensuring a debt to society is paid in a humane and dignified manner and ensuring inmates are rehabilitated in a way that eliminates any chance of recidivism. Jail programs that can combine productive and rewarding use of inmate time with opportunities to find gainful employment and stability upon their release should be considered the most desirable.

Furthermore, efforts to integrate the formerly incarcerated back into the local economy with jobs that pay a living wage and provide social connections and purpose are worthy of investment and exploration. Fortunately, there is an existing model within the Philadelphia Prison System that reduces their carbon footprint and helps inmates find employment.





The Philadelphia Industrial Correction Center currently operates an award-winning composting site that diverts 658 tons of food waste every year, and reduces landfill costs by almost \$40,000 each year. The program was started with just a \$15,000 grant.^{ix}

One of the most important features of the program beyond the immediate cost savings associated with reducing food waste and significantly reducing the prison's impact on the environment is the application of a formal education and jobs skill component (photo example, page 9). The composting program allows inmates to earn a Vocational Certificate in Urban Greening and Sustainable Land Care from Temple University which provides them with job skills in everything from horticulture to basic landscaping.

The course consists of a 12-week educational program and a 6-week paid internship to help them apply their classroom skills and give them a competitive edge during the reentry process. Temple and the Philly Prison system also provide additional assistance in identifying local firms and farms in need of additional work and assist with job placement. The benefits of the program are access to jobs with a low barrier of entry and decent wages.^x

The program has received federal acclaim and awards for its ingenuity and recognition by city leaders for its success in achieving the goals of reducing recidivism and reducing waste. The current program is based on a previously successful model called Roots to Reentry which trained inmates in horticulture and other groundskeeping skills.^{xi}

According to the Pennsylvania Horticulture Society which helps administer the program, 83% of the program participants graduated from the program, 98% had full-time employment and 55% of them were still employed eight months later.^{xii}

Lehigh County could create a similar program here. It already possesses both existing programs such as the Seed Farm which is looking to train the next generation of farmers. The Rodale Institute^{xiii}, located in Kutztown is also a local leading organization promoting the importance of organic farming and composting among other environmentally sustainable practices.^{xiv} They operate a farming training institute of their own and could be a leading partner in helping provide the technical expertise and resources to undertake this program.

Lehigh County could easily replicate this program working with local partners to develop the infrastructure to compost and practice organic farming. Through collaboration with CareerLink, our workforce development organization, those recently trained could be connected with area employers in need of their new skillset.





As a total cost, it's estimated that a municipality could reduce its solid waste fees by between 30%-70% from the introduction of composting. This was the finding in Philadelphia.^{xv} The total annual solid waste disposal for the jail amounted to over \$18,000 annually. A 70% savings would be over \$12,000 annually.^{xvi} Though not much in annual savings, the added benefit of reduced recidivism and future employment creates additional positive benefits.

Corrections, specifically the jail remains Lehigh County's largest individual expense. An effort to reduce the total number of incarcerated individuals will result in significant cost savings. In addition, the reduction in future social costs should be counted as an additional benefit.

Lehigh County wouldn't likely sell its compost materials. One ton of compost is equal to between 2 and 2.5 cubic yards. The going rate for a cubic yard of compost is approximately \$30. That would yield only about \$11,000 in total earnings.^{xvii} There simply isn't a significant enough production of compost for the county to sell. However, the availability of reliable composting could be used to help incentivize smaller farms to transition to organic agriculture. These could be used to get local farms participation in a training and job skills program.

This practice uses compost to preserve and ensure healthy soil while breaking away from the use of fertilizers and other chemicals on land. According to the Bureau of Labor Statistics, land use for organic farming increased four times over between 1992 and 2008.^{xviii} According to the Rodale Institute, organic farming is competitive with conventional farming after a 5-year transition period, releases 40% fewer carbon emissions, leach no chemicals into waterways and generate between 3 and 6 times the profit of conventional farms. They're also more energy responsible and produce more during droughts.^{xix}

Therefore, not only would a program of this nature compliment Lehigh County's correctional goals, but it could potentially help shift the transition to a more environmentally responsible form of agriculture. This will further help Lehigh County adapt to climate change and ensure the sustainability of farming in the long-run.

Conclusion

Lehigh County has historically looked for innovative ways to reduce their recidivism and improve prisoner reentry. Furthermore, Lehigh County needs to contend with climate change and ensuring that as a local government it is a leader in pursuing environmentally friendly policies. A composting and employment training program is the perfect combination of skills development and environmental remediation.





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Lehigh County is fortunate that a local program which has had success exists in the same state which creates a natural pool of talent to tap. In addition, local partners and organizations already exist which could provide resources, labor and support in implementing this program. This program would result in cost savings for the county, reduce our environmental footprint and ensure that the formerly incarcerated have access to employment once they're released.

Controller Recommendation:

The Controller's Office recommends that the County Executive request that the Department of Corrections further investigate the possibility of implementing a version of this program.





Greenhouse gas emissions from



CO₂ emissions from



Greenhouse gas emissions avoided by





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- ⁱ <https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf>
- ⁱⁱ <https://www.edf.org/climate/methane-crucial-opportunity-climate-fight>
- ⁱⁱⁱ <https://www.calrecycle.ca.gov/stateagency/agencytype/correctional>
- ^{iv} <https://www.calrecycle.ca.gov/stateagency/agencytype/correctional>
- ^v <https://www.wlvr.org/2021/02/lehigh-county-da-criticized-for-size-of-jail-population/#.YW3BzxrMKUk>
- ^{vi} <https://www.novatosan.com/green/reducing-food-waste>
- ^{vii} <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- ^{viii} <https://www.metromile.com/blog/average-miles-driven-per-year-by-americans/>
- ^{ix} <https://civileats.com/2016/10/17/philadelphias-prison-system-is-fighting-food-waste-and-recidivism-with-an-organic-farm/>
- ^x <https://www.biocycle.net/power-sustainability-change-inmates-lives/>
- ^{xi} <https://www.vibrantcitieslab.com/case-studies/roots-to-re-entry/>
- ^{xii} <https://phsonline.org/programs/workforce-development-programs/program-model-and-impact>
- ^{xiii} <https://rodaleinstitute.org/education/>
- ^{xiv} <https://rodaleinstitute.org/education/>
- ^{xv} <https://mde.maryland.gov/programs/LAND/RecyclingandOperationsprogram/Documents/Cassidy%20-%20Philadelphia%20Department%20of%20Prisons%20Composting%202018.pdf>
- ^{xvi} See attached excel sheet
- ^{xvii} https://www.canr.msu.edu/uploads/236/79117/Compost_for_Midsize_FarmsQuickCourse8pgs.pdf
- ^{xviii} <https://www.bls.gov/careeroutlook/2010/fall/art01.pdf>
- ^{xix} <https://rodaleinstitute.org/science/farming-systems-trial/>



**FINAL TABULATION SHEET
(#21-042)**

BID DATE: SEPTEMBER 23, 2021
 SUBJECT: TRASH COLLECTION SERVICES
 FOR: COUNTY OF LEHIGH
 OWNER: COUNTY OF LEHIGH

	Republic Services of New Jersey LLC Telford, PA	Solid Waste Services, Inc. d/b/a/ J.P Mascaro & Sons Audubon, PA	Waste Management of Pennsylvania, Inc. Kutztown, PA
Total Annual Sum	\$ 145,347.53 (should be \$147,023.44)	\$ 316,752.00 (should be \$279,192.00)	\$ 264,451.58 (should be \$264,724.77)
Monthly Average	\$ 12,112.29 (should be \$12,251.95)	\$ 26,396.00 (should be \$23,266.00)	\$ 22,037.63 (should be \$22,060.40)
a. Agriculture Center	\$ 19.49	\$ 120.00	\$ 38.64
b. Cedar View Apartments	\$ 794.99	\$ 1,489.00	\$ 1,053.00
c. Cedarbrook - Allentown			
* Trash Compactor	\$ 1,152.50	\$ 1,040.00	\$ 1,330.00
* Loose Capacity Service	\$ 176.66	\$ 600.00	\$ 341.71
d. Cedarbrook - Fountain Hill	\$ 1,987.47	\$ 2,700.00	\$ 2,053.63
e. Comfort Cottages	\$ 44.17	\$ 140.00	\$ 68.89
f. Community Corrections Cntr	\$ 706.66	\$ 990.00	\$ 713.33
g. Courthouse	\$ 662.49	\$ 1,775.00	\$ 908.86
h. Farmland Preservation	\$ 132.50	\$ 450.00	\$ 256.91
i. Government Center	\$ 883.32	\$ 1,792.00	\$ 1,073.26
j. LC Coroner's Office	\$ 44.17	\$ 135.00	\$ 68.89
k. Lehigh County Jail	\$ 1,523.73	\$ 6,430.00	\$ 9,271.07
l. Lehigh County Utility Garage	\$ 176.66	\$ 325.00	\$ 232.74
m. Lockridge Park	\$ \$35.00/call	\$ 90.00/call	\$ 37.88/call
n. Parks (Lenhart Rd.)			
* In Season	\$ \$35.00/call	\$ 150.00/call	\$ 55.11/call
* Off Season	\$ 70.00	\$ 300.00	\$ 110.22
o. Parks (Walnut St.)	\$ \$35.00/call	\$ 150.00/call	\$ 56.03/call
p. Parks (Leaser Lake)	\$ \$35.00/call	\$ 150.00/call	\$ 32.23/call
q. Trexler Environmental Center			
* Open Season	\$ \$35.00/call	\$ 300.00/call	\$ 39.13/call
* Closed Season	\$ 35.00	\$ 300.00	\$ 39.13
r. Utility / Storage Site	\$ 90.06	\$ 170.00	\$ 126.48
Extra Loose - C.Y. Rate	\$ 15.00	\$ 15.00	\$ 20.00
Extra Comp. - 2 C.Y. Rate	\$ 20.00	\$ 125.00	\$ 40.00

County Location	Monthly Disposal Costs	Annual Disposal Costs
Cedarbrook-Allentown	\$ 1,152.00	\$ 13,824.00
County Jail	\$ 1,523.73	\$ 18,284.76
Cedarbrook- Fountain Hill	\$ 1,987.47	\$ 23,852.88
Courthouse	\$ 662.49	\$ 7,949.88
Government Center	\$ 883.32	\$ 10,599.84
Total Costs	\$ 6,209.01	\$ 74,511.36

30% savings		70% savings	
\$	4,147.20	\$	9,676.80
\$	5,485.43	\$	12,799.33
\$	7,155.86	\$	16,697.02
\$	2,384.96	\$	5,564.92
\$	3,179.95	\$	7,419.89
\$	22,353.41	\$	52,157.95