



ZERO WASTE DC PLAN

February 2024



LETTER FROM MAYOR MURIEL BOWSER



Eleven years ago, in 2013, the District Government released the Sustainable DC plan as we embarked down the path to make the District of Columbia the most sustainable city in the country. Through the collective effort of government, businesses, and residents, the District is now, undoubtedly, one of the healthiest, greenest, and most livable cities in the world.

Under the Sustainable DC plan, we established an ambitious zero waste goal to divert 80% of the entire citywide waste stream away from landfill and incineration and towards the highest and best use. To achieve this goal, we must greatly reduce the waste we generate as a city, reuse materials to greater effect, and recycle and compost on a larger scale.

While the District has made considerable progress since 2013, we need a unified strategy to accelerate our transition towards a zero waste future and disrupt entrenched solid waste disposal practices that harm our communities and environment. Residents have asked for a zero waste plan that identifies innovative solutions which put the onus of reducing waste on producers and empowers community adoption of zero waste practices through financial assistance, incentives, and supporting resources. In addition, we need solutions that greatly reduce our city's greenhouse gas emissions, contribute to the health of our rivers, and mitigate the risks of climate change by building a more resilient community. If we succeed in achieving this vision, we will also spur local entrepreneurship and create hundreds of high-quality green jobs to further stimulate our growing local economy.

This is why I called for our city to take meaningful action to prioritize the development of a set of actions to solve for zero waste. The resulting Zero Waste DC Plan sets out the unified strategy our city needs to achieve our zero waste goal.

The Zero Waste DC Plan has been the result of more than eight years of technical research and analysis, culminating with an inclusive and transparent community engagement process and robust inter-agency planning cycle. The planning process provided six months of opportunities for thousands of District residents to participate in 20 community events, two public comment periods, and a citywide survey which enabled the community to voice their concerns and suggestions.

This plan was designed from the start to be built by and for residents, and I am immensely proud of what we have achieved together. Now, let us work together to build a Zero Waste DC for the benefit of our great city and for our planet.

A handwritten signature in black ink that reads "Muriel Bowser". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Muriel Bowser
Mayor, District of Columbia

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ACKNOWLEDGMENTS

The Zero Waste DC Plan was produced with technical assistance from Abbe & Associates and the valuable input provided by thousands of individuals from the District of Columbia and twenty-six (26) District Government agencies and partners.

Produced in Collaboration with:



OUR COMMITMENT TO EQUITY

In order to achieve zero waste and build a stronger, more equitable community, we must address the historical injustices in communities that disproportionately experience environmental harms.

Across this nation and locally, traditional solid waste management practices have created and perpetuated systemic inequities which have unfairly harmed and overburdened certain communities. In Washington, D.C., the communities which have been most impacted by these injustices are disproportionately Black, people of color, and low-income.

Within the topics of waste, solid waste, or zero waste, this has meant: (1) insufficient access to city services and programs; (2) a feeling of isolation or lack of meaningful involvement when discussing how and where solid waste will be managed; and (3) bearing the unfair burden to human health that comes from exposure to pollution related to mismanaged solid waste.

Placing the importance of the topic of equity at the heart of the Zero Waste DC Plan's development, we asked the following question of the community, to which 2,281 individuals responded:

“With respect to zero waste, what does equity mean to you and your community?”



**This word cloud presents the most commonly shared responses to the survey question “With respect to zero waste, what does equity mean to you and your community.”*

Using the insight from the community, equity in the context of the Zero Waste DC Plan is defined as “fair and equitable distribution of both responsibility and benefits.” The following equity statement was carefully developed in partnership with the Mayor’s Office of Racial Equity using the learnings from a robust public engagement cycle and with additional technical assistance from a third-party consultant:

“In pursuit of building a more equitable solid waste management system that enhances the natural beauty and standard of living across our great city, the Government of the District of Columbia commits to ensuring a just transition to zero waste, where solutions are convenient, accessible, and affordable for all, with support focused on low-income households and small businesses.”

EXECUTIVE SUMMARY



Achieving zero waste is defined as diverting 80% of the city's solid waste away from landfill and incineration and towards the highest and best use. In 2018, the established solid waste baseline data year, the size of the citywide solid waste stream was estimated to be 1,139,000 tons per year. The Sustainable Solid Waste Management Amendment Act of 2014¹ established an Interagency Waste Reduction Working Group² and charged it with producing and implementing a zero waste plan. This Zero Waste DC Plan ("Plan") has been developed in accordance with this requirement.

Attainment of the District's zero waste goals will require significant investment and cohesive effort on the part of the District Government and its regional partners (top down), as well as a concerted effort by both residents and businesses to adopt more sustainable practices (bottom up). This Plan was designed to provide a unified and comprehensive strategy for sustainable solid waste management over the planning and implementation period of 2023 to 2040 and is intended to inform future policy development and decision-making at a leadership level.

The Plan consists of forty-three (43) actions organized under seven (7) overarching goals, which have all been designed to be most successful when implemented together. The shared responsibility of implementing this Plan falls upon thirty-two (32) District Government agencies and regional partners, who are identified in this Plan as either a lead or partner agency.

A comprehensive Benefit-Cost Analysis (BCA) was performed, which quantifies the individual contribution of each of this Plan's 43 actions towards the District's zero waste goal (measured in tons of waste reduced or diverted) and towards the District's carbon neutrality goal by 2045 (measured in metric tons of carbon dioxide equivalent reduced). Financial costs for implementation were also preliminarily quantified.

Based on the results of the Plan's technical analysis that modeled rates of adoption, participation, and materials capture, the zero waste target year, which was originally established in the Sustainable DC Plan in 2013, will be extended from the year 2032 to the new target year of 2040.

The Zero Waste DC Plan, if implemented in full, will achieve the following by 2040:

- Reduction of the citywide solid waste stream by 18%.
- A citywide solid waste diversion rate of 80% in achievement of the District Government zero waste goal.
- Annual greenhouse gas (GHG) emissions reductions of 1.38 million metric tons of carbon dioxide equivalent (MTCO_{2e}).
- Creation of nearly 300 green jobs within the District Government and injection of \$67 million in financial assistance and incentives into the community.

Lastly, the total net cost to implement all 43 actions under the Plan is estimated to have a net cost of \$484 million over the entire planning and implementation period of 2023 to 2040.

VISION OF A ZERO WASTE DC

The District's annual citywide solid waste stream is currently baselined (as of 2018) at 1.13 million tons – that equates to 8.89 pounds of solid waste generated per resident per day.³

As Washington, D.C.'s population continues to grow, the demand for goods is also growing, with the citywide solid waste stream expected to reach nearly 1.4 million tons by 2038.⁴ The lifecycle of most of those goods follows a path that could be best described as “take, make, waste” – a linear economy where natural resources are taken to make goods and disposed of after usage. The negative impacts of our wasteful linear economy are evident – the District's rivers are clogged with trash, neighborhoods suffer from litter and illegal dumping, landfills and incineration facilities pollute nearby communities, and waste generation and disposal practices emit large amounts of greenhouse gases.



The Zero Waste DC Plan gives the District the roadmap to disrupt the status quo with actions that support a circular economy – one that shifts our perspective to see unwanted goods not as waste, but simply wasted resources, and focuses on reducing waste generation and reusing materials to keep value in the local economy.

The District's zero waste future is one that:

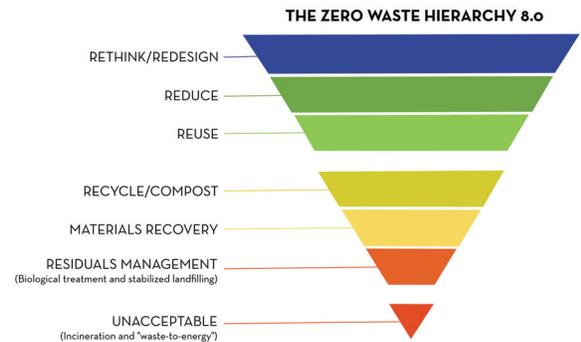
- Prioritizes reducing the amount of waste generated within the District of Columbia through upstream solutions that put the onus on producers to make less wasteful single-use products and, instead, promote donation, reuse, refill, and repair activities.
- Makes the recovery of recyclable and compostable materials easier and more accessible than the disposal of trash so that everyone can recycle and compost wherever they live, work or play. This means rightsizing trash, recycling, and compost containers at the curb and in the public space and ensuring that recycling and composting services are available citywide.
- Bolsters waste collection infrastructure across the District to recover recyclable, compostable, hard-to-recycle, and reusable goods. This includes large zero waste hubs within the public space and mobile resource recovery fleets that provide residents with direct and convenient access to drop-off materials that are difficult to recycle, such as batteries, textiles, and paint.
- Promotes economic development and innovation by supporting existing and burgeoning businesses in the transition toward zero waste business models with financial and technical assistance.
- Protects and restores the natural environment by eliminating litter and waste pollution in District neighborhoods and waterways.

While the words “equity” or “equitable” may not appear in the descriptions of each of the actions outlined in the Zero Waste DC Plan, implementation of the Plan will address the inequities that have been historically intertwined with solid waste management. Collectively, the actions in the Plan will provide greater access to city services and financial and technical support to populations that need it most, with the goal of empowering everyone across all eight wards with the resources they need to adopt zero waste strategies and lead healthier lives.



ZERO WASTE DC PLAN OVERVIEW

The Zero Waste DC Plan provides a roadmap of steps the District must take to achieve zero waste. The Plan follows the principles of a Zero Waste Hierarchy,⁵ which describes the progression of most-preferred to least-preferred strategies to reduce waste by prioritizing systemic redesign, reduction, and reuse activities, followed by recycling and composting. Previously established zero waste goals and actions derived from existing District Government plans and laws are the foundation of the Plan and were incorporated to the extent practicable, including the Sustainable DC 2.0 Plan⁶ and the Zero Waste Omnibus Amendment Act of 2020.⁷ This Plan is designed to be updated every seven years to reflect updated solid waste characterization and generation data and corresponding sustainable solid waste management planning efforts. Some actions may require legislation or further studies to be implemented.



As stated previously, this Plan consists of 43 actions organized under 7 overarching goals, which are described below:

1 Reduce Per Capita Waste Generation

In accordance with the most preferred strategies in the Zero Waste Hierarchy,⁸ the first goal of the Zero Waste DC Plan is focused on rethinking and redesigning processes to reduce the amount of waste generated at the source. The District can achieve its goal to reduce per capita waste generation by 15%⁹ by including zero waste goals in solid waste planning and design, incentivizing the purchase of sustainable products and services, and promoting the reuse of materials. Reduction of waste ensures maximum resource conservation and minimum costs, which benefits both our planet and our wallets.

2 Transition from Single-Use Towards Re-Use

Single-use products, many of which are plastic, are designed to be used once and then discarded, greatly exacerbating waste generation, litter, waterways pollution, and greenhouse gas emissions. Through bold action, the District can promote the reuse of materials through accessible infrastructure, reusable and refillable programs, and by phasing out certain single-use products.

3 Increase Recycling and Composting Participation and Accessibility

Universal access to recycling and composting is key to achieving an equitable zero waste future. In order to increase citywide participation across the District, access must be convenient and affordable for all. Success can be achieved by standardizing and right-sizing waste collection containers, holding manufacturers responsible for recycling hard-to-recycle products, and redistributing waste collection programs citywide.

4 Establish Resilient Zero Waste Operations and Infrastructure

Developing solid waste infrastructure at scale is key to building a more climate-resilient city. Assets should be designed with the future in mind, distributed equitably, and powered by renewable energy. The District Government shall construct a state-of-the-art Zero Waste Campus, site waste collection hubs for greater source separation of materials, and establish the systems required to support a zero-emission, solid waste collection fleet.

5 Build an Inclusive and Local Circular Economy

The Zero Waste DC Plan will invest in the transition from the status quo "take-make-waste" economy to a circular economic system where materials are not treated as waste, but rather as resources that can be used, reused, and redesigned to make new materials, products, and services, keeping value in our communities and promoting economic development. By investing in the District's small and local business community, incentivizing innovation, and promoting donation, reuse, and repair, we can achieve both our city's zero waste and economic development goals.

6 Increase Education and Enforcement Community-wide

Providing equal access to free education, tools, training, and certification programs is vital to helping all members of our communities understand how they can do their part to achieve zero waste, including how to reuse materials, recycle, or compost. The District Government can educate, modernize regulations, and bolster enforcement efforts.

7 Protect the Environment for a Cleaner DC

We can protect and enhance our neighborhoods by mitigating the growing risks of climate change by reducing the full life-cycle carbon emissions derived from solid waste, encouraging neighborhood action with ongoing litter prevention campaigns and organized clean-up events, and increasing resources dedicated to rodent abatement efforts by promoting food waste reduction and diversion.

METHODOLOGY

The methodology for developing the Zero Waste DC Plan followed five primary steps:

1. Assembly of background data and information, including solid waste and financial cost data.
2. Research existing Zero Waste policies, programs, and best practices from around the world.
3. Engagement with District residents, businesses, and government partners.
4. Execution of a comprehensive Benefit Cost Analysis (BCA).
5. Modeling of the projected waste diversion performance over the planning and implementation period of 2023 to 2040.

Abbe & Associates, an industry-leading zero waste consulting firm with experience developing zero waste strategic plans across the United States, was hired to support the development of the Zero Waste DC Plan.

Data Sources

The Zero Waste DC Plan's methodology used calendar year 2018 as the baseline data year for solid waste generation, composition, and disposal. Solid waste generation and composition data were derived from the 2021 Desktop Waste Characterization Study,¹⁰ and disposal data was derived from the 2018 Solid Waste Diversion Progress Report.¹¹ Program and policy costs were scoped and benchmarked using real-world cost information gathered by staff from eleven (11) District Government agencies through numerous conference calls, emails, and meetings. Where program costs were unavailable from District Government sources, benchmarks were identified from other municipalities, and additional market research was conducted for remaining equipment and materials costs. Since cost estimates may vary as the District progresses along the planning and implementation period, the Office of the Chief Financial Officer will make official cost estimates during program design or when legislation is enacted.

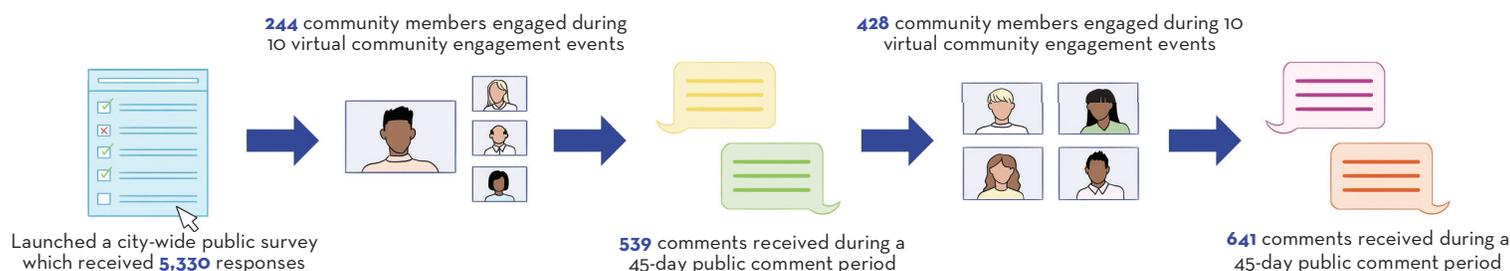
Research & Development

Since 2015, the Department of Public Works' Office of Waste Diversion ("OWD") has conducted ongoing technical research that culminated in 2021 with a comprehensive literature review comparing existing zero waste plans produced by municipal governments from around the world. A comparative analysis of over 150 distinct zero waste policies, programs, and best practices resulted from this work. OWD also interviewed government representatives and zero waste experts who participated in program and policy design and implementation, and regularly convened with a local stakeholder group of environmental policy experts who further advised on the direction of proposed interventions.

Public Engagement Process

In July 2022, the District Government launched a six month-long public engagement cycle with the goal of centering community perspectives and desires into each action of the Zero Waste DC Plan. This entire iterative design process included:

- A citywide public survey that was shared with residents and the business community across the District to understand the public's concerns, priorities, and willingness to participate in zero waste activities.
- Twenty (20) community engagement events including two (2) for residents in each of the District's eight wards, two (2) events to engage the business community, and two (2) events to form consensus among District Government agencies.
- Two (2) separate 45-day long public comment periods to glean formal comments hosted on www.publicinput.com.¹²



Concurrent with the public engagement process, District Government agencies convened regularly to collaborate on the Plan's development. Almost 300 written comments were submitted by District Government staff to develop the Plan.

At the conclusion of this iterative and collaborative design process, the District Government finalized the set of 43 actions which make up the Zero Waste DC Plan.

Benefit-Cost Analysis (BCA)

After the Zero Waste DC Plan was finalized, a Benefit-Cost Analysis (BCA) was conducted on each action in the Plan in order to systematically estimate and compare the expected costs to the District Government to implement the actions in the Plan, as well as the expected benefits including cost savings, waste diversion, and greenhouse gas emissions reduction.

The analysis included consideration of:

Total costs: The estimated total capital costs; operating costs; personnel costs; education, outreach, and enforcement costs; financial assistance costs; and other program implementation costs for each action. All costs were estimated using existing cost information from District Government programs and operations, cost information from other jurisdictions that had implemented similar actions, and market research.

Start-up costs: The estimated cost to the District Government to launch an action including initial program design and implementation. This separate figure was estimated to help inform prioritization of District Government investment in the short-term.

Cost savings: The estimated savings incurred for each action are based on the projected reduction in single-family household waste generation which decreases the District Government's cost to collect, transport, transfer, and process material. Revenues were also estimated to reflect the financial value of commodities for collected materials that could be received, processed, and sold in the open market. Additional revenue estimates include projected tipping fees for commercial haulers that use District Government-owned transfer facilities and the forthcoming Zero Waste Campus.

Tons of solid waste reduced or diverted: The amount (in tons) of solid waste diverted from landfill and incineration or reduced at the source. This figure was estimated for each action using benchmarks of existing District Government diversion programs and case studies from other municipal governments.

Greenhouse gas (GHG) emissions reductions: The amount of GHG emissions reduction due to source reduction or diversion of materials against the base case scenario of landfill or incineration. GHG emissions reductions were estimated using the US EPA Waste Reduction Model (WARM),¹³ which incorporates the full life-cycle emissions of materials from production to disposal.

The results of the comprehensive BCA are summarized on page 9 and are also included alongside the 43 actions on pages 11-14, to allow for a visual comparison of the relative environmental benefits versus costs.

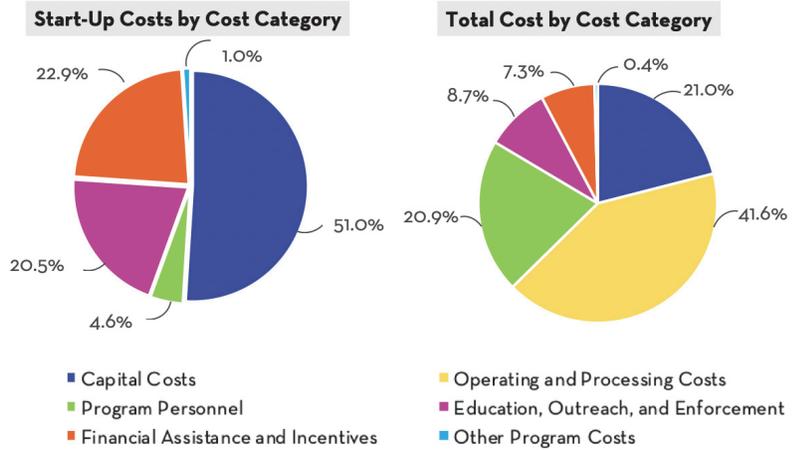
BENEFIT-COST ANALYSIS RESULTS

Costs

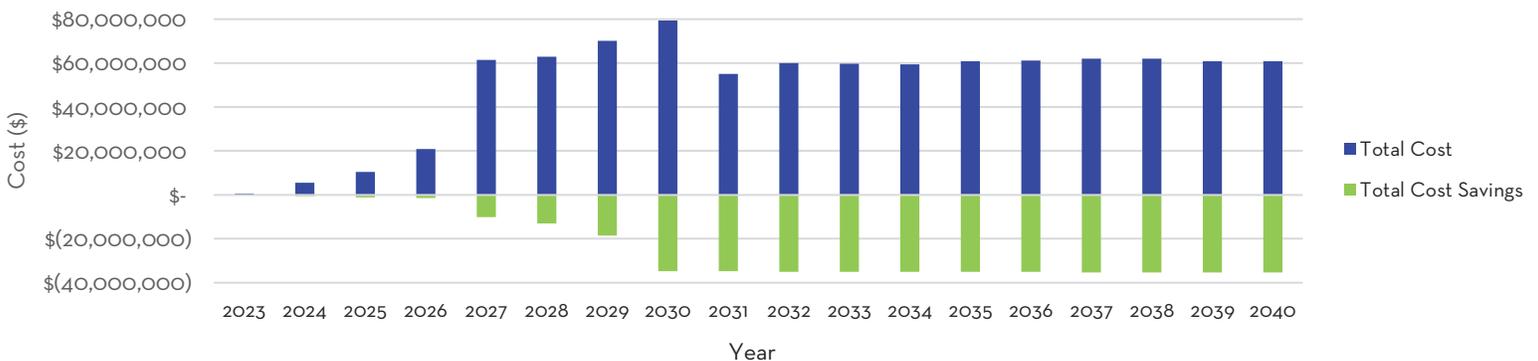
The estimated total cost to implement the Zero Waste DC Plan over the planning and implementation period of 2023 to 2040 is **\$913.5 million**, with a start-up cost of \$353 million to launch all 43 actions. Full implementation will create nearly 300 green jobs within the District Government and inject \$67 million into the community through financial assistance and incentives.

Benefits

The estimated total cost savings incurred by implementing the Zero Waste DC Plan, over the entire planning and implementation period of 2023 to 2040, is \$429.5 million. As a result, the estimated net cost to implement the Zero Waste DC Plan is \$484 million. In other words, for every dollar spent, the District Government will recoup \$0.47 in savings.

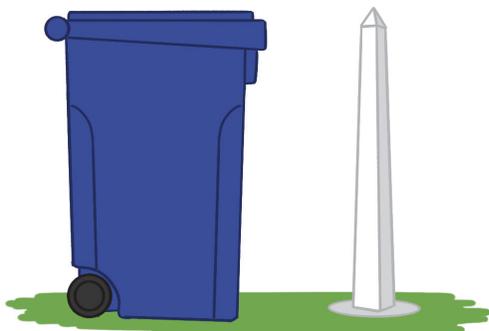


Total Cost and Cost Savings Over the Zero Waste DC Plan Planning and Implementation Period



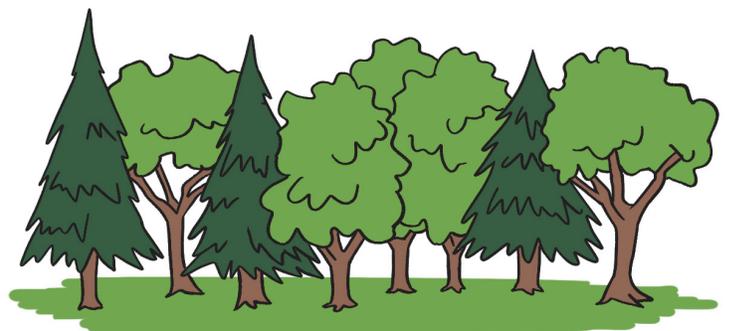
Waste Diversion

The Zero Waste DC Plan, when fully implemented, will collectively divert an estimated **958,442 tons of solid waste annually**. The equivalent amount diverted by volume would fill a recycling container with the same height as the Washington Monument every 6 months.¹⁴



Greenhouse Gas Emissions Reduction

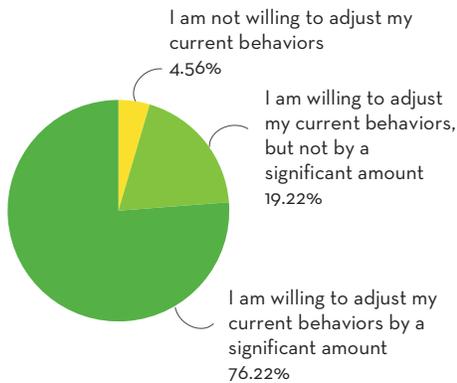
At full implementation, the Zero Waste DC Plan will reduce an estimated **1.38 million MTCO₂e of GHG emissions annually**. This is the equivalent of planting 22.9 million trees and growing them for 10 years.¹⁵



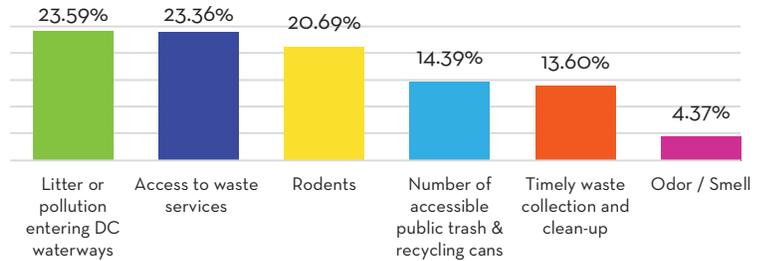
PUBLIC SURVEY RESULTS

Starting in July 2023, the District Government conducted a five month long public survey which provided invaluable insight into the public's concerns and priorities around waste as well as their willingness and support for specific waste diversion policies and programs. A total of 5,330 responses were received.

When asked how likely they are to adjust their personal waste and recycling behaviors, residents shared the following



Concerns Individuals Have Regarding Waste in Their Communities



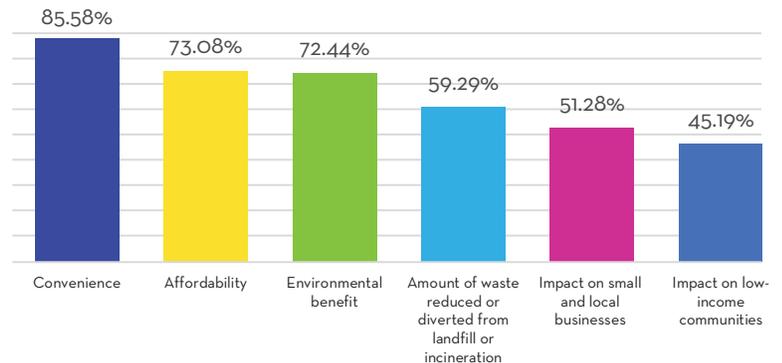
When asked what the most important ways the District can improve waste reduction and reuse, respondents share the following words and phrases

expand opportunities incentives access
 less litter **composting services**
 all wards more recycling make easy education
 ban single-use plastics reusable containers

Top 6 Resident Priorities

- 1 Curbside food waste collection
- 2 Ability to schedule curbside collection services for materials such as household hazardous waste, e-waste, batteries, paint, and other hard-to-recycle-materials
- 3 Designated drop-off locations for battery recycling across the District
- 4 More paired recycling and trash cans in public spaces
- 5 Zero waste education incorporated into public school programs and curriculums
- 6 Financial incentives for waste reduction, reuse, and recycling.

When asked what matters most in relationship to zero waste policies, programs, and services, businesses shared the following



ZERO WASTE DC PLAN ACTIONS

The Zero Waste DC Plan's 43 actions build on each other to achieve the District's target to achieve 80% waste diversion away from landfill and incineration.

The implementation of the actions in the Zero Waste DC Plan is the responsibility of the Interagency Waste Reduction Working Group ("IWRWG"), including all agencies listed as either lead or partner agencies in the actions table below.

HOW TO READ THE ZERO WASTE DC PLAN ACTIONS TABLE:

GOALS are the big picture overarching ambitions.

ACTIONS list the steps the District must take in pursuit of the goals and to achieve the District's target of 80% diversion

LEAD AGENCIES are responsible for leading the implementation and, in some cases, enforcement of the action.

PARTNER AGENCIES have a role in implementing the action but are not responsible for leading the work.

TIMEFRAME indicates if the action will be implemented in the short, medium, or term within the planning and implementation period of 2023 to 2040.

START-UP COST reflects the estimated cost to initiate an action.

DIVERSION INCREASE reflects the annual increase in municipal solid waste (MSW) diversion from an action once it is fully implemented.

GHG EMISSIONS REDUCTION reflects the annual reduction in greenhouse gas emissions from an action once it is fully implemented.

ICONS KEY

TIMEFRAME	START-UP COST	DIVERSION INCREASE	GHG EMISSIONS REDUCTION
Short Term 2023-2028	\$ \$0 - 999,999	NA Action does not have associated diversion potential	NA Action does not have associated GHG emission potential
Medium Term 2029-2034	\$ \$ \$1,000,000 - 4,999,999	↑ 0-9,999 tons	↓ (0) - (9,999) MTCO _{2e}
Long Term 2035-2040	\$ \$ \$ \$5,000,000 - 9,999,999	↑↑ 10,000-29,999 tons	↓↓ (10,000) - (29,999) MTCO _{2e}
	\$ \$ \$ \$ \$10,000,000 - 49,999,999	↑↑↑ 30,000-59,999 tons	↓↓↓ (30,000) - (59,999) MTCO _{2e}
	\$ \$ \$ \$ \$ over 50,000,000	↑↑↑↑ 60,000-99,999 tons	↓↓↓↓ (60,000) - (999,999) MTCO _{2e}
		↑↑↑↑↑ over 100,000 tons	↓↓↓↓↓ over (100,000) MTCO _{2e}

ACTION	TIME FRAME	LEAD AGENCY	PARTNER AGENCY	START-UP COST	DIVERSION INCREASE	GHG EMISSIONS REDUCTION
GOAL 1: Reduce Per Capita Waste Generation						
ACTION 1: PLANNING FOR PROGRESS: Produce a Sustainable Solid Waste Management Plan that describes the District's implementation strategies for achieving the actions, targets, and goals of the Zero Waste DC Plan. Update the Sustainable Solid Waste Management Plan every 10 years. Update the Zero Waste DC Plan every seven years. Conduct a Waste Characterization Study of the citywide waste stream every four years that includes a Food Waste Assessment of the composting stream. Produce an Annual Waste Diversion Progress Report every year to document progress.		DPW	OP	\$ \$	NA	NA
ACTION 2: PRIVATE SECTOR DATA REPORTING: Require all licensed solid waste collectors operating in the District and solid waste facilities located within a 200-mile radius of the District of Columbia that receive District generated waste to report the tonnage, material type, and final destination of all materials originating from within the city.		DPW		\$	NA	NA
ACTION 3: LEAD BY EXAMPLE: By 2032, achieve an Environmentally Preferable Products and Services (EPPS) goal of 80% across District of Columbia Government contracting and procurement. Reduce the amount of solid waste generated by District of Columbia Government operations by 10% each year with the goal of 50% by 2028. Implement annual waste diversion training for all District of Columbia Government staff involved in contracting and procurement, facilities management, or solid waste operations.		DOEE, OCP	DPW, DCHR	\$	↑↑	↓↓
ACTION 4: SAVE-AS-YOU-THROW: Study and pilot a unit-based billing structure, commonly referred to as Pay-As-You-Throw or Save-As-You-Throw, of a right-sized, three bin system (recycling, compost, refuse) with modifications based on income.		DPW		\$	↑	↓
ACTION 5: CIRCULAR DECONSTRUCTION: Update the DC Green Construction Code to require all new construction, demolition, and building retrofit projects to submit a Deconstruction Plan that achieves a waste diversion rate of 80% of recoverable materials in support of a local circular economy. Redirect high-value materials recovered during deconstruction, such as lumber, metal, stone, bricks, and electrical and plumbing fixtures towards the development of affordable housing.		DOEE, DOB	DPW, DMPED, OP	\$	NA ¹	↓↓↓↓↓

¹The District's solid waste goal is to divert 80% of municipal solid waste (MSW) away from landfill and incineration. The District's definition of MSW does not include construction and demolition (C&D) waste. Therefore, while implementing Action #5 Circular Deconstruction has high diversion potential, its impacts are not included in total waste diversion estimates towards the District's goal of 80% diversion. The District generates an estimated total of 380,000 tons of C&D waste per year. Estimated diversion for this action is 152,950 tons per year at full implementation.

ACTION	TIME FRAME	LEAD AGENCY	PARTNER AGENCY	START-UP COST	DIVERSION INCREASE	GHG EMISSIONS REDUCTION
ACTION 6: ZERO WASTE EVENTS: Require all licensed or permitted special events with an anticipated attendance of 100 people or more and all event venues with a capacity of at least 500 in the District of Columbia to submit a Zero Waste Event Plan and achieve a waste diversion rate of 80%. Provide technical support and training for all event venues and routinely update the District's Zero Waste Event Guide.		DLCD Events DC	DPW MONC	\$	↑↑	↓↓
GOAL 2: Transition From Single-Use Towards Re-Use						
ACTION 7: HYDRATION STATIONS: Increase the number of publicly available hydration stations that provide convenient access to clean, filtered drinking water. Prioritize the location of hydration stations within communities that face the highest levels of water insecurity and vulnerability to extreme heat risks. Phase out single-use beverage vending machines, with special exemptions, and replace with refill beverage systems.		DC Water, DGS	DPR, DLCP, OP, DOEE	\$\$\$	↑	↓
ACTION 8: REDUCE, REUSE, & REFILL: Implement refill and reuse policies citywide to allow patrons to bring their own reusable containers for refill and reuse and incentivize businesses to offer reusable containers for food, beverage, personal care and cleaning products, and bulk items. Ensure food-specific refill and reuse policies are consistent with the District's food safety regulations.		DC Health, DOEE	ABRA, DPW	\$\$	↑↑	↓↓
ACTION 9: REDUCE SINGLE-USE: Require all District businesses, including online food and beverage delivery platforms, to refrain from distributing single-use accessories such as carry-out bags, paper receipts, cutlery, napkins, and condiment packets unless requested by the customer.		DOEE		\$\$	↑↑	↓↓↓
ACTION 10: REUSABLE & COMPOSTABLE FOOD SERVICEWARE: Require all food service establishments to provide reusable food serviceware (plates, cups, silverware) options for all dine-in, and either reusable or compostable containers for take-out. Support small businesses in the transition from single-use to reuse through financial and technical assistance programs. Establish a unified reusable container program to collect, sanitize, and redistribute reusable food and beverage containers.		DOEE, DC Health	ABRA, DPW	\$\$	↑↑	↓↓
ACTION 11: SINGLE-USE PLASTICS PHASE-OUT: By 2025, adopt policies to phase out the import, stocking, distribution, and sale of certain single-use plastics commonly found to pollute District waterways and/or contaminate District recycling streams. Provide exceptions for individuals with health and safety considerations and exemptions for select businesses and institutions.		DOEE, DPW		\$\$	↑↑	↓↓↓
ACTION 12: SINGLE-USE PLASTICS BAN: By 2030, adopt a ban on the import, stocking, distribution, and sale of certain single-use plastics products (including recyclable and compostable plastics) with the goal of reducing single-use plastic consumption. Provide exceptions for individuals with health and safety considerations and exemptions for select businesses and institutions.		DOEE, DPW		\$\$	↑↑↑	↓↓↓↓↓
ACTION 13: SINGLE-USE BAN: By 2035, adopt policies to phase-out the import, stocking, distribution, and sale of certain single-use items (across material types) in support of a local reuse economy. Provide exceptions for individuals with health and safety considerations and exemptions for select businesses and institutions.		DOEE, DPW		\$\$	↑↑	↓↓
GOAL 3: Increase Recycling and Composting Participation and Accessibility						
ACTION 14: RECYCLING & COMPOSTING CITYWIDE: By 2025, adopt a universal recycling and composting ordinance requiring the source separation and collection of recyclables and compostables within all commercial, institutional, governmental, and multi-family residential buildings. Provide curbside collection of recycling, composting, and refuse for all single-family residential households within a right-sized, three-bin system.		DPW, DOB	DOEE, DGS, DCHA, OTA, OP	\$\$\$\$	↑↑↑	↓↓↓
ACTION 15: DISPOSAL BANS: By 2032, adopt a ban on the disposal of all recyclable and compostable materials to landfill and incineration.		DPW		\$	↑↑	↓↓↓
ACTION 16: COLLECTION ZONES & MATERIALS FLOW: Establish non-exclusive, commercial collection zones across the city and enable the District of Columbia Government to designate where the city's discarded materials are taken.		DPW		\$	NA	NA
ACTION 17: PUBLIC SPACE CONTAINERS: Conduct a study of the District's public space to identify the number, location, and type of existing refuse, recycling, and pet waste containers. Utilize data and findings to inform the design of a uniform size, make, model, color, and messaging scheme for public space receptacles.		DPW	DDOT, DGS, OP	\$	NA	NA
ACTION 18: STANDARDIZED CONTAINERS: Establish a uniform make, model, color, and messaging scheme for all recycling, compost, refuse, and pet-waste receptacles. Ensure compatibility with all language access requirements. Develop and implement a plan to provide an adequate number of standardized public space containers citywide with the goal to replace all non-compliant public space containers by 2030.		DPW	MOCC, DDOT, DGS, OP	\$\$\$\$	↑↑↑↑	↓↓↓↓↓

ACTION	TIME FRAME	LEAD AGENCY	PARTNER AGENCY	START-UP COST	DIVERSION INCREASE	GHG EMISSIONS REDUCTION
ACTION 19: CURBSIDE COMPOST COLLECTION: Pilot and roll-out a residential curbside food scrap collection program for all Department of Public Works-serviced residences.		DPW		\$\$\$\$	↑↑	↓
ACTION 20: DISTRIBUTED COMPOSTING: Expand the Food Waste Drop-off, Home Composting, East-of-the-River Compost Stewards, and Community Compost Cooperative Network programs to increase access to composting. Remove all existing barriers for residents and businesses to establish approved on-site organics processing equipment.		DPW, DPR	DC Health	\$\$	↑	↓
ACTION 21: FOOD DONATION REQUIREMENTS: Require retail food stores, restaurants, businesses, schools, hotels, and institutions to donate, to the extent practicable, surplus edible food to charitable or nonprofit organizations. Work with donating entities to prioritize the redistribution of edible food to food-insecure populations.		DOEE, DPW	DC Health, OP, DSLBD	\$\$	↑	↓
ACTION 22: GLASS REUSE & RECYCLING: Establish publicly-accessible glass recycling and reuse drop-off locations across the city. Partner with breweries and distilleries to collect glass beverage containers for recycling and reuse. Establish commercial glass bunkers at District-owned solid waste facilities to capture the full market value of the commodity stream.		DPW	ABRA	\$\$	↑↑	↓
ACTION 23: MOBILE RESOURCE RECOVERY: By 2026, establish a hard-to-recycle materials collection fleet, powered by light-duty zero-emission vehicles and electric cargo bikes, to circulate around the city providing residents with direct and convenient access to drop-off household hazardous waste, sharps, pharmaceuticals, electronics, batteries, and paint.		DPW	DOEE, DDOT	\$\$	↑	↓
ACTION 24: MULTI-FAMILY RECYCLING & COMPOSTING ACCESS: Revise the District's Green Construction Code to require all new multi-family residential construction to include sufficient space within the property for the source separation of recyclable and compostable materials. Require all existing multi-family residential properties to be retrofitted to meet these requirements by 2032.		DOB, DOEE	DPW, OP	\$	↑↑	↓↓↓
ACTION 25: EXTENDED PRODUCER RESPONSIBILITY: Adopt policies to expand the District's Extended Producer Responsibility (EPR) requirements for hard-to-recycle materials, which currently covers certain electronics, batteries, and paint, to also cover additional product categories such as tires, sharps, solar panels, pharmaceuticals, mattresses, carpets, textiles, or other bulky materials. Ban the disposal of all covered materials to landfill and incineration upon implementation.		DOEE	DPW	\$\$	↑↑↑	↓↓↓↓
GOAL 4: Establish Resilient Zero Waste Operations and Infrastructure						
ACTION 26: ZERO WASTE HUBS: Establish large, modular Zero Waste "Hubs" within the public space that allow for the source separation of recyclable and compostable materials in areas of the city with high pedestrian traffic. Prioritize siting locations at or adjacent to Metrorail stops, schools, recreation centers, public libraries, bikeshares, train stations, and transportation hubs.		DPW, DGS, DOEE	DDOT, DPR, DCPL, DCPS, WMATA, OP	\$\$	↑↑↑	↓↓↓↓
ACTION 27: ZERO WASTE CAMPUS: Construct and operate a state-of-the-art Zero Waste Campus at Benning Road NE that includes a Materials Recovery Facility (MRF), a drop-off Center for Hard to Recycle Materials (CHaRM), commercial glass bunkers, a reuse center, commercial food scrap pre-processing (slurry) for anaerobic digestion, and a community engagement and learning space. Incorporate climate resilient design, on-site renewable power and storage, and electric vehicle charging infrastructure for solid waste collection vehicles.		DPW	DOEE, DGS	\$\$\$\$\$	↑↑↑↑↑	↓↓↓↓↓
ACTION 28: SMART SYSTEMS & RESILIENT OPERATIONS: Site renewable power generation and vehicle charging systems needed to support a zero-emission, solid waste collection fleet. Design climate-resilient infrastructure and operations to be paired with advanced robotics and camera vision systems.		DPW	DDOT, OP, HSEMA, DOEE	\$\$	NA	NA ²
ACTION 29: REGIONAL COLLABORATION: Form a working group comprised of the District of Columbia, EPA Region 3 (Mid-Atlantic) states, and federally-recognized tribes to develop a unified approach to grow recycling, composting, and anaerobic digestion infrastructure within the region. Establish uniform rules and requirements for solid waste collectors and solid waste facility operators.		DPW	MWCOG	\$	NA	NA
GOAL 5: Build an Inclusive and Local Circular Economy						
ACTION 30: DONATION, REUSE, & REPAIR: Expand access to drop-off locations and collection programs to capture more durable, reusable goods across the city including at the Zero Waste Campus. Promote and publicize opportunities for local nonprofits, businesses, and residents to donate, exchange, or buy reused goods. Expand existing repair programs, including Fix-It events.		DOEE, DPW		\$\$	↑↑↑	↓↓↓↓↓

²Siting renewable power generation and charging infrastructure at solid waste facilities is consistent with District Government carbon climate and reduction goals and will likely decrease fossil fuel consumption and therefore GHG emissions. However, these GHG impacts reduction are not the result of decreased solid waste disposal and therefore are not reflected in this actions table.

ACTION	TIME FRAME	LEAD AGENCY	PARTNER AGENCY	START-UP COST	DIVERSION INCREASE	GHG EMISSIONS REDUCTION
ACTION 31: CIRCULAR BUSINESS INNOVATION: Establish a Circular Economy Lab and grant qualifying schools, colleges and universities, small businesses, and non-profits with free access to high-value material streams to spur innovation and foster entrepreneurship within the local small business and art communities.		DPW, DMPED, DSLBD	OCP, WDCEP, DOEE, UDC	\$\$	↑↑	↓↓
ACTION 32: ZERO WASTE FINANCIAL ASSISTANCE: Expand existing and create new financial assistance programs for small businesses, nonprofits, and institutions to support local waste reduction, reuse, and recycling adoption. Establish Zero Waste tax credits and other incentives such as interest free small business loans for burgeoning Zero Waste entrepreneurs and small businesses.		DOEE, DPW, OTR	DSLBD, WDCEP, DMPED, DISB, DC Green Bank	\$\$\$\$\$	↑↑	↓↓
GOAL 6: Increase Education and Enforcement Community-wide						
ACTION 33: UPDATE SOLID WASTE REGULATIONS: Conduct a comprehensive solid waste regulatory overhaul with the goal to unify, modernize, and ensure enforceability of the District of Columbia Municipal Regulations (DCMR).		DPW	DLCP, OP, DSLBD, DOEE	\$	NA	NA
ACTION 34: FOOD WASTE EDUCATION & TRAINING: Create educational and training programs for residents, businesses, property managers, building owners, and janitorial staff on how to prevent food waste, donate edible food, and source separate non-edible food waste.		DOEE, DPW	DC Health, OP, DSLBD	\$\$\$	↑↑	↓↓↓↓
ACTION 35: ZERO WASTE OUTREACH & EDUCATION: Establish an online Zero Waste academy to host educational tutorials, trainings, and certifications for both residents and businesses. Upgrade the Zero Waste DC website, create a new mobile phone application, and bolster social media, street-level information campaigns, and technical assistance. Design outreach and education to be fun, engaging, and accessible to all residents and businesses.		DPW	DOEE	\$\$\$\$	↑↑↑	↓↓↓
ACTION 36: PUBLIC SURVEYS: Regularly conduct public surveys to gather information regarding general knowledge and willingness to participate in Zero Waste programs for reuse, recycling, and composting.		DPW	DOEE	\$	NA	NA
ACTION 37: ZERO WASTE SCHOOLS: Provide Zero Waste education to all school classrooms with an emphasis on "hands-on-learning." Ensure school cafeterias instill best practices for food waste reduction, donation, and composting.		DPW, DGS	DCPS, DOEE	\$\$	↑	↓↓
ACTION 38: ROBUST ENFORCEMENT: Bolster citywide enforcement activities to multi-family and commercial buildings, small businesses, and the solid waste collector community by increasing the number of inspectors and right-sizing fines for non-compliance. Regularly analyze all data and information regarding violations to refresh education and enforcement strategies.		DPW	DOB, OSSE	\$\$\$	↑↑	↓↓↓
ACTION 39: ZERO WASTE TIP LINE: Establish a Zero Waste Tip-Line within the city's 311 system to allow the public to submit complaints, service requests, and to report non-compliance of businesses, commercial buildings, and solid waste collectors.		DPW	DOEE	\$\$	NA	NA
ACTION 40: REDUCE CONTAMINATION: Implement cart tagging programs citywide to minimize contamination within single-family residential recycling and composting. Routinely evaluate the need to increase existing fees on contaminated recycling loads brought to District transfer stations by commercial haulers.		DPW		\$\$	↑	↓
GOAL 7: Protect the Environment for a Cleaner DC						
ACTION 41: CLEAN & GREEN DC: Bolster litter-reduction policies and increase illegal dumping enforcement to protect neighborhoods, parks, and waterways. Conduct regular clean up events and anti-litter campaigns to enhance community awareness and support for Zero Waste.		DPW, MPD	MOCC, DGS	\$\$\$	↑	↓
ACTION 42: RODENT CONTROL: Increase city resources dedicated to rodent abatement efforts. Ensure food waste diversion and composting activities support ongoing rodent control and abatement efforts.		DC Health, DPW		\$\$\$	NA	NA
ACTION 43: ASSESS AND MITIGATE CLIMATE CONTRIBUTIONS: Incorporate full life-cycle carbon emissions, including embodied carbon and upstream emissions into policy and planning efforts for Zero Waste programs to contribute significantly to carbon neutrality. Use waste characterization studies, available greenhouse gas calculators, and the results of the city's consumption-based greenhouse gas emissions inventory to continually guide further policy development.		DPW, DOEE	OP, DGS	\$	NA	NA ³

³Although Action #43 Assess and Mitigate Climate Contributions does not directly contribute to a reduction in greenhouse gas emissions (GHG), it is critical to the District's GHG reduction efforts and goals.

GLOSSARY

Anaerobic Digestion: The natural process in which microorganisms break down organic materials in closed spaces where there is no oxygen. Anaerobic digestion or the built system where anaerobic digestion takes place, also known as a digester.

Circular Economy: A circular economy keeps materials, products, and services in circulation for as long possible by reducing material use, redesigning materials, products, and services to be less resource intensive, and recapturing “waste” as a resource to manufacture new materials and products.

Compostable: Items made solely of compostable materials that break down into, or otherwise become part of, usable compost in a safe and timely manner in an appropriate program.

Composting: The series of activities, including separation, collection, and processing, through which materials are recovered or otherwise diverted from the solid waste stream for conversion into compost.

Construction and Demolition Waste: Waste materials generation from demolition, deconstruction, and construction activities prior to the issuance of the final certificate of occupancy.

Greenhouse Gas Emissions: Gases that trap heat in the atmosphere and contribute to the greenhouse effect, including carbon dioxide, methane, ozone, and fluorocarbons.

Incineration: A form of solid waste disposal through combustion or thermal conversion of solid waste materials into ash, flue gas, fuel, or heat; provided, that recycling, composting, anaerobic digestion of compostable solid waste, and conversion of compostable solid waste into biofuel are not considered incineration.

Landfilling: Disposing of solid waste in a designated area of land or an excavation for permanent disposal.

Lead Agency: District Government Agency or regional partner responsible for leading the implementation, and in some cases, enforcement of an action. When two agencies are listed as lead agencies, they may have implementation oversight over distinct aspects of the action.

Multi-Family Residence: Mixed-use residential/commercial or residential buildings with four or more living units.

Non-Exclusive Commercial Collection Zone: An area of the city in which only designated solid waste collectors will be permitted to collect trash and recycling from commercial businesses

Partner Agency: District Government Agency or regional partner responsible for supporting lead agencies with the planning and implementation of actions.

Pay-As-You-Throw: A model in which fees are imposed for waste collection on public collection property owners proportional to the amount of trash generated at the property. Also known as a variable rate pricing model.

Recyclable: Items made solely of materials that can be recycled using the District's recycling collection program.

Recycling: The series of activities, including separation, collection, and processing, through which materials are recovered or otherwise diverted from the solid waste stream for use as raw materials or in the manufacture of products other than fuel.

Single-Family Residence: Homes and apartment buildings with three or fewer living units.

Single-Use: Products made from plastic, metal, glass or paper that are designed to be used once, or for a short period of time, before being discarded.

Single-Use Plastics: Recyclable, nonrecyclable, and compostable plastic products that are designed to be used once, or for a short period of time, before being discarded.

Solid Waste: Solid waste is garbage, refuse, trash, or any other waste or waste product, including recyclable, compostable, or otherwise reusable material, whether in solid, liquid, semisolid, or contained gaseous state, resulting from an industrial, commercial, residential, or government operation or community activity. Solid waste does not include hazardous waste, medical waste, and construction and demolition waste.

Source Reduction: Also known as waste prevention, source reduction means reducing waste at the source, and is the most environmentally preferred strategy.

Source Separation: The separation of solid waste at the point of discard into the categories recycling, composting or trash.

Trash: Solid waste that is collected for disposal by incineration or landfill

Waste Diversion: Activities that result in solid waste source reduction, reuse, recycling, composting, or conversion of compostable solid waste into biofuel

Waste Diversion Rate: The percentage of the solid waste stream, by weight, successfully diverted from landfilling and incineration through source reduction, reuse, recycling, composting, and conversion of compostable solid waste into biofuel.

DISTRICT GOVERNMENT AGENCY AND REGIONAL PARTNER ACRONYMS

ABRA - Alcoholic Beverage Regulation Administration

DC Green Bank - DC Green Bank

DCHA - DC Housing Authority

DC Health - DC Health

DCHR - Department of Human Resources

DCPL - District of Columbia Public Library

DCPS - District of Columbia Public Schools

DC Water - District of Columbia Water and Sewer Authority

DDOT - District Department of Transportation

DGS - Department of General Services

DISB - Department of Insurance, Securities and Banking

DOB - Department of Buildings

DOEE - Department of Energy & Environment

DLCP - Department of Licensing and Consumer Protection

DMPED - Department of Planning and Economic Development

DPW - Department of Public Works

DPR - Department of Parks and Recreation

DSLBD - Department of Small and Local Business Development

Events DC - Events DC

HSEMA - Homeland Security and Emergency Management Agency

MOCC - Mayor's Office of the Clean City

MONC - Office of Nightlife & Culture

MPD - Metropolitan Police Department

MWCOG - Metropolitan Washington Council of Governments

OCP - Office of Contracting and Procurement

OP - Office of Planning

OTA - Office of the Tenant Advocate

OTR - Office of Tax and Revenue

OSSE - Office of the State Superintendent Education

UDC - University of the District of Columbia

WDCEP - Washington DC Economic Partnership

WMATA - Washington Metropolitan Area Transit Authority

CITATIONS

¹The Sustainable Solid Waste Management Amendment Act of 2014, (D.C. Law 20-154; D.C. Official Code § 8-1031.01 et seq.), <https://code.dccouncil.gov/us/dc/council/laws/20-154>

²The Interagency Waste Reduction Working Group was created by the Sustainable Solid Waste Management Amendment Act of 2014, (D.C. Law 20-154; D.C. Official Code § Code § 8-1031.08.), <https://code.dccouncil.gov/us/dc/council/code/sections/8-1031.08>

³District of Columbia Department of Public Works, CY 18 Solid Waste Diversion Progress Report, https://dpw.dc.gov/sites/default/files/dc/sites/dpw/page_content/attachments/CY%2018%20Diversion%20Report%20Final%203%2010%2021.pdf

⁴District of Columbia Department of Public Works, Desktop Waste Characterization Study, March 2021, <https://zerowaste.dc.gov/sites/default/files/dc/sites/zerowaste/Desktop%20WCS%20Final%20Report%203-10-21.pdf>

⁵Waste hierarchies are industry standard best-practice for ranking materials and waste management strategies from most to least environmentally preferred. Several authoritative sources have published versions of waste hierarchies, including the U.S.

Environmental Protection Agency. While there are small differences between versions, all available hierarchies identify source reduction as the most preferred management strategy and waste disposal as the least preferred. The Zero Waste DC Plan depicts the Zero Waste International Alliance's Zero Waste Hierarchy of Highest and Best Use 8.0.

⁶Washington, D.C., Sustainable DC 2.0 Plan, <https://sustainable.dc.gov/sdc2>

⁷The Zero Waste Omnibus Amendment Act of 2020, (D.C. Law 23-211; D.C. Official Code § 8-1031.01 et seq.), <https://code.dccouncil.gov/us/dc/council/laws/23-211>

⁸Zero Waste International Alliance, Zero Waste Hierarchy of Highest and Best Use 8.0, <https://zwia.org/zwh/>

⁹The District's Sustainable DC 2.0 Plan includes a target of reducing per capita waste generation by 15%.

¹⁰District of Columbia Department of Public Works, Desktop Waste Characterization Study, March 2021.

¹¹District of Columbia Department of Public Works, CY 18 Solid Waste Diversion Progress Report.

¹²D.C. Register, Public Works, Department of -- Notice of Opportunity for Public Comment -- Zero Waste DC Plan, <https://dcregs.dc.gov/Common/NoticeDetail.aspx?NoticeId=N126061>

¹³U.S. Environmental Protection Agency, Waste Reduction Model (WARM), <https://www.epa.gov/warm/basic-information-about-waste-reduction-model-warm>

¹⁴This represents a rectangular volume calculation, with the height of the Washington Monument of 555 feet, width of 427 feet, and depth of 427 feet. The resulting volume is 101,192,595 cubic feet, or 3,747,870 cubic yards, the equivalent of 490,970 tons of uncompacted commingled recycling according to the U.S Environmental Protection Agency's Volume-to-Weight Conversion Factors., https://www.epa.gov/sites/default/files/2016-04/documents/volume_to_weight_conversion_factors_memo_randum_04192016_508fnl.pdf

¹⁵Equivalency calculated using the U.S. Environmental Protection Agency Greenhouse Gas Equivalencies Calculator at <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>

