



The People's Climate March, NYC

FIGHTING NEW YORK'S CLIMATE EMERGENCY WITH WASTE ZONES

COMMERCIAL WASTE ZONES ARE NYC'S NEXT BIG GREEN INITIATIVE



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ABOUT THIS REPORT

This report and underlying research were produced by members of the [Transform Don't Trash NYC coalition](#), with Justin Wood of New York Lawyers for the Public Interest (NYLPI) as the lead author. It was designed by NYLPI's Communications Director, Matt Davis.

Transform Don't Trash NYC is a growing coalition dedicated to transforming New York City's commercial trash industry to reduce waste and pollution, foster clean and healthy communities for all New Yorkers, and create good jobs. Members include the New York City Environmental Justice Alliance, ALIGN: The Alliance for a Greater New York, the International Brotherhood of Teamsters Joint Council 16 & Locals 210, 813, and 831, the Natural Resources Defense Council (NRDC) and NYLPI.

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EXECUTIVE SUMMARY

The Commercial Waste Zone bill currently before New York City Council (Intro 1574 of 2019) is a major piece of climate legislation with the potential to substantially reduce greenhouse gas (GHG) emissions associated with New York City's huge commercial waste stream:

- A strong Commercial Waste Zone (CWZ) system with one hauler per zone is the best way to incentivize private waste haulers and commercial businesses to sharply reduce the amount of waste they landfill, curtailing a major source of climate emissions.
- In addition to eliminating approximately 18 million diesel truck miles per year, a high-dive CWZ system can avoid 2 million tons of GHG emissions per year - equivalent to removing one in five passenger cars from New York City streets.
- Less than 25% of NYC's commercial waste is recycled or composted. This is a far lower rate than cities with exclusive waste zones such as Seattle, San Jose, and San Francisco have achieved. Seattle achieved a 65% commercial recycling rate in 2017.
- Recycling and composting create far more jobs than landfilling, and a robust CWZ system can create hundreds of high-quality green jobs in the NYC area while also ensuring that edible food and other reusable goods find their way to New Yorkers who will benefit from them.



Hurricane Sandy damage in 2012

BIG NUMBERS: HOW THE COMMERCIAL WASTE INDUSTRY CONTRIBUTES TO CLIMATE POLLUTION

Climate change is already harming New York City, with extreme storms and heat waves becoming more prevalent. The United Nations International Panel on Climate Change has determined¹ that we have only 12 years to sharply reduce GHG emissions to avoid the worst-case scenarios that include sea level rise, mass food insecurity, and global economic disruption. New York's elected officials have taken initial steps by adopting a goal of reducing emissions by 80 percent by 2050, and this year passed landmark legislation to improve building efficiency and institute congestion pricing.

To reach its greenhouse gas reduction goals, New York City must address the substantial emissions from the solid waste sector. The introduction of a Commercial Waste Zone system presents an unprecedented opportunity to make steep reductions in this sector, equal to removing one in five cars from NYC streets.²

37 DIESEL TRUCK TRIPS TO THE MOON AND BACK A YEAR

The transition from New York City's current "Wild West" commercial waste system, notorious for its inefficiency and lack of transparency, to an efficient Commercial Waste Zone system has rightly been heralded as critical for public and worker safety. The new system, which will assign a designated hauler to each zone of the city via competitive bidding, will save more than 18 million diesel truck miles annually on local streets and highways - equivalent to 37 trips to the moon and back each year.³ The CWZ system will reduce local air pollutants and enable major improvements in safety, labor standards, and customer service.



The Earth rises over the moon,
shot by crew of Apollo 11 in 1968



Landfill in Danbury, Connecticut, 2009

REDUCING GREENHOUSE GAS EMISSIONS FROM LANDFILL

The CWZ plan has the potential for major impact on greenhouse gas (GHG) emissions within and far beyond the borders of New York City, by incentivizing businesses and private waste haulers to sharply decrease the amount of commercial waste they send to landfills. Organic substances like food waste, cardboard, and paper - which comprise about two-thirds of the commercial waste stream -- are particularly potent sources of methane emissions when landfilled.⁴ Because methane is a greenhouse gas with 28 to 32 times the impact of carbon dioxide, reducing or diverting commercial waste will have a significant, long-term impact on the City's carbon footprint. Because methane is a greenhouse gas with 28 to 32 times the impact of carbon dioxide⁵, reducing or diverting commercial waste will have a significant impact on the City's carbon footprint.

Discarded foods like these are a particularly potent source of methane gas when landfilled



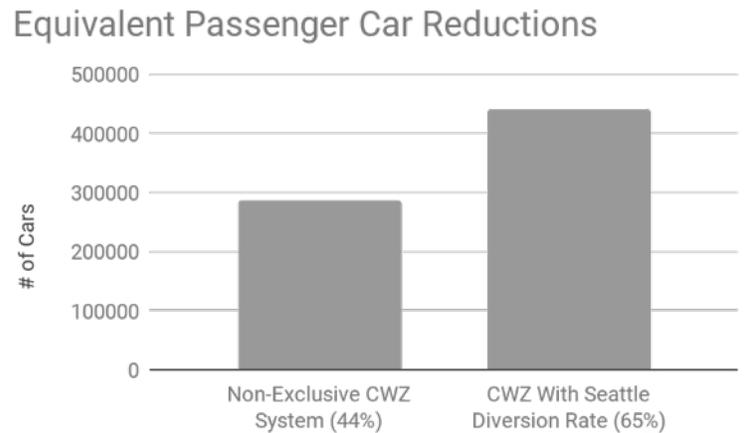
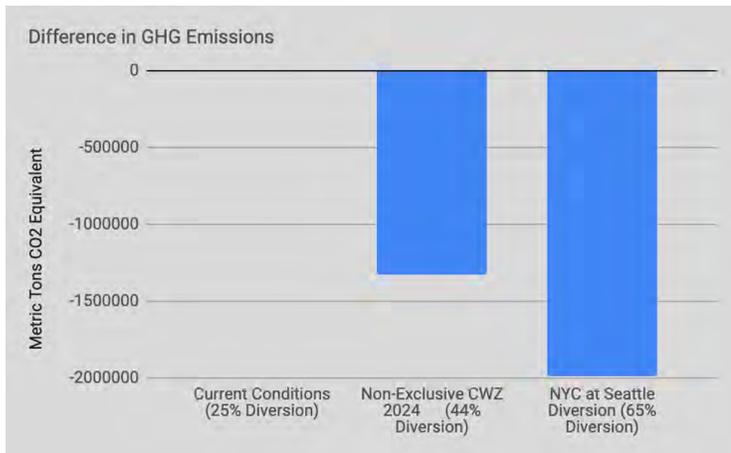
Currently the City recycles no more than 24% of its commercial waste stream, and very little (about 1%) is composted or anaerobically digested⁶, based on self-reported numbers from sanitation companies^{7,8}. The New York City Department of Sanitation (DSNY) estimates that implementing a non-exclusive waste zone system, with multiple carters per zone, would increase diversion from 25% to 44%⁹. Using the Environmental Protection Agency's Waste Reduction Model (WARM), we estimate that this modest increase in diversion would cut about 1.3 million tons of carbon dioxide emissions annually, compared to the status quo.

However, leading green cities like Seattle, San Francisco, and San Jose have rapidly achieved far higher commercial diversion rates of 60% or greater by using exclusive CWZ systems. For example, Seattle recently reported a 65% overall commercial diversion rate and a 20% commercial compost rate.¹⁰ Despite having just one-tenth of NYC's population, Seattle currently composts more commercial waste per year than the entire NYC commercial sector would achieve under a system allowing multiple carters per zone.

A CWZ system can rapidly achieve far greater emissions reductions by setting ambitious waste reduction and recycling standards in contracts with designated haulers, and by adopting an exclusive zone model that allows waste companies to recycle and compost as cost-effectively as possible. A zone system will also give the City far greater leverage to negotiate with haulers to ensure that customers receive meaningful price discounts for reducing, composting, and recycling their waste.

If NYC were to achieve Seattle’s current commercial recycling rate, we would avoid a total of 2 million tons of CO2 emissions annually -- a major reduction equivalent to removing one in five passenger cars registered in New York City. That is roughly equivalent to eliminating the emissions from all of cars that use all of the East River bridges daily, or from all of the cars that use the Holland Tunnel, Lincoln Tunnel, and George Washington Bridge, combined.¹¹

A robust, high-diversion CWZ system could have a GHG impact comparable to or even greater than other local environmental reforms, such as the direct emissions reductions from traffic congestion pricing in the Manhattan central business district¹², and the mandatory energy reductions from retrofits to large buildings¹³.



SIX-POINT PLAN TO FIGHT NYC GREENHOUSE GAS EMISSIONS

- 1. Pass the Commercial Waste Zone bill in New York City.*
- 2. Require designated commercial haulers to offer organics recycling to all businesses.*
- 3. Mandate or encourage waste reduction through prevention, reuse, and recovery.*
- 4. The CWZ should ensure that businesses have financial incentives to compost and recycle more.*
- 5. Require haulers to begin submitting accurate, verifiable data on quantities of waste collected, diverted, and disposed of, as soon as possible.*
- 6. A high-diversion CWZ system should prioritize high-quality job creation in disadvantaged local communities.*



NYC Councilmember Antonio Reynoso Introduces the bill with TDT allies in May 2019

1. Pass the Commercial Waste Zone bill in New York City (Intro 1574 of 2019) to enable haulers and customers to reduce and recycle far more waste cost-effectively.

The Draft Generic Environmental Impact Statement (DGEIS) for the City’s CWZ plan recently found that vehicle miles traveled (VMT) and operating costs would be significantly reduced by a system with a single hauler designated for each zone, rather than a system with multiple haulers allowed in each zone. Specifically, an exclusive zone system could reduce VMT by more than 60% citywide, and by 78% in Midtown Manhattan. **The DGEIS estimates that this efficiency would save \$23 million in operational costs each year, compared to an open-market “No Action” scenario -- enabling haulers to provide better waste diversion services while avoiding major increases in customer costs.¹⁴**

Adopting the most efficient possible system is critical to maximizing waste diversion, in part because a single hauler can provide extensive recycling and compost services to each customer in a zone (including small businesses) with maximum route efficiency. A well-structured competitive bidding process can ensure that these operational efficiencies also translate into the lowest possible prices for these services.

Equally important, an exclusive zone system gives each designated hauler a stable customer base and a predictable waste stream over a ten-year contract, enabling haulers to make long-term investments in recycling infrastructure, customer education initiatives, and clean truck technologies, and to accurately measure and target portions of the waste stream for reduction and diversion.



A typical NYC grocery store produces a large quantity of waste every day (on the left), and very little of it is separated for composting or recycling. Alternatively, community-based organic waste “micro-haulers” (on the right) can process commercial organic waste locally, turning inedible food scraps into fertilizer and avoiding both truck and landfill emissions



2. Require designated commercial haulers to offer organics recycling to all businesses.

Although organic waste is approximately one-third of the commercial waste stream and an outside contributor to landfill methane emissions, only one percent is composted or anaerobically digested. NYC’s mandatory organics recycling law currently applies to less than two percent of commercial businesses¹⁵. Medium-sized and small businesses such as restaurants and food retailers -- which make up 25% of commercial businesses in NYC¹⁶ -- often find that commercial organics recycling is unavailable or unaffordable to them under the current system.

DSNY’s Commercial Waste Zone plan rightly calls for designated haulers to offer both recycling and organics collection -- in addition to refuse collection -- as standard services.¹⁷ As part of the CWZ system’s competitive RFP process, haulers should be required to submit detailed, enforceable plans to DSNY on how they will expand organics recycling to all customers, and to provide extensive customer education and waste auditing services to maximize customer participation and diversion. The RFP should also include language that incentivizes commercial haulers to partner with small scale “microhaulers” who use zero- or low-emissions vehicles to efficiently and safely consolidate organic waste from office buildings and restaurants, and use local community composting sites wherever possible. These services make organic waste composting accessible to small businesses and office tenants, create local jobs, and reduce emissions from transporting and landfilling organic waste.



The CWZ system should incorporate and support organizations like Rescuing Left-over Cuisine, which donate edible uneaten food to hungry New Yorkers while reducing emissions from restaurant and grocery store waste

3. Mandate or encourage waste reduction through prevention, reuse, and recovery.

Our estimates of the GHG impacts of commercial recycling assume that businesses would continue to generate the same amount of waste under a high-diversion CWZ scenario. But if the CWZ system incorporates policies that encourage businesses and waste haulers to reduce waste, even greater GHG savings are achievable. For example, the EPA's WARM waste reduction model¹⁸ estimates that preventing a ton of food waste (for example, by rescuing and donating edible food) results in twenty times greater GHG savings than composting the same material because prevention avoids upstream emissions from agriculture and transportation. **Citywide, if commercial businesses could reduce food waste by just 10%, New York City could cut the equivalent of 260,000 additional tons of CO₂ from our commercial waste stream. This would have the same impact as taking an additional 55,000 cars off the road.** If businesses reduced the amount of cardboard they use by just 10% -- for example, by adopting reusable packing containers -- the equivalent of 300,000 tons of CO₂ would be avoided. **This would have the same impact as taking 63,000 additional cars off the road. Waste haulers, currently paid based on the amount of waste they collect, should be re-incentivized to reduce the tons they dispose of from each zone.** A CWZ system can either charge liquidated damages to haulers who fail to meet contractual waste-reduction targets in their designated zone, as Los Angeles does; can pay bonuses to haulers who exceed diversion targets, as Seattle does; or can combine both approaches.¹⁹ The CWZ policy should incorporate zero-waste initiatives such as customer education, price incentives, and partnerships with food rescue and local reuse organizations.

4. The CWZ should ensure that businesses have financial incentives to compost and recycle more.

A 2016 analysis of commercial waste prices by Transform Don't Trash NYC²⁰ found that cities with exclusive zone systems, including San Francisco, Oakland, and Seattle, have been able to increase diversion by ensuring that compost and recycling prices are substantially lower than garbage (landfill) prices, with discounts of 20 to 46 percent for compost collection and free or heavily discounted collection of recyclables.²¹

To influence customer recycling behavior, New York City's CWZ system should reform the current pricing scheme under which haulers often charge flat, non-transparent monthly fees to customers and fail to reward good diversion practices.

5. Require haulers to begin submitting accurate, verifiable data on quantities of waste collected, diverted, and disposed of, as soon as possible.

Having accurate, verifiable data on commercial waste streams and materials generated, reduced, re-used, and recycled is fundamental to aggressively reducing disposal and measuring progress in each zone and each business sector.

While the transition to a CWZ system will occur over 24 months, the private waste industry can begin to report accurate, baseline waste data now. The Business Integrity Commission and Department of Sanitation should take steps to ensure that all licensed haulers report information such as dump tickets, enabling the City to quantify the amounts being disposed, recycled, and reduced by each hauler on each route.



Commercial Waste Zone systems can create high-quality jobs in areas like electronics reuse, materials recovery facilities (MRFs), and commercial organics processing

6. A high-diversion CWZ system should prioritize high-quality job creation in disadvantaged local communities.

Recycling and composting have been shown to create five to twenty times more jobs per ton of waste than trucking to landfills. A previous report by the Transform Don't Trash NYC coalition²² found that high-diversion cities - many of which have adopted exclusive waste zones - have created far more local collection and processing jobs for recyclable waste and organics.

A strong CWZ policy can simultaneously address GHG emissions, reduce local air pollution, protect vulnerable workers, and make our streets safer. Voting a high-diversion CWZ bill into law is the next logical step in NYC's sweeping policy reforms to achieve environmental and climate justice, following the passage of a landmark buildings emissions law in May 2019.



ENDNOTES

- 1 https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf
- 2 N.Y. Dep't of Motor Vehicles, NYS Vehicle Registrations on File (2017), available at <https://dmv.ny.gov/statistic/2017registration-web.pdf> (New York Department of Motor Vehicles reports there are 1,923,000 cars registered in New York City. Our estimates are that the GHG reductions from a 65% commercial diversion rate are equivalent to the emissions from 440,693 passenger cars.).
- 3 N.Y.C. Dep't of Sanitation, Commercial Waste Zones Appendix 31 available at https://dsny.cityofnewyork.us/wp-content/uploads/2018/11/CWZ_Appendix.pdf.
- 4 See Appendix for sample emissions factors for organic materials. For commercial waste stream composition estimate, see Dep't. of Sanitation, Commercial Solid Waste Study and Analysis, 39 (2012) available at https://www1.nyc.gov/assets/dsny/docs/about_2012-commercial-waste-study_0815.pdf.
- 5 <https://www.epa.gov/lmop/basic-information-about-landfill-gas>
- 6 Anaerobic digestion is a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen. One of the end products is biogas, which is combusted to generate electricity and heat, or can be processed into renewable natural gas and transportation fuels.
- 7 Justin Wood, A Wasted Opportunity 5, (2018), <http://transformdonttrashnyc.org/wp-content/uploads/2018/06/A-Wasted-Opportunity.pdf> (Our analysis of 2017 NYS Department of Environmental Conservation data found that only 21% of the commercial waste processed in facilities in New York City is recycled. The 2019 Draft Generic Environmental Impact Study for the Commercial Waste Zone Program (DGEIS) used an estimated 25% current diversion rate for commercial waste.)
- 8 Anaerobic digestion (AD) is a process in which microorganisms are used to break organic waste into biogas, water, and a solid digestate which can be used as fertilizer. Biogas from this process can be used as a natural gas fuel for engines or homes. Cities like San Jose have constructed special AD facilities specifically for commercial food waste.
- 9 N.Y.C. Dep't of Sanitation, Draft Generic Environmental Impact Statement [hereinafter DGEIS for the commercial Waste Zone Program] S-8 (2019), available at https://dsny.cityofnewyork.us/wp-content/uploads/2019/02/19DOS003Y_DGEIS_reduced.pdf.
- 10 Seattle Public Utilities, 2017 Recycling Rate Report 14 (2017) available at <http://www.seattle.gov/Documents/Departments/SPU/Documents/2017AnnualRecyclingReport06292018Final.pdf>.
- 11 <http://www.nyc.gov/html/dot/downloads/pdf/nyc-bridge-traffic-report-2016.pdf>
- 12 <https://nyc.streetsblog.org/2018/01/12/congestion-pricing-will-help-stop-climate-change-but-differently-than-you-think/>
- 13 https://www.urbangreencouncil.org/sites/default/files/urban_green_council_building_emissions_law_summary_v2.pdf
- 14 DGEIS for Commercial Waste Zone Program, supra note 6, at 9-13.
- 15 <https://www.wastedive.com/news/dsny-finalizes-next-wave-of-commercial-organics-mandate/517350/>
- 16 Burohappold Engineering, DSNY Private Carting Study: Market and Cost Analysis 41 (2016) available at https://dsny.cityofnewyork.us/wp-content/uploads/2017/12/Private_Carting_Study-Market_and_Cost_Analysis.pdf
- 17 N.Y.C. Dep't. of Sanitation, Commercial Waste Zones 33 (2018), available at https://dsny.cityofnewyork.us/wp-content/uploads/2018/11/CWZ_Plan-1.pdf.
- 18 <https://www.epa.gov/warm/basic-information-about-waste-reduction-model-warm>
- 19 See, Los Angeles contract with Athens Services, § 5.10.5 Disposal Target Liquidated Damages (last visited June 6, 2019), <https://www.lacitysan.org/cs/groups/public/documents/document/y250/mde0/~edisp/cnt014118.pdf>
- 20 http://transformdonttrashnyc.org/wp-content/uploads/2016/07/Reforming-for-a-Better-Deal_TDT-business-case-July-2016-final2.pdf
- 21 Seattle contract with Recology, § 140 Quarterly Partnership Payments (Mar. 31, 2019), <https://www.seattle.gov/Documents/Departments/SPU/Documents/SPURCSolidWaste17076BFinal.pdf>
- 22 <http://transformdonttrashnyc.org/resources/clean-city-green-jobs-how-smart-recycling-policies-can-build-our-city-economy/>

METHODOLOGY

The GHG impacts of three commercial recycling scenarios were estimated using the EPA’s WARM. This model allows users to compare emissions from detailed waste management scenarios by inputting quantities of various materials landfilled, combusted, recycled, composted, anaerobically digested, and source-reduced. WARM accounts for energy inputs, emissions, and carbon storage throughout the lifecycle of a material -- including avoided emissions associated with the production of goods, as well as avoided emissions from disposal of waste. Note that this lifecycle accounting is broader than a GHG inventory model, which estimates the direct emissions from various parts of the economy, such as buildings, transportation, and waste disposal.¹ Because New York City has not published an in-depth commercial waste characterization study, we derived WARM materials inputs from the following recent DSNY estimates of commercial waste generation:

	Current Conditions	DSNY Model of CWZ System (44% Diversion)	High-Diversion CWZ System (65% Diversion)
Total Waste Generated	3,300,000 Tons ²	3,300,000 Tons	3,300,000 Tons
Mixed Recyclables Generated	1,782,000 Tons ³	1,782,000 Tons	1,782,000 Tons
Tons Recycled	792,000 Tons (24%)	1,254,000 Tons (38%)	1,485,000 Tons (45%)
Food Waste Generated	650,000 Tons ⁴	650,000 Tons	650,000 Tons
Amount Composted (Remainder Landfilled)	6,500 Tons (1%)	39,000 Tons (6%)	130,000 (20%)

1 U.S. Environmental Protection Agency, “Lifecycle GHG Accounting Versus GHG Emission Inventories (2016)9.” Available At: <https://www.epa.gov/sites/production/files/2016-03/documents/life-cycle-ghg-accounting-versus-ghg-emission-inventories10-28-10.pdf> (Because energy inputs and emissions from production of wasted and disposed goods are factored in, lifecycle accounting attributes a much greater share of total GHG emissions to consumption and solid waste than narrower GHG inventory models.);

N.Y.C. Mayor’s Office of Sustainability, Inventory of New York City Greenhouse Gas Emissions (2019), <https://nyc-ghg-inventory.cusp.nyu.edu/>. We also acknowledge Dr. Maggie Clark’s testimony on lifecycle GHG analysis and the importance of zero waste policies to climate policy: “Consumption, Climate, Zero Waste, and the Green New Deal,” Sierra Club NYC Chapter, May 8, 2019 and Testimony to Assembly Environmental Conservation Committee regarding Climate Change, May 17, 2019.

2 DEGIS for Commercial Waste Zone Program, *Supra* note 6, at 3-30.

3 N.Y.C. Dep’t. of Sanitation, *Supra* note 3, at 39.

4 *Id.*

We also used the following assumptions when selecting inputs for WARM:

- Based on transfer station reports compiled by Transform Don't Trash NYC for a 2015 analysis, we assume that 90% of disposed commercial recyclables and food waste are landfilled, and 10% of disposed commercial waste is incinerated.
- Our analysis assumes that all diverted food waste is composted; currently some portion of diverted food waste is processed at a wastewater treatment plant via anaerobic digestion.
- We did not model specific distances to commercial transfer stations, landfills, recycling facilities, and compost facilities.
- For recyclables, we used WARM's "Mixed Recyclables" input in lieu of a detailed waste stream composition estimate.
- For food waste, we used WARM's "Food Waste" input.
- We compared diversion scenarios for common recyclables and food waste, which are major components of the commercial putrescible waste stream that will be collected under the new CWZ system. We did not model other specialty waste streams such as occasional construction and demolition waste and medical waste, which will not be included in the City's CWZ system.

GHG Emissions Factors from Sample Materials, in tons of CO2 per ton¹:

Material	Emissions Per Ton Landfilled	Emissions Per Ton When Recycled)	Emissions Per Ton When Composted	Emissions from Source-Reduction (i.e., Food Rescue)
Food Waste	.15	n/a	-.18	-3.66
Corrugated cardboard containers	.23	-3.12	n/a	-5.60
Mixed paper from offices	.05	-.96	n/a	-2.02
Mixed recyclables (cardboard, paper, metal, glass, plastic)	.01	-.77	n/a	n/a

¹ See Environmental Protection Agency, Current WARM Tool Version 14, Versions of the Waste Reduction Model (last visited June 12, 2019), <https://www.epa.gov/warm/versions-waste-reduction-model-warm#WARM%20Tool%20V14>.

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