10-Year Solid Waste Management Plan: 2024-2033

May 2023

City of Baltimore

Prepared For:

BALTIMORE CITY
DEPARTMENT OF PUBLIC WORKS
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PRE-FINAL

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ABBREVIATIONS AND ACRONYMS

Formal names for offices, agencies, institutions, and programs are capitalized; technical terms are in lower case.

BCAA	Baltimore Clean Air Act
BCPD	Baltimore City Police Department
BFWRS	Baltimore Food Waste and Recovery Strategy
BRWWTP	Back River Wastewater Treatment Plant
BSP	Baltimore Sustainability Plan
BSW	Bureau of Solid Waste
C&D	construction and demolition
CAA	Clean Air Act
CAP	Climate Action Plan
CAPEX	capital expense
CDL	commercial driver's license
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COMAR	Code of Maryland Regulations
DGS	Department of General Services
DHCD	Baltimore City Department of Housing and Community Development
DP3	Baltimore City Disaster Preparedness and Planning Project
DPW	Baltimore City Department of Public Works
DRP	Department of Recreation and Parks
DOT	Department of Transportation
EPR	extended producer responsibility
ETS	Eastside Transfer Station
FDA	Food and Drug Administration
FY	fiscal year
GHG	greenhouse gas
HDPE	high-density polyethylene; no. 2 plastic
HFPA	Healthy Food Priority Area
HHW	household hazardous waste
LEED	Leadership in Energy and Environmental Design
LMO	last mile organization
LWBB	Less Waste, Better Baltimore
MDE	Maryland Department of the Environment
MES	Maryland Environmental Service
MRA	Maryland Recycling Act
MRF	materials recovery facility

MSW	municipal solid waste
MWP	mixed waste processing
NPDES	National Pollutant Discharge Elimination System
NRDC	National Resources Defense Council
NWTS	Northwest Transfer Station
OPEX	operational expense
PET/PETE	polyethylene terephthalate
PFAS	per- and polyfluoroalkyl substances
PPP	public-private partnership
PWWTP	Patapsco Wastewater Treatment Plant
QRL	Quarantine Road Landfill
RCRA	Resource Conservation and Recovery Act
RECYCLE	Recycling Enhancements to Collection and Yield through Consumer Learning and Education
RTS	regional transfer station
SAYT	Save as You Throw
SSO	source-separated organics
SSR	single-stream recyclables
TCO_2E	tons of carbon dioxide equivalent
U.S.	United States
USDA	United States Department of Agriculture
WAF	Western Acceptance Facility
WIN Waste	WIN Waste Innovations
WMRA	Waste Management Recycle America

DEFINITIONS

Anaerobic Digestion: controlled decomposition of organic waste by anaerobic microorganisms, typically as a means of waste disposal or energy production.

Bulk Waste: includes furniture, homewares, appliances, electronics, and other large waste. Bulk waste may be reused, recycled, or disposed (referred to as bulk trash).

Composting: the controlled aerobic, biological decomposition of biodegradable materials, including food scraps and yard trimmings, to produce finished compost. Compost is a stabilized product beneficial to plant growth that has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds

Construction and Demolition Debris (C&D Debris): includes lumber, concrete, drywall, asphalt, and other materials generated from the construction or demolition of structures

Household Hazardous Waste (HHW): includes common household products that can catch fire, react, or explode under certain circumstances, or that are corrosive or toxic. Includes items such as paints, cleaners, oils, batteries, and pesticides.

Illegal Dumping: the disposal of trash generated at one location and disposed at another location without legal permission.

Incineration: Conversion of waste materials into usable heat, electricity, or fuel through combustion.

Landfill: engineered facility designed to receive specific kinds of wase (e.g., MSW or C&D debris). Landfills are designed to protect the environment from contaminants which may be present in the received waste.

Materials Recovery Facility (MRF): a solid waste management plant that processes recyclable materials to sell to manufacturers as raw materials for new products.

Mesophilic: moderate temperatures (typically 20-45 degrees Celsius). Mesophilic microorganisms are those that prefer to grow at these temperatures.

Mixed Refuse/Mixed MSW: commingled MSW originating from the residential, commercial, and institutional sectors.

Organics/Organic Waste: Any waste material that is biodegradable and comes from either a plant or an animal, including food waste and yard waste.

Pyrolysis: decomposition brought about by high temperatures.

Single Stream Recyclables (SSR): cardboard, paper, plastic bottles, glass bottles, tin/steel cans, and aluminum cans collected together in one location for recycling. Also referred to as commingled recyclables.

Solid Waste/Municipal Solid Waste (MSW): commonly known as trash or garbage, MSW consists of everyday items that are used and thrown away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps,

newspapers, appliances, paint, and batteries. MSW can be generated from homes/residents (residential MSW), institutions (e.g., schools and hospitals), and businesses (commercial MSW).

Thermophilic: high temperatures (typically 41-122 degrees Celsius). Thermophilic microorganisms are those that prefer to grow at these temperatures.

Transfer Station: a facility where recyclables or waste are collected and consolidated in preparation for processing or disposal.

Yard Waste: grass, grass clippings, leaves, small sticks and branches, and clippings from bushes and shrubs.

INTRODUCTION

Statement of Purpose

The intent of this 10-Year Solid Waste Management Plan (Plan) is to provide an accurate description of the existing solid waste management system in Baltimore and a 10-year outlook on planned solid waste and recycling activities, in compliance with Maryland regulations. This Plan is for the period from 2024 to 2033 and replaces the previous plan adopted by the mayor and the Baltimore City Council (City Council) in December 2015. This Plan has been prepared in accordance with current state planning regulations (Code of Maryland Regulations, Title 26, Subtitle 03, Chapter 03, or COMAR 26.03.03), which requires the Plan to address waste management and recycling for a period of at least 10 years.

In this Plan, the capitalized term "City" refers specifically to City government (including departments and offices), while use of the lowercase term "city" or "Baltimore" or "Baltimore City" all refer to the city in general.

Key updates to this Plan include the prioritizing waste prevention and diversion (recycling), managing sustainable materials, and orienting solid waste disposal activities to serve the city's best interests and meet its sustainability goals. This Plan provides the residents of Baltimore information on the current and future solid waste management system in Baltimore and also outlines ways in which the City can continue to successfully manage and reduce waste by meeting solid waste management goals.

Plan Organization

This Plan is divided into five chapters, the content of which is dictated by COMAR 26.03.03.03:

Chapter 1: "Goals and Regulatory Background" describes the legal and institutional framework for the City's solid waste management system, including City goals and objectives.

Chapter 2: "Background Information" describes relevant demographic and land use information in Baltimore.

Chapter 3: "Existing Solid Waste Management System" includes waste generation data, estimates for waste generation and characterization, and information on current waste management facilities in the city.

Chapter 4: "Assessment of Needs and Constraints" provides an evaluation of the current waste management system and its future potential.

Chapter 5: "Plan of Action" establishes a plan for the City to achieve its solid waste management goals over the ensuing 10-year period.

Plan Approval Process

This Plan was prepared by Geosyntec Consultants, Inc. (Geosyntec) of Columbia, Maryland, in coordination with the Bureau of Solid Waste, a unit of the Baltimore City Department of Public Works (DPW). Within DPW, the Bureau of Water and Wastewater was also asked to provide data and review the information contained in the Plan. Other entities contributing to the Plan were the Baltimore City Department of Planning, Office of Sustainability, Northeast Maryland Waste Disposal Authority, residents, and other local stakeholders.

A draft version of the Plan was submitted to Maryland Department of the Environment (MDE) for preliminary review and comment prior to developing the final Plan, which was later submitted to the Baltimore City Council. A series of public meetings and hearings were held during preparation of the draft Plan, in addition to City Council review. Final review was completed after receiving comments during the approval process. After addressing the comments received, the mayor and City Council adopted the final plan on TBD. The adopting City Council Resolution is included in Appendix A. MDE's approval letter is included in Appendix B.

Professional Certification

I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, **License No. 57689** and **Expiration Date June 6, 2025**.

_____
Sean T. O'Donnell, PhD, PE

_____
Date

1. GOALS AND REGULATORY BACKGROUND

As required by state regulations, this chapter of the Plan discusses the City's goals regarding solid waste management, the City's administrative structure as it relates to solid waste management, and state, federal, and local laws and regulations that affect the planning, establishment, and operation of solid waste disposal systems.

1.1 Goals and Objectives

Since 1872, Baltimore has provided solid waste collection and disposal services for its residents. While waste that once was collected in horse-drawn carts is now collected in trash-compacting motor vehicles, the original purpose of the solid waste management system remains—the protection of public health and the environment. Effective collection and disposal of solid waste is critical to public health, especially in high-density urban areas. the City's primary goal is to cost-effectively provide safe and proper sanitation services, including collecting and disposing of wastes generated within the city, while prioritizing reuse, recycling, and composting of discarded materials. To meet this goal, the City must use its limited financial resources efficiently.

The City's solid waste management system consists of a blend of public and private services. The City primarily provides collection of waste and recyclables from single-family residences and the condominiums that are under contract with the City, while private contractors provide collection services to most multifamily residences, noncontract condominiums, and commercial and industrial establishments.

The City believes it can collect and dispose of residential solid waste most effectively and efficiently through an integrated and comprehensive waste management system that prioritizes source reduction, reuse, and recycling while transitioning away from disposing of waste by incinerating it or by placing it in landfills. The City has split its goals and objectives into two categories: the planning period covered by this Plan and the guiding overall solid waste management strategy.

1.1.1 Goals Specific to the Planning Period: 2024 to 2033

The City's goals for the ensuing 10-year planning period were developed by assessing the immediate needs of the solid waste management system. These goals are meant to achieve the City's primary solid waste management goal (to cost-effectively provide and assist with safe and proper sanitation to city residents) while also complying with all relevant state and federal requirements. The City's goals for the planning period are broken into three categories: (i) general goals that apply over the entire planning period, (ii) specific, short-term goals for the first five years of the planning period, and (iii) specific, medium-term goals for the second five years of the planning period.

General Goals

The general goals over the planning period are as follows:

1. Provide waste reduction and diversion opportunities, waste and recycling collection services, city residents.
2. Explore opportunities to increase the efficiency and cost effectiveness of the City's solid waste program.
3. Minimize improper waste disposal, illegal dumping, and littering.
4. Implement waste reduction and diversion strategies as outlined in the *Less Waste Better Baltimore Plan*, the City's long-term strategic master plan for improving solid waste management and recycling.
5. Increase the amount of waste that is diverted from disposal at Quarantine Road Landfill (QRL) and WIN Waste Innovations (WIN Waste).
6. Promote local and state legislation that supports waste diversion and source reduction.

Short-Term Goals

The short-term goals specific to the first five years of the planning period (2024–2028) are as follows:

7. Improve trust and participation in solid waste programs among vulnerable and underserved communities through education, outreach, and engagement.
8. Explore opportunities to increase organics recycling and promote backyard and community composting.
9. Support legislative and administrative actions to improve enforcement of existing recycling mandates and reporting of recycling tonnages from the commercial sector.
10. Reinstate weekly collection of residential recycling and improve the efficiency of waste and recycling collection by rightsizing collection routes, equipment, and personnel.
11. Achieve a 35% recycling rate, as defined and required under the Maryland Recycling Act (MRA), by 2027.

Medium-Term Goals

The medium-term goals for the second half of the planning period (2029–2033) are as follows:

12. Change waste and recycling behaviors, increase recycling rates, and decrease contamination through education, outreach, and engagement.
13. Expand in-city organics collection and processing capacity by implementing a pilot organics collection program and constructing (or facilitating construction of) in-city organics processing facilities.
14. Improve accessibility, function, and efficiency of residential drop-off centers by improving infrastructure and expanding diversion and reuse opportunities.
15. Improve the efficiency, function, and resiliency of the waste disposal and transfer system through infrastructure improvements and construction.

1.1.2 Goals Guiding Overall Solid Waste Management Strategy

The goals guiding overall solid waste management strategy are outlined in a number of planning documents produced by the City. While some of these planning documents are not focused solely on solid waste management, they all contain aspirations and goals related to public health and environmental sustainability in the solid waste sector. These goals provide long-term benchmarks to inspire ambitious solid waste strategy during the planning period. Many of these goals provide a roadmap to achieve zero-waste status in Baltimore by 2040. The City's goals guiding overall solid waste management strategy are summarized in the subsections below according to the planning document in which they appear.

Baltimore Sustainability Plan

The Baltimore Sustainability Plan (BSP) was published in 2019 by the Baltimore Office of Sustainability. The BSP outlines a zero-waste strategy for the City and presents three major goals, with associated action items:

1. Increase the amount of trash that is diverted from disposal to recycling programs. Specific action items include the following:
    a. Providing free recycling bins to all city residents
    b. Launching an anti-litter, pro-recycling campaign
    c. Creating and implementing a zero-waste plan
2. Expand the City's Waste to Wealth Initiative (page 18). Specific action items include the following:
    a. Implementing the Baltimore Food Waste and Recovery Strategy (BFWRS, see below)
    b. Siting a local compost facility
    c. Revising codes and creating ordinances to eliminate waste and encourage reuse of deconstructed building materials
3. Pursue legislative and policy changes to reduce the waste stream. Specific action items include the following:
    a. Imposing a fee for single-use plastic bags
    b. Creating a City Government Procurement Committee to establish incentives for source reduction
    c. Developing a plan for a "Save as You Throw" program

Since the BSP's inception, the City has provided free recycling bins to all city residents and implemented a single-use plastic bag bill.

Additionally, the BSP's Clean Air Strategy 1 calls for targeted industrial emissions reduction to reduce harm to people living nearby. Action 1 specifically encourages state-of-the-art pollution controls on all "point

source pollution" emitters and improve review of the effect of new permit applications for air pollution sources, particularly those in and near zip codes with high asthma hospitalization rates.

Less Waste, Better Baltimore Plan

In July 2020, the City issued the Less Waste, Better Baltimore (LWBB) Plan, a long-term solid waste management and recycling master plan that was created using the goals of the BSP. The following are the objectives of the LWBB Plan:

1. Outline a clear and achievable vision for improving the solid waste and recycling system in Baltimore over both the near term and long term, with the objective of maximizing waste reduction, reuse/repair, recycling, and sustainable management of materials.
2. Develop actionable strategies to achieve this goal.
3. Identify potential impacts on existing solid waste management systems, including program and infrastructure needs, investment challenges, and associated policy or regulatory initiatives.

Based on recommendations outlined in the LWBB Plan, the City now provides free recycling carts to all households, provides designated food waste drop-off locations, is planning for the development of local compost processing facilities, and is considering constructing a materials recovery facility (MRF) to increase diversion and reuse of construction and demolition (C&D) debris.

Waste-to-Wealth Initiative

The Waste-To-Wealth Initiative was developed by the Baltimore Office of Sustainability to help grow the business sector in Baltimore while reducing the amount of waste generated. The initiative seeks ways to support local businesses that are using waste (secondary materials) to make products rather than primary (virgin) materials. The initiative acknowledges that while several businesses in Baltimore have already engaged in innovative reuse and repurposing strategies for a wide variety of secondary materials, they need support from the City. By fostering businesses that seek to capture value from secondary materials before they enter the waste stream, the City is hoping to stimulate job creation, combat urban blight, and encourage resident-led greening efforts to revitalize city neighborhoods. The initiative is designed to do this by targeting three high-value wastes that comprise a significant portion of waste generated in Baltimore:

1. Organic waste, which constitutes approximately 30% of the overall waste stream;
2. C&D debris, which makes up over 40% of the overall waste stream
3. Wood waste, which makes up only 6% of the overall waste stream but offers significant potential for high-value reuse

Baltimore Food Waste and Recovery Strategy

The Baltimore Food Waste and Recovery Strategy (BFWRS) was published in 2018 by the Baltimore Office of Sustainability. In addition to presenting the reasons to reuse edible food and compost nonedible food waste, the BFWRS highlights seven local case studies and sets goals and strategies for recovering food

waste in the city. The 10 major goals outlined in BFWRS are as follows, with a target date of 2040 in each case:

1. Reduce commercial food waste by 50%.
2. Eliminate all food waste from higher education institutions.
3. Divert 90% of food and organic waste generated by City government from landfill or incineration.
4. Reduce household food waste by 80%.
5. Ensure all city residents have access to organic waste collection at home or in their neighborhoods.
6. Divert 80% of residential food and organic waste from landfill or incineration.
7. Create composting and anaerobic digestion facilities capable of processing all the city's organic waste.
8. Support the food waste diversion market by ensuring an adequate supply of organic waste is being diverted to compost and anaerobic digestion facilities.
9. Attain 90% food and recyclable waste diversion in public K-12 schools.
10. Create a supportive culture in K-12 students, faculty, and staff for reducing and diverting food waste.

To meet the above goals, BFWRS outlines over 60 short-, medium-, and long-term strategies to be implemented by the City, many of which will require significant funding to be approved by the mayor and the City Council.

Climate Change Adaptation and Resilience Planning

To lessen the severity of future impacts due to climate change and to adapt to known risks facing a low-lying coastal region, the City is working to instill resilience into vulnerable systems and infrastructure. Within the multitude of ongoing projects and initiatives, two plans have been created that focus on mitigation and adaption strategies:

1. Climate Action Plan (CAP). The CAP was originally developed by the Office of Sustainability in 2012 to reduce the city's greenhouse gas (GHG) emissions through a range of strategies targeted at reducing consumption of fossil fuels. In 2022, new emissions reduction targets were set by the City. These emission targets include a citywide and municipal operations goal of achieving carbon neutrality by 2045. An updated version of the CAP will be released in 2023 and will serve as the city's roadmap to carbon neutrality. It will include environmental justice-focused climate actions as well as climate mitigation priorities. Solid waste management activities and their associated emissions contributions are included in the CAP along with identified climate mitigation actions.
2. Disaster Preparedness and Planning Project (DP3). The DP3 is Baltimore's combined hazard mitigation and climate adaptation plan. It recognizes Baltimore's vulnerability to the impacts of

severe climate hazard events and the need to increase the city's resilience to disaster. The DP3 was first produced by the Department of Planning in 2013 to address not only existing hazards but also future hazard risks that will be exacerbated by climate change. The DP3 is required by Federal Emergency Management Agency (FEMA) to be updated every five years. The required five-year update to the DP3 occurred in 2018; the next five-year update will be completed by December 2023. Each DP3 update incorporates the latest climate data, highlights the most recent climate-related disasters the city has faced, addresses changes in priorities, and features updated strategies and actions to help Baltimore continue moving forward with hazard mitigation and resilience activities. Along with the DP3, FEMA also requires that hazard mitigation plans (HMPs) to be maintained and updated every five years to enable eligibility for certain pre-disaster mitigation and post-disaster recovery funds. Public services such as solid waste management can reduce some of the challenges of climate change, but these services can be overwhelmed by fluctuating demands due to changing climate patterns.

Zero Waste Resolution

In 2017, the Judiciary and Legislative Investigations Committee approved 17-022R[1], a resolution calling for City agencies and experts to meet and begin discussing "*the development of a Zero Waste plan for Baltimore that will advance sustainability, public health, and job creation*." The resolution was adopted in June 2017. In May 2018, resolution 18-0086R, which is a follow-up resolution to 17-022R, was adopted. City Council resolutions are an expression of the Council's desires for the city, but they cannot be enforced through the law.

In April 2019, an advocacy group led by United Workers, a nonprofit organization based in Baltimore, worked independently with certain Council Members to "*assist the City of Baltimore to develop a zero-waste scenario for the city's long-range recycling and solid waste management master plan*." United Workers funded a consulting group to develop the Baltimore Zero Waste Plan, which was presented to the City in April 2020. The Baltimore Zero Waste Plan aims to make zero waste a key priority in Baltimore to mitigate climate change, reduce climate emissions and other environmental and public health impacts, save money, support economic mobility, create good jobs and small businesses in all sectors of Baltimore, and sustain this work through culture change.

1.2 Circular Economy and The Waste Management Hierarchy

According to the United States (U.S.) Environmental Protection Agency (EPA), "*a circular economy keeps materials, products, and services in circulation for as long as possible*" and "*reduces material use, redesigns materials, products and services to be less resource intensive, and recaptures 'waste' as a resource to manufacture new materials and products*."[2] As such, part of achieving a circular economy is developing

[1] https://baltimore.legistar.com/LegislationDetail.aspx?ID=3029411&GUID=6550D772-9BD4-4E93-8895-A81B53C31DFE&Options=&Search&FullText=1
[2] https://www.epa.gov/recyclingstrategy/what-circular-economy#:~:text=It%20is%20a%20change%20to,manufacture%20new%20materials%20and%20products.

methods to reduce, reuse, and recycle as much material as possible. This is defined further in the EPA's waste management hierarchy[3] and the zero waste hierarchy[4] which rank waste management strategies from most favorable to least favorable. The waste management hierarchy developed for this Plan is a combination of the EPA and zero waste hierarchies as follows:

1. **Rethink/Redesign:** Systemic change to move towards a closed loop model; redesign of systems to avoid needless and/or wasteful consumption. Actions that address the root causes of the current linear use of materials.
2. **Reduce:** Measures taken to reduce the quantity and toxicity of resources, products, packaging and materials as well as the adverse impacts on the environment and human health (while reduction is noted here it is acknowledged that people's basic needs should be met; not everybody needs to reduce).
3. **Reuse:** Actions by which products or components are used again for the same or similar purpose for which they were conceived. Actions that support the continued use of products in ways that retain the value, usefulness, and function.
4. **Recycling and Composting**: Recycling includes collecting used, reused, or unused items that would otherwise be considered waste; sorting and processing the recyclable products into raw materials; and remanufacturing the recycled raw materials into new products. Composting is the controlled aerobic, biological decomposition of biodegradable materials, including food scraps and yard trimmings, to produce finished compost. Compost is a stabilized product beneficial to plant growth that has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds.[5]
5. **Material Recovery:** Any operation to salvage additional materials after the actions above. Does not include energy recovery or reprocessing into materials that are to be used as fuels.
6. **Residual Management:** Handling of discards that were wasted in a way that does not threaten the environment or human health.
7. **Treatment:** Prior to disposal, treatment can help reduce the volume and toxicity of waste. Treatments can be physical (e.g., shredding) and biological (e.g., anaerobic digestor).
   Disposal: Landfill or incineration.

The City's goals reflect a desire to move toward a circular economy, and to that end, this Plan uses this solid waste management hierarchy and the definitions outlined above to prioritize reduction, reuse, recycling, and composting options wherever possible.

1.3 Structure of Baltimore City Government

Although the Department of Public Works (DPW) is the primary agency (within City government) responsible for planning and implementing solid waste management programs, several additional City

[3] https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy
[4] https://zwia.org/zwh/
[5] https://www.compostingcouncil.org/page/CompostDefinition.

departments also play a role, including the Department of Planning, the Department of Water and Wastewater, the Department of Recreation and Parks (DRP), the Department of Health, the Department of Transportation (DOT), the Department of Housing and Community Development (DHCD), the Department of General Services (DGS), and Baltimore City Public Schools. A more detailed description of the organization and structure of DPW is provided below; the role of other City departments in the solid waste system is highlighted in Section 3.

1.3.1 Department of Public Works

DPW is responsible for fulfilling the City's solid waste management obligations. Figure 1-1 below shows the DPW organizational structure.

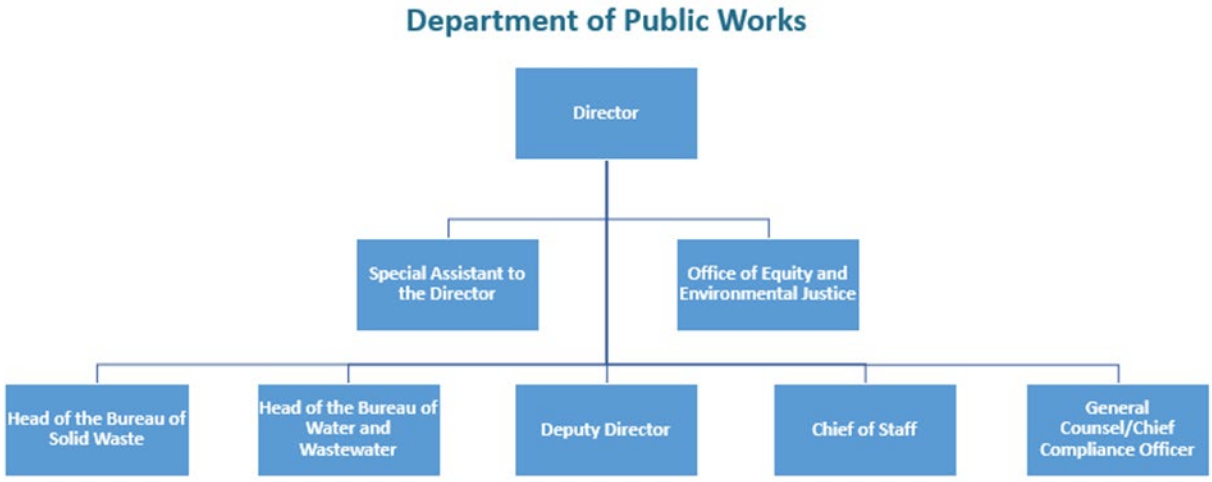


Figure 1-1. Baltimore City Department of Public Works

Within DPW, the Bureau of Solid Waste (BSW) is the entity that plans and implements solid waste management programs.

1.3.2 Bureau of Solid Waste

The BSW has eight divisions. Figure 1-2 displays the organizational structure of BSW's leadership team. A brief description of each division is provided in the remainder of Section 1.2.

1.3.3 Office of Administration

Under the BSW, the Office of Administration provides administrative support to perform data compilation for reports, analyzes operations to maximize efficiency, manages solid waste contracts, and works closely with internal and external stakeholders to create sustainable initiatives that correlate with disposal

services, recycling, and zero-waste education. Figure 1-3 below shows the organizational structure of the Office of Administration.

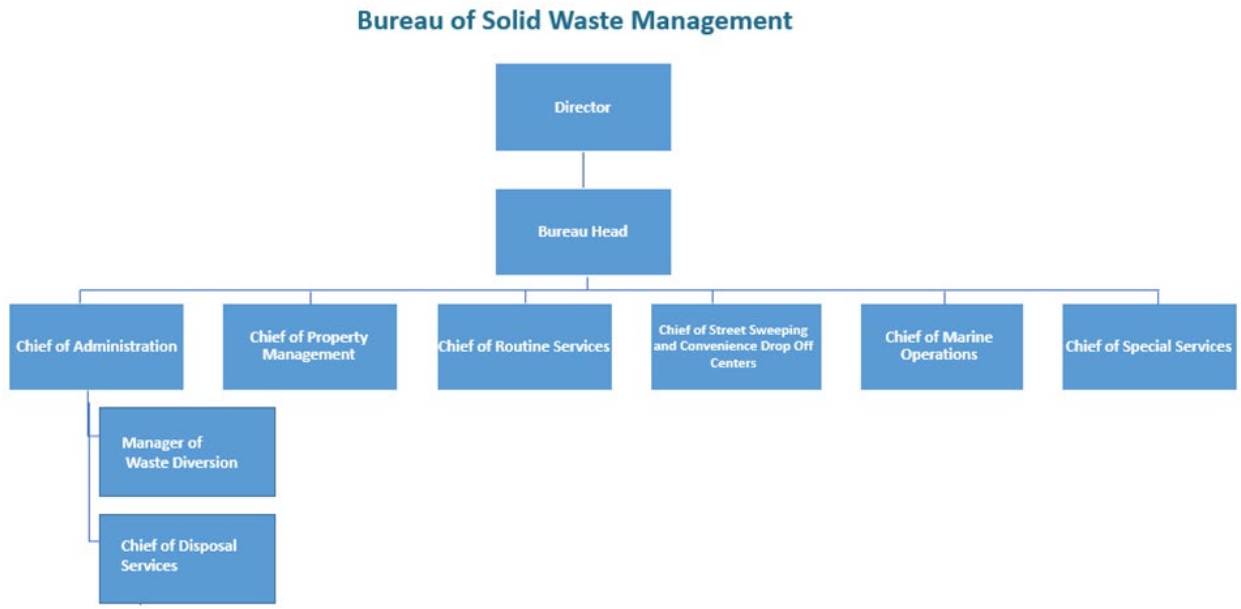


Figure 1-2. Bureau of Solid Waste Management Organizational Structure

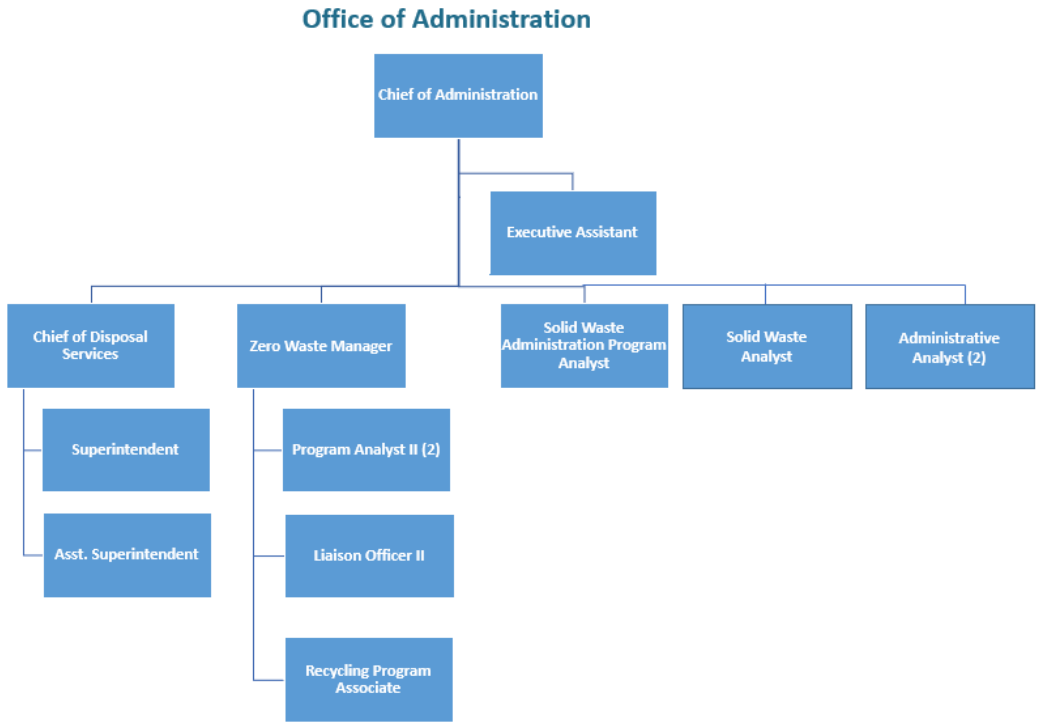


Figure 1-3. Office of Administration Organizational Structure

1.3.4 Office of Waste Diversion

Under the Office of Administration, the Office of Waste Diversion (OWD) plans and manages initiatives and studies designed to advance zero waste in BSW operations. OWD also serves as a resource for residents and businesses on waste diversion and reduction initiatives, reviews and recommends legislation to advance zero waste policies, and builds strategic partnerships across sectors to develop collaborative approaches to sustainable material management. Figure 1-4 below shows the organizational structure of the Office of Waste Diversion.

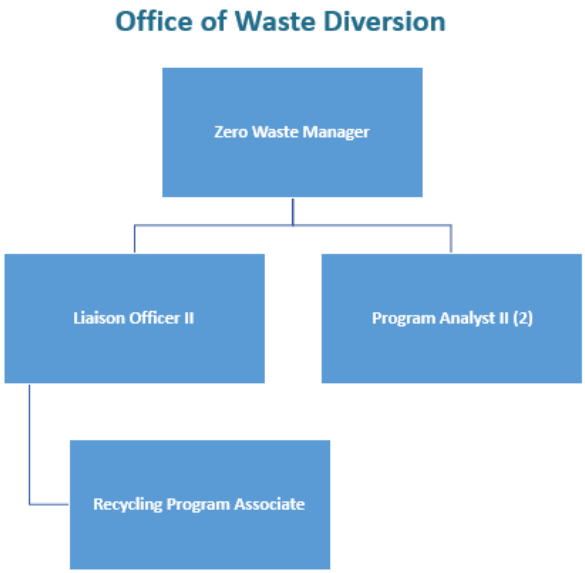


Figure 1-4. Office of Waste Diversion Organizational Structure

1.3.5 Disposal Services Division

Under the Office of Administration, the Disposal Services Division manages mixed refuse and recycling materials at QRL and the Northwest Transfer Station (NWTS). The Disposal Services Division performs the following services:

1. Operating QRL and NWTS
2. Managing the Small Hauler's Program at QRL and NWTS
3. Maintaining all closed landfills owned by the City
4. Managing partnership with the U.S. Coast Guard to operate landfill gas collection system

Figure 1-5 shows the organizational structure of the Disposal Services Division.

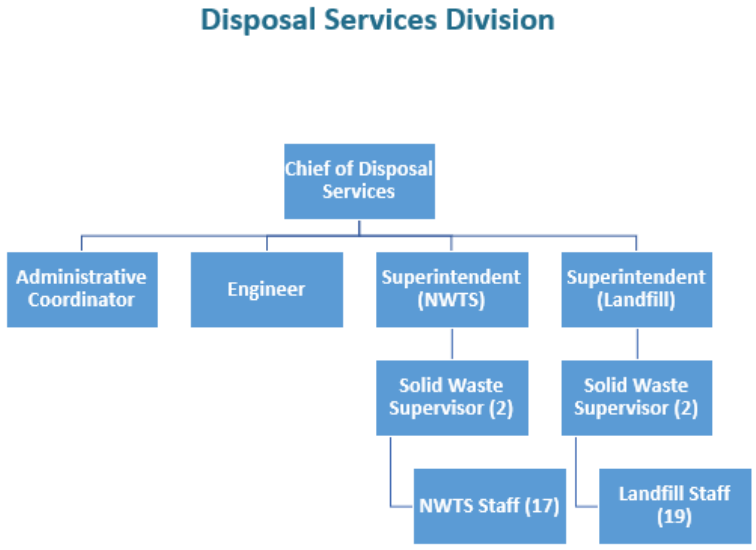


Figure 1-5. Disposal Services Division Organizational Structure

1.3.6 Property Management Division

Under the BSW, the Property Management Division provides cleaning, waste removal, boarding, and mowing services to vacant and unoccupied properties, as well as rodent control services to city residents as requested. The structure of the property management division is shown in Figure 1-6 below.

Figure 1-6. Property Management Division Organizational Structure

1.3.7 Routine Services Division

Under BSW, the Routine Services Division provides residents with waste and recycling pickup from households and multifamily dwellings. Routine Services also provides recycling administration and funding for household hazardous waste (HHW) disposal services. The organization of the Routine Services Division is shown in Figure 1-7 below.

Figure 1-7. Routine Services Division Organizational Structure

1.3.8 Street Sweeping and Roll-Off Division

Under BSW, the Street Sweeping and Roll-Off Division runs mechanical street sweeping operations. This division also oversees drop-off centers and community pitch-in programs. The organization of the Street Sweeping and Roll-Off Division is shown in Figure 1-8 below.

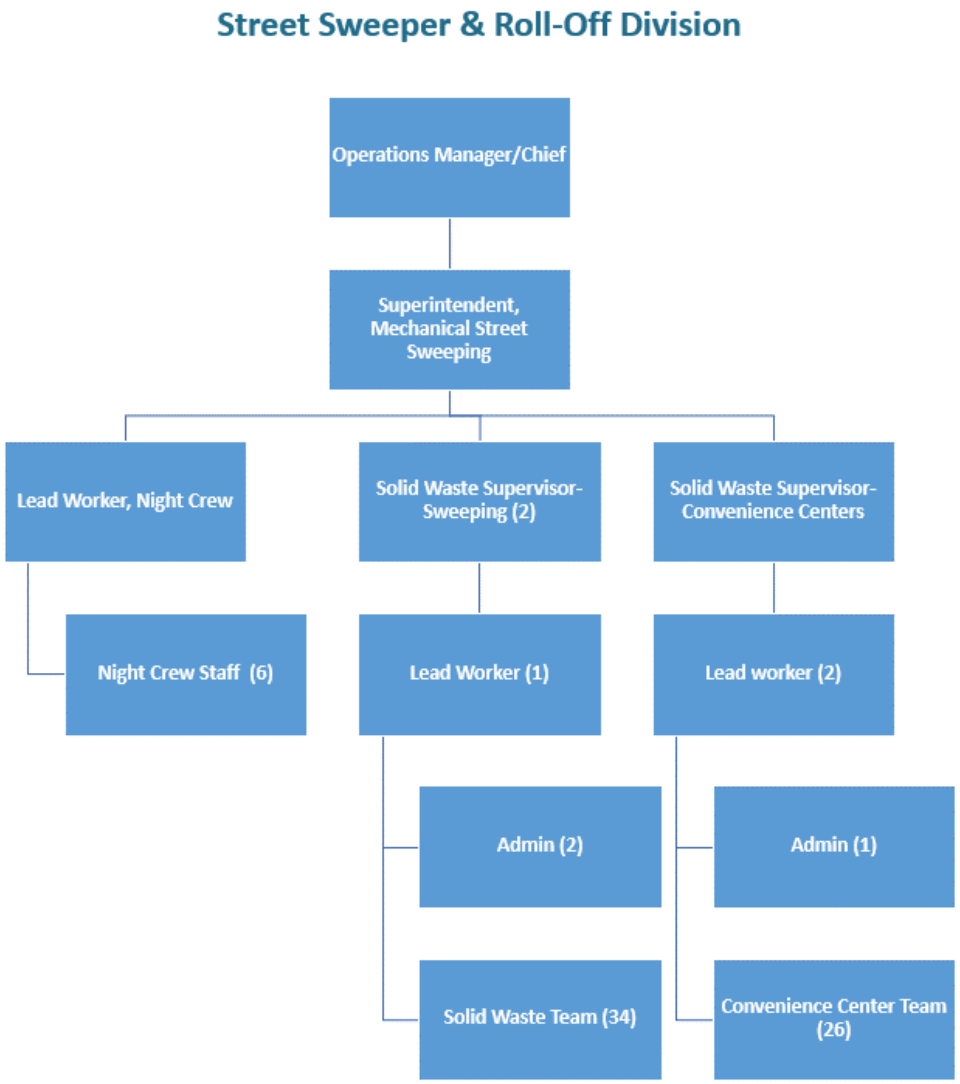


Figure 1-8. Street Sweeping and Roll-Off Division Organizational Structure

1.3.9 Marine Operations Division

Under the BSW, the Marine Operations Division oversees collection and disposal of marine debris collected from the inner harbor and surrounding waterways, as well as condominium and public housing refuse collection. The division ensures the cleanliness of business districts, provides trash and recycling

services for special events, and clears debris away from storm drains to protect water quality. The Marine Operations Chief is also responsible for special waste collection services in the Central District (i.e., the downtown area).

Figure 1-9 below shows the organizational structure of the Marine Operations Division.

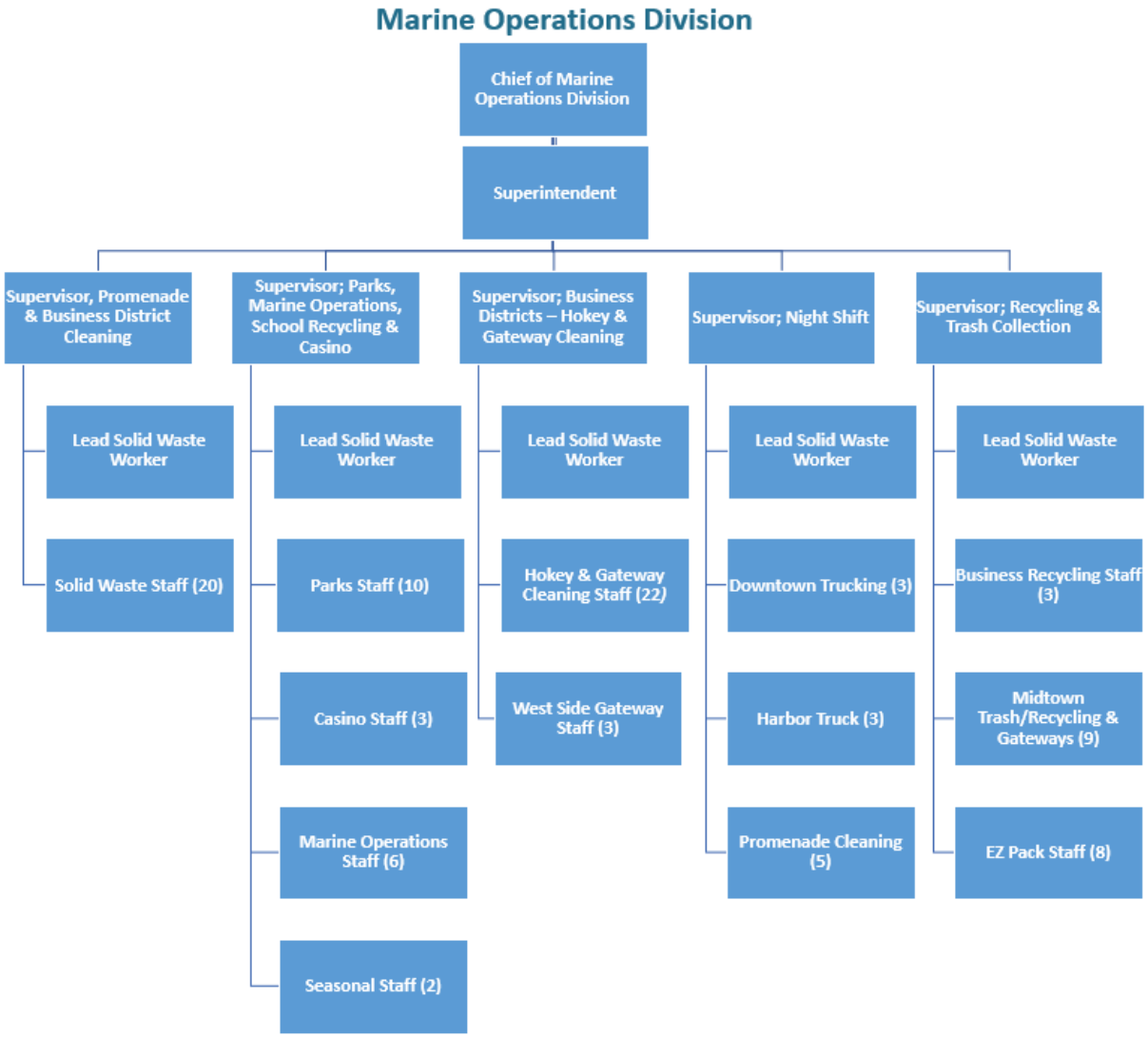


Figure 1-9. Marine Operations Division Organizational Structure

1.3.10 Special Services Division

Under BSW, the Special Services Division maintains the cleanliness of public rights-of-way by providing services including graffiti removal, dirty street cleaning, dirty alley cleaning, and bulk trash collection. The organization of the Special Services Division is shown in Figure 1-10.

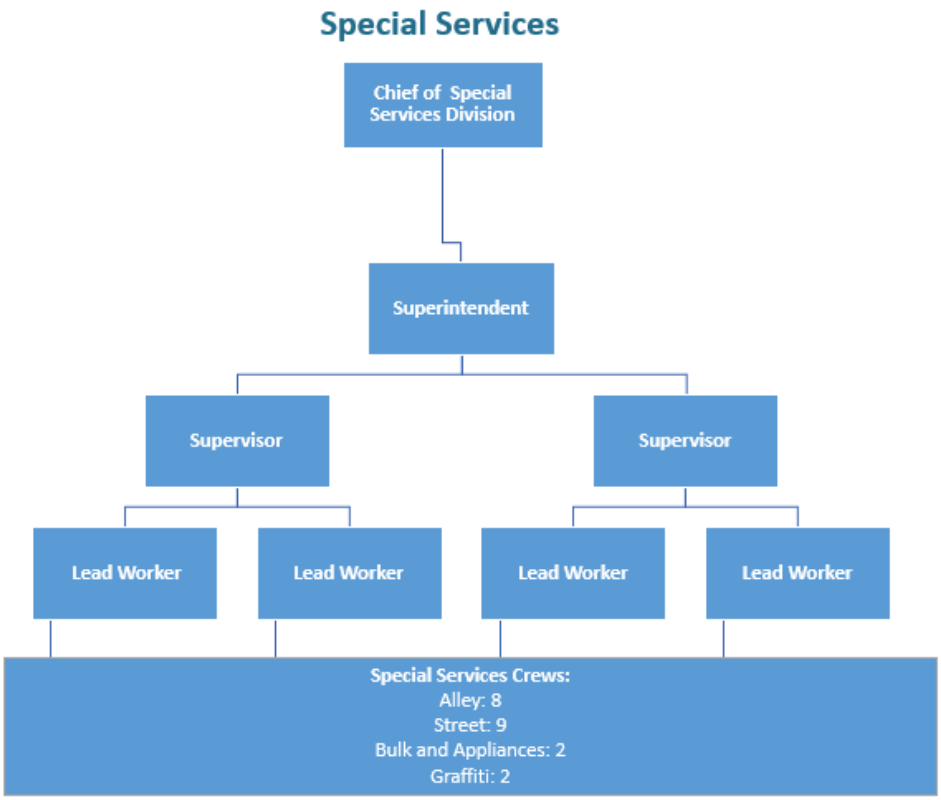


Figure 1-10. Special Services Division Organizational Structure

1.4 Regulatory Framework

Solid waste planning is a local responsibility, governed by federal and state laws that regulate local practices to protect public health and welfare. The major federal, state, and city laws and regulations related to solid waste management are listed below. The implications of these laws and regulations are discussed throughout this Plan. These laws and regulations have been grouped by level of application (federal, state, and local) below.

1.4.1 Federal Laws and Regulations

The federal laws, initiatives, and policies relevant to this Plan include those focusing on municipal solid waste (MSW), special and hazardous waste, air emissions, and water pollution. A summary of relevant federal legislation and guidance is provided below.

Federal Resource Conservation and Recovery Act

(42 U.S.C. 6901 et seq.)

In 1976, the federal Resource Conservation and Recovery Act (RCRA) was passed to improve solid waste disposal methods. RCRA provides regulatory guidelines for solid waste collection, transport, separation,

recovery, and disposal practices and systems. RCRA is divided into nine subtitles, A through I. RCRA subtitles C, D, and F provide specific guidance related to hazardous and municipal waste.

Subtitle C of RCRA established the hazardous waste management system, including identifying and listing hazardous wastes and establishing the standards for generators, transporters, and management of hazardous wastes for the owners and operators of hazardous waste treatment, storage, and disposal facilities. The regulations require stringent administrative and record keeping practices by permitted facilities.

Under Subtitle D, MSW is regulated through technical standards for solid waste management facilities and a program under which states may develop and implement solid waste management plans. The federal regulations set forth minimum criteria for MSW landfills, including location restrictions, operating requirements, design criteria, groundwater monitoring, corrective action protocols, closure and post-closure care requirements, and financial assurance requirements (i.e., ensuring that the funds for closure and post-closure care of a hazardous waste facility are available).

Subtitle F of RCRA requires the federal government to participate actively in procurement programs to promote the use of recycled materials. The role of EPA in the Subtitle F program is to prepare guidelines for procuring products made from recovered materials.

Federal Comprehensive Environmental Response, Compensation, and Liability Act

(42 U.S.C. 9601 et seq.)
In December 1980, Congress enacted the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly referred to as the Superfund Act. In contrast to RCRA, which generally regulates active waste handling and disposal, CERCLA focuses on short-term and long-term remediation of past contamination. The federal government can use the Superfund trust fund to clean up a property and then sue the responsible parties for reimbursement, or the government may order responsible parties to clean up the site. Maryland has created a parallel State Superfund, the Hazardous Substance Control Fund. CERCLA identified two sites in Baltimore as Superfund sites in its National Priorities List. One site, which is at the intersection of Kane and Lombard streets, used to contain nearly 1,200 drums of flammable solids, but has been converted to a golf driving range. The other location, which is at 2001 and 2103 Annapolis Road, was removed from the National Priorities List in December 1982 and is now used by MDE as an Emergency Response Field Office.

Code of Federal Regulations

(Title 40, Subchapter 1)
Brief summaries of the regulations pertaining to solid waste management in Title 40, Subchapter 1 of the Code of Federal Regulations are provided below:

- Part 240: Guidelines for the Thermal Processing of Solid Wastes establishes minimum performance levels for MSW incinerators.

- Part 243: Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste establishes minimum performance levels for solid waste collection operations and addresses issues including storage safety, collection management and frequency, and equipment management.
- Part 246: Source Separation for Materials Recovery Guidelines establishes the minimum actions recommended for recovering resources from solid waste.
- Part 247: Guidelines for the Procurement of Products that Contain Recycled Materials establishes recommendations for procedures and specifications for procuring recycled material products.
- Part 255: Identification of Regions and Agencies for Solid Waste Management establishes procedures for identifying regional solid waste management planning districts.
- Part 256: Guidelines for Development and Implementation of State Solid Waste Management Plans establishes guidelines for developing and implementing state solid waste management plans.
- Part 257: Criteria for the Classification of Solid Waste Disposal Facilities and Practices establishes criteria used to determine which solid waste facilities could adversely affect human health and the environment. Criteria under Part 257 do not cover municipal landfills because these are covered under Part 258. Facilities found to violate Part 257 are considered "open dumps."
- Part 258: Criteria for Municipal Solid Waste Landfills (Subtitle D Regulations) establishes minimum national criteria for the designing and operating MSW landfills, including closure/post-closure, corrective action, groundwater monitoring, financial assurance, design criteria, and location restrictions. Design standards under Part 258 apply only to new landfills and lateral expansions of existing facilities.
- Part 260: Hazardous Waste Management System – General establishes definitions and an overview of Parts 260 through 265.
- Part 261: Identification and Listing of Hazardous Waste identifies the materials classified and regulated as hazardous wastes under Parts 270, 271, and 124.
- Part 264: Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities establishes minimum national standards for managing, storing, and disposing of hazardous wastes.
- Part 265: Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal facilities establishes minimum national standards for managing hazardous wastes throughout periods of interim status, until the facility in question receives certification of post-closure or closure.
- Part 266: Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Disposal Sites establishes minimum national standards for recyclable materials that are disposed, hazardous waste burned for energy recovery, used oil burned for energy

recovery, recyclable material used for precious metal recovery, and spent lead-acid batteries being reclaimed.

- Part 270: EPA Administered Permit Programs: The Hazardous Waste Permit Program establishes application requirements, standard permit conditions, monitoring requirements, and reporting requirements for EPA permitting for treating, storing, and disposing of hazardous waste.
- Part 271: Requirements for Authorization of State Hazardous Waste Programs identifies the requirements for state programs to fulfill interim and final authorization and the EPA procedures to approve, revise, and withdraw approval of state hazardous waste management programs.
- Part 272: Approved State Hazardous Waste Programs establishes existing approved and applicable state hazardous waste management programs.
- Part 273: Standards for Universal Waste Management establishes requirements for managing universal waste, including batteries, pesticides, mercury-containing equipment, and lamps.
- Part 503: Standards for the Use or Disposal of Sewage Sludge establishes standards, including general requirements, pollutant limits, management practices, and operational standards, for final use or disposal of sewage sludge generated during domestic sewage treatment.

Save Our Seas 2.0 Act

(Public Law 116-224)

In December 2020, the Save Our Seas 2.0 Act was signed into law. The Save Our Seas 2.0 Act contains three titles that enhance the U.S. domestic programs to address marine debris, international engagement to combat marine debris, and domestic infrastructure to prevent marine debris. Among other actions, the Save Our Seas 2.0 Act authorized the creation of the Marine Debris Foundation to support the marine debris activities of the National Oceanic and Atmospheric Administration, established grant programs for studies of waste management and mitigation, and formalized U.S. policy on international cooperation with respect to marine debris.

Infrastructure Investment and Jobs Act

(Public Law 117-58)

The Infrastructure Investment and Jobs Act, also referred to as the Bipartisan Infrastructure Law, provides $275 million for grants related to solid waste infrastructure for recycling. This is allocated as $55 million per year from fiscal year (FY) 2022 to FY 2026 to remain available until expended. EPA was provided an additional $2.5 million in FY 2022 funding to implement the program. The Solid Waste Infrastructure for Recycling grant program is authorized by the Save Our Seas 2.0 Act.

The Solid Waste Infrastructure for Recycling program provides grants to implement recycling strategies to improve post-consumer materials management and infrastructure; support improvements to local post-consumer materials management and recycling programs; and assist local waste management authorities in making improvements to local waste management systems.

Recycling Enhancements to Collection and Yield through Consumer Learning and Education (RECYCLE) Act

(Public Law 117-58)

The Recycling Enhancements to Collection and Yield through Consumer Learning and Education (RECYCLE) Act was signed into law as part of the Bipartisan Infrastructure Law in November 2021. The RECYCLE Act creates a program within EPA to bolster recycling education and authorizes up to $15 million per year over five years in grants to states, tribes, nonprofits, public partnerships, and local governments to ramp up commercial and municipal recycling outreach and education. Under the law, EPA is directed to develop a model recycling toolkit to encourage recycling participation and decrease contamination rates. Where appropriate, the RECYCLE Act also tasks EPA with updating guidelines for products containing recycled material more frequently, as well as recommending that federal agencies purchase those items.

Inflation Reduction Act of 2022

(Public Law No. 117-169)

The Inflation Reduction Act of 2022 aims to reduce greenhouse gas emissions, lower energy prices, increase investments in domestic manufacturing capacity, encourage procurement of supplies domestically or from free-trade partners, and catalyze research, development, and commercialization of green technologies. Specifically, the act promotes biogas technologies, such as anaerobic digestion, through a system of tax credits, provides $5 billion in grant programs for pollution reduction, and establishes green banks to provide low-cost funding for clean energy projects.

Winning on Reducing Food Waste Initiative

On April 9, 2019, EPA, the U.S. Department of Agriculture (USDA), and the Food and Drug Administration (FDA) issued a federal interagency strategy for reducing food waste, as part of the Winning on Food Waste initiative. The strategy includes six priorities to work toward a national goal of reducing food loss and waste by 50% by 2030. The priorities include improving interagency coordination; increasing education and outreach; improving guidance and collaboration with private industry; and encouraging food waste reduction within the federal government.

Federal Clean Air Act

(42 U.S.C. 7401 et seq.)

The Clean Air Act (CAA) Amendments of 1970 passed by Congress established the current framework for federal and state enforcement of air pollution standards. The CAA authorizes the federal government, through EPA, to set standards for air pollution control and directs the states toward achieving these standards. Title I of the CAA relates to emissions from landfills and authorizes regulations on collecting and controlling emissions. Title V of the CAA addresses pollutants with potential to emit and authorizes regulations related to permitting for polluters. Landfills, in addition to any other facility that is considered a “major source” of pollutants under the CAA, are subject to Title I and must obtain a Title V permit. Federal New Source Performance standards under the CAA impose national emission standards for newly constructed or modified industrial facilities by imposing limitations based on the pollution control technology available to each category of new sources. EPA has published guidance for new source review

to ensure that major new sources do not adversely affect states' attempts to achieve compliance with the national ambient standards. This program was designed to ensure that air quality would not significantly deteriorate in areas where the ambient standards are being met, primarily controlling new sources of pollution.

Federal Clean Water Act

(33 U.S.C. 1251 et seq.)

The Clean Water Act is the framework for federal and state enforcement of water pollution control laws. The Clean Water Act's objective is to "*restore and maintain the chemical, physical, and biological integrity of the nation's waters*." Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System (NPDES) program to address how wastewater and runoff from solid waste management facilities is discharged into surface waters. NPDES permits are now required for stormwater discharges associated with industrial activity and discharges from municipal separate storm sewer systems under 40 CFR 122.26. Among those entities considered to be engaging in industrial activity are landfills that receive or have received any industrial wastes, and facilities involved in the recycling of materials. The construction of facilities that may impact any rivers, lakes, marshes, swamps, or wetlands of the U.S. is addressed by Section 404, administered by the Army Corps of Engineers. Section 405 addresses the disposal of wastewater treatment biosolids.

Safe Drinking Water Act

(42 U.S.C 300f et seq.)

The Safe Drinking Water Act established regulations to protect human health from contaminants in drinking water, which includes establishing the maximum contaminant levels for parameters included in groundwater monitoring programs.

EPA Actions to Address Per- and Polyfluoroalkyl Substances

EPA has recently taken several steps to reduce per- and polyfluoroalkyl substances (PFAS) contamination in the environment. For example, in December 2022, EPA issued guidance for states and municipalities to use the most current sampling and analysis methods in their NPDES programs to identify known or suspected sources of PFAS and to take actions using their pretreatment and permitting authorities. EPA has also proposed to designate the most widely used PFAS substances under CERCLA. Additional information can be found on the EPA website regarding key EPA actions to address PFAS[6].

Federal Emergency Management Act

The Federal Emergency Management Act prohibits landfill siting within 100-year floodplain areas. Subtitle D of this act provides exceptions for units not preventing or restricting flows on the 100-year floodplain, reducing the temporary or permanent storage capacity of the 100-year floodplain, or resulting in washout of solid waste.

[6] https://www.epa.gov/pfas/key-epa-actions-address-pfas

Public Utilities Regulatory Policies Act

The Public Utilities Regulatory Policies Act imposes an obligation on local power utilities to purchase power form qualifying facilities in an effort to promote competition. Rates for the host utility to buy power from qualifying facilities are set by state public service commissions and non-regulated utilities. Qualifying facilities include small power production facilities whose primary energy source is renewable, biomass, waste, or geothermal.

Break Free from Plastic Pollution Act (Introduced)

The Break Free from Plastic Pollution Act was introduced in March 2021 to tackle the plastic waste crisis. The full text of the bill can be found at the congress.gov website[7].

Despite having 128 co-sponsors in the House and 15 in the Senate, the legislation stalled in 2022 and has not moved forward as of January 2023.

1.4.2 Maryland State Laws and Regulations

The state laws, initiatives, and policies relevant to this Plan include those focusing on MSW, special and hazardous waste, air emissions, and water pollution. The Annotated Code of Maryland, as amended, includes all state laws passed by the legislature. Laws addressing solid waste management are included in the Environment Article, which contains many of the laws affecting the location, design, and operation of solid waste disposal facilities. Under the authority of Title 9, Subtitle 5, MDE is the state's principal regulatory agency with respect to solid waste management and serves as the state's lead agency for implementing RCRA. State regulations are compiled into a document entitled Code of Maryland Regulations (COMAR). A summary of relevant state legislation and guidance is found below.

Maryland Solid Waste Management Regulations

(COMAR 26.04.07)

Chapter 26.04.07 of COMAR includes permitting requirements, operating procedures, closure requirements, and post-closure monitoring requirements for sanitary, rubble (such as construction and demolition debris), land clearing debris, and industrial landfills. This chapter also describes permitting and operating procedures for processing facilities, transfer stations, and incinerators. In addition, this chapter provides guidelines and requirements for construction plans, specifications, and operation procedures for waste acceptance facilities.

Development of County Comprehensive Solid Waste Management Plans

(COMAR 26.03.03 and Environment Article, Annotated Code of Maryland § 9-503)

Chapter 26.03.03 and Environment Article of COMAR and Annotated Code of Maryland § 9-503 require that each county adopts and submits a 10-year comprehensive plan to MDE. The 10-year comprehensive plan must deal with solid waste management. After submission to MDE for review, public hearing, and adoption of any required changes, the 10-year comprehensive plan is revised as necessary and

[7] https://www.congress.gov/bill/117th-congress/senate-bill/984

resubmitted to MDE for approval. Approved plans are required to be reviewed at least every 3 years and updated or amended as necessary. Plans are required to undergo comprehensive revision at least every 10 years.

Storage, Collection, Transferring, Hauling, Recycling, and Processing of Scrap Tires

(COMAR 26.04.08)

Section 26.04.08 of COMAR establishes a regulatory system for properly managing scrap tires. MDE authorizes scrap tire facilities and haulers by issuing licenses and approvals for facilities. The regulations provide general technical and operational standards for scrap tire facilities, including storage procedures, closure procedures, and financial assurances. The system is funded by a recycling fee of $0.80 for each new tire sold in the state.

Natural Wood Waste Recycling Facilities

(COMAR 26.04.09)

Section 26.04.09 of COMAR regulates the management of natural wood waste recycling facilities. Permitting requirements for processing facilities are established and general operational requirements and procedures are prescribed.

Rubble Landfill Regulations

(COMAR 26.04.07.13-26.04.07.18)

COMAR sections 26.04.07.13 through 26.04.07.18 require liners and leachate collection systems for any new rubble facilities or new cells at existing facilities.

Hazardous Materials and Hazardous Substances

(Environment Article of the Annotated Code of Maryland §§ 7-101 through 7-516)

Annotated Code of Maryland §§ 7-101 through 7-516 of the Environment Article defines controlled hazardous substances, establishes requirements for facility permits, imposes obligations on transporters, and provides for appropriate enforcement actions.

Maryland Used Oil Recycling

(Natural Resources Article of the Annotated Code of Maryland § 8-1401)

In the Natural Resources Article, the Maryland Legislature expressed its desire that used oil be collected and recycled to the maximum extent possible. The Department of Natural Resources is required to develop a public education program and to designate used-oil collection facilities. The regulation prohibits dumping used oil into sewers, drainage systems and natural waters and prohibits disposing of used oil by incineration or as refuse.

Maryland Hazardous Waste Regulations

(COMAR 26.13)

Section 26.13 of COMAR addresses the disposal of controlled hazardous substances and includes definitions of what hazardous waste is; what standards are applicable to generators of hazardous waste;

and what standards are applicable for owners and operator of hazardous waste treatment, storage, and disposal facilities.

Management of Special Medical Wastes

(COMAR 26.13.11 through 26.13.13)
Sections 26.13.11 through 26.13.13 of COMAR define special medical wastes and establish the standards for generators, including a manifest system to track the transportation of special medical wastes. Standards for transport vehicles are also established. Special medical wastes include anatomical material and blood-soiled articles.

State Laws Governing the Construction and Operation of Solid Waste Acceptance Facilities

(Environment Article of the Annotated Code of Maryland §9-101 through §9-229)
Subtitle 2, Part II of the Environment Article, establishes permit requirements to construct and operate refuse disposal systems (sanitary, rubble, and industrial landfills; transfer stations; solid waste acceptance facilities; solid waste processing facilities; and incinerators) as part of the state's overall power to regulate water supply, sewerage facilities, and refuse disposal systems. It sets forth requirements for public hearings for waste disposal facilities; landfill permit provisions (issuance, denial, revocation, term); security requirements for landfills, incinerators, and transfer stations; prohibitions on locating and accepting waste; and financial assurance requirements for sanitary landfills.

Under § 9-228, scrap tires may not be stored longer than 90 days, and a statewide scrap tire recycling system is established. The material from scrap tires is to be recovered and reused; if recovery or reuse is impractical, the tires may be incinerated. Scrap tires may not be disposed of in a landfill.

Under §§ 9-1701 and 9-1708, a system for wood waste recycling activities is established. Recycling tree debris, grass clippings, and other natural vegetative matter is regulated under COMAR 26.04.09.

State Laws Affecting Recycling and Composting

A summary of the state laws affecting recycling and composting that are of specific relevance to preparation of this Plan are listed below:

1. Maryland Recycling Act (1988): Established a requirement for Maryland counties, based on a population of less than or exceeding 150,000, to reduce the county's waste stream by 15% or 20%, respectively.
2. Sludge Application (1993): Regulates land application of sludges to protect the public health.
3. Electronic Waste Recycling (2005): Requires computer manufacturers to pay an annual fee to fund local computer recycling programs.
4. Public School Recycling Plans (2010): Requires counties to revise their 10-year plans to address collection, processing, marketing, and disposition of recyclable materials from public schools.

5. Fluorescent and Compact Fluorescent Light Recycling (2011): Requires counties to revise their 10-year plans to include a strategy for collecting and recycling fluorescent and compact fluorescent lights that contain mercury.
6. Recycling, Apartment Buildings and Condominiums Act (2012): Requires counties to revise their 10-year plans to address collection and recycling at apartment buildings and condominiums as well as creating or revising a method for implementing a reporting requirement, and requires building owners, managers, and councils with 10 or more dwelling units to provide for recycling for residents on or before October 1, 2014.
7. Recycling Rates and Waste Diversion – Statewide Goal Act (2012): A revision to the 1988 MRA, this act requires counties to revise their 10-year plans to achieve an increase in the countywide recycling rate to 20% (counties with populations below 150,000) or 35% (counties with populations above 150,000) of the county's solid waste stream by July 1, 2014, with full implementation by December 31, 2015.
8. Recycling, Special Events Act (2014): Requires counties to revise their 10-year plans to address collection and recycling by organizers of certain special events, with implementation required before October 1, 2015.
9. Environment, Recycling, Office Buildings Act (2019): Requires counties to revise their 10-year plans to include an Office Building Recycling Program to address recycling from office buildings with 150,000 square feet or more of office space.
10. Organic Waste, Organics Recycling, Collection and Acceptance for Final Disposal (2019): Prohibits the owner or operator of a refuse disposal system from accepting loads of separately collected organic waste for final disposal unless the owner or operator provides organics recycling.
11. Expanded Polystyrene Food Service Products Ban (2020): Imposes a ban on the sale and use of food service products composed of expanded polystyrene.
12. Food Scraps Management (2021): House Bill 264 (HB264) requires large food waste generators to divert food waste from disposal if those generators are located within 30 miles of an organics recycling facility with the capacity and willingness to enter into a contract.
13. Maryland Recycling Act, Recyclable Materials and Resource Recovery Facilities, Alterations (2021): House Bill 280 (HB280) altered the definition of "recyclable materials" under the MRA to exclude incinerator ash and repealed the authority of a county to use a resource recovery facility to meet 5% of the waste reduction required to be achieved through recycling in the county's recycling plan.

State Ambient Air Quality Control Laws

(Environment Article of the Annotated Code of Maryland §§ 2-101 through 2-614)

The Environment Article of the Annotated Code of Maryland §§ 2-101 through 2-614 authorizes the regulation for the construction, modification, operation, and use of sources and controls over emissions. It authorizes the adoption of rules and regulations for air pollution control, including testing, monitoring, recordkeeping, and reporting. It also allows for the identification of air quality control areas and mandates

that MDE set emission and ambient air quality standards for air quality control areas. Training for MSW incinerator operators is required under these provisions of the law.

Control of Incinerators

(COMAR 26.11.08)
Section 26.11.08 of COMAR regulates air emissions and operation of incinerators, which thermally destruct MSW, industrial waste, special medical waste, and sewage sludge. The regulations require continuous monitoring of air emissions. Incinerators must also comply with general emission standards in COMAR 26.11.06.01 – 12 and 40 CFR § 60.

Voluntary Cleanup Program

(Environment Article of the Annotated Code of Maryland §§ 7-501 through 7-516)
One problem arising from CERCLA was the extreme difficulty involved with the redevelopment of brownfields. Brownfields are abandoned or underutilized properties where redevelopment is complicated by real or perceived environmental contamination. Recognizing this problem, EPA devised the *Brownfields Economic Redevelopment Initiative*. This program is designed to empower states to assess, safely cleanup, and vitally reuse brownfields. From this initiative, the State of Maryland established its Voluntary Cleanup Program, which provides a streamlined remediation approval process, changes the liability scheme for prospective developers, and clarifies liability for all participants in the program.

Maryland Water Pollution Control Regulations

(COMAR 26.08)
Section 26.08 of COMAR contains the following:

1. Water quality standards that specify the maximum permissible concentrations of pollutants in water, the minimum permissible concentrations of dissolved oxygen and other desirable matter in the water, and the temperature range for the water
2. Effluent standards that specify the maximum loading or concentrations and the physical, thermal, chemical, biological, and radioactive properties of wastes that may be discharged into the waters of the state
3. Procedures for water pollution incidents or emergencies that constitute an acute danger to health or the environment
4. Provisions for equipment and procedures for monitoring pollutants, collecting samples, and logging and reporting monitoring results

As part of these regulations, a discharge permit is required for discharging wastes, wastewater, and stormwater into the waters of the state. Sanitary landfills and incinerators receive special attention to determine whether they contribute pollution to stormwater runoff.

Legislation Repealed or Not Passed

The State Legislature has previously considered, but not passed, bills related to recycling solar photovoltaics; prohibiting restaurants from providing single-use plastic straws to customers; recycling/diversion of paint; and encouraging recycling of mattresses and box springs. These are listed here as a reminder that they may remain in consideration in upcoming sessions.

In December 2014, MDE published a guidance document titled *Zero Waste Maryland: Maryland's Plan to Reduce, Reuse, and Recycle Nearly All Waste Generated in Maryland by 2040,* which set an overall 80% recycling goal and 85% waste diversion goal by 2040. Although the Zero Waste Plan was subsequently repealed in 2017, it may be reissued in the future.

1.4.3 City Codes and Ordinances

The City has enacted several ordinances and codes pertaining to solid waste management, recycling, air quality, and water quality.

Septage Management

Article 25 of the Baltimore City Code provides the mechanism for the City's Waste Hauler/Scavenger Program. Under the program, any company wishing to dispose of septage to the City wastewater system must first apply for and obtain a Scavenger Vehicle Permit Tag for each vehicle and pay an annual permit and tag fee.

Health Code of Baltimore City, Title 7

Title 7 of the Health Code deals directly with handling and transporting solid waste by private enterprises that choose to do so in the Baltimore. Synopses of the more pertinent subtitles in this article are listed below.

- **Subtitle 2: Solid Waste Collection:** Requires the commissioner of health to issue permits for private parties engaged in the collection and disposal of solid waste. City collection activities are exempt. These sections also regulate collection methods and times and provide for inspection of vehicles.
- **Subtitle 4: Landfills:** Requires private landfill operators to obtain an operating permit, obtain City approval of engineering plans, and post security against hazardous or unsafe operation. However, the City zoning laws do not permit anyone to operate a sanitary landfill except City government.
- **Subtitle 7: Littering:** Provides a penalty for the disposal of trash in other than a proper receptacle or a manner approved by the City. It allows police or an enforcement officer to issue citations.

Mayor, City Council, and Municipal Agencies, Article 1, Baltimore City Code, Subtitle 40

Subtitle 40 establishes an Environmental Control Board to adjudicate civil citations issued for violations of City Code provisions pertaining to sanitation.

Baltimore Clean Air Act

The Baltimore Clean Air Act (BCAA), introduced as Council Bill 18-0306, was approved by the City Council on February 11, 2019, and signed by then Mayor Pugh on March 7, 2019. The BCAA requires commercial solid waste incinerators in Baltimore to conduct continuous monitoring of multiple pollutants, including dioxins, furans, nitrogen oxides, sulfur dioxides, particulate matter, polycyclic aromatic hydrocarbons, and several heavy metals. It also establishes significantly stricter emission limits for mercury, nitrogen oxides, sulfur dioxides, and dioxins/furans than are required under Maryland regulations. A ruling by a U.S. district judge in 2020 found that some components of the BCAA were in conflict with state laws. As such, it has not been enforced.

Expanded Polystyrene Foam Ban

The City Council passed ordinance 18-0125 in April 2018 banning expanded polystyrene foam (or Styrofoam) food containers. The law prohibits the use of Styrofoam as disposable food service tableware or packaging. Items such as foam cups, clamshells, bowls, and plates are no longer allowed in Baltimore. The ban went into effect on October 19, 2019, and applies to all food service facilities, including restaurants, grocery stores, hospital cafeterias, mobile food carts, bars/taverns, market stalls, public and private schools, caterers, special event food vendors, summer camps, bakeries, and congregation kitchens.

Single-Use Plastic Bag Bill

The City Council passed ordinance 19-0401 on November 18, 2019, to ban the distribution of single use plastic bags at the point of sale and place a fee of a nickel for any other type of single use bag, including paper and compostable bags. The ordinance was signed on January 13, 2020, and the program went into effect on October 1, 2021.

John F. Chalmers Sr. Act

In June 2022, the City Council passed Ordinance 22-133 (The John F. Chalmers Dr. Act), which requires certain holders of permits issued by the DHCD to submit a disposal plan with the permit application, requires permit holders to submit proof of disposal to the Department within a certain period of time after the permit work has concluded, and establishes citation amounts.

Net Zero Operations Bill

Mayor Brandon Scott signed the Net Zero Operations Bill into law on April 22, 2022, which requires City operations to achieve net-zero emissions of GHG by 2045 with interim emission reduction goals of 30% by 2025 and 60% by 2030.

2. BACKGROUND INFORMATION

Population and land use practices are key influences of solid waste planning. Population trends are indicative of growth rates in consumption and waste generation. Likewise, land use practices and conditions affect waste streams and waste facilities. Chapter 2 of this Plan provides estimates of Baltimore City's present and projected population, identifies federal facilities in Baltimore City, and discusses zoning codes and the City's comprehensive land use plan as they pertain to solid waste management.

2.1 City Population

Table 2-1 below summarizes actual and projected population and household estimates in Baltimore City from 2020 through 2045, based on Maryland Department of Planning and U.S. Census Bureau data.

Table 2-1. Baltimore City Population Projections

Year	Population (number of people)	Number of Households
2020*	585,708	236,600
2025	594,530	240,300
2030	596,390	245,175
2035	596,920	248,775
2040	599,220	251,725
2045	603,440	253,475
Average Annualized Growth	0.12%	0.28%

*Actual data.

According to the U.S. Census Bureau, Baltimore's population was 585,708 in 2020. The Maryland Department of Planning projects that the city's total population will increase by 0.3% between 2020 and 2025, by 0.06% from 2025 to 2030, and by 0.02% from 2030 to 2035. The overall average annualized growth rate from 2020 through 2045 is projected to be 0.12%.[8]

The Maryland Department of Planning also developed household projections over the period covered by this Plan.[9] The number of households for 2020 was 236,600 while the projected number of households for 2035 is estimated to be 248,775.

[8] https://planning.maryland.gov/MSDC/Documents/popproj/PreliminaryTotalPopProj2050.pdf.
[9] https://planning.maryland.gov/MSDC/Documents/popproj/HouseholdProj.pdf.

2.2 Federal Facilities in the City

There are eight major federal facilities located in Baltimore, which is the largest and only incorporated municipality in Maryland that is also a designated subdivision. These facilities are shown on the map in Figure 2-1.

Figure 2-1. Major Federal Facilities in Baltimore City

The following are the major federal facilities located within the city:

- G.H. Fallon Federal Building
- Garmatz Federal Courthouse
- Federal Reserve Bank of Richmond
- U.S. Veterans Medical Center
- U.S. Post Office: Baltimore City Main

- U.S. Customs and Border Protection
- U.S. Coast Guard Yard
- Fort McHenry National Monument and Historic Shrine

Other federal agencies with facilities in Baltimore include the Department of Treasury, the Department of Labor, the Army Corps of Engineers, the Veterans Administration, the General Services Administration, the Office of Personnel Management, the Federal District Court, the Bankruptcy Court, the Social Security Administration, the USDA, and the Department of Commerce- International Trade Administration.

Private contractors collect solid waste generated at all federal facilities in Baltimore City.

2.3 Zoning Requirements

This Plan shall not be used to create or enforce local land use and zoning requirements. Baltimore City zoning regulations dictate the permitted location of solid waste management facilities, including composting facilities, MRFs, transfer stations, incinerators, and landfills. Typically, solid waste facilities are confined to industrial and commercial districts and are designated as a conditional use. Each proposed facility site must be considered individually either by the City's Board of Municipal and Zoning Appeals or the City Council. The zoning code referenced for the sake of this plan was last enacted and corrected in June 2017 and last amended in 2022.

A summary of the zoning for solid waste facilities, recycling facilities, and organics management facilities under the current zoning code can be found in Table 2-2. As indicated in Table 2-2, commercial or municipal incinerators are prohibited in all zoning districts. Baltimore City zoning code prohibits construction of any new sanitary landfills or incinerators, but allows landfills and incinerators constructed prior to June 5, 2017, to be classified as "lawful nonconforming structures." As lawful nonconforming structures, existing landfills can pursue expansions of no more than 35% in additional land area if expanding onto property that is no more than 750 feet from the landfill's property line, and onto the portion of that property closest to the existing use. Prior to June 5, 2017, a City ordinance was required for approval of a new commercial or municipal incinerator.

To operate in Baltimore, solid waste facilities must adhere to the following:

- Obtain zoning approval
- Obtain a relevant permit from MDE
- Be amended into the 10-Year Solid Waste Management Plan via legislation passed by the City Council

Industrial landfills must follow the above rules for solid waste facilities and may not accept residential or MSW, or rubble or land-clearing debris. Industrial landfills are allowed in I-2 industrial districts.

Table 2-2. Summary of Zoning for Solid Waste Facilities

Solid Waste, Recycling, and Organics Management Facilities	Permitted Zones	Code	Condition
Incinerators (Commercial or Municipal)	Prohibited in all zoning districts	1-209	"Lawful nonconforming" if constructed before June 5, 2017; Solid Waste Management Plan; Applicable Permits; Zoning Board Approval
Sanitary Landfill (Accepting Mixed Refuse)	Prohibited in all zoning districts	18-310	"Lawful nonconforming" if constructed before June 5, 2017; Solid Waste Management Plan; Applicable Permits; Zoning Board Approval
Landfill: Industrial	I-2	14-318	Solid Waste Management Plan, Applicable Permits, Zoning Board Approval
Recycling Collection Station	All Zones	15-515	Zoning Board Approval
Materials Recovery Facility	I-2	14-324	Applicable Permits
Recyclable Materials Recovery Facility	I-1, I-2	14-333	Applicable Permits
Recycling and Refuse Collection Facility	IMU-2, I-1, I-2	I-312	None
Resource Recovery Facility	I-2	14-335	Applicable Permits
Commercial Composting Facility	IMU-2, I-1, I-2	14-305	Applicable Permits

Recycling collection stations are conditionally allowed in all zones throughout the City, with Zoning Board Approval. Stations are defined as portable receptacles, usually trailers or roll-offs, for the collection of paper, cans, aluminum scrap, other nonferrous (meaning the metal has no iron) metal scrap, glass bottles, and plastics. Larger processing centers are conditionally allowed in industrial areas to facilitate recycling.

MRFs are conditionally allowed in the I-2 industrial district with all applicable permits. All loading and unloading at a MRF must be screened from public view, and all other operations must be performed within an enclosed building.

Recycling and refuse collection facilities are facilities whose primary purpose is to collect, store, and transfer solid waste, yard waste, or recyclables. Recycling and refuse collection facilities do not include incinerators, junk, scrap, storage yards, sewage treatment sites, landfills, or vehicle dismantling facilities.

Resource recovery facilities are defined as facilities that process solid waste to produce valuable resources, such as steam, electricity, or refuse-derived fuel, and achieve a volume reduction of at least

50% of the waste that is being processed. Resource recovery facilities do not include any facilities that process hazardous materials; any facility that is licensed by the state or City as a junk dealer, scrap metal processor, or scrap metal dealer; or any junk or scrap storage yard.

Commercial composting facilities performing indoor composting (such as in-vessel methods) are conditionally allowed in the waterfront industrial area outside the buffer. All commercial composting facilities must be operated and maintained in a manner that protects adjacent properties from nuisance odors and the attraction of rodents or other pests.

Composting is allowed on areas permitted under open-space farm and urban agricultural districts as long as the compost piles are located at least 3 feet away from any lot line, adjacent properties are protected from odors and the attraction of pests, and the resulting organic product is not sold. Bin composting is allowed within residential backyards, if kept at least 3 feet from lot lines.

The City's Critical Area is defined as a 1,000-foot-wide strip measured adjacent to the mean high tide around the Chesapeake Bay and its tributaries. No solid waste facilities, including recycling facilities, are permitted in the Critical Area. In Baltimore, the Patapsco River, Gwynns Falls, Jones Falls, and Colgate Creek tributaries contribute to the Critical Area.

The City's comprehensive zoning regulations also accommodate facilities for managing special categories of solid waste:

- Management, discharge, and disposal of radioactive and hazardous waste is conditionally allowed with Zoning Board approval and in compliance with all applicable federal, state, and local laws, and regulations that generally govern such waste. Composting of sewage sludge or yard waste is also an industrial use. These facilities require MDE and City Council approval.
- Dismantling, processing, and storing scrap metal and discarded automobiles are conditionally allowed with a pollution prevention plan approved by the City and MDE. These uses are distinguished from MRFs because they require outdoor storage of large quantities of materials.

A summary of the City's zoning regulations is included in Appendix C.

2.4 Comprehensive Planning and Land Use

Because Baltimore is Maryland's premier metropolitan area and presents unique land use challenges, the City, in its entirety, is designated as a Priority Funding Area by the state. The revitalization of the city's neighborhoods and preservation of their unique community character are major policies of the City, as articulated in the City's Comprehensive Plan. Implemented in 1976 and most recently revised on September 9, 2009, the City's Comprehensive Plan provides the policy basis for guiding redevelopment and revitalization of the City's developed neighborhoods. Many other programs and urban renewal plans have been adopted and are *de facto* components of the plan. The City is currently creating a new Comprehensive City Plan titled *Our Baltimore*.

3. EXISTING SOLID WASTE MANAGEMENT SYSTEM

This chapter analyzes the solid waste generation, import and export of waste, source reduction, diversion, collection, and disposal systems for Baltimore. Existing facilities and methods for reducing, diverting, collecting, and disposing of solid waste in Baltimore are presented, and regional facilities are discussed. Impacts of the COVID-19 pandemic on existing solid waste management systems are also presented.

3.1 Overview of Existing Solid Waste Management System

The key characteristics of the existing solid waste management system in Baltimore are its mixed public/private system and its regional scope. Through DPW, the City primarily provides collection of waste and recyclables from single-family residences and condominiums that are under contract with the City as well as waste disposal, while private contractors provide collection services to most multifamily residences, noncontract condominiums, and commercial and industrial establishments. A summary of the existing solid waste stream in the city is depicted in Figure 3-1 on page 49, separated into waste managed by the City and waste managed by the private sector.

3.1.1 Solid Waste Management System Provided by the City

The City uses public and private facilities for transfer and disposal of waste and recyclables collected by DPW. A summary of the disposal, transfer, and residential drop-off centers operated or used by DPW, and the recycling contracts held by DPW for the handling, recycling, and disposal of waste and recyclables, are presented below.

WIN Waste

The Mayor and City Council of Baltimore contract with the Northeast Maryland Waste Disposal Authority for use of the WIN Waste facility, a privately operated waste incinerator located in the southwest of the city, for disposal of mixed refuse. Under the current contract with WIN Waste, which runs through 2031, DPW disposes of most of its acceptable waste (generally mixed refuse, excluding hazardous waste and non-burnable waste) at WIN Waste, and WIN Waste delivers post-processing ash materials to QRL. WIN Waste recycles back-end scrap metal collected after incineration of waste.

Quarantine Road Landfill

Mixed refuse collected by DPW but not sent to WIN Waste is sent to QRL for disposal. QRL also accepts waste from other City agencies, commercial waste from licensed large haulers, mixed refuse and C&D debris from small haulers registered with the City's Small Hauler Program, grit screenings from the City's wastewater treatment plants, and incinerator ash from WIN Waste. Soil, including repurposed soil accepted for disposal, is used for daily and intermediate cover at QRL. A residential drop-off center is also sited at QRL. This drop-off center provides free disposal and recycling services to Baltimore residents.

Northwest Transfer Station

DPW operates NWTS for transfer of mixed refuse and single-stream recycling. NWTS serves as the disposal facility for licensed small haulers and as a residential drop-off center, which provides free disposal and recycling services to Baltimore residents. Collected waste is transferred to WIN Waste or QRL, while recycling is sent to private recycling facilities.

Residential Drop-Off Centers

DPW operates five residential drop-off centers throughout the city where residents may dispose of various materials, including MSW, bulk trash, single-stream recycling, rigid plastics, scrap metal, scrap tires, household appliances, waste oil and antifreeze, HHW, electronics, and oyster shells.

Mixed Recyclables

DPW contracts with private companies for processing of single-stream recyclables (SSR), hard plastic, and mixed recyclables collected curbside by DPW and at residential drop-off centers. A full list of the vendors with whom the City contracts for recycling is included in Appendix D.

Other Recyclables

The following targeted recyclables collected as part of the bulk collection program and at residential drop-off centers are sent to private companies for processing: scrap metal, scrap tires, electronics, waste oil, HHW, and oyster shells. Appendix D contains a full list of vendors that provide recycling services for the City.

Sewage Treatment Plant Sludge

Sewage treatment plant sludge (biosolids) from wastewater and drinking water treatment facilities in the City are sent to the Baltimore City Composting Facility in Hawkins Point, the Baltimore Patapsco Pelletizer facility, and the Back River Pelletech facility for processing. These facilities are operated by private contractors.

Food Waste

In July 2021, City staff launched a pilot food waste drop-off program for residential food scrap collection at the five residential drop-off centers. The pilot was funded by a grant agreement between the National Resources Defense Council (NRDC) and Baltimore City as part of the Food Matters regional initiative.

Wood Waste and Brush

Wood waste and brush collected from city parks and street rights-of-way are sent to the Camp Small facility for sale and reuse. The facility is operated by the Baltimore City DRP.

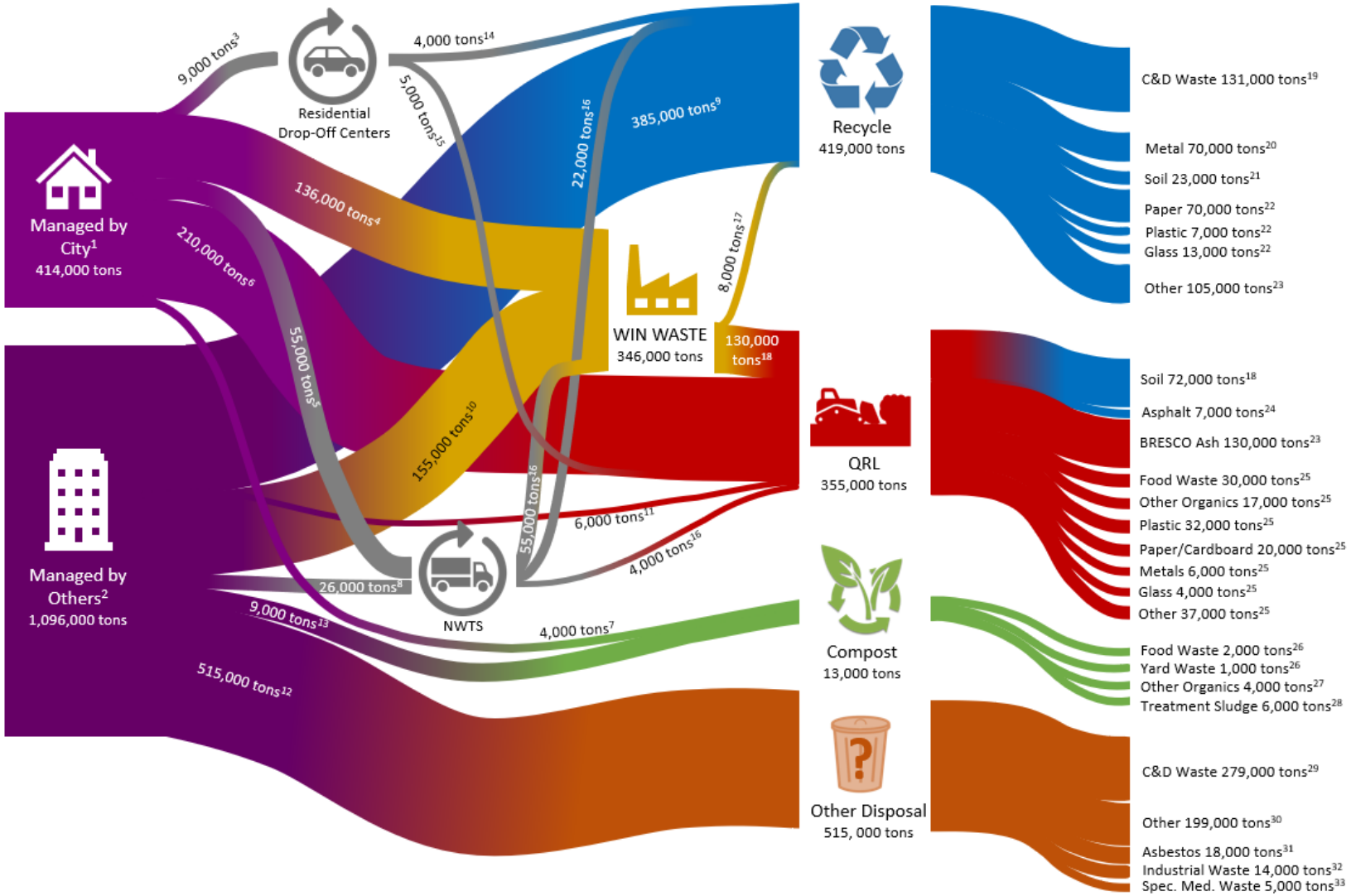


Figure 3-1. 2021 Baltimore City Waste Stream Flow Diagram (Reproduced from the LWBB Plan)

Notes for flow diagram on previous page:

1. Waste managed by the City includes residential waste, waste from government buildings, and waste from some small businesses.
2. Waste managed by others includes commercial, industrial, and institutional waste not collected by the City.
3. Waste flow to residential drop-off centers is calculated as the sum of MSW and recyclables collected at residential drop-off centers.
4. Residential waste flow to WIN Waste is calculated as the difference in total residential waste sent to WIN Waste (2021 WIN Waste tonnage report) and waste sent from NWTS to WIN Waste (2021 NWTS tonnage report).
5. Residential waste flow to NWTS is calculated as the total waste flow to NWTS (2021 NWTS tonnage report) minus the waste hauled by small haulers to NWTS in 2021 (see also Note 8).
6. Residential waste flow to QRL is calculated as the sum of soil sent to QRL (presumably as daily and intermediate cover), MSW sent to QRL (2021 QRL tonnage report), and asphalt sent to QRL (for temporary road construction) minus MSW sent from NWTS to QRL (2021 NWTS tonnage report, Note 16).
7. Residential organics tonnage includes recycled brush/branches, food waste, and wood materials as reported in 2021 Baltimore City MRA Report.
8. Commercial waste flow to NWTS is calculated from small hauler data (2021 Small Hauler Report).
9. The quantity of commercial recyclables is derived from the 2021 Baltimore City MRA report (non-MRA recyclables, MRA recyclables) and includes all recyclables (MRA and non-MRA) not included in the organics waste stream (i.e., yard waste food waste, other organics, and treatment plant sludge). See also Note 13.
10. Commercial waste flow to WIN Waste is derived from the 2021 WIN Waste tonnage report.
11. Commercial waste flow to QRL is calculated from small hauler data (2021 Small Hauler Report).
12. Most commercial waste is hauled by private haulers and the City has no way to track this waste. It is assumed that many of these haulers take waste to private facilities not included in this diagram (e.g., rubble landfills outside the City).
13. Commercial organics tonnage is derived from the 2021 Baltimore City MRA report and includes treatment sludge, yard waste, food waste, and other organics (e.g., wood waste).
14. The quantity of recyclables from residential drop-off centers is calculated from the 2021 Baltimore City MRA report.
15. Waste outflows from residential drop-off centers are calculated from 2021 waste tonnages collected in roll-off containers by the City. While some of this material is sent to WIN Waste, for this analysis, it is assumed that the majority is sent to QRL for final disposal.
16. Material outflows from NWTS to recyclables, WIN Waste, and QRL are derived from the 2021 NWTS tonnage report.
17. The quantity of recyclables recovered at WIN Waste is back calculated from total metals reported in 2021 MDE Solid Waste Management and Diversion Report and other metals reported in Baltimore City MRA Report. This value represents back-end scrap recovered from incineration of waste generated within the City.
18. The quantity of incinerator ash and soil landfilled at QRL is from the 2021 QRL tonnage report.

19. Recycled C&D tonnage is from the 2021 Baltimore City MRA Report.
20. Recycled metals tonnage is from the 2021 Baltimore City MRA Report (scrap metal and automobiles) and 2021 MDE Solid Waste Management and Diversion Report (all other metals, including back-end scrap from WIN Waste)
21. Recycled soil tonnage is from the 2021 Baltimore City MRA Report (commercial soil only, which does not include soil used as daily and intermediate cover at QRL).
22. Recycled paper/cardboard, plastic, and glass tonnages are from the 2021 MDE Solid Waste Management and Diversion Report.
23. Other recyclables include non-MRA recyclables (waste oil, antifreeze, oil filters, etc.) and MRA recyclables (tires, batteries, furniture, etc.) that do not fall in other recyclable categories.
24. The quantity of asphalt reused at QRL for road construction is from the 2021 QRL tonnage report.
25. Tonnages for MSW components are derived from the Baltimore City Winter 2019 waste sort conducted by Geosyntec and the total MSW tonnage reported for QRL (2021 QRL tonnage report).
26. Food and yard waste tonnages are from the compostables category in the 2021 Baltimore City MRA Report.
27. Other organics tonnage is from 2021 Baltimore City MRA Report and includes wood materials and other compostables.
28. Treatment sludge tonnage is from the non-MRA recyclables category in the 2021 Baltimore City MRA Report.
29. C&D debris tonnage provided by MDE from tonnage reports for permitted facilities in the City
30. Other waste tonnage back-calculated from total waste generation in the city (from 2021 MDE Solid Waste Management and Diversion Report)
31. Industrial waste tonnage provided by MDE from tonnage reports for permitted facilities in the City.
32. Special medical waste tonnage provided by MDE from tonnage reports for permitted facilities in the City.

3.1.2 Solid Waste Management System Provided by Others

One element of the regional solid waste management system is that private haulers can dispose of waste generated in the city at any permitted disposal facility. A second element allows private haulers to dispose of wastes generated outside the city at waste acceptance facilities located within the city limits, such as WIN Waste and QRL. The constraints for importing solid waste into the city (as well as for exporting wastes out of the city) are the capacities of acceptance facilities and market considerations, including tipping fees and hauling costs. Because WIN Waste is privately owned and operated, as are most of the other waste acceptance facilities in and around the city, they are free to compete in the marketplace to provide waste disposal services in response to demand from their customers.

The private component of the solid waste management system operates regionally and independently of City government. Private companies perform the same basic waste collection and management functions as the government without conflict.

The fact that so much solid waste management is independently and privately handled has implications for the City's solid waste planning. The ability to quantify or precisely describe this privately managed solid waste and to determine how all of the solid waste within the city's boundaries is generated, is limited to available data. Nonetheless, in an effort to comply with state regulations on comprehensive solid waste planning, this Plan has attempted to include regional considerations for privately collected waste generated within the city's boundaries and solid waste from outside its boundaries disposed of at solid waste facilities within the city.

3.1.3 Impacts of the COVID-19 Pandemic

The COVID-19 pandemic exacerbated already-steep competition for solid waste workers, particularly drivers with a commercial driver's license (CDL) and machine operators. It also led to temporary staffing shortages as infected or exposed personnel quarantined for 10 to 14 days during the pandemic. Staffing challenges continue to impact BSW more than three years after the start of the pandemic. This increased scarcity forced the City to focus on trash pickup and temporarily suspend curbside recycling collection. When curbside recycling returned in 2021, BSW rolled out a new program with 65-gallon blue bins for every single-family household (total of approximately 170,000 bins), in place of the former 14-gallon yellow bins provided to single-family households who requested them (total of approximately 40,000 bins). Shortly after rolling out the new program, BSW reduced SSR collection service levels from weekly to once every two weeks to answer staffing shortages and increased recycling. The City also suspended street and sidewalk sweeping services in 2020 due to staffing shortages and returned to quadrant sweeping first in 2022 and regular sweeping late in 2022. The City plans to return to pre-pandemic levels of collection service as soon as possible.

Worker safety is paramount to DPW, and the measures implemented during the height of the pandemic continue to model the procedures that will be used moving forward. Testing locations were set up exclusively for solid waste workers, vaccines were required and encouraged, and leadership was able to

prioritize services to complete the most critical tasks. Crews were required to wear appropriate personal protective equipment to prevent COVID transmission. BSW was held accountable by the City Council, which initiated quarterly legislative oversight hearings and monthly reports addressing the return to weekly recycling pickup. These steps toward transparency and preparedness planning will make DPW more resilient to future challenges.

3.2 Existing and Projected Waste Generation

COMAR 26.03.03.03 (D) requires that Chapter 3 of this Plan contain a table that shows existing and projected annual generation of specified categories of waste within the city. Further, the basis for the data presented in the table must be discussed. COMAR 26.03.03.04 (B) states that projections shall be given for the succeeding 10-year period at intervals of not more than 5 years.

The last year from which complete waste generation data were available is 2021. As such, 2021 is used as the baseline for this analysis. In compliance with the requirements of COMAR, waste generation projections in Baltimore for 2024, 2027, 2030, and 2033 are presented in Table 3-2 on page 63.

3.2.1 Sources of Solid Waste

In 2021, approximately 414,000 tons of waste was managed by the City and 1,096,000 tons of was managed by others in Baltimore (1,510,000 tons in total), which breaks down as follows:

- Approximately 432,000 tons (29%) was diverted from final disposal (either reused, recycled, or composted).
- Approximately 338,000 tons (22%) were incinerated at WIN Waste (not including the approximately 8,000 tons of back-end scrap recovered and diverted following incineration).
- Approximately 225,000 tons (15%) were placed in QRL (not including the approximately 130,000 tons of ash from WIN Waste).
- Approximately 515,000 tons (34%) were otherwise disposed of by commercial haulers in the private system.

A simplified graph of the existing waste streams in Baltimore is shown in Figure 3-1 on page 49.

The primary sources of solid waste generation in Baltimore are detailed below. In each category, it is indicated whether this waste is handled primarily by DPW or the private sector. Tonnages presented for each waste category are generally sourced from DPW or MDE. The most recent calendar year for which complete records are available is 2021.

Residential Municipal Solid Waste

Residential MSW includes household trash, recyclables, and compostables generated by Baltimore residents. In Baltimore, DPW collects residential MSW from single-family households and some

multifamily units alongside waste that is generated at City-owned or City-leased properties and condominiums under contract with DPW. As such, residential MSW is reported as Mixed MSW by the City. For this plan, residential MSW tonnages are included in the Mixed MSW category.

Commercial Municipal Solid Waste

Commercial waste includes all recyclables, compostables, and trash generated by the private sector in Baltimore. This waste is almost exclusively collected by private haulers rather than DPW, so precise information on tonnages generated are not available. Further, as private haulers also collect waste from multifamily dwellings, much of the commercial MSW in the city is collected with residential MSW and is therefore classified as Mixed MSW. Although, based on available data, an estimated total of 80,400 tons of commercial material was disposed of in the city in 2021, this value is a best-guess estimate and may not represent the true amount of commercial waste generated in the city.

Mixed Municipal Solid Waste

Mixed MSW is a mixture of residential, commercial, and institutional MSW and is collected by DPW and private haulers in the city. Based on available data, the total amount of Mixed MSW disposed of in the city in 2021 is estimated to be 540,000 tons.

Industrial Nonhazardous Waste

Industrial nonhazardous wastes are solids, liquids, and sludge generated by manufacturing or industrial processes that are not regulated under Subtitle C of RCRA. In general, the City does not collect information on the character and quantity of this waste from the generators. Several industries dispose of industrial nonhazardous waste in Baltimore. In 2021, 13,700 tons of industrial, nonhazardous waste was disposed of within the city.

Institutional Waste

Institutional waste includes all waste generated by institutions (e.g., schools, hospitals, and government buildings) in Baltimore. Most of this waste is collected by private haulers in the city (except for waste generated at government buildings, which is collected by DPW alongside residential waste). As such, exact tonnages are not well quantified. For this Plan, institutional waste tonnages are included in Mixed MSW tonnage projections.

Land-Clearing Debris

Land-clearing debris is refuse generated from clearing sites to prepare them for new construction, rehabilitation, street improvements, or utility installation, as well as debris from natural disasters. This category of waste is generally small enough to be included in C&D tonnages and is assumed to be zero for the period covered by this Plan.

Construction and Demolition Debris

C&D debris is refuse generated from demolishing buildings, streets, and other improvements and clearing sites to prepare them for new construction, rehabilitation, street improvements, or utility installation.

This refuse is primarily inorganic, consisting of concrete, brick, bituminous paving material, lumber, drywall, plaster, roofing material, and insulation. No data is available for the exact amount of C&D debris generated in the city, as large private C&D contractors often find it more economical to use private rubble landfill facilities outside the city to dispose of such debris. However, based on tonnage reports filed by permitted facilities in 2021, it is estimated that 279,000 tons of C&D debris was generated and disposed of in the city. An additional 131,000 tons of C&D debris was recycled in 2021, and 7,000 tons of asphalt were reused for road construction at QRL.

Wood Waste

Wood tonnages are considered recyclable MRA materials. Per Baltimore City MRA reports, 3,000 tons of wood waste was recycled in the city in 2021.

Rubble

Rubble is included with C&D debris for this Plan.

Electronics

Electronic waste is considered a recyclable MRA material. Electronic waste includes screens, monitors, lamps, mobile phones, printers, and other discarded electrical and electronic devices. In 2021, approximately 600 tons of electronics were recycled in the city.

Motor Oil, Antifreeze, Cooking Oil, Vinyl, and Medical Equipment

Motor oil, antifreeze, cooking oil, vinyl, and medical equipment are considered non-MRA materials. In 2021, approximately 100 tons of antifreeze, 1,900 tons of waste oil, and 2,600 tons of cooking grease were recycled in the city.

Vehicle Tires

Vehicle tires are considered a recyclable MRA material. There were approximately 900 tons of tire waste generated in the city in 2021. This number is largely representative of tires that have been recovered by City forces at residential drop-off centers and collected by City forces at illegal dumping locations. Tires collected by the City are currently sent to a facility for processing and recycling.

Commingled Recyclables

Commingled recyclables, also known as SSR, include cardboard, paper, plastic bottles, glass bottles, tin/steel cans, and aluminum cans collected together in one location. Commingled recyclables are collected curbside and at residential drop-off centers by DPW. Commingled recyclables are also collected by the private sector. In 2021, approximately 26,400 tons of commingled recyclables were recycled in the city.

Special Medical Waste

Special medical waste generated within Baltimore is generated by the private sector and disposed of through incineration or autoclaving and landfilling. Approximately 5,700 tons of special medical waste was generated in the city in 2021.

Bulk or Special Waste

Bulk or special wastes as cited in the state regulations include automobiles, scrap metal, large furniture, and large appliances. DPW collects bulk and special waste at residential drop-off centers and through 311 collection requests. Based on reported recycling tonnages from the residential and commercial sectors, it is estimated that 53,200 tons of bulk or special waste were generated and recycled in the city in 2021.

Asbestos

Materials containing asbestos are not permitted to be disposed of at QRL. However, in 2021, other facilities in the city reportedly accepted approximately 18,000 tons of asbestos for disposal.

Soil

In 2021, approximately 72,000 tons of soil were used as daily cover at QRL. The 2021 MRA report included an additional 23,000 tons of recycled soil from commercial sources. Altogether, 95,000 tons of soil were recycled in Baltimore in 2021.

Controlled Hazardous Substances

Controlled hazardous substances are those wastes whose disposal is regulated under Subtitle C of RCRA (see Section 1.3). Local governments in Maryland have not been granted authority to enforce federal or state regulations on the disposal of hazardous wastes. MDE, however, compiles information on the generators and the amounts of hazardous wastes being handled within Baltimore limits and reports this information to EPA.

Each generator/facility is responsible for properly handling and disposing of its hazardous waste. These firms are required to use out-of-state processing plants or emplacement facilities. Though there are several closed hazardous waste landfill cells within the city, there is no landfill currently accepting hazardous waste within the city limits.

Dead Animals

Since Baltimore is fully urbanized, most animal carcasses requiring disposal in the city are those of stray or unwanted cats and dogs. The division of Animal Control under Baltimore's Department of Health is responsible for removing animal carcasses from public property and for removing live animals that are defined as strays under the law. Animal carcasses are currently collected for disposal by private companies under contract with the City. In 2022, it is estimated that the City collected and sent approximately 38 tons of animal carcasses to incineration.

Treatment Plant Sludge

Treatment plant sludge is the solids remaining after wastewater and raw drinking water treatment. Two treatment plants are located in the city as described below. Both accept sanitary wastewater from surrounding counties as well as the city.

In 2021, the Back River Wastewater Treatment Plant (BRWWTP) generated approximately 63,000 wet tons of sludge (or approximately 13,000 dry tons). Through City contracts, private firms use the majority of the sludge for horticultural compost, a pelletized product for fertilizer, and as soil amendment. Any remaining sludge is sent to QRL for disposal. As of 2022, the BRWWTP is conducting a set of digestor cleanout projects, which has resulted in the production of higher-than-normal sludge volumes (roughly 25,000 dry tons produced in 2022). This has resulted in approximately 12 loads of sludge per day being sent to QRL for disposal. These elevated tonnages are expected to continue through 2026 before reducing back to normal levels (approximately 13,000 dry tons per year).

The Patapsco Wastewater Treatment Plant (PWWTP) generated approximately 410,000 wet tons of sludge in 2021. All of the wet sludge from PWWTP is heat dried for stabilization, pelletized, and sold as fertilizer.

The City operates three water treatment plants: Montebello I, Montebello II, and Ashburton. The facilities generate approximately 2,200 tons of sludge annually.

Septage

Septage is only accepted at the BRWWTP. The septage discharge becomes part of the plant flows and is subject to the same treatment processes as plan flows. The solids also become part of the overall sludge production and are subject to the same solids processing and disposal as sludge.

Any company wishing to dispose of septage into the city wastewater system must obtain a waste hauler permit and vehicle permit tag for each vehicle and pay annual permit and vehicle tag fees. The program is regional in scope, recognizing programs developed cooperatively with the City program in Baltimore, Howard, and Anne Arundel Counties. The program dictates the types of wastes to be accepted, allows for City sampling of the septage, and reserves the City's right to refuse acceptance of any load. Any violation of the program conditions can result in fines, revocation of permits, and/or prosecution of the permit holder.

3.2.2 Waste Classification in Maryland

Under Maryland law, solid waste generated in Baltimore separated into different categories by type based on classification under the MRA. The MRA requires each jurisdiction in Maryland to develop and implement recycling programs. Since December 2015, all counties in Maryland with a population greater than 150,000, which includes Baltimore, are required to attain a 35% recycling rate, which is calculated by dividing the tons of material recycled by the tons of materials generated, which in turn is defined as the tons of material recycled plus the tons of material disposed.

To allow fair comparison between different jurisdictions, only certain materials can be included when calculating a county's MRA recycling rate, which must be reported to MDE each year. These materials include paper, plastic, glass, metal, compostables, and a broad category of miscellaneous materials. In 2021, the miscellaneous materials reported by the City as part of its recycling rate included electronics, vehicle tires, textiles, pallets, toner cartridges, and batteries. Specific materials that are excluded from the calculation of the recycling rate include antifreeze, asphalt, concrete, coal ash, C&D debris, land-clearing debris, scrap automobiles, scrap metal, sewage sludge, soils, waste oil, and a host of other materials. Although the tons of these materials recycled are not counted when calculating the county's MRA recycling rate, they are still reported to MDE each year. This division of waste and recyclables into MRA and non-MRA materials is important in the context of understanding the reported recycling and waste diversion rates in this Plan and in comparing rates between different counties in Maryland.

In addition to the MRA recycling rate, the City reports a waste-diversion rate to MDE on an annual basis. The waste diversion rate includes the calculated MRA recycling rate plus up to 5% credit for specific source reduction activities (the City's source reduction activities are discussed in Section 3.3).

The composition of MRA and non-MRA waste and recyclables reported by the City in 2021 is detailed below. Figure 3-2 (page 59) and Table 3-1 (page 60) contain a summary of the City's MRA and non-MRA waste generation and composition by sector in 2021.

MRA Waste

MRA waste includes MSW and industrial waste from nonprivate, industrial waste landfills. It does not include recycled or disposed MSW ash or backend scrap metal recovered at WIN Waste. A total of approximately 756,000 tons of MRA waste was generated in Baltimore in 2021. Of this, approximately 130,000 tons of material was recovered (MRA recyclables), while 626,000 tons were sent for disposal.

MRA Recyclables

MRA recyclables include compostables (yard waste and other organics), paper, plastic, metal, glass, and other materials recovered or diverted from the waste stream prior to disposal. MRA categories are summarized below.

Paper and Cardboard

Recycled paper includes corrugated cardboard, newspaper, mixed paper, magazines, and office/computer paper diverted from the waste stream.

Plastic

Recycled plastic includes polyethylene terephthalate (PET/PETE) and high-density polyethylene (HDPE) bottles and containers, film plastics, and other mixed plastics diverted from the waste stream. PET/PETE and HDPE are classified as No. 1 and 2 plastics, respectively.

Metal and Glass

Recycled metal includes aluminum cans, tin/steel cans, and metal household appliances (washers, dryers, refrigerators, etc.) diverted from the waste stream. Recycled glass includes glass bottles and containers of various colors.

Yard Waste and Other Organics

Yard waste includes brush, branches, grass, and leaves diverted from the waste stream and composted. Other organics diverted from the waste stream mainly include food waste, wood materials, and donated food. This material may be composted, donated, or recycled by other means (anaerobic digestion, mulching, etc.).

Other

This is a broad category of materials that count towards MRA recycling, including animal proteins/fats, electronics, textiles, tires, toner cartridges, batteries, and furniture.

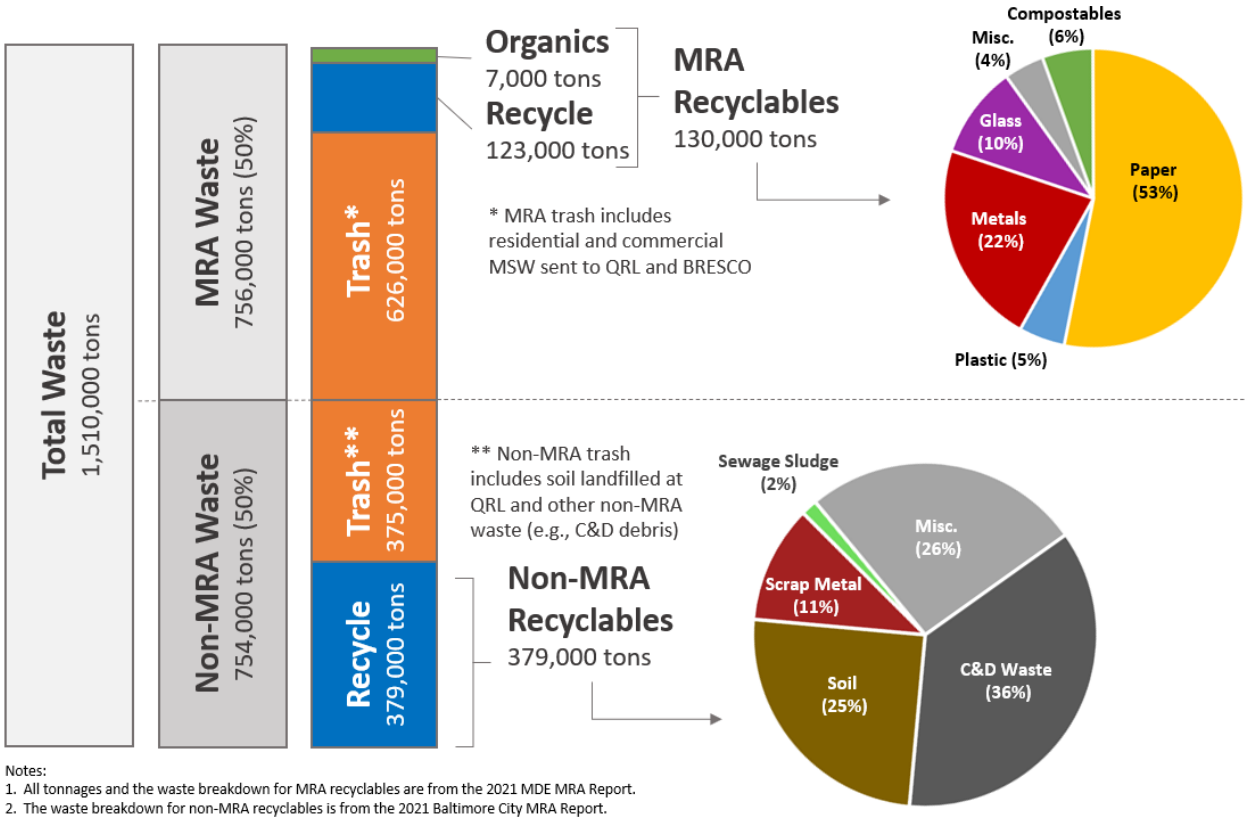


Figure 3-2. Total MRA and Non-MRA Waste Generated in Baltimore City in 2021

Table 3-1. MRA and Non-MRA Recyclables Composition by Sector in 2021

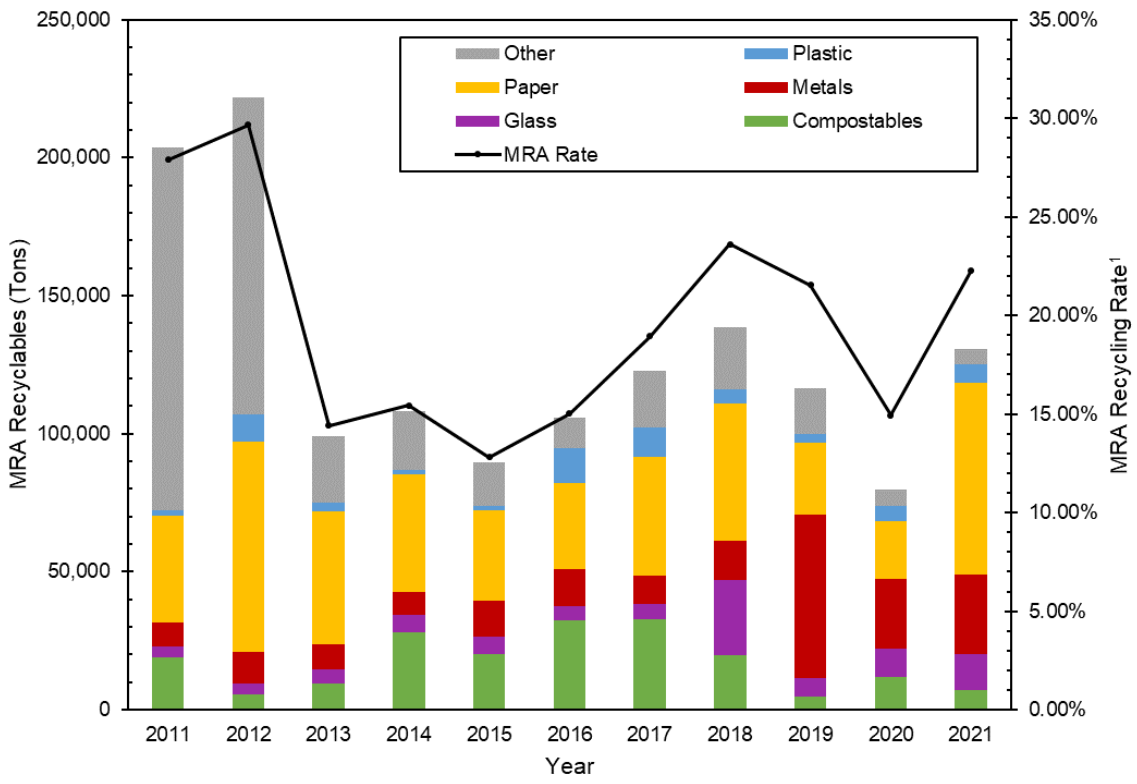
Category	Residential (tons)	Commercial (tons)	Total (tons)
MRA Recyclables			
Compostables	4,000	3,200	7,200
Paper	0	69,600	65,600
Plastic	5,100	1,400	6,500
Metals	7,600	21,200	28,800
Glass	11,700	1,400	13,100
Miscellaneous	0	5,700	5,700
Non-MRA Recyclables			
C&D Debris	6,900	130,700	137,600
Soil	71,800	22,900	94,700
Scrap Metal	1,500	40,400	41,900
Sewage Sludge	0	5,800	5,800
Miscellaneous	0	99,200	99,200

MRA Recycling Rate

The City's past MRA recycling rate as well as the composition of MRA recyclables from 2011 through 2021 is shown in Figure 3-3. Prior to 2013, ash from WIN Waste placed at QRL was counted as a recyclable material, and the MRA recycling rate for all years includes a 5% recycling credit for recovering energy from waste (considered resource recovery). Beginning in 2022, this credit will no longer be awarded.

As indicated in Figure 3-3, the City's MRA recycling rate was 22% in 2021. In addition to the MRA recycling rate, the City reports a waste diversion rate to MDE on an annual basis. The waste diversion rate includes the calculated MRA recycling rate plus up to 5% credit for specific source reduction activities (the City's source reduction activities are discussed in Section 3.3). In 2021, the City did not earn a source-reduction credit (although it has earned one in the past and will likely earn one in the future). As such, the City's waste diversion rate for 2021 was reported to be 22%, the same as its MRA recycling rate.

Both the City's MRA recycling rate and its waste diversion rate are below the statewide average MRA recycling rate of 42% and waste diversion rate of 46%. More importantly, the MRA recycling rate is below the 35% required for Maryland jurisdictions with a population over 150,000. The MRA recycling rate is projected to increase over the planning period as the City is committed to meeting the state-mandated 35% recycling goal (see Section 5.2, which includes the City's interim plan to achieve a 35% MRA recycling rate).



1. MRA recycling rate includes 5% recovery credit (this will not be offered beginning in 2022)
2. Prior to 2013, ash from WIN Waste landfilled at QRL counted as an MRA Recyclable

Figure 3-3. Baltimore City Historical Trends in MRA Recycling (2011–2021)

Non-MRA Waste

Non-MRA waste includes MSW collected from commercial sources as well as C&D debris, soil, and a wide range of other materials that are ultimately diverted for recycling.

The vast majority of non-MRA waste in Baltimore is collected by private haulers. As such, limited information is available for generation of this material. The quantities of non-MRA waste listed below include recycled non-MRA waste reported in the 2021 MRA report for the city (including non-MRA recyclables as well as soil disposed at QRL) as well as other non-MRA waste generated in the city (e.g., C&D debris). A total of 754,000 tons of non-MRA material was generated in Baltimore in 2021, of which about 375,000 tons was sent for disposal.

Non-MRA Recyclables

Approximately 379,000 tons of the 541,000 tons of non-MRA materials generated in the city in 2021 were reported to be recycled. The predominant categories of non-MRA recyclables include C&D debris, soil, sewage sludge, and scrap metal.

Construction and Demolition Debris

This category of materials (i.e., C&D) includes asphalt, concrete, bricks, drywall plaster, siding, wood pieces, and roofing, as well as general land-clearing debris generated in Baltimore.

Soil

Recycled soil includes soil that has been put to beneficial reuse by DPW (i.e., as fill material in City projects). However, soil used as daily and intermediate cover material at QRL is not included in this category in this Plan.

Scrap Metal

Recycled scrap metal includes materials left over from product manufacturing and consumption, such as vehicle parts, building supplies, and surplus metals. DPW provides scrap metal recycling at five of the resident drop-off facilities.

Sewage Sludge

Sewage sludge is the semiliquid waste obtained from the processing of municipal wastewater sewage. In Baltimore, this material is composted or converted into a pelletized soil amendment or fertilizer by private companies.

Other

Other types of recycled non-MRA waste in Baltimore include antifreeze, waste oil, oil filters, industrial fluids, millings, and a host of miscellaneous materials.

3.2.3 Projected Waste Generation

The projections for waste generation for 2024, 2027, 2030, and 2033 were derived from 2021 waste collection data recorded by the City and waste growth projections derived from the population data detailed in Section 2. These projections are shown in Table 3-2. Specifically, an average annual growth rate of 0.12%, the same as the expected population growth rate between 2020 and 2045, was used to estimate waste generation for 2024, 2027, 2030, and 2033.

3.3 Existing Waste Reduction and Diversion Programs

Waste reduction and diversion efforts in Baltimore exist in both the system operated by DPW and the private system. This section describes both public and private source reduction, reuse, and diversion programs in the city.

3.3.1 Single-Stream Recyclables

The City has undertaken many recycling programs to improve participation in curbside recycling programs, comply with state law (e.g., by monitoring recycling efforts in office and apartment buildings), and educate constituents on the importance of recycling.

Table 3-2. Annual Waste Generation in Baltimore City 2021–2033

Waste Category	Annual Generation (Tons)				
	2021	2024	2027	2029	2033
Residential MSW	0	0	0	0	0
Commercial MSW	80,400	80,700	81,000	81,300	81,600
Mixed MSW	540,000	541,900	543,900	545,900	547,800
Industrial (Solids, liquid, etc.)	13,700	13,700	13,800	13,800	13,900
Institutional (schools, hospitals etc.)	0	0	0	0	0
Demolition Debris (C&D)	279,000	280,000	281,000	282,000	283,000
Land Clearing	0	0	0	0	0
Controlled Hazardous Substance (CHS)	0	0	0	0	0
Asbestos	18,000	18,100	18,100	18,200	18,300
Soil	72,000	72,300	72,500	72,800	73,000
Special Medical Waste	5,700	5,700	5,700	5,800	5,800
Septage	0	0	0	0	0
Total MRA Waste Generation	**626,000**	**562,700**	**495,400**	**451,300**	**422,200**
Total Non-MRA Waste Generation	**375,000**	**351,800**	**330,300**	**308,600**	**286,800**
Total MRA Waste Recycled[1]	**130,000**	**196,700**	**266,800**	**313,600**	**345,500**
Total Non-MRA Waste Recycled[2]	**379,000**	**404,700**	**429,000**	**453,400**	**478,000**
Total Waste Generation	**1,510,000**	**1,516,900**	**1521,400**	**1,526,900**	**1,532,400**
MRA Recycling Rate[3]	**17%**	**26%**	**35%**	**41%**	**45%**

1. MRA Recyclables include compostables, paper, plastic, metals, glass, and miscellaneous materials as described above. The plan to increase MRA recycling tonnages (particularly for SSR and organics) is presented in Section 5.2, including estimates for diversion potential.
2. Non-MRA Recyclables include C&D debris, soil, scrap metal, sewage sludge, and miscellaneous materials as described above. The plan to increase non-MRA recycling tonnages (particularly for C&D and bulk waste) is presented in Section 5.2, including estimates for diversion potential.
3. MRA recycling rate does not include resource recovery credit as this credit was discontinued beginning in 2022 (although it was awarded in 2021).

Curbside Recycling Program

DPW provides curbside SSR collection once every two weeks, Tuesday through Friday, to each single-family residence located in Baltimore. There is no maximum amount of recyclable material that can be collected from each residence. Materials accepted in the SSR collection program include aluminum and steel/tin cans, cardboard, glass containers, mixed paper, and plastic bottles and jars. A full listing of acceptable and unacceptable materials is available at the DPW recycling page. The City is currently trying to return to once-weekly SSR collection as soon as is feasible. DPW drivers do not currently have capacity to provide once-weekly collection due to staffing shortages, equipment breakdowns, and an increase in the number of residences recycling and recycling tonnage since the roll out of the 65-gallon blue bins in

2021. SSR collected from the curbside program is sent to a private facility for recycling (see Appendix D) located outside the city.

Public Education and Outreach

The City provides information about waste disposal and recycling programs, what materials can be recycled, locations of residential drop-off centers, disposal of HHW, and source reduction initiatives on the City's website (www.baltimorecity.gov) and on DPW's social media outlets (Facebook, Instagram, LinkedIn, NextDoor, and Twitter). Waste reduction and reuse is promoted at City-organized spring and summer festivals and at special events throughout the year. DPW also places recycling memos and information in monthly newsletters sent to all residents. More information on specific education and outreach programs is provided below.

Source Reduction Programs

According to the 2020 Source Reduction Report published by MDE, Baltimore participated in the following source reduction initiatives:

1. Conducting an ongoing, multifaceted, public education program promoting grass-cycling and/or home composting of yard trimmings
2. Distributing publications exclusively promoting and describing how to use grass-cycling and/or home composting of yard trimmings to at least 30% of single-family households within the last three years
3. Conducting an ongoing multifaceted, public education program promoting food donation and food composting
4. Promoting lawn alternatives that do not require trimming or watering
5. Providing an app of residents to report violations of the polystyrene and plastic bag ban to the City
6. Hosting a source-reduction event for the public
7. Incorporating source-reduction information into a county website
8. Promoting source reduction in schools on an ongoing basis
9. Including a source-reduction curriculum or ongoing activity in schools
10. Integrating source reduction into ongoing county employee training and education programs
11. Distributing source-reduction materials to at least 30% of residents within the last three years
12. Distributing source reduction materials to at least 30% of businesses within the last three years
13. Developing or updating a solid waste reuse directory within the last three years
14. Conducting a focus group or a survey of residents about source reduction within the last three years

15. Developing or maintaining a system for referring people to a materials exchange program
16. Working with a targeted sector of the business community to achieve source reduction
17. Conducting a source-reduction training session, workshop, or presentation at a business, institutional or community event
18. Conducting workshops demonstrating proper food composting techniques
19. Developing or maintaining permanent food composting demonstration sites
20. Operating a program to promote pallet reuse
21. Establishing or maintaining a City procurement policy advancing the purchase of materials that result in reduced waste generation
22. Incorporating green building codes and requirements in City construction, remodeling, and maintenance bid specs and contracts
23. Holding team meetings, at least quarterly, that included representatives from major City departments, in which source reduction was discussed as a formal part of the agenda

Recycle Right and Social Media

The Office of Waste Diversion is investigating using and improving digital technologies to help educate the public about solid waste management and recycling in Baltimore. In addition to using DPW's social media accounts to promote source reduction, the Office of Waste Diversion developed a "Recycle Right" webpage that gives guidance on recycling and promotes source reduction. Waste diversion and recycling messaging and materials are created and managed in coordination with the City's Communications Office.

Polystyrene Ban

Under Ordinance 18-125, food service facilities in Baltimore are prohibited from using disposable food service tableware made from polystyrene (Styrofoam). This law does not apply to food or beverages packaged outside of the city, such as butchered meat and eggs. The ban is intended to force businesses in the city to replace polystyrene containers with recyclable or compostable alternatives. The Department of Health enforces the bill, issuing fines beginning at $200 for retailers that do not comply with the polystyrene ban.

Plastic Bag Ban

On October 1, 2021, the Comprehensive Bag Reduction Act, also known as the Plastic Bag Ban, went into effect. The Bag Reduction Act prohibits grocers and other retailers from supplying customers with plastic bags at point of sale, pickup, or delivery. It specifically applies to plastic "check-out" bags that have a thickness of less than 4 mils. Paper bags and compostable plastic bags are permitted. However, compostable plastic bags must be recognized as meeting ASTM International (ASTM) D6400 standards, as well as being capable of biological decomposition. The use of any accepted single-use bags is accompanied by a fee of at least five cents charged to the customer. Of these five cents, one cent is paid to the city of Baltimore, with the rest retained by the business. The City has also distributed more than 55,000 free

reusable bags to residents. Baltimore's bag ban is critical to solid waste management because plastic bags are not accepted in curbside recycling as they can damage MRF machinery and plastic bags and bagged materials are the largest contributors to contamination in SSR. The comprehensive Bag Reduction Act helps to remove plastic bags from the recycling stream and decreases plastic pollution in the city's streets, parks, and waterways.

Based on data collected from the Baltimore City bag surcharge portal, 20 million alternative bags (paper, compostable, or thicker plastic) were sold in the city during the first year of the ban. Assuming that each purchased alternative bag was used in place of one thin plastic bag, it is estimated that at least 20 million thin plastic bags were prevented from entering the city's solid waste stream, which is a conservative assumption because it does not account for customers who changed behaviors to consistently use reusable bags or other methods for transporting purchases.

Using a weight conversion factor of 0.77 pounds per 100 bags (from the EPA), it is estimated that approximately 154,000 pounds (roughly 77 tons) of plastic bags were diverted from disposal during the first year of the plastic bag ban.

Electronic Timekeeping System

In 2020, the city implemented an electronic timecard system, called Workday. This citywide system eliminated the need for paper time sheets, overtime slips, and leave slips. It has reduced vast quantities of timekeeping paperwork.

Electronic Invoice Processing System

DPW, the Department of Transportation, and the Department of General Services, which are the three largest City agencies that work with consultants and contractors, are using an electronic, paperless invoice review and approval process.

Municipal Can Program

In 2016, the City provided every household subject to trash collection by DPW with a 65-gallon wheeled trash can specifically for mixed refuse. By providing all households with a trash can with a tight-fitting lid, the City aimed to reduce wind-blown litter, prevent rodents and other animals from foraging in trash cans, and standardize trash collection in the city to reduce the strain on trash collection workers. The program was also launched with the intent of reducing total trash generation in the city by providing all residents with a standardized bin size that is considerably smaller than the maximum collection volume of 96 gallons.

Recycling Can Program

In September 2021, the City launched delivery of 65-gallon curbside recycling carts to approximately 170,000 city households. This initiative was conducted in coordination with the Recycling Partnership, the American Beverage Association's Every Bottle Back Initiative, Closed Loop Partnership, Dow, the Baltimore Civic Fund, and Rehrig Pacific. The goal of this initiative was to increase access to curbside recycling and improve recycling participation. Delivery of recycling carts was completed in February 2022, and DPW is

monitoring the impacts of the rollout through reporting required through the agreements with the program's lending partners.

Recycling Partnership Grant for City-Recycling Campaign

In May of 2020, Baltimore received a cash grant of $250,000 from the Recycling Partnership to support resident engagement in curbside recycling and improved quality of materials. In addition, the Recycling Partnership provides access to campaign materials, staff time, and other in-kind services with a total estimated value of $125,000.

Residents may not know which materials are recyclable and how to properly prepare recyclables for collection. In response, the City seeks to provide targeted, specific outreach to residents to encourage recycling, provide guidance about what can be recycled, and implement other programmatic elements with the goal of decreasing the contamination rate of curbside recycling.

Campaign elements included an informational card mailed to all households in Baltimore in order to make sure each household receives current, accurate information about the recycling program. Supportive messaging and campaign materials were placed throughout communities on various structures. In addition to providing outreach directly to households and in public spaces, City staff hand out informational items and discuss the proper way to recycle at various community events. Social media advertisements are also used to help increase reach and to engage with residents. Outreach materials promote the city's "Recycle Right" webpage. Targeted recycling routes with high levels of contamination receive extra outreach. Recycling crews place "oops" tags on recycling that is contaminated or set out in a plastic bag. This helps remind residents of the opportunity to recycle right.

Recycling Initiatives in City Schools

DPW participates in multiple school initiatives to encourage and promote recycling, which include the following:

1. The Eco Warriors Challenge, a competition among city schools for students and families in which students earn badges and service-learning hours. The top three elementary, middle, and high schools with the most badges win a cash award.
2. Recycling presentations that discuss waste reduction and reuse, what is and is not recyclable, and recycling at home were conducted in public schools.
3. Schools that recycle properly and consistently are provided with 65-gallon recycle bins (this program is planned).
4. Design of school-specific recycling posters.

Additional information on the Baltimore public school recycling program can be found in Appendix E.

Apartment Building and Condominium Recycling Program

Per Maryland Code Environment Article 9-1711, each property owner or manager of an apartment building or a council of unit owners of a condominium that contain 10 or more dwelling units shall provide recycling collection and removal for the residents of the dwelling units. The Apartment Building and Condominium Recycling Plan is provided in Appendix F1, and a list of all eligible apartment buildings and condominiums is provided in Appendix F2.

Baltimore provides recycling roll-off container collection for condominiums with 50 tenants or more, but recycling collection is provided at the discretion of the condominium owners. Recycling roll-off container collection is also provided for apartment buildings, regardless of tenant size, at the discretion of the property owner or apartment manager.

Special Events Recycling Program

Per Maryland Code, Environment Article 9-1712, all special event organizers are required to provide recycling at special events that meet all of the following criteria:

- Includes temporary or periodic use of a public street, publicly owned site or facility, or public park
- Serves food or drink
- Is expected to have 200 or more persons in attendance

In addition, special event organizers are required to provide all labor or equipment necessary to facilitate recycling, place recycling bins next to each trash can, ensure recycling bins are easily distinguishable from trash receptacles, ensure recyclable materials are collected and processed for recycling, and pay any costs associated with recycling at the event. When applying for a permit, event organizers are required to provide a recycling plan to be reviewed by the Office of Waste Diversion. Organizers that do not submit a recycling plan that meets the aforementioned requirements will not receive a special event permit. The Special Events Recycling Plan is provided in Appendix G1. The special events location list is provided in Appendix G2. The special events guidelines are included in Appendix G3, and a special events checklist is included in Appendix G4.

The City provides recycling receptacles and collection for eligible special events if the special event organizer requests them. Otherwise, special event organizers hire private haulers to provide recycling services.

Office Building Recycling Program

During the December 2019 legislative session, the Maryland General Assembly passed Senate Bill 370, Environment – Recycling – Office Buildings, which requires the County Recycling Plan to address the collection and recycling of recyclable materials from buildings that have 150,000 square feet or more of office space. Owners of office buildings that meet the criteria are required to provide recycling receptacles for the collection of recyclable materials. The office building recycling plan is provided in Appendix H.

Owners of buildings that have 150,000 square feet or more of office space are responsible for providing all containers, labor, and equipment necessary to fulfill recycling requirements, either directly or through contracting with a private sector company. The office building owners and tenants shall recycle corrugated cardboard, mixed paper, acceptable plastic bottles and jugs, and tin/aluminum beverage containers.

The monitoring of the recyclable material collection in office buildings will be conducted by the owner, corporate management company, or tenants of each applicable office building. The city requests office building owners to submit an annual MRA report detailing the recycling tonnages removed from the office building(s), but there is currently no enforcement mechanism in place to require reporting.

Cigarette Butt Recycling

In 2016, there were 15 cigarette butt recycling receptacles installed near bars, restaurants, movie theaters, and coffee shops in the Harbor East neighborhood of the city. A reported 55,000 cigarette butts were collected within the first six months of the initiative. The cigarette butts were processed into compost and shipping pallets. Although the City received a grant in 2018 through BMore Beautiful, the City's peer-to-peer beautification program, to install 90 new urns and provide marketing outreach on cigarette recycling, the cigarette butt recycling program has since ended.

In addition to the cigarette butt recycling program, the City of Baltimore and Baltimore Mayor Brandon Scott filed a joint lawsuit in November 2022 to hold cigarette manufacturers accountable for cleanup costs associated with tobacco product litter.

Paper Shredding

To promote paper recycling with residents and businesses in the city, DPW holds shredding events three to four times per year. During these and all other DPW events, educational materials on recycling and source reduction are provided to participants. In 2022, shred events collected over 19.5 tons of recyclable paper and averaged more than 200 cars per event.

3.3.2 Organics

Currently, there is no centralized, large-scale organics-diversion program in Baltimore. Organics diversion (mostly composting) is available through local community collectives, small-scale farm-based initiatives, small-scale privately contracted collection, or personal backyard compost systems. In a 2018 survey of stakeholders reported in the LWBB Plan, 7% of respondents stated they perform some form of backyard composting, while 8% participate in a community composting initiative. However, these rates are unlikely to represent citywide averages because survey takers were self-selected and thus more likely to be interested and involved in waste-reduction initiatives.

Food Matters Program

In September 2018, the City began working with the NRDC and the Rockefeller Foundation to implement strategies laid out in the BFWRS by establishing the Food Matters pilot food waste management project. NRDC provided technical support in the form of professional training and peer learning opportunities and

contributed over $800,000 to support food waste reduction planning and implementation (including funding for staff positions and small grants to nonprofit organizations to support the City's goals of reducing food waste). Through 2022, roughly $100,000 in grants have been awarded to 11 applicants. Other notable achievements of the Food Matters program include the creation of a support network for community composting sites, which has allowed providers to explore different types of in-vessel systems, and the creation of additional educational materials targeting source reduction, which has led to an awareness of the connection between compost and local food provision systems.

The Food Matters program also included implementing the Save The Food Campaign in Baltimore City. The Save The Food Campaign is a large-scale consumer campaign targeted at food waste prevention at the household level. The campaign was launched with an event series consisting of five events focused on food waste issues, including a movie screening about reducing food waste. Ten food waste reduction community sessions were held across the city to connect with key community stakeholders, in order to promote in-home composting. These community gatherings were integral to raising awareness of food waste challenges. In addition to these events, the campaign has a video and website. The website includes tips on how to store food to preserve it longer, recipes for using parts of produce that is often discarded, information on the harm of food waste, and more. The project is also working with institutions on food waste prevention and compost, supporting enhanced community composting, educating the public about food waste prevention, and is supporting the Maryland Food Bank in food rescue options.

Other City Initiatives to Combat Food Waste

The City has implemented a free, food scrap drop-off program for residents. Collection bins are placed at DPW's five residential drop-off centers, the downtown farmer's market and bazaar, and the Waverly farmer's market. Food scraps collected at the two farmer's markets is donated to local farmers, who use it for compost and animal feed. At the two farmer's market locations, the program makes a consistent effort to educate the public on strategies relating to food waste reduction and broader environmental stewardship.

Additionally, the NRDC issued a Food Scrap Recycling 2019 Landscape Assessment for the city, which evaluates opportunities for financing and strategies for funding to support the food waste reduction strategies laid out in BFWRS.

Donation and Food Rescue Organizations in Baltimore

Major food rescue and donation organizations in Baltimore and the surrounding region are listed in Appendices I and J. As a result of these food rescue/donation organizations, it is estimated that 5,750 tons of food was distributed to food insecure Baltimore residents in 2018 (NRDC 2019).

In addition to major food rescue organizations, there are some other establishments offering possible synergies regarding food waste work in the Baltimore region::

1. Center for Eco Technology: A national nonprofit supporting food waste prevention and diversion at the local and state level. They support the development of a wasted food diversion marketplace.
2. Food Rescue US/EAT Management: This establishment is operated by a former chef/restaurateur turned food waste consultant and is currently supporting the advancement of the Food Rescue U.S. platform designed to increase food rescue efforts with volunteer support.

Grass-Cycling

The City provides comprehensive information that encourage residents to practice grass-cycling and on-site composting of yard trim materials. Some examples of educational efforts to promote grass-cycling and composting are as follows:

- Grass-cycling presentations provided during community association meetings
- Distribution of informational flyers and pamphlets during free citywide festivals, like the African American heritage festival, Artscape, Book Festival, and Ecofest
- Inclusion of grass-cycling tips in the DPW calendar, which is mailed to all city residents
- Distribution of educational materials on DPW social media accounts

Community Composting Programs

Baltimore is home to many community composting initiatives and programs. These include nonprofit food scrap collection services, community gardens, and several small, local, private companies that service households for waste management solutions for compost, recyclables, and residual waste. Some of these providers also engage with Baltimore area restaurants to help reduce their waste stream through composting and recycling. Lists of the community composting programs available both in and near the city are included in Appendices I and J.

3.3.3 Construction and Demolition Debris

The city currently does not offer any formal C&D recycling opportunities. However, several reuse and repurposing facilities in the city provide residents and businesses with opportunities to reduce the amount of C&D material sent into the solid waste system. These facilities focus on the deconstruction for salvage of valuable materials from homes and structures that are to be demolished and donation of unused building materials like paint, lumber, plumbing fixtures, appliances, doors, cabinets, and windows. Lists of in- and near-city C&D reuse and repurposing facilities are included in Appendices I and J.

3.3.4 Durable Medical Equipment

Durable medical equipment (wheelchairs, walkers, scooters, etc.) is collected at the residential drop-off centers at NWTS and QRL through a partnership with the Maryland Department of Aging. These materials are refurbished and reused.

3.3.5 Other Waste Reduction and Diversion Programs

Other private and nonprofit waste reduction and diversion facilities in and near the city are listed in Appendices I and J. These facilities donate and reuse textiles, clothing, shoes, eyeglasses, vehicles, books, musical instruments, and other items.

3.3.6 Litter Reduction and Cleanup Programs

The city has several community-based programs designed to reduce litter generation, promote litter cleanup, and educate constituents on the importance of litter reduction.

Community Pitch-In Program

The Community Pitch-In Program empowers residents to tackle the trash problems in their neighborhoods. Community associations can request up to four roll-off dumpsters yearly to aid in such cleanup efforts. The Mayor's Annual Spring and Fall Cleanups are multiagency, citywide events that encourage residents to clean up their communities. DPW offers bags, roll-off dumpsters, and same-day bag collection to participating community organizations and business organizations.

BMORE Beautiful Program

The BMORE Beautiful Program, is a collaboration between the mayor's office, Office of Sustainability, DPW, DHCD, the Environmental Control Board, and nonprofit partners, including Baltimore Green Works and the Waterfront Partnership. The BMORE Beautiful Program uses the core principles of community-based social marketing and peer-to-peer networking to engage, educate, and motivate residents, businesses, schools, and neighborhood associations to change their behavior regarding litter, trash, and proper waste disposal. The goal of the program is not only to change behaviors and attitudes toward the beautification of the city but also to encourage residents, businesses, and organizations to become directly involved in activities and projects that will keep their neighborhoods clean. To meet this goal, the City works closely with neighborhoods on their unique beautification projects and cleanliness challenges and provides educational literature, outreach materials, and other resources. A resident in each piloted neighborhood volunteers to be the block captain, following the role model of engagement. They are responsible for recruiting neighbors to sign the pledge and participate in the program, organizing ongoing beautification and cleaning activities, leading others to change their negative behaviors regarding neighborhood cleanliness, and educating their neighbors on how to comply with City Code requirements and how they can keep their neighborhoods beautiful through simple, easy-to-follow behaviors.

Additionally, BMORE Beautiful supports community beautification goals by offering small and innovative grant programs that address an array of neighborhood beautification and engagement needs. Current grant opportunities include Love Your Block, Say YES! (Youth Environment Stewardship) Program, Care-A-Lot Grant, and Activate Your Space Grant. Love Your Block is a mini-grant program that provides funding for small community led beautification efforts. Care-A-Lot is grant program that provides funding for communities and organizations to mow and maintain vacant lots in the city. SAY YES! Program is an opportunity for youth to become actively involved in the cleaning and greening in their communities.

Activate Your Space Grant is a grant program that provides design assistance, consultation, and funding to neighborhood organizations using crime prevention through environmental design strategies to transform blighted vacant lots into safe community assets.

Baltimore Clean Corps Initiative

The Baltimore Clean Corps Initiative, a partnership between the City and local nonprofit and community-based organizations, provides grants to hire unemployed or underemployed residents to clean and care for community-selected sites. Cleaning activities may include maintaining vacant lots, cleaning alleys, and maintaining trash receptacles in specific neighborhoods. Clean Corps grantees will support the City until January 2025 to provide services in 33 eligible neighborhoods that have been hit particularly hard by the COVID-19 pandemic and resulting economic crisis.

DPW Volunteer Network

DPW launched the Volunteer Network in December 2022 wherein individuals and groups (including K-12 schools, colleges, universities, businesses, nonprofits, faith-based institutions, and community associations) are encouraged to join DPW's efforts to keep the city clean and healthy. Specific initiatives may combat illegal dumping, promote anti-littering and proper trash disposal, conserve water, minimize food waste, or promote recycling.

Smart Cans

Solar powered trash compactors fitted with sensors and communications devices that let DPW know when they need to be emptied have been deployed in the city and have been in service in the Inner Harbor for several years. In 2018, 64 Smart Cans were deployed in South Baltimore in conjunction with attached recycling cans. Smart cans help reduce litter in the city by avoiding instances where litter cans are full and excess material gets piled upon or around the can, where it is more susceptible to being spread by wind and vermin.

3.4 Existing Residential Drop-Off Centers

City residents may drop off waste and recycling for free at the residential drop-off centers located at QRL or NWTS as well as three other full-service residential drop-off centers—Western Sanitation Yard (Reedbird Avenue Drop-off Center), Eastern Sanitation Yard (Bowleys Lane Drop-off Center), and Sisson Street Drop-off Center. These facilities provide additional disposal capabilities to city residents and accept bulk trash, commingled recycling, rigid plastics, scrap metal, scrap tires, appliances, waste oil and antifreeze, electronics, and oyster shells on a year-round basis. In addition, the Baltimore DGS operates three drop-off centers that only accept commingled recyclables—York Road Substation, Calverton Road Substation, and Lewin Substation. A listing of acceptable materials at each drop-off center is available on the public works website. Figure 3-4 shows the locations of the residential drop-off centers.

Recyclable materials collected at residential drop-off centers are sent to various private recycling companies for processing. A full list of the city's current recycling vendors is provided in Appendix D.

Baltimore residents can dispose of their household hazardous waste on designated collection dates (about 14 per year) at the Sisson Street Drop-Off Center on 2849 Sisson Street. Accepted materials include automotive fluids, batteries, glycols (e.g., antifreeze), household cleaning products, insecticides, pesticides, thermometers, florescent light bulbs, solvents, fire extinguishers, oil-based paint, varnishes, and stains. A private company exports city HHW for proper processing and disposal.

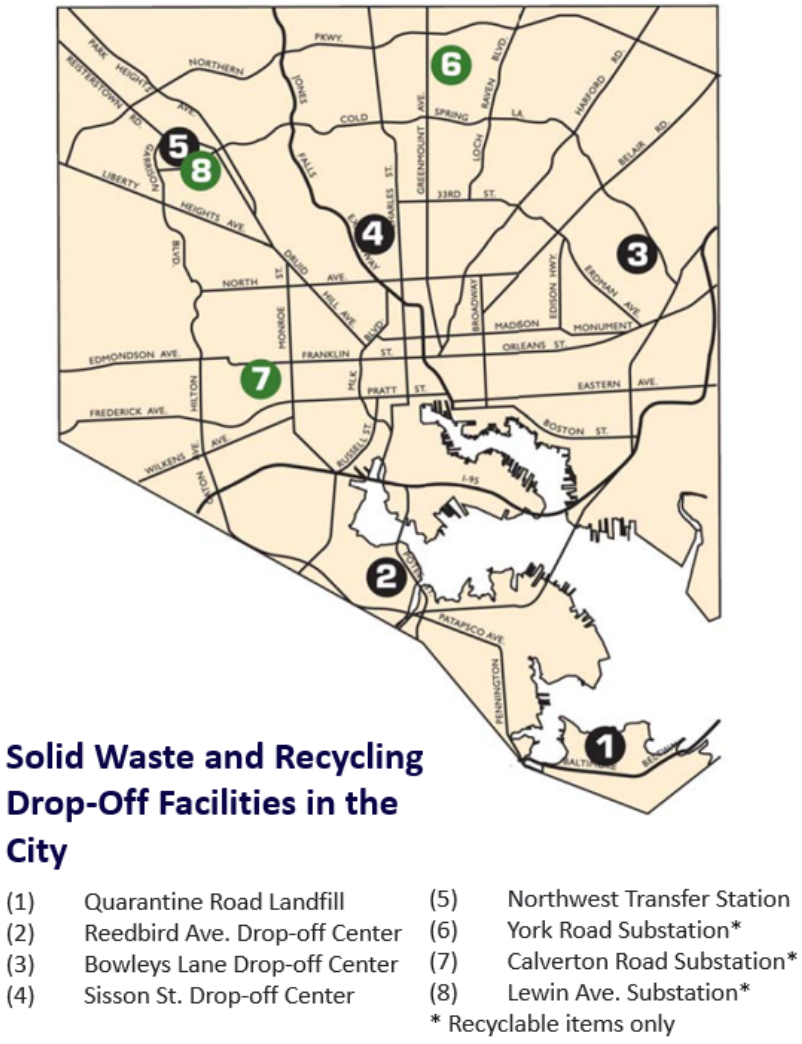


Figure 3-4. Map of Residential Drop-Off Centers

3.5 Existing Waste Collection System

This section includes a description of existing solid waste collection systems, including service areas. The description is presented below, with more detail provided on the services provided by DPW than on private collection services.

Under Article 23 of the Baltimore City Code, the City is responsible for collecting all "mixed refuse" from dwelling houses, apartment houses, tenant houses, boarding houses, hotels, restaurants, hospitals, and other places where such refuse is accumulated. Residential waste collection services are offered to over 210,000 homes in Baltimore. These services include curbside collection and access to five residential drop-off centers.

Property owners whose accumulated solid waste is not collected by the City are served by private waste haulers who contract individually with property owners to provide collection services (and who also may contract with waste acceptance facilities). However, a small amount of commercial recycling in the City is handled by DPW. As the City is largely uninvolved in the management of waste collected by private haulers, its discussion is limited in scope in this Plan.

Collection services run seven days a week, excluding holidays, and residential collections occur Tuesday through Friday.

While the BSW is primarily responsible for trash collection in the city, agencies such as the DHCD and the Department of Education collect waste from their respective facilities.

3.5.1 Mixed Refuse

Residential mixed refuse collection is provided by BSW's Environmental and Routine Services Division to over 210,000 homes. Since July 2009, regular mixed refuse collection services are provided once a week by the City to each location served, Tuesday through Friday with Saturday being a make-up day for missed holiday collections. The maximum waste volume limit of mixed refuse per household per week is 96 gallons.

The City's Routine Services Division collects all mixed refuse generated at city parks, single-family residences, and city litter baskets.

The Marine Operations Division provides mixed refuse collection services for those multifamily residences (generally condominiums) that the City is obligated to service. The Special Services Division provides regularly scheduled cleaning of business districts, streets, alleys, and some City-owned lots and parks. These operations are coordinated by the same borough supervisors responsible for the residential mixed refuse operation.

The amount of residential mixed refuse collected by City crews varies by season. Generally, collected waste tonnage is higher in spring and summer compared to the winter season, with the largest amounts collected in May and July.

DPW will only collect waste from addresses that generate less than 96 gallons weekly. As a result, commercial mixed refuse is predominantly collected via the private system, with individual waste haulers contracting directly with businesses and institutions in the city.

DPW and MDE have few means of determining the exact types, quantities, and disposal fate of all mixed refuse collected in the private system. However, it is estimated that roughly half of commercial mixed refuse collected in the city is disposed at WIN Waste.

3.5.2 Single-Stream Recycling

The City's residential curbside recycling program is described in Section 3.3.

Most commercial recycling occurs through the private system, however, DPW provides curbside recycling to some Baltimore businesses. Most participating businesses set out recyclables for once-a-week pickup. As of 2022, about 800 recycling containers are on the recycling business collection route serviced by the City. However, the exact number of businesses that participate in the City's recycling program is unknown as many businesses set out more than one container per address, have different levels of collection frequency per container, or simply place their recycling container out with residential recycling carts for curbside pickup.

3.5.3 Bulk Waste

Collection of bulk items in Baltimore is coordinated once per month at residential locations that have scheduled for bulk waste pickup. To arrange for bulk waste collection, residents must make a service request to 311 two to three months prior to their desired collection date, although pickup can happen faster depending on availability. Pickup may not be available on the requested date depending on the backlog of pickup requests. Materials accepted for bulk collection include furniture, appliances, and tires (without rims). Bulk waste is either recycled (e.g., appliances are drained and recycled as scrap metal) or disposed (e.g., furniture). C&D debris (e.g., drywall concrete, siding, wood pieces, and roofing) is not eligible for bulk trash collection.

3.5.4 Yard Waste and Leaves

Residential yard waste is collected by load packers along with mixed refuse on trash collection days throughout the city. Residents may place as many as five bags of leaves per household for curbside collection each week. Additionally, from October through January, residents may make a service request to 311 for special Monday pickups of as many as 20 bags of yard waste. Yard waste is disposed at WIN Waste. Leaves on city streets and other city-owned lots are collected using mechanical sweepers and load packers (although the sweepers are not specifically designed for this purpose) and disposed of at WIN Waste or QRL.

3.5.5 Rodent Eradication

DPW has operated the Rat Rubout Program in Baltimore since 2010. The goal of the program is to reduce the rat population in the city to prevent property damage and to limit the spread of disease. Under the program, City pest control workers inspect and bait active rat burrows at residential properties as a result

of either a citizen complaint (via a service request to 311) or as a proactive blitz. In 2022, the City performed approximately 135,943 proactive inspections and 5,488 inspections as a result of citizen complaints. In addition to inspecting and baiting active rat burrows, City pest control workers in the program educate residents on how to keep their properties free of the trash and debris that attract rats.

3.5.6 Christmas Trees

In December and January, the City collects Christmas trees in curbside collection of mixed refuse. Trees collected curbside are sent to QRL or WIN Waste for disposal. During this period, the City also allows residents to drop off Christmas trees at multiple locations throughout the city where they are given the option to mulch their trees and collect the mulch. Any mulch not taken by residents is disposed of at QRL or WIN Waste.

3.5.7 Waste from City Parks

DPW services the trash cans from 262 parks and 43 recreation centers on a weekly basis. Parks and recreation centers are also able to schedule bulk trash pickup by request. Waste from the parks and recreation centers is included in the residential waste stream.

3.5.8 Animal Manure and Carcasses

The main producer of animal manure is the Maryland Zoo in Baltimore. The City collects manure from the zoo multiple times each week. Approximately 850 tons of manure is removed from the zoo annually and sent to QRL for disposal. Most animal carcasses collected in the City are those of stray cats, stray dogs, and deer. The Health Department collects animal carcasses for incineration.

3.5.9 Cleanup of Illegal Dumping

Illegally dumped waste remains a persistent issue in Baltimore with an estimated 10,000 tons of waste illegally dumped annually. DPW responds to 311 service requests to investigate and clean up illegal dumping. However, dedicated alley and lot cleaning crews have recently been able to address illegal dumping hot spots without relying solely on 311 complaints. According to the December 2022 Illegal Dumping Remediation Report published by DPW, the City's cyclical response to illegal dumping incurred costs of over $26.7 million in FY 2022 on right-of-way cleaning services, which includes street and alley cleaning, mechanical street sweeping, marine operations, and cleaning of business districts. DPW's Office of Communications and Community Affairs is actively involved in educational outreach to engage residents in preventing and reporting illegal dumping. DPW tracks and reports illegal dumping across the city and uses targeted marketing strategies to deter unwanted behaviors in high-incidence areas.

3.5.10 Marine Debris

The City provides cleaning services for the inner harbor and surrounding waterways via DPW's Marine Operations Unit, which operates seven days a week. The Marine Operations Unit uses multiple skimmer and bass boats to remove debris from harbor ways. Skimmer boats are designed to skim the waterways for debris and store the debris onboard, while bass boats are smaller boats that are used by operators to remove debris using a net. Baltimore was the first city in the nation to use skimmer boats for debris removal.

The City also receives assistance from Waterfront Partnership and their trash wheels (e.g., "Mr. Trash Wheel") to collect marine debris. Trash wheels are solar-powered watercraft that intercept trash at the end of a river, stream, or other outfall. There are trash wheels installed at several key waterway locations that have historically funneled trash into the harbor.

3.5.11 Street and Sidewalk Sweeping

The City operates a fleet of mechanical street sweepers in addition to human sidewalk sweepers to collect litter and dirt from the main streets and sidewalks in Baltimore. Mechanical sweepers operate 74 routes on a weekly basis, while sidewalk sweepers and all terrain ride on vacuum sweepers operate daily primarily within the business district and gateway areas. About 9,000 tons of dirt and debris is collected by street and sidewalk sweepers annually.

3.5.12 Cleanup and Trash Removal at Encampments

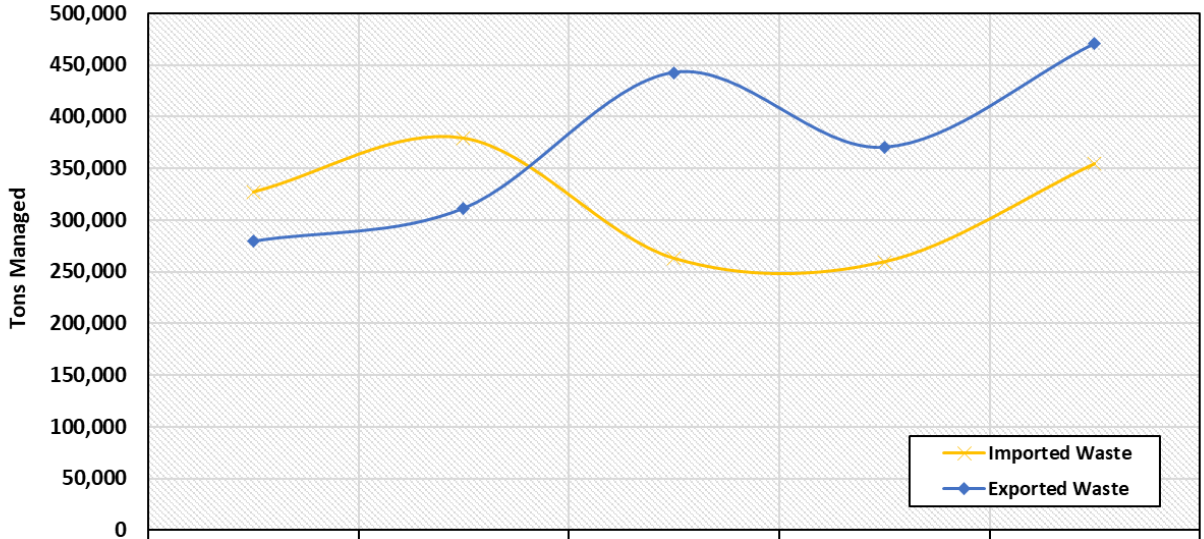
While residents remain at a homeless encampment, DPW will remove trash from the site until the Department of Health can provide residents with temporary housing. DPW also provides cleanup services to areas used as homeless encampments after residents have been provided alternative housing.

3.5.13 Small Hauler Program

In April 2017, the City extended the successful Small Hauler Program at QRL to allow small haulers to also use NWTS. Small commercial waste haulers include those who contract with others for collection, transportation, or disposal of solid waste or engage in the collection, transportation, or disposal of solid waste. The program was designed to encourage small haulers to apply for a City permit, reduce instances of illegal dumping, and allow for more efficient disposal of commercial waste. Small haulers may dispose of their loads at NWTS and QRL for a disposal fee of $20 per load up to 7,000 pounds and $3.38 per 100 pounds above 7,000 pounds. In 2021, approximately 32,600 tons of waste was delivered to NWTS and QRL under the small hauler program.

3.6 Import and Export of Solid Waste

The types and quantities of solid waste imported into the city for disposal that are known to be significant are discussed below. These wastes include residential mixed refuse, commercial/institutional mixed refuse, scrapped automobiles, special hospital waste, and wastewater treatment plant sludge. Wastes believed to be exported are also listed; however, the City has very little information concerning exported waste amounts. Figure 3-5 contains an estimate of imported and exported waste quantities from 2017 through 2021.



	2017	2018	2019	2020	2021
Imported Waste	326,900	378,900	262,700	259,200	354,100
Exported Waste	279,900	311,700	442,700	370,500	470,500

Figure 3-5. Estimated Quantities of Imported and Exported Waste, 2017–2021

3.6.1 Types and Quantities of Waste Imported

Mixed Refuse

In addition to accepting waste from the city of Baltimore, WIN Waste also accepts waste from Baltimore County, Howard County, Anne Arundel County, Montgomery County, Saint Mary's County, and Prince George's County in Maryland as well as from several other states including New York, Ohio, Pennsylvania, Virginia, and North Carolina. In 2021, WIN Waste accepted approximately 700,200 tons of commercial and residential refuse. Roughly half of this waste, 346,100 tons, is mixed MSW from the city. The majority of the ash produced by processing the waste at WIN Waste is delivered to QRL. In 2021, WIN Waste disposed of approximately 130,000 tons of ash at QRL. Approximately 37% of the net weight of 335,000 tons of material disposed at QRL was WIN Waste-produced ash.

Scrap Automobiles

Scrapped automobiles from wrecking yards throughout the metropolitan area are imported to the multiple licensed automobile scrap processors and recyclers located in the city. Although metal from these automobiles is ultimately reused inside or outside the city, processing also generates 0.3 tons per automobile of non-recycling material (fluff) that requires disposal. Fluff is no longer accepted at QRL.

Scrap Tires

Emanuel, the major tire recycler in the city, has the capacity to process six million scrapped tires annually. Approximately half of the scrap tires that Emanuel processes are from states other than Maryland.

Special Medical Waste

Special medical waste and mixed refuse from area medical facilities is imported to the City's medical waste facility for incineration. The ash residue remaining after incineration is exported for disposal.

Household Hazardous Waste

HHW collected across the region is imported to a City-contracted vendor for proper processing and disposal. The treatment facility accepts a variety of industrial wastewater and acts as a transfer station for other industrial waste, including flammables, oxidizers, poisons, and reactive agents.

3.6.2 Types and Quantities of Waste Exported

Although the exact types of exported waste are unknown, it is clear that waste is leaving the city. While the destinations for this waste are also unknown, Appendix I contains a list of nearby waste disposal, processing, and transfer facilities where waste is likely to be taken.

Residential, Commercial, and Mixed MSW

Most of the city's exported waste is collected and hauled by private waste collectors. This estimate is based on the limited number of disposal facilities available within the city and the amount of waste collected by private haulers.

Construction and Demolition Debris

It is assumed that the majority of C&D debris generated in the city is exported to nearby C&D landfills in Baltimore County.

Residential Recyclables

All residential recyclables collected by the City are exported to a private MRF (see Appendix D). In 2021, the City collected and exported 23,700 tons of recyclables. Recyclables collected by private haulers within the city are also exported.

Scrap Tires

Scrap tires collected by the City are exported to a company in Harford County for recycling and disposal.

Electronics

Electronics collected at residential drop-off centers are exported for recycling.

Controlled Hazardous Substances

Controlled hazardous substances generated within the city are exported for processing or disposal.

Animal Carcasses

Animal carcasses collected by the City are exported for incineration.

Special Medical Waste

Some special medical waste is exported for processing or disposal.

3.7 Permitted Waste Transfer Facilities

Figure 3-6 contains a map showing the location of all permitted solid waste transfer stations in the city.

3.7.1 Northwest Transfer Station

(N 610,000; E 1,402,900)

The 6.595-acre NWTS at 5030 Reisterstown Road is owned and operated by the City. The station's design capacity is 600 tons of mixed refuse per day. In 2010, the City renewed the facility permit for the NWTS with a capacity of 150,000 tons per year. In 2021, the facility accepted and transferred approximately 81,400 tons of material. The current permit for this facility expires in 2026.

To ensure the long-term vitality of this solid waste institution, improvements to NWTS were completed in 2020. This project was primarily focused on the exterior walls of the facility and the roof. The facility has an anticipated service life of more than 20 years.

3.7.2 Triumvirate Environmental Medical Waste Transfer Station

(N 573,000; E 1,430,700)

Triumvirate Environmental Medical Waste Transfer Station is a privately owned environmental and medical waste acceptance facility located at 2300 Sun Street in Curtis Bay accepted and transported 182 tons of waste in 2021. The facility is located on 20 acres, and its permit expires in 2025. Its anticipated service life is at least 10 years.

Figure 3-6. Permitted Waste Transfer Stations in Baltimore City

3.7.3 Stericycle, Inc.

(N 561,400; E 1,433,400)

Stericycle, Inc. is a privately owned autoclave facility is located on a 2.4-acre site at 5901 Chemical Road. The facility has an annual capacity of 22,800 tons.[10] The site accepts chemotherapeutic, pharmaceutical, and pathological waste; however, that waste is then shipped to its facility in Haw River, North Carolina, where it is incinerated.[11] The facility accepted approximately 21,500 tons of waste in 2021. The facility's permit expires in 2024, and its remaining service life is anticipated to be at least 10 years.

[10] Medical Waste in MD. 2004 http://www.policyarchive.org/handle/10207/bitstreams/5161.pdf.
[11] Stericycle Inc., http://www.chwmeg.org/asp/search/detail.asp?ID=6071.

3.7.4 Daniels Sharpsmart

(N 584,200; E 1,445,200)

Daniels Sharpsmart is a private facility located at 6611 Chandlery Street. In 2021 this 0.939-acre site accepted approximately 2,400 tons of medical waste. The facility's current permit expires in 2024, and its anticipated remaining service life is at least 10 years.

3.8 Permitted Waste Processing and Recycling Facilities

Figure 3-7 contains a map showing the location of permitted solid waste processing and recycling facilities in the city.

3.8.1 BFI Baltimore Processing and Transfer Center

(N 562,100; E 1,434,200)

BFI Baltimore Processing and Transfer Center is a private facility located at 5800 Chemical Road. The processing center is both a materials recovery center and a waste transfer station located on 15.6 acres. The facility accepted approximately 176,600 tons of waste in 2021. The facility's permit expires in 2024, and its expected service life is at least 10 years.

3.8.2 World Recycling Company

(N 585,400; E 1,408,700)

World Recycling Company is a private facility located on 4.05 acres at 2740 Wilmarco Avenue and accepts recyclables for processing. The facility accepted 8,225 tons of material in 2021. The facility's permit expires in 2026, but its expected service life is unknown because the facility's owner was sued by the Maryland Attorney General in 2023 for operating an illegal dump at another location in Prince George's County.

3.8.3 L & J Processing Facility Corp

(*N 591,700; E 1,408,900)*

L & J Processing Facility Corp is a private facility located at 222 North Calverton Road on a 0.932-acre site. The facility accepts and processes C&D debris for reuse. The facility started accepting waste in October 2011, and in 2021 it accepted approximately 32,500 tons of waste. The facility's permit expires in 2027, and its expected service life is at least 10 years.

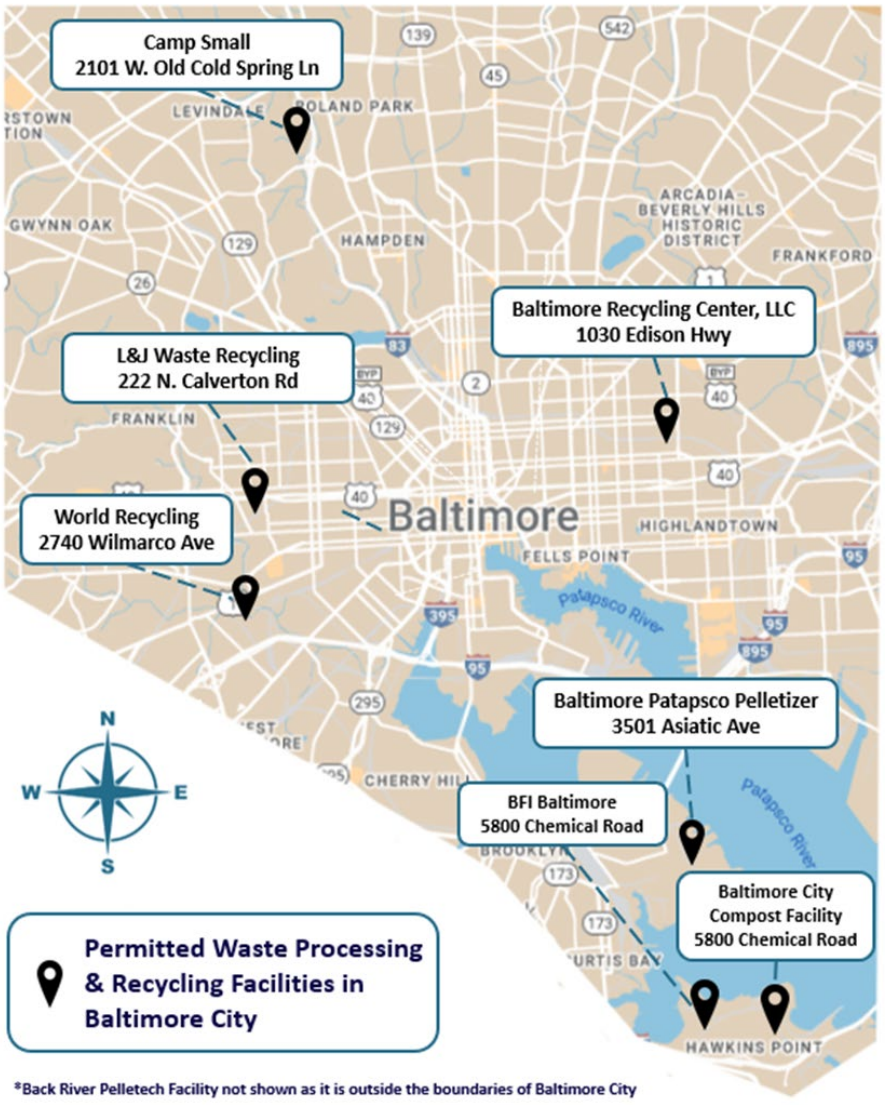


Figure 3-7. Permitted Waste Processing and Recycling Facilities in Baltimore City

3.8.4 Baltimore Recycling Center, LLC

(N 596,200; E 1,432,100)

Baltimore Recycling Center, Inc., is a private facility is located at 1030 Edison Highway. The 12.5-acre site accepts only C&D debris. The facility accepted 186,500 tons of waste in 2021. The Baltimore Recycling Center is currently pursuing additional permitting approval via MDE to accept MSW. The facility's permit expires in 2024, and its anticipated remaining service life is over 10 years.

3.8.5 Camp Small

(N 612,700; E 1,412,000)

Camp Small is a natural wood waste processing yard run by the Baltimore City DRP. The 5-acre site is located in the Jones Falls Valley just north of Cold Spring Lane. All logs, branches, wood chips, leaves, and brush collected from city parks and street rights-of-way are brought to Camp Small for processing. Approximately 2,100 tons of wood chips and 1,300 tons of logs were processed at Camp Small in 2021. The facility's anticipated service life is greater than 20 years.

In early 2016, the DRP Forestry Division, in collaboration with the Baltimore Office of Sustainability, began the Camp Small Zero Waste initiative in an effort to sort and distribute the variety of wood products at the site. Under the Camp Small Zero Waste Initiative, prime logs, wood chips, and brush are sorted and made available for purchase by city residents and businesses.

3.8.6 Baltimore City Compost Facility

(N 562,600; E 1,437,600)

The Baltimore City Compost facility is located at 5800 Quarantine Road on 7.5 acres of the 157-acre QRL site. The composting facility is privately owned and permitted to receive sewage sludge generated at PWWTP and BRWWTP. The plant has a design capacity of 200 wet tons per day. The sludge is mixed with wood chips and aerated to produce 75,000 cubic yards/year of biosolids compost that is marketed in the Mid-Atlantic region to landscapers, nurserymen, contractors, topsoil manufactures, golf courses, and commercial growers.[12] In 2021, the facility accepted 28,100 wet tons of biosolids. The facility could potentially provide at least 20 years of additional service.

3.8.7 Back River Pelletech Facility

(N 594,700; E 1,454,900)

The privately operated Back River Pelletech facility is located at the BRWWTP for processing sewage treatment sludge generated at BRWWTP. The Back River Pelletech facility is a heat drying and pelletization facility that processes liquid and semiliquid treatment sludge into a pelletized product that is marketed as a fertilizer and soil conditioner. In 2021, Back River Pelletech facility processed 5,400 wet tons of biosolids into pellets, and its anticipated remaining service life is at least 10 years.

3.8.8 Baltimore Patapsco Pelletizer

(N 570,500; E 1,435,000)

[12] Baltimore City Composting Facility http://www.orgro.cc/about/index.html

The privately operated Baltimore Patapsco Pelletizer facility is located at the PWWTP for processing sewage treatment sludge generated at PWWTP. Baltimore Patapsco Pelletizer facility is a heat drying and pelletization facility that processes liquid and semiliquid treatment sludge into a pelletized product that is marketed as a fertilizer and soil conditioner. The Baltimore Patapsco Pelletizer facility processes all of the treatment sludge generated at PWWTP on a wet and dry weight basis. The facility's estimated remaining service life is at least 10 years.

3.8.9 Other Recycling Companies and Facilities

MDE does not require recycling facilities in Maryland to be permitted as waste acceptance facilities. As such, it is difficult to determine exactly how many recycling facilities exist in Baltimore City. A list of many of the city-based recycling facilities and programs is included in Appendix J.

3.9 Permitted Waste Disposal Facilities

Figure 3-8 contains a map showing the locations of all permitted waste disposal facilities in the city.

3.9.1 Quarantine Road Landfill

(N 562,000; E 1,436,800)

QRL is located at 6100 Quarantine Road on a 153-acre site in Hawkins Point, 126 acres of which is used as a landfill. It is owned by the City and operated by the BSW. Its current permit expires in 2024.

The first cell of the landfill was constructed and began accepting waste in August 1985. Originally, the landfill was designed as six cells surrounding a central core that was to remain in place. The design capacity was approximately 11.2 million cubic yards with an expected 9.1 million cubic yards or approximately 5.4 million tons allocated for waste. The remaining volume was allocated for cover material.

In August 1994, the City performed a series of life expectancy studies that determined that the industry standard of 1.67 cubic yards/ton should not be applied at QRL due to the high percentage of ash accepted at the facility (ash is considerably denser than MSW). Actual operations indicated that 1 ton of QRL debris was occupying 1.12 cubic yards of volume and in 2010, an aerial life-expectancy study was performed that indicated that 1.18 tons of debris was occupying one cubic yard of volume. According to the tonnage report produced for the landfill in 2021, the landfill is currently expected to reach its permitted capacity in 2028.

A lateral expansion of QRL onto the adjacent Millennium Landfill is currently planned, with the Phase III permit application report submitted to MDE in October 2022. Based on the Phase III report, the lateral expansion will increase the landfill's total capacity by 5.7 million cubic yards and extend its service life through 2035.

In 2021, QRL accepted approximately 355,000 tons of waste. This included 146,800 tons of mixed MSW, 130,000 tons of MSW ash from WIN Waste, 72,000 tons of soil, and 6,900 tons of asphalt. The facility also accepts waste from small haulers and sewage sludge from BRWWTP (limited to 12 truckloads per day).

Table 3-3 below summarizes the types of customers that can deposit waste at the QRL, current fees paid, and the locations they can use.

Table 3-3. QRL Waste Acceptance Criteria and Tipping Fee Schedule (2022)

Customer Type	Yearly Permit Fee	Tipping Fee	Fee Per Load	Drop-Off Center?	Working Face?	Restrictions
Resident	None	None	None	Yes	No	Valid ID; Max. 1,500 lb/load Max. 2 loads/day Max. 5 loads/week
Small Hauler	$35	None up to 7,000 lbs.	$20	No	Yes	Small Hauler Permit; Additional $3.38 charged per 100 lb over 7,000 lb
Large Hauler	$100	$67.50 per ton	None	No	Yes	Large Hauler Permit

QRL currently does not assess or advertise fines for residential or commercial clients caught illegally dumping or misplacing materials at the DOC or working face. However, QRL does enforce bans on residents or permit holders who are caught violating posted guidelines.

3.9.2 WIN Waste

(N 584,200; E 1,417,300)

The privately owned and operated WIN Waste plant is located at 1801 Annapolis Road on 15 acres of City-owned land. It was constructed in 1984 and became fully operational in 1985. The WIN Waste plant is structured around three mass-burning, water wall furnaces. These furnaces combined can burn up to 2,250 tons of refuse per day at temperatures between 2,400 and 2,800 degrees Fahrenheit. This combustion process generates heat that is used to convert water into steam. Operating at full capacity, WIN Waste can produce as much as 500,000 pounds of steam per hour. The steam is used to drive turbines and generate up to 64 MW of electricity. Residual steam is sold to the district heating and cooling system in downtown Baltimore.

In 2022, as a result of a lawsuit regarding the BCAA, WIN Waste began upgrading its emissions technology to reduce air pollution (although not to the requirements set forth in the BCAA). The upgrades are expected to be completed in late 2023. The anticipated remaining service life of the plant is roughly 10

years. While the facility is aging (it is almost forty years old), there is no indication that the facility will close during the planning period. The facility's current permit expires in 2027.

During optimal operating conditions, approximately 10% of the raw incoming waste by volume and 27% by weight remains in the form of ash residue after combustion, from which metals are recovered and sold to a scrap metal dealer.

Currently, the City disposes most of its solid waste at WIN Waste pursuant to a contract with the Northeast Maryland Waste Disposal Authority, which expires in 2031. The existing contract does not require the City to provide a minimum amount of waste to the facility. The WIN Waste facility has contracted with the City to dispose of their ash residue at QRL. In 2021, WIN Waste accepted 700,200 tons of total waste, including 191,100 tons of residential city waste collected by DPW and 155,000 tons of commercial city waste collected by private haulers. The facility sent 130,000 tons of ash to QRL in 2021.

3.9.3 Fort Armistead Road: Lot 15 Landfill

(N 560,800; E 1,441,000)

The Fort Armistead Road – Lot 15 Landfill is a private, 32-acre, permitted industrial waste landfill located on a 65-acre site that currently accepts coal ash and other residues from the Brandon Shores, H.A. Wagner, and C.O. Crane coal power plants. In 2021, Lot 15 accepted 55,800 tons of material. The facility's permit expires in 2023, and its total permitted capacity is 6.3 million cubic yards. The expected service life of the facility is greater than 20 years.

3.9.4 Hawkins Point Plant Landfill

(N 561,600; E 1,437,800)

The Hawkins Point Plant Landfill is a private, industrial waste site consisting of two parcels. The first parcel contains a 28-acre industrial waste landfill, which accepted approximately 35,900 tons of material in 2021. The second parcel is permitted for industrial waste, but no landfill has yet been constructed. Constellation Energy has plans to develop 29 acres of this undeveloped parcel for use as a landfill for coal combustion residuals (ash) from its Brandon Shores, H.A. Wagner, and C.O. Crane coal power plants. The facility's current permit expires in 2025, and it is expected to reach its permitted capacity in 2035.

3.9.5 W.R. Grace and Co., Davison Chemical Division Landfill

(N 564,000; E 1,434,000)

The W.R. Grace and Co. (W.R. Grace) Landfill is a private, 10.7-acre, industrial waste landfill located on a 157-acre site which solely accepts waste generated at the W.R. Grace manufacturing facility located on the same property. W.R. Grace is a major chemical manufacturer of silica-based absorbents, hydro-processing catalysts, polyolefin catalysts used in plastics and packaging, and fluid catalysts used in petroleum refining. In 2021, the facility accepted 13,700 tons of material. The facility is expected to run

out of permitted capacity in 2030. However, the facility recently submitted a design modification for a new refuse disposal permit that would vertically expand the facility and extend its service life. The facility's current permit expires in 2027.

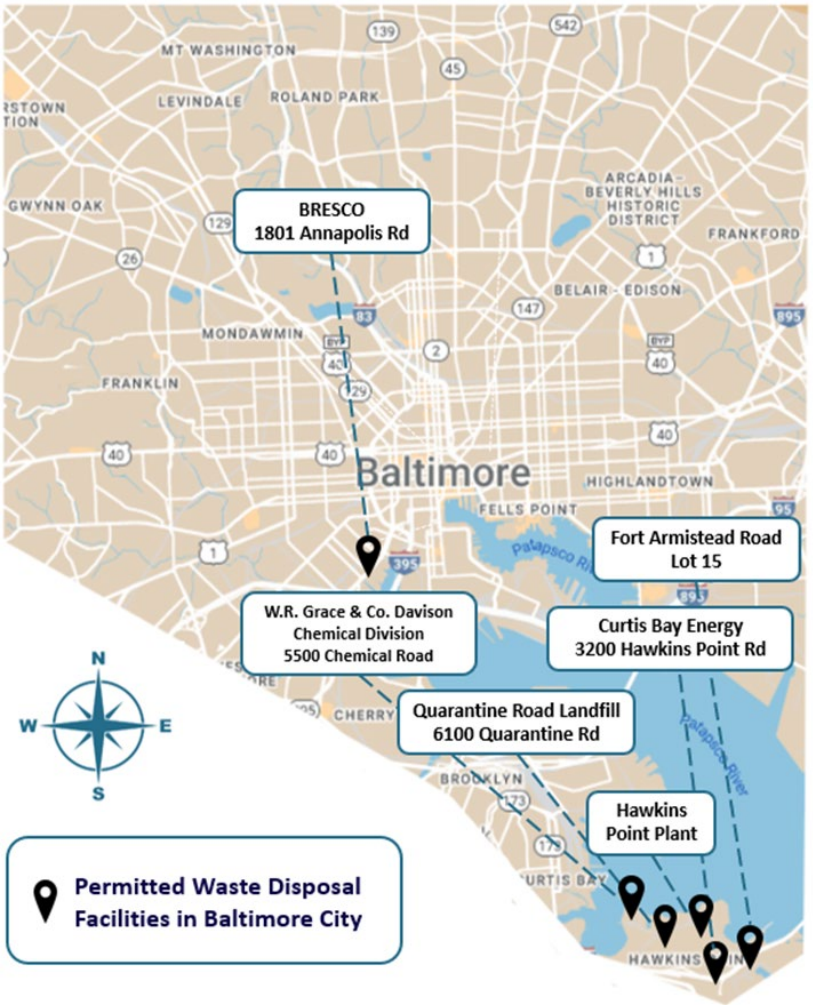


Figure 3-8. Permitted Waste Disposal Facilities

3.9.6 Curtis Bay Energy Facility

(N 559,700; E 1,438, 100)

Curtis Bay Energy is also known as Curtis Bay Medical Waste Services (and used to be called Baltimore Regional Medical Waste Facility). Curtis Bay Energy is a 4-acre, privately owned medical waste incinerator with energy recovery (the nation's largest) located in Hawkins Point. The facility has a capacity of 62,050 tons of waste per year and accepted approximately 26,400 tons of material in 2021. Ash generated at Curtis Bay is shipped to North Carolina for landfill disposal. The facility's permit expires in 2027, and its expected service life is anticipated to be at least 10 years.

4. ASSESSMENT OF NEEDS AND CONSTRAINTS

Chapter 4 assesses the need to alter, modify, or add to existing solid waste disposal systems throughout the planning period. Specifically, the following components of the City's solid waste disposal systems are assessed:

- Source reduction and reuse programs
- Waste diversion and recycling programs
- Waste collection systems
- Waste transfer facilities
- Waste processing and recycling facilities
- Waste disposal facilities

The assessment of each component of the solid waste management system includes input from the public, which was received predominantly in the form of comments collected at public meetings and hearings conducted as part of the development of this Plan.

4.1 Diversion Goals

This section provides an assessment of the City's progress toward meeting its short- and long-term diversion goals. Specifically, this section compares the City's short-term MRA recycling goal of 35% and the City's long-term zero-waste goals (as laid out in the BSP, the BFWRS, the LWBB Plan, and other City planning documents) against the City's existing diversion rates.

4.1.1 Waste Composition and Diversion Rates

Based on the information presented in Sections 3.1 and 3.2, it is estimated that approximately 1,001,000 tons of waste were disposed of in Baltimore in 2021, including the following:

- 305,400 tons of MSW managed by the City
- 320,600 tons of MSW managed by the private sector (including 32,600 tons of waste received from small haulers)
- 279,000 tons of C&D debris
- 13,700 tons of industrial waste
- 18,000 tons of asbestos
- 5,700 tons of special medical waste

Also shown in Section 3.2, it is estimated that approximately 381,400 tons of materials were diverted in 2021, including the following:

- 53,200 tons of bulk or special waste
- 900 tons of vehicle tires
- 138,000 tons of C&D material
- 95,000 tons of soil
- 3,000 tons of wood

Estimates for the composition of MSW disposed of are shown in Table 4-1. The estimates in Table 3-2 are sourced from the LWBB project and include data from the 2019 waste sort performed for the city.

Table 4-1. Summary of Disposed MSW Composition in Baltimore

Category	Subcategory	City-Managed MSW		Other MSW	
		%	Tons	%	Tons
Organics	Food Waste	21%	63,700	21%	66,200
	Yard Waste	12%	35,300	7%	22,800
	Mixed Organics	<1%	0	1%	3,500
Single-Stream Recyclables	Cardboard	8%	23,900	15%	48,600
	Mixed Paper	6%	18,200	8%	26,400
	HDPE/PET	4%	12,400	4%	11,300
	Mixed Plastic	18%	53,600	14%	44,800
	Aluminum Cans	1%	3,900	1%	3,800
	Steel Cans	2%	7,400	4%	13,500
	Mixed Metals	<1%	200	<1%	500
	Glass	3%	9,100	4%	13,800
Nontraditional Recyclables	Bulk Waste	1%	2,400	1%	3,800
	Textiles/Carpet	<1%	200	<1%	400
	Other	<1%	0	<1%	100
Unclassified	-	24%	75,000	19%	61,400
TOTAL		100%	305,400	100%	320,600

Using information from the City's MRA reports, the diversion rates for each general waste category in 2021 were calculated in Table 4-2 below.

Table 4-2. Summary of Diversion Rates by Waste Type and Sector

Waste Subcategory	Disposed of			Diverted			Diversion Rate		
	City	Other	Tot.	City	Other	Tot.	City	Other	Tot.
Food Waste	63,700	66,200	129,900	400	1,400	1,800	0.6%	2.1%	1.4%
Yard Waste	35,300	26,300	61,600	3,400	1,800	5,200	8.8%	6.4%	7.8%
Paper	42,100	75,000	117,100	0	69,600	69,600	0.0%	48.1%	37.3%
Plastic	66,000	56,100	122,100	5,100	1,400	6,500	7.2%	2.4%	5.1%
Metals	11,500	17,800	29,300	7,600	21,200	28,800	39.8%	54.4%	49.6%
Glass	9,100	13,800	22,900	11,700	1,400	13,100	56.3%	9.2%	36.4%
C&D	0	279,100	279,100	78,700	153,600	232,300	100.0%	35.5%	45.4%
Bulk	2,400	3,800	6,200	1,600	51,700	53,300	40.0%	93.2%	89.6%
Other	75,200	61,900	137,100	0	99,400	99,400	0.0%	61.6%	42.0%

4.1.2 MRA Recycling Rate

This section contains an assessment of the City's current MRA recycling rate, barriers to achieving the state-mandated 35% MRA rate, and opportunities to improve its MRA recycling rate.

Barriers to Achieving 35% MRA Recycling Rate

The MRA recycling categories include compostables (food waste and yard waste), paper, plastic, metals, and glass (Table 4-2). The total diversion rates in the city for metals, glass, and paper are estimated to be above the 35% goal, while the diversion rates for compostables and plastic are below the 35% goal. Looking at only waste collected by the City, the diversion rates for compostables, paper, and plastic are especially low (less than 10%). For waste collected by others, diversion rates associated with compostables, plastic, and glass are also below 10%. As such, the following appear to be the primary barriers to achieving a 35% recycling rate in the City:

1. Low diversion rates for food waste (for waste managed by both the City and others)
2. Low diversion rates for yard waste (for waste managed by both the City and others)
3. Low diversion rates for paper (particularly for waste managed by the City)
4. Low diversion rates for plastic (for waste managed by both the City and others)
5. Low diversion rates for glass (particularly for waste managed by others)

Factors potentially contributing to these low diversion rates include the following:

1. Lack of education about what is and is not recyclable

2. Reduced curbside collection schedule (once every two weeks rather than weekly)
3. Lack of a separate yard waste collection program
4. Lack of organics processing facilities in the city
5. Lack of residential food waste diversion initiatives
6. Lack of reporting of recycling tonnages from the commercial sector

Additional detail on these and other barriers to waste reduction and diversion is provided in Section 4.2.

Opportunities for Improving MRA Recycling Rate

The primary opportunities for improving MRA recycling rate in the city are listed below:

1. **Improve education and outreach**: Based on diversion rates, it appears that residents are aware that glass and metal cans are recyclable in the curbside program, but residents are not aware that many paper products and plastics may also be recycled in the curbside program. As such, an educational campaign educating residents about what can and cannot be placed in the curbside recycling bins could help improve diversion.
2. **Reinstate weekly curbside SSR collection**: Reinstating weekly curbside collection of SSR would likely boost diversion of SSR materials, including paper and cardboard, plastic bottles and containers, metal cans, and glass bottles.
3. **Implement a yard waste collection program**: Currently, the City collects yard waste with residential trash and sends it to WIN Waste for incineration. If yard waste were collected separately and composted, it could significantly improve diversion. Options under consideration include (1) reimagining how leaves are managed across the city as leaves are carbon-rich and provide an opportunity to supply nutrients back to the soil; (2) creating a carbon bank to support community composting effort across the city and (3) expanding operations at Camp Small.
4. **Improve residential food waste diversion outreach and initiatives**: Currently the City collects food scraps at residential drop-off centers and local farmers markets. However, tonnages collected at these facilities are small. If the City were to increase outreach to inform residents about these food waste diversion initiatives, it could help improve diversion. Additionally, the City could implement larger-scale food waste diversion initiatives (e.g., a pilot curbside food waste collection program) to increase diverted tonnages.
5. **Construct (or support construction) of an in-city composting facility**: Currently, there are no composting facilities (or other organics processing facilities) accepting food and yard waste in the city. Constructing a composting facility would provide both the City and the commercial sector with a location to send compostables (food waste and yard waste). This opportunity is described in greater detail in Section 4.6.
6. **Improve reporting from the commercial sector**: Relatively low diversion rates from the commercial sector are likely due to a lack of reporting. The City could support legislation to require

reporting of recycling tonnages from the commercial sector or work to improve enforcement of existing statewide recycling mandates in order to improve reporting from the commercial sector.

Additional detail on these and other opportunities to improve waste reduction and diversion can be found in Section 4.2.

4.1.3 Progress Toward Achieving Long-Term Solid Waste Management Goals

The calculated diversion rates for 2021 are compared against the City's stated long-term diversion goals from the BSP, the LWBB Plan, and the BFWRS in Table 4-3 below. More detail on the City's long-term goals is provided in Section 1.1. As previously discussed, the City collects waste from the residential, commercial, and institutional sectors. However, for the remainder of this Plan and for comparison with City diversion goals, waste collected by the City will be deemed "residential" while waste collected by others will be deemed "commercial." As indicated in the table, the City has not achieved the majority of its diversion goals. The waste streams with the greatest opportunity for improvement appear to be food waste, yard waste, SSR, and C&D. The City is meeting its goal for commercial bulk waste diversion as well as residential C&D diversion.

Table 4-3. Comparison of Diversion Rates with Long-Term City Goals

Waste Category	Sector	2021 Diversion Rate[6]	City Reduction Goal	City Diversion Goal
Food Waste	Residential	0.6%	80%	80%[1]
	Commercial	2.1%	50%	50%[2]
Yard Waste	Residential	8.8%	N/A	80%[1]
	Commercial	6.4%	N/A	50%[2]
SSR	Residential	15.9%	N/A	90%[3]
	Commercial	36.5%	N/A	90%[3]
C&D	Residential	100.0%[7]	N/A	90%[3]
	Commercial	35.5%	4%[5]	90%[3]
Bulk and Special Waste	Residential	40.0%	50%	60%[4]
	Commercial	93.2%	50%	60%[4]
Other Waste	Residential	0.0%	N/A	90%[3]
	Commercial	61.6%	N/A	90%[3]

1. From BFWRS: This diversion goal is on top of an 80% food waste reduction goal. The same goal was applied to yard waste in the LWBB Plan.
2. From BFWRS: This is a reduction goal, not a diversion goal.
3. The BSP calls for 90% diversion from the landfill: This diversion rate is applied where a specific diversion rate is not provided in the other plans.
4. From LWBB Plan: Based on diversion rate measured in San Francisco in 2015
5. The reduction target for C&D materials from LWBB includes only scrap metal, clay bricks, and lumber.
6. Diversion rates shown in red are below long-term goals. Those shown in green are above long-term goals.

7. This value represents asphalt from repaving activities in the City recycled at QRL. For this analysis, City-managed waste, which includes waste generated by many City agencies, is considered "residential." The residential sector does not typically generate C&D waste, as construction and demolition (even of residential properties) is performed almost exclusively by private companies. As such, waste generated by construction and demolition of residential properties is included in the "commercial" sector.

Barriers to Achieving Long-Term Solid Waste Management Goals

As indicated in Table 4-3, the City has not achieved most of its long-term solid waste management goals, with the exception of residential C&D debris (where asphalt millings generated from repaving public roads are reused as road base material at QRL) and commercial bulk and special waste (where scrap metal and white goods are nearly universally recycled due to their high commercial value). In addition, the waste types with the lowest diversion rates include organics (both residential and commercial food and yard waste), SSR (both residential and commercial), commercial C&D debris, and other residential waste (Table 4-3). As such, the primary barriers to achieving the City's long-term goals include the following:

1. Residential habits and behaviors that are not aligned with waste reduction and diversion goals
2. Lack of organics collection and processing opportunities (particularly for yard waste)
3. Lack of legislation enforcing or enticing recycling from the commercial sector
4. Lack of legislation requiring and enforcing C&D diversion and reuse from the commercial sector

Additional detail on these and other barriers to waste reduction and diversion are included in Section 4.2.

Opportunities for Improvement

The City has a tremendous opportunity to improve waste reduction and diversion to meet long-term solid waste management goals. Based on the tonnages listed in Table 4-2 and the diversion goals listed in Table 4-3, the maximum reduction and diversion potential for each waste category was calculated. These values are shown in Table 4-4.

Table 4-4. Maximum Reduction and Diversion Potentials Associated with Long-Term City Goals

Waste Category	Maximum Reduction Potential			Maximum Diversion Potential		
	Residential	Commercial	Total	Residential	Commercial	Total
Food Waste	51,300	33,800	85,100	9,900	15,500	25,400
Yard Waste	0	0	0	27,600	12,300	39,900
SSR	0	0	0	113,400	137,100	250,500
C&D	0	17,300	17,300	0	220,300	220,300
Bulk	2,000	27,800	29,800	0	0	0
Other	0	0	0	67,700	45,800	113,500

Detail on specific opportunities to achieve the maximum reduction and diversion potentials presented in Table 4-4 is provided in Section 4.2. In Section 5, these values are used to estimate the potential reduction and diversion associated with the specific action items included in the City's plan of action.

4.2 Waste Reduction and Diversion Goals and Programs

Waste reduction and diversion programs coordinated by the City are described in Section 3.3 and evaluated below.

4.2.1 Single-Stream Recyclables

SSR includes paper, cardboard, many types of plastic, metal cans, and glass bottles. Based on a waste sort performed for the LWBB Plan, it is estimated that SSR constitutes approximately 32% of the City's disposed waste stream (i.e., there is a considerable amount of recyclable SSR material that is currently disposed). Waste diversion data from 2021 indicates that approximately 118,000 tons, or roughly 29% of the total SSR generated in the City, is currently recycled, while 71% is disposed. As such, there is an opportunity for the City to significantly improve diversion of SSR materials. A description of the City's current reduction and diversion programs for SSR materials is included in Section 3.3.

Barriers to Single-Stream Recyclables Diversion

The assessment of the City's SSR programs identified the following primary barriers to improved reduction and diversion of SSR:

1. **Collection Schedule**: Due to staffing issues during the COVID-19 pandemic, the City reduced SSR collection to once every two weeks. This not only discourages some residents from participating in the curbside SSR collection program but also leads to longer workdays for SSR collection personnel, as the volume of recyclables collected is greater. In fact, some personnel have reported working as much as 14-hour days.
2. **Lack of Incentive**: Many single-use materials are extremely cheap to produce. As such, there is little incentive for businesses and consumers in the city to stop using them.
3. **Lack of Access to Reusable Materials**: Some city residents may not have easy access to reusable bottles or bags, leaving them dependent on single-use materials.
4. **Lack of Education and Communication around Recycling**: Education and communication around recycling is difficult because the materials accepted at City-contracted MRFs change with time. Further, many materials that contain recycling symbols or which contain wording like "fully recyclable" on the packaging are not accepted by City-contracted MRFs. As such, it can be confusing for people to determine which materials are recyclable and which are not acceptable. Due to this confusion, some residents choose not to recycle at all and others place nonrecyclable items into their recycling carts, contributing to contamination.

5. **Social and Cultural Barriers to Recycling**: In some neighborhoods, recycling is seen as something that other people do. As such, some city residents are not interested in participating in the SSR programs.
6. **Lack of Trust in the Recycling Process**: When the recycling markets collapsed in 2017 due to China's National Sword Policy, news reports showing truckloads of SSR being dumped at landfills or waste incinerators caused many city residents to lose faith in the recycling system. A similar phenomenon occurred during the COVID-19 pandemic, when supply chain issues and equipment shortages caused many MRFs to stop accepting recyclables. While recyclables collected in the city were never sent to QRL or WIN Waste, some residents lost faith that SSR would be properly recycled and stopped participating in recycling programs.
7. **Contamination**: Since the City stopped collecting trash twice per week and provided free recycling bins to city residents, some residents have begun using their recycling bin as a second trash bin (i.e., they do not separate recyclables from trash). This has led to a serious contamination issue in City collected SSR.
8. **Lack of School Recycling**: City schools are served by private haulers to collect recyclables. Payment for these hauling services comes from school budgets. Many Baltimore schools have a limited budget and, although they are legally obligated to provide recycling collection, choose to reallocate funds to other priorities. As such, many city schools do not offer recycling programs.
9. **Inconsistent Collection from Apartments and Condominiums**: Apartment buildings and condominiums largely hire private haulers to provide SSR collection. However, due to contamination issues in the recycling stream, many private haulers refuse to collect from these locations, leading to inconsistent SSR collection.
10. **Lack of Enforcement**: There is a general lack of enforcement of existing state-mandated recycling programs (e.g., for apartments and condominiums and office buildings).
11. **Lack of Public Recycling Bins**: There are limited public recycling bins in many neighborhoods.
12. **Lack of Reporting**: Currently, commercial recyclers are not required to report their recycling tonnages to the City. As such, these tonnages often do not appear in the City's official recycling data that is reported to the state.
13. **Economics of Recycling**: Recycling markets are always changing, and private haulers may reduce or completely eliminate SSR collection when recyclable prices are low. As an example, the price of recyclables plummeted following China's National Sword policy in 2017. This led to many private haulers ceasing SSR collection in the city.

Opportunities for Improvement

The LWBB Plan details several opportunities to improve SSR diversion in the city, as follows:

1. **Improve Education and Outreach**: By improving education and outreach, the City could encourage additional residents to participate in SSR reduction and recycling programs and also

reduce contamination levels in the SSR stream. Education and outreach could be designed to teach residents what is and is not recyclable, encourage people to overcome social and cultural barriers to recycling, and teach residents about the economic, environmental, and social benefits of recycling.

2. **Provide Cash or Rewards for Recycling**: The City could participate in national recycling rewards programs, such as verde or recyclebank, to reward residents and businesses that participate in curbside SSR collection programs or complete education and outreach programs.
3. **Pay for Goods or Services Using Recyclables**: The City could implement discount programs for public transportation tickets to residents that provide recyclables at the time of purchase. The City could also consider providing reverse vending machines that provide residents with cash or vouchers when they deposit recyclable materials, such as cans or bottles.
4. **Revise Bin Size and Allocation**: By reducing the size of the trash bin from 96 gallons to 35 gallons, the City could encourage people to reduce the amount of waste they generate and improve their recycling habits. The City already offers free 65-gallon trash bins to all single-family households (which was also recommended in the LWBB Plan). Downside of this option is the potential for overflowing trash bins leading to additional litter.
5. **Implement Dual or Multistream Recycling**: Switching from single stream to dual or multistream recycling has the potential to reduce contamination levels in collected recyclable streams and will reduce the amount of processing required at a downstream MRF (e.g., Waste Management Recycle America [WMRA]). However, switching to multistream recycling may actually decrease recyclable diversion as some city residents may be unwilling to sort their recyclables into multiple bins.
6. **Implement Save as You Throw (SAYT) Program**: A SAYT program would involve assessing a monthly charge to residents for their trash bin, with higher charges associated with bigger bins. As such, a SAYT program could encourage residents to reduce the amount of trash they generate by increasing participation in SSR recycling programs. However, SAYT programs have been associated with increased contamination in the recycling stream, so the City may have to consider increasing educational outreach as well as enforcement/citations for residents who do not properly recycle. Further, SAYT programs may be seen as a regressive tax that unfairly burdens low-income residents, and the result might be an increase in illegal dumping as residents seek to avoid paying for their disposal.
7. **Revise Collection Frequency**: By increasing the frequency of residential curbside SSR collection and reinstating weekly collection, the City could improve participation in the curbside recycling program.
8. **Extend Curbside Collection to Multifamily Dwellings**: Currently, residents in multifamily dwellings rely on private haulers contracted by landlords for trash and recycling services. Reportedly, private haulers periodically reject recycling loads from multifamily dwellings and/or stop services altogether due to contamination issues (generally, because they may be fined or have their loads rejected at receiving MRFs if contamination is too high). This leads to inconsistent

collection and contributes to low participation in recycling programs among residents in multifamily dwellings. By extending recycling services to multifamily dwellings, DPW could improve collection by creating a more stable recycling environment.

9. **Design Guidance/Codes for Multifamily Dwellings**: To improve recycling collection from multifamily dwellings the City could issue guidance on how new developments or redevelopments must consider design of waste collection areas, including provision for diversion capacity and placement of waste containers. These design guidelines could provide direction to property developers and owners on how to incorporate recycling collection infrastructure into multifamily developments to make recycling as easily accessible to residents as trash receptacles.
10. **Improve Recycling in Public Spaces**: Some stakeholders requested that more public trash and recycling cans be provided on streets, in parks, and in other public areas. In this regard, rather than simply provide a larger number of cans in more places, all of which would require additional emptying by collection crews, DPW could look for ways to embrace the smart transformation of waste operations in public spaces that many other U.S. cities have implemented (e.g., by using smart cans that weigh recyclables and alert staff when they need to be emptied). This keep streets noticeably cleaner, and streets are calmer because fewer collection events mean less trash truck congestion and vehicle emissions.
11. **Hold Special Event Recycling**: While DPW currently provides cleaning services, trash removal, and recycling services to qualifying events (if their services are requested), there is a range of additional support that DPW could provide to event organizers. This includes providing advice on setting up a recycling plan, providing bins and containers, or developing self-assessment guides to help organizers manage and minimize waste generated at events (e.g., by requiring that food and drink vendors minimize single use containers and utensils).
12. **Expand Recycling Services to the Commercial Sector**: The City could improve diversion of SSR by expanding collection services to the industrial, commercial, and institutional sectors. Collection could be achieved either through DPW (public service) or through a franchising agreement with a private hauler. However, due to staffing shortages on existing residential recycling collection routes, this would likely not be an option the City would pursue in the short term.

Additional opportunities for improving diversion of SSR include increasing enforcement of existing recycling programs (e.g., for apartment buildings and condominiums), supporting a City ordinance (or state legislation) requiring the industrial, commercial, and institutional sectors to report recycling tonnages, expanding staff capacity to perform more community work to recruit and train residents in recycling best practices, and providing additional funding for school recycling programs.

Summary

A summary of the City's assessment of its existing SSR diversion programs is found below.

Component		Assessment
	**Barriers**	• Collection schedule (once every two weeks) • Lack of incentive to reduce waste • A lack of reusable alternatives • Lack of education and communication • Social barriers to recycling • Lack of trust in the recycling process • Contamination • Lack of school recycling programs • Inconsistent collection from apartments and condominiums • Lack of enforcement of existing recycling mandates • Lack of public recycling bins • Lack of reporting from the commercial sector • Economics of recycling
	**Opportunities**	**Legislative:** • Design guidance/codes for multifamily dwellings • Support City ordinance to require recycling reporting from industrial and commercial sector **Administrative:** • Improve education and outreach initiatives • Encourage (or require) reporting of recycling tonnages from commercial sector • Provide additional funding for school recycling programs **Programmatic:** • Provide cash or rewards for recycling • Provide payment for goods or services using recyclables • Revise bin size and allocation • Implement dual or multistream recycling • Implement SAYT program • Reinstate weekly SSR collection • Extend curbside recycling collection to multifamily dwellings • Provide mobile collection units • Improve recycling in public spaces • Provide additional support for special-event recycling • Expand recycling collection services to the private sector • Improve enforcement of existing SSR recycling mandates

4.2.2 Organics

Organics include yard waste, food waste, and compostable paper. Based on the results of a waste sort performed as part of the LWBB Plan, it is estimated that organics constitute approximately 21% of the city's disposed waste stream. Waste diversion data from 2021 indicates that approximately 7,000 tons (3.5%) of organic waste generated in the city is currently diverted. The City's organics reduction and diversion programs are described in Section 3.3.

Reducing Food Waste

The City's existing efforts to reduce food waste have grown since 2016, which is when city organizations were gathered to conceive and draft an initial list of recommendations that culminated in the BFWRS. Today, DPW supports five food-scrap drop off locations across the city with plans to launch five additional sites in 2023. Though some progress has been made to divert waste food from the city's waste stream, there are significant opportunities for reducing food waste.

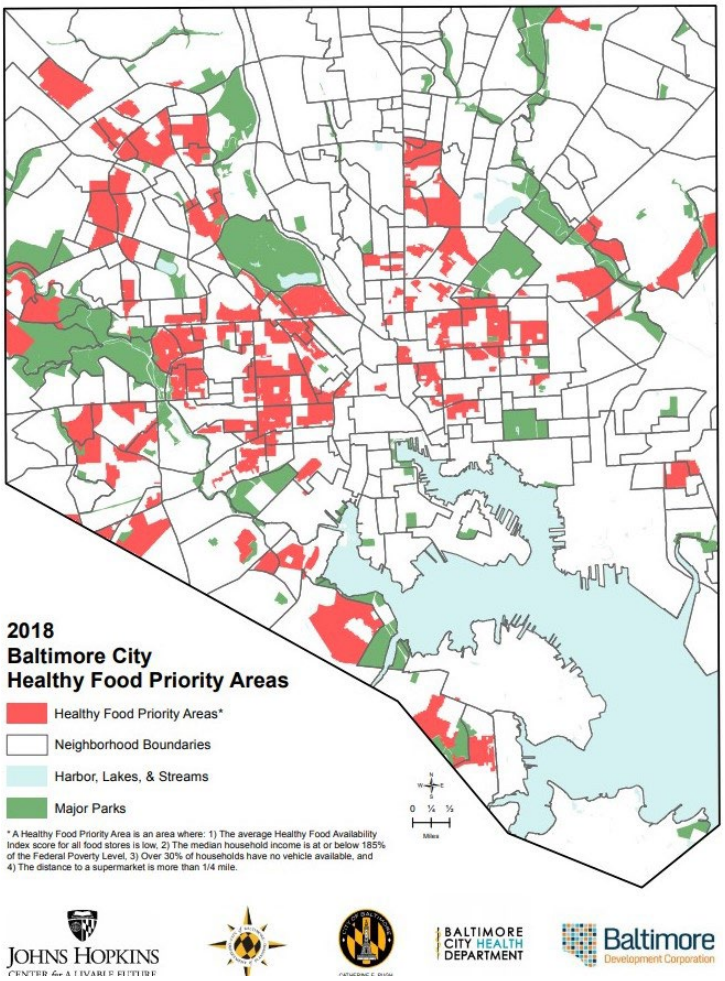


Figure 4-1. Healthy Food Priority Areas in Baltimore (from the City's 2018 Food Environment Report)

Barriers to Reducing Food Waste

The assessment of the food waste reduction initiatives in the city identified the following primary barriers:

1. **Behavior Change**: Residents and commercial entities need to change behaviors to focus on food waste reduction.
2. **Donation Opportunities**: Much of the food waste produced in the city is the result of residents purchasing more food than they can eat. Many residents choose to dispose of unused food (even nonperishable food or food that is not yet past its date) rather than donating it to one of the many food waste donation facilities in the city (detailed in Section 3.3).
3. **Healthy Food Priority Areas (HFPAs)**: A map showing the city's HFPAs is found in Figure 4.1. HFPAs are defined as areas where the average healthy food availability index for all food stores is low, the median household income is at or below 185% of the federal poverty level, over 30% of households have no vehicle available, and the distance to a supermarket is more than a quarter mile. Approximately 146,000 people in Baltimore live in HFPAs. These residents are highly dependent on fast food and convenience stores, which may contribute to more food waste if they are not able to control their own food preparation or portion sizes.

Opportunities to Reduce Food Waste

Improved food waste reduction can be achieved through a combination of food rescue and donation (e.g., via food banks) and source reduction (e.g., educating consumers to purchase only the amount of food they need and hence generate less food waste). This combination will require a coordinated effort between the City, local food generators (businesses, universities, and residents), and local food rescue/donation organizations. The NRDC recently commissioned a report titled *Food Rescue in Baltimore: Assessing Current Landscape and Potential Growth*" (published on March 26, 2019) from Full Plate Venture LLC and the Maryland Food Bank (referred to herein as the NRDC report). The NRDC report assesses the current landscape for food rescue in Baltimore and the potential for future growth. Recommendations from the NRDC report and those provided in the BFWRS and the LWBB Plan are summarized below.

1. Conduct a needs assessment for the city's food recovery system.
2. Create a best practices guide for businesses and institutions that wish to donate edible food in the city.
3. Create a resource guide for individuals and businesses wishing to use produce "seconds" (i.e., ugly fruits and vegetables).
4. Support state legislation that extends liability protection for entities selling recovered food and donors that donate past-date foods.
5. Work with the Maryland Department of Agriculture to include food recovery at the Maryland Buyer-Grower Expo.
6. Create a public awareness/marketing campaign for businesses around reducing food waste.

7. Support local and state legislation that calls for a phased-in food waste and organics landfill ban.
8. Create and staff a City government position tasked exclusively with managing food recovery and food waste reduction initiatives.
9. Create incentive programs for food donation or businesses sourcing recovered food.
10. Ensure there are enough community partners to handle the volume of all donated food and ensure that these partners are adequately resourced (refrigeration, hauling, etc.).
11. Create/support a waste audit program for commercial food waste producers.
12. Support existing business models that sell seconds produce and, if gaps exist, support the creation of a vendors market for unsold produce from wholesale distributors.
13. Create/adapt an entity to coordinate and promote all food recovery activities citywide.
14. Support the development of a food recovery network chapter in every higher education institution in the city.
15. Support the completion of waste audits at every higher education institution in the city.
16. Create a public awareness or marketing campaign around food recovery for colleges and universities.
17. Work with colleges, universities, and institutional food providers to change the culture of campus cafeterias from one of required abundance to “it’s ok to run out.”
18. Create/support a public awareness and education campaign around household food waste.
19. Support community-based culinary education programs, with emphasis on reducing food waste.
20. Create and implement a voluntary household waste audit program and include incentives for participation.
21. Develop and implement a system for tracking household food waste.
22. Distribute “smart” trash cans to all city residents capable of tracking waste weight, creating a positive feedback loop by sending waste data to residents via water bill or other means.
23. Convene regular meetings of stakeholders in the food rescue system, including the City, food donors, food rescue organizations, last mile organizations (LMOs) to build relationships and support strategic planning. LMOs are any entities, such as shelters, soup kitchens, or food pantries, that distribute donated food to food insecure individuals and clients.
24. Track food donations received from local sources each year at food rescue organizations to support progress tracking under the BFWRS.
25. Develop, in coordination with other stakeholders, a three-to-five-year strategic plan for expanding food donations and strengthening the food rescue system.
26. Hire an entity to cultivate relationships between prospective food donors and food rescue organizations.

27. Develop and distribute food safety guidance for licensed food facilities from the City's Health Department.
28. Develop policies and programs that create incentives for donating food.
29. Distribute educational materials on liability protections and tax incentives to food donors.
30. Develop a citywide strategy to recruit the next generation of food rescue volunteers to support the effectively training, managing, and retaining volunteers in the food rescue system.
31. Develop a coordinated strategy to engage the local philanthropic and business communities to mobilize support for food rescue infrastructure, staffing, and other needs.
32. Identify organizational development resources to strengthen fundraising, managing, and communicating the food rescue systems.
33. Evaluate strategies for making donated food more geographically accessible to clients.
34. Evaluate the need for potential technology solutions to connect clients and LMOs.
35. Elevate the voices of food assistance clients by including them in advocacy activities, volunteer opportunities, and community outreach.
36. Work with LMOs to gather input and feedback from clients on an ongoing basis.
37. Conduct a detailed study of the specific food-security-related needs of people living with disabilities.
38. Expand outreach to clients on ways to access food assistance.
39. Encourage the use of online food waste reduction tools. EPA provides a food waste management cost calculator to estimate the cost competitiveness of alternatives to food waste disposal for food waste generators, including source reduction, donation, composting, and recycling of yellow grease.
40. Encourage tracking food waste. Private organizations (some of which are listed in Appendix K) provide a secure ledger that tracks an organization's surplus food waste from pickup to donation. These companies aim to improve an organization's bottom line through charitable donations, reduce GHG emissions, and route edible surplus food to local communities in need. Hartsfield-Jackson Atlanta International Airport currently uses one such company to help meet its zero-waste target.
41. Encourage the use of mobile apps. There are a number of smartphone applications meant to connect food rescue agencies with consumers (detailed in Appendix K).
42. Conduct educational campaigns. Education and outreach is critical to changing behaviors. Specific educational programs recommended in the LWBB Plan to reduce food waste include educating students about composting, educating residents on the difference between "Sell By," "Use By," and "Best By" dates, and educating residents about purchasing food more sustainably.

Summary

A summary of the City's assessment of its existing organics reduction and diversion programs is found below.

Component		Assessment
	**Barriers**	• Lack of education and outreach for food waste reduction and donation programs • HFPAs contributing to food waste
	**Opportunities**	**Legislative:** • Support state legislation that extends liability protection for entities selling recovered food and donors that donate past-date foods. **Administrative:** • Improve education and outreach campaigns around food waste reduction for city residents, institutions, and businesses. • Help match food waste generators with food waste donation organizations and processing facilities (through technology, best practice guides, stakeholder meetings, etc.). • Improve tracking of food waste donation. **Programmatic:** • Develop a system to track food waste generation (including distributing "smart" trash cans to all city residents). • Improve enforcement of food waste reduction initiatives. • Create incentive programs for food donation or businesses sourcing recovered food. • Perform food waste audits for city businesses, institutions, and residents.

Organics Diversion

Existing organics diversion programs in the city are fairly young and limited in scope. As such, there are significant opportunities to improve these programs in the future.

Barriers to Increasing Organics Diversion

The assessment of the city's organics programs identified the following primary barriers to reducing food waste and diverting organics from disposal:

1. **Lack of Organics Recycling Infrastructure**: There are currently no operational large-scale composting or anaerobic digestion facilities that accept yard waste, food scraps, or compostable paper in the city. This lack of infrastructure inhibits city residents and businesses (including those targeted by HB264) from diverting their organic waste (even when legally required).

2. **Lack of Centralized Organics Collection Programs**: There are currently no large-scale, centralized organics collection programs in the city. While curbside organics collection is offered by private companies and community collectives, the monthly charges for participation in these programs are fairly expensive (greater than $20 per month).
3. **Lack of Marketing for Existing Organics Programs**: Many residents are unaware that food scrap collection is offered at residential drop-off centers and farmers markets. As such, participation in these programs tends to be low. Further, the food scrap collection bins offered by the City at residential drop-off centers are not easily accessible by walking, biking, or bus.
4. **Lack of Education and Outreach Regarding Organics Diversion Programs**: Most city residents have limited experience managing and separating organics from their waste stream. Further, many residents harbor misconceptions regarding the odor and vermin impacts of large organics management facilities (like composting and anaerobic digestion facilities) and organics collection programs.
5. **Lack of Education about Which Organic Materials Are Divertible**: The materials that can and cannot be composted (or anaerobically digested) varies according to the vendor collecting the organics and operating the processing facility. This variance can cause confusion. Additionally, the City does not offer a public option for organics diversion, which makes this still a barrier to implementing a successful organics diversion program in the city.
6. **Difficulty Identifying Businesses Targeted by HB264**: HB264 requires large food-waste generators (currently defined as those generating more than two tons of food waste per week, reducing to those that generate one ton of food waste per week beginning January 1, 2024) to divert all of their food waste providing they are located within 30 miles of an organics recycling facility with capacity and willingness to accept the generator's food waste. However, there is no easy way for the City to identify the food-waste generators targeted by this law. As such, enforcement of this law will be difficult for the City.

Opportunities to Improve Organics Diversion

Recommendations from the NRDC Report, BFWRS, and the LWBB Plan for improving organics diversion in the city are summarized below.

1. **Expand the Use of Existing Processing Capacity**: The BFWRS lays out a series of recommendations to expand existing capacity in Baltimore, including improving access to backyard compost bins to residents, establishing school gardens at public schools to encourage on-site gardening and composting, supporting, and providing incentives for the creation of community composting locations in Baltimore neighborhoods. Other strategies included in the LWBB Plan include expanding the use of City-partnered organics processing facilities (e.g., Baltimore City Composting Facility, Back River Pelletech facility, Baltimore Patapsco Pelletizer facility, and Camp Small), encouraging on-farm composting (perhaps by expanding the Food Matters Program), and encouraging backyard and community composting (e.g., by providing residents with subsidized backyard composting units and initiating education and outreach programs).

2. **Revise Collection Frequency of Trash Pickup:** By reducing the frequency of trash pickup in the city, residents may be encouraged to participate in existing or future organics diversion programs to reduce their trash volume. While this is unlikely to be implemented in the near future, it could be discussed as a long-term option after an organics diversion program is implemented and trash volumes decrease.
3. **Provide and Encourage Curbside Collection of Organics**: Recommendations from the BFWRS for the City to implement and encourage a source-separated organics (SSO) collection program and implementing a residential food waste disposal ban. The SSO program would include conducting a residential curbside collection pilot program, expanding curbside collection throughout the city (long term), conducting a feasibility study for SAYT, and other incentive-based residential waste collection strategies. Other recommendations from the LWBB Plan include expanding City collection services to include collecting SSO, contracting SSO collection from residents to a third party, providing drop-off centers for food and yard waste, implementing a SAYT program, implementing a food waste disposal ban, and reducing the frequency of trash pickup.
4. **Implement a Ban on Commercial Organics Disposal in the City**: Recommendations from the LWBB Plan include a phased approach to encourage organics diversion, beginning with a subsidy for organics diversion and surcharge pricing for organics disposal and moving toward a blanket ban on organics disposal from commercial entities in the city.
5. **Construct (or Support Construction) of In-City Organics Processing Capacity**: Expanding the organics-processing capacity would help to expand organics collection programs in the city and would provide commercial organics generators a nearby location to bring their SSO. This opportunity is described further in Section 4.6

Other potential opportunities include improving enforcement of existing food waste diversion mandates (e.g., Legislation - HB0264 (maryland.gov)), and working to create more walkable neighborhoods that will allow for more food access, more frequent shopping, and less wastage.

Summary

A summary of the City's assessment of its existing organics reduction and diversion programs is found below.

Component		Assessment
	**Barriers**	• Lack of infrastructure for recycling organics • Lack of centralized organics-collection programs • Lack of marketing for existing organics programs • Lack of education and outreach regarding organics diversion programs • Difficulty identifying businesses targeted by HB264
	**Opportunities**	**Legislative:** • Implement a ban on commercial organics disposal in the city **Administrative:** • Improve education and outreach campaigns around food waste diversion for city residents, institutions, and businesses **Programmatic:** • Expand use of existing processing capacity • Revise collection frequency of trash pickup • Provide and encourage curbside collection of organics • Construct (or support construction) of organics processing facility • Improving enforcement of food waste diversion initiatives (HB264) • Create more walkable neighborhoods

4.2.3 Construction and Demolition Debris

C&D debris includes lumber, concrete, drywall, asphalt, and other materials generated from the construction or demolition of structures. Based on a waste sort performed for the LWBB Plan, it is estimated that C&D debris constitutes approximately 31% of the city's disposed waste stream. Waste diversion data from 2021 indicates that approximately 232,300 tons (45%) of C&D debris generated in the city is currently recycled. C&D debris is predominantly produced and recycled by the private sector (details are provided in Section 3.3).

Barriers to C&D Reduction and Diversion

The assessment of the city's C&D programs identified the following primary barriers to improved reduction and diversion of C&D debris:

1. **Lack of City-Led Deconstruction Program**: The City has previously partnered with a local nonprofit-established deconstruction firm to assist the City with demolition of City-owned buildings. This deconstruction firm developed a business selling material salvaged from deconstruction activities. However, the City has since stopped partnering with this deconstruction firm. The City could improve deconstruction by partnering with a similar deconstruction firm for future demolition projects.

2. **Lack of Clean Wood Recycling Infrastructure**: There is limited infrastructure in the city to salvage clean, untreated structural lumber and pallets from C&D projects. This clean wood may be repurposed for other construction projects or ground for mulch.
3. **Lack of Drywall Repurposing and Recycling**: Landfilled drywall can contribute significantly to odor issues. As such, it is imperative to reduce waste drywall generation and divert drywall from disposal at the landfill.

Opportunities for Improvement

The LWBB Plan details multiple policy options and strategies that exist to encourage C&D debris reuse. These are detailed below.

1. **Enact Legislated City-Mandated Deconstruction of Existing Structures**: Legislation that mandates all construction projects to deconstruct rather than demolish existing structures would reduce C&D debris and encourage separation and reuse. The capacity for deconstruction and reuse of salvaged building materials already exists in Baltimore, which is home to multiple deconstruction companies and building materials reuse centers (See Appendix J).
2. **Implement an Architectural Salvage Program**: An architectural salvage program may be implemented in coordination with mandated deconstruction of existing structures to encourage reuse of building materials. An architectural salvage program could be implemented as an online database to match potential buyers with companies offering salvaged building materials. City facilities and existing resale companies could hold the material while it is advertised.
3. **Encourage Green Construction**: A green construction policy would require new construction or major remodeling of existing buildings meet certain environmental and sustainability standards. The best-known example is the Leadership in Energy and Environmental Design (LEED) green building certification program, developed by the nonprofit U.S. Green Building Council and used worldwide as an objective measure of achievement. A green construction policy in Baltimore could also promote facilities certified as TRUE Zero Waste and encourage others to be certified.
4. **Pass a Mandatory Diversion Ordinance**: The City could improve diversion by passing an ordinance that requires C&D projects to divert a certain percentage of their waste from disposal.
5. **Require Deposits as Part of Permitting**: The City could require deposits during the permitting process for new C&D projects that would be returned to the contractors if and when they provide documentation that the project has met a designated diversion threshold.

Other potential opportunities include requiring developers to purchase deconstruction bonds to pay the cost of deconstruction upfront, and requiring contractors to have a waste management plan as part of the permit requirements for construction or demolition.

Summary

A summary of the City's assessment of its existing C&D reduction and diversion programs is found below.

Component		Assessment
	**Barriers**	• Lack of City-led deconstruction program • Lack of clean wood recycling infrastructure • Lack of drywall repurposing and recycling
	**Opportunities**	**Legislative:** • Implement a City-mandated deconstruction of existing structures • Encourage green construction • Implement mandatory diversion ordinance **Administrative:** • Establish an architectural salvage program • Include deposits as part of permitting

4.2.4 Bulk Waste

Bulk waste includes furniture, homewares, appliances, electronics, and other large waste. Based on a waste sort performed for the LWBB Plan, it is estimated that bulk waste constitutes less than 1% of the city's disposed waste stream. Waste diversion data from 2021 indicates that approximately 53,300 tons (90%) of bulk and special waste generated in the city is currently recycled. While bulk waste does not constitute a large fraction of the city's waste stream, it is difficult to dispose of and is therefore a priority area for reduction and diversion. Bulk waste diversion programs are described in Section 3.3.

Barriers to Reduction and Diversion of Bulk Waste

The assessment of the city's bulk waste programs identified the following primary barriers to improved reduction and diversion of bulk waste:

1. **Lack of Donation Space**: While private companies and nonprofits in the city will accept some bulk waste for donation, they are typically only willing to accept high-value material with the highest likelihood for resale to avoid potential disposal fees if the bulk waste cannot be reused or sold. This lack of centralized and consistent donation programs reduces resident's ability to donate or divert bulk waste.
2. **Difficulty of Repair**: When bulk objects like appliances and electronics break, it is often very difficult or cost prohibitive for residents to repair them (or find low-cost companies or contractors capable of repairing them). As such, appliances and electronics are often disposed of even if they have only minor or easily repaired damage.
3. **Vehicles Available to Move Bulk Items**: If a resident does not have access to a vehicle large enough to move their bulk item to a donation location, that item will likely end up on the street for pickup as trash.

Opportunities for Improvement

The LWBB Plan outlines four options and strategies to encourage repair, donation, and reuse of bulk waste:

1. **Invest in Programs that Turn Waste into Art**: The City could donate abandoned buildings and bulk waste material to artists, sculptors, and recycling innovators to organize shows and contests that encourage the reuse of bulk waste materials.
2. **Fund Fix-It/Repair Clinics**: The City could help to fund clinics where residents can learn how to repair broken electronics, homewares, appliances, bikes, etc., rather than throwing them away. Fix-It Clinics are currently used as a way to reduce bulk trash in many cities across the country, including Austin, Texas; Flagstaff, Arizona; Minneapolis, Minnesota; and San Diego, California. The Baltimore Tool Library also holds fix-it fairs a few times a year. These clinics are usually staffed by volunteers with skills to share, gained either professionally or through hobbies, and are free of charge for attendees, although donations may be encouraged. Fix-it clinics may be hosted by the City, local nonprofits, local businesses, or some combination of private and public entities. In Baltimore, clinics could be offered in coordination with, or in a similar manner to GROW centers, which offer tips and materials for greening and landscaping.
3. **Hold Reuse and Swap Events**: Reuse events allow residents to get rid of or obtain gently used materials (e.g., furniture, clothes, and toys) in a convenient and structured way in a formal or semiformal setting. These managed events avoid contributing to uncleanliness or litter in the way that informal garage or yard sales can and also reduce the incentive for residents to simply dump used items on the street. Reuse events could include curbside giveaway events in common areas of apartment buildings, block parties for single-family neighborhoods, and swap events such as jewelry or clothing exchanges. Many counties and municipalities promote once or twice-yearly curbside events, generally held in the spring or fall as people adjust and update their homes and closets.
4. **Pass Right-to-Repair Bill**: Right to repair bills, typically focused on electronic devices and small appliances, refer to government legislation that is intended to allow consumers the ability to repair and modify their own consumer products, rather than being obligated by the manufacturer of such devices to use their (often expensive) repair or replacement services. Right-to-repair legislation has been introduced in 17 states.
5. **Provide Mobile Collection Units**: The City could consider providing mobile collection for diversion or reuse of bulk waste and other materials using a modified trailer or truck. While DPW currently accepts these materials at residential drop-off centers, residents must have the means to physically transport these materials to the drop-off centers. Providing a more convenient way to accept these materials may encourage additional diversion.

Other potential opportunities to improve bulk waste diversion include creating a City-sponsored online donation or reuse forum for residents.

Summary

A summary of the City's assessment of its existing bulk waste reduction and diversion programs is found below.

Component		Assessment
	**Barriers**	• Lack of donation space or repair facilities • Difficulty of repair • Long wait times for bulk waste collection • Lack of accessibility
	**Opportunities**	**Legislative:** • Support right-to-repair bills at the state level **Administrative:** • Invest in programs that turn waste into art • Fund fix-it and repair clinics • City-sponsored online donation or reuse forum **Programmatic:** • Hold reuse and swap events • Provide mobile collection units

4.2.5 Other Diversion Programs

Other waste includes generally hard-to-recycle materials (carpet, mattresses, textiles, paint, non-compostable organics, medical waste, composite materials, etc.). Based on a waste sort performed for the LWBB Plan, it is estimated that other waste constitutes approximately 15% of the city's disposed waste stream. Waste diversion data from 2021 indicates that approximately 99,400 tons (42%) of other waste generated in the city is currently recycled.

Barriers to Reduction and Diversion of Other Waste

The assessment of the City's other waste programs identified the following primary barriers to improved reduction and diversion of other waste:

1. **Lack of Durable Medical Equipment Reuse Opportunities**: The Maryland Department of Aging has a program in place to collect durable medical equipment (wheelchairs, walkers, scooters, etc.) for refurbishment. Although containers are located at the residential drop-off centers at NWTS and QRL, this service is not offered at any other locations in the city.
2. **Lack of Mattress Recycling Opportunities**: Mattresses are very difficult to recycle and dispose of. The City currently does not offer mattress recycling to residents, WIN Waste currently does not accept mattresses, and the City has considered banning them at QRL as well. As such, mattresses are often illegally dumped in the city.

3. **Lack of Textile and Clothing Donation Opportunities**: While several nonprofits in the city offer reuse opportunities for clothing in good condition (see Section 3.3), recycling opportunities for damaged textiles and clothing are limited.
4. **Lack of Paint Recycling Opportunities**: Oil-based paint is currently accepted as HHW at the Sisson Street residential drop-off center. Latex paint can also be dried out and collected with residential trash. Some larger nonprofits will also accept paint (see Appendix I). However, no true public reuse or recycling opportunities are offered in the city for paint.
5. **Lack of Christmas Tree Diversion**: Currently, Christmas trees may be brought to multiple locations throughout the city where residents are given the option to mulch their trees and collect the mulch. However, mulch that is not collected is sent to QRL or WIN Waste for disposal.
6. **Lack of Animal Carcass Diversion**: Animal carcasses are currently collected and sent for incineration. However, these carcasses would ideally be diverted and composted.
7. **Lack of Visibility and Marketing for Existing Recycling Programs**: Many residents are unaware of the recycling programs currently offered at residential drop-off centers (electronics recycling, bulk waste recycling, oyster shell recycling, durable medical equipment recycling, etc.).
8. **Lack of Carpet and Carpet Padding Programs**: Carpet and carpet padding are some of the hardest materials to recycle, and very few opportunities currently exist in the city to recycle these materials.
9. **Lack of Donation Opportunities**: Many hard-to-recycle materials, like bicycles and electronics, are disposed of even when they are still operational (or in need of light repair). If more donation opportunities were offered for these materials, they could be reused rather than disposed of.

Opportunities for Improvement

Other waste reduction and reuse opportunities detailed in LWBB include the following:

1. **Implement Tool Libraries and Lending Organizations**: Opportunities for sharing items that are used infrequently are becoming more prevalent in many communities. The City could support organizations (e.g., nonprofit organizations or public libraries) or develop partnerships with existing organizations to provide opportunities for the public to borrow items such as bikes, appliances, or tools. Items can be donated to the tool libraries or organizations can purchase and cover expenses through user fees.
2. **Implement Bans or Restrictions on Specific Materials**: Results from the survey of stakeholders conducted for the LWBB Plan indicated clear support for policies aimed at eliminating specific "bad actor" materials from the waste and recycling streams. For example, 86% of responders supported a ban on single-use plastics such as food containers, plastic bags, and straws. As an alternative to outright bans, however, some responders suggested taxing the use of single-use materials or introducing laws to provide incentives for reuse.

3. **Support Extended Producer Responsibility (EPR) Policies**: EPR is a government mandate for product stewardship that requires a manufacturer's responsibility for its product to extend to post-consumer management of that product and its packaging and/or upstream redesign/reduction. EPR policies shift some financial and management responsibility for waste management upstream to the manufacturer and away from the public sector, while providing incentives for manufacturers to incorporate environmental considerations into the design of their products and packaging. Applied effectively, EPR can be valuable in helping communities manage and fund the reduction/recycling/diversion of difficult materials.
4. **Support Product Take-Back Programs**: Similar to EPR programs, product take-back programs are a form of product stewardship for hard-to-recycle items and packaging. These initiatives are typically organized by a manufacturer or retailer to collect used products or materials from consumers and reintroduce them to the original processing and manufacturing cycle. A company may implement this program in collaboration with end-of-product-life logistics and material-processing firms. For manufacturers and retailers, there are multiple benefits for implementing a take-back program, including stronger customer relationships, lower cost of goods sold due to secondary material supply, providing an alternative supply of critical raw minerals, mitigating risks associated with hazardous materials handling, and reduced environmental impacts. These benefits often result in no cost or discounts to consumers when they participate. Companies can estimate the success of their take-back programs by measuring the total mass of products sold against those collected each year.
5. **Implement Targeted Recycling Programs**: The City could consider implementing recycling programs for mattresses, box springs, carpets and rugs, textiles, porcelain and ceramics, batteries, and other materials that are difficult to recycle. These programs would improve recycling while also keeping many of these nuisance materials out of the landfill.

Other opportunities for improving diversion include efforts regarding Christmas trees and animal carcasses. For example, whole Christmas trees can reportedly be diverted for use as a biodegradable material to restore natural habitat along shorelines. Additionally, Christmas trees may be fed to goats as a nutritional supplement during winter months. Animal carcasses should be diverted to a compost facility (particularly if the City constructs or supports the construction of a compost facility within the city).

Summary

A summary of the City's assessment of its existing waste reduction and diversion programs for other waste is found below.

Component		Assessment
	**Barriers**	• Lack of durable medical equipment reuse opportunities • Lack of mattress recycling opportunities • Lack of textile and clothing donation opportunities • Lack of paint recycling opportunities • Lack of Christmas tree diversion • Lack of animal carcass diversion • Lack of visibility and marketing for existing recycling programs • Lack of carpet and carpet padding recycling programs • Lack of donation opportunities
	**Opportunities**	**Legislative:** • Ban or restrict specific materials • Extend producer responsibility • Support product take-back programs **Administrative:** • Implement tool libraries and lending organizations **Programmatic:** • Implement targeted recycling programs • Improve diversion efforts for Christmas trees and animal carcasses

4.2.6 Litter Reduction and Cleanup Programs

Although litter is not a large percentage of total waste generated in the city, it is an eyesore, and may contribute to rodent (and other vector) problems. As such, improving litter reduction and cleanup programs is of critical importance to the City.

Barriers to Litter Reduction

Despite the many community-based litter reduction and collection programs in place, litter remains a serious problem in the city. The following are some of the barriers to litter reduction identified in this assessment:

1. **Unreliable Litter Collection**: Residents report that street litter is unreliably collected by the City and/or local residents. Further, residents report that street litter is disproportionately collected from affluent neighborhoods.
2. **Lack of Enforcement**: Antilittering laws are not reliably enforced.
3. **Education and Outreach**: As evidenced by the city's persistent litter problem, existing educational programs to reduce litter do not appear to be effective.
4. **Landlords Do Not Provide Trash Bins to All Tenants**: While landlords are legally required to provide trash bins to all tenants, some landlords do not comply with the law. As such, many

residents have to supply their own trash bins or share with neighbors. This results in many residents placing bags of trash on the street, where they may be torn open.

Opportunities for Improvement

Litter reduction and cleanup opportunities detailed in the LWBB Plan include the following:

1. **Implement Additional Educational Programs to Reduce** Litter: Baltimore needs to build ownership to keep neighborhoods clean, which requires educating residents and schoolchildren on littering and what is recyclable (e.g., through antilittering campaigns and public service announcements).
2. **Increase the Number of Litter Crews**: DPW could provide more litter cleanup crews, separate from curbside collection crews, or alternatively contract private organizations for street litter collection. One example is to have on-call crew for rapid cleanup of litter or illegal dumping by small hauling contractors.
3. **Organize Litter Collection Drives**: The City could organize litter collection initiatives with local schools or communities, providing certificates for community service hours and/or offering awards for groups that clean up and recycle the most litter. This could be conducted as an extension of the biannual Mayor's Spring and Fall Cleanups in which participants earn credits toward their stormwater fee.
4. **Encourage Responsible Businesses**: The City could conduct educational campaigns to encourage businesses such as restaurants, cafes, and stores to collect litter from in front of their premises.
5. **Create Resident Litter Squads**: The City could create jobs for those who need them by hiring squads to collect litter and bulk trash from the streets. Squads could be staffed by vulnerable and at-risk members of the community (e.g., youth and homeless people), connecting and organizing them with additional support services. Communities are less likely to tolerate littering and dumping in areas they have cleaned. Examples of U.S. cities that have programs to give homeless people and panhandlers jobs picking up trash, pulling weeds, and street cleaning include Albuquerque, New Mexico (which started their program in 2015), Los Angeles, California; Chicago, Illinois; Denver, Colorado; and Portland, Maine.
6. **Improve Enforcement**: The City could enforce the use of nets on waste collection trucks to prevent debris from falling and producing litter, enforce laws requiring landlords to provide trash bins to residents, enforce fines for littering, and install cameras in areas where littering is persistent.

Summary

A summary of the City's assessment of its litter reduction and cleanup programs is below.

Component		Assessment
	**Barriers**	• Unreliable litter collection • Lack of enforcement • Education and outreach surrounding litter
	**Opportunities**	**Administrative:** • Initiate educational programs to reduce litter (including responsible businesses initiative) **Programmatic:** • Increase litter crews • Implement litter collection drives • Create residents' litter squads • Improve Enforcement

4.3 Residential Drop-Off Centers

Residential drop-off centers are managed by the Street Sweeping and Roll-Off Division and are described in Section 3.4.

4.3.1 Barriers to Efficient Operation of Residential Drop-Off Centers

The assessment of the City's residential drop-off centers identified the following barriers to effective operation:

1. **Commercial Vehicles and Nonresidents**: Residential drop-off centers are meant to serve only residents of the city. However, many commercial vehicles and nonresidents attempt to use the facilities. Currently, workers at the drop-off centers check drivers licenses and license plates to prevent commercial vehicles and nonresidents from dumping at the residential drop-off centers; nevertheless, commercial and nonresident vehicles contribute to lines and inefficiencies.
2. **Unacceptable Wastes**: The most common unacceptable wastes dumped at residential drop-off centers include drywall, concrete, structural wood, and pallets. Customers with these materials are generally sent away, but regularly have already dumped or argue with the staff.
3. **Illegal Dumping**: Waste (both acceptable and unacceptable) is left outside and inside of residential drop-off centers on a near daily basis resulting in staff time to move the material to the appropriate location within the drop-off center.
4. **Staffing Shortages**: Hiring and retaining staff (particularly for CDL roll-off truck drivers) are a persistent problem at residential drop-off centers. On busy days at some facilities, roll-off containers cannot be hauled off-site fast enough to keep up with demand. While the City offers many long-term benefits over private companies (job stability, benefits, etc.), private trucking

companies offer a significantly higher starting pay than the City. As such, the City often has difficulty hiring new drivers and retaining existing drivers.

5. **Space Restrictions**: Many of the residential drop-off centers are space restricted. On busy days, this lack of space can mean that lines to enter the facilities back up onto city streets. Further, there is minimal storage space for additional roll-off containers, trucks, or equipment.
6. **Equipment Shortages**: Some residential drop-off centers lack the equipment necessary to operate efficiently. Specific equipment shortages include roll-off trucks and bobcats.
7. **Security**: Not all residential drop-off centers are fenced and gated around their entire perimeter. As such, they are subject to illegal dumping and break-ins.
8. **Worker Comfort**: Many residential drop-off centers lack shelter and break rooms for workers. As such, many workers are forced to work in the elements without a space to eat their lunches or take breaks.

4.3.2 Opportunities for Improvement

The LWBB Plan outlines several options to improve residential drop-off centers in the city:

1. **Construct Additional Capacity**: This option would require DPW to either construct new facilities for both residents and small haulers to drop off waste or expand existing drop-off centers to allow small haulers to use them in addition to QRL and NWTS. As most existing drop-off centers are on fairly compact lots, it seems unlikely that these locations could be expanded sufficiently to allow small hauler use (this would require a truck scale and larger throughput capacity, among other upgrades). As such, it is assumed that developing new capacity would require the constructing new drop-off centers.
2. **Expand Reuse and Diversion Opportunities at Existing Facilities**: This option would require reconfiguring existing drop-off centers to allow for a larger number of materials to be handled and diverted. This would require increased staffing to direct residents and haulers to the correct location for each material. Additional materials to consider for acceptance include nontraditional recyclable/divertible items, such as mattresses, carpet, furniture, homewares, textiles, HHW, and ceramics/porcelain, as well as items that are currently accepted but are not separated (e.g., C&D debris, bulk waste, appliances with large amounts of rigid plastic, and yard waste). This option could include a materials exchange network/partnership that would allow residential drop-off centers to partner with nonprofits to expand donation of items such as bicycles, musical instruments, books, clothes, etc.
3. **Construct a Resource Recovery Park (Eco-Park)**: The most practical option available for construction of a resource recovery park would be to co-locate individual reuse and diversion facilities in one large, centralized location. The location of this facility would be subject to an extensive siting and feasibility study, although optimally it should be located close to QRL to minimize transportation of process residuals. Reuse and diversion facilities that could be located

within the resource recovery park include reuse facilities (such as a food bank, C&D salvage and reuse center, a thrift store, and a fix-it/repair clinic), a composting facility, an MRF for processing SSR, an MRF for processing C&D debris, or a residential drop-off center that could serve small haulers.

Additional opportunities to improve the operation of residential drop-off centers include installing tag readers or driver's license scanners to efficiently identify nonresidents and commercial haulers, installing security fencing and gates to prevent illegal dumping, increasing starting pay for CDL roll-off truck drivers, and upgrading staff facilities (including shelters and breakrooms).

4.3.3 Summary

A summary of the City's assessment of its residential drop-off centers is found below.

Component		Assessment
	**Barriers**	• Commercial vehicles and non-residents • Unacceptable wastes • Illegal dumping • Staffing shortages • Space restrictions • Equipment shortages • Security • Worker comfort
	**Opportunities**	**Short-Term:** • Install tag readers or driver's license scanners • Install fencing and gates • Increase starting pay for CDL drivers • Upgrade staff facilities (shelter and breakrooms) **Long-Term:** • Construct additional capacity • Expand reuse and diversion opportunities at existing facilities • Construct a resource recovery park (eco-park)

4.4 Waste Collection

The City's waste collection system is described in Section 3.5. Since 2000, the City has used CitiStat, a database-driven performance measurement tool, to monitor and assess public service delivery and operation. Solid waste management performance is evaluated in a branch of CitiStat called CleanStat, which assists DPW in deciding how to provide more efficient service. Continued use of CleanStat and

continued feedback from citizens and employees are essential in developing a proper assessment of the City's solid waste management needs now and in the period covered by this Plan.

4.4.1 Curbside Collection of Mixed Refuse and Single-Stream Recyclables

Mixed refuse and SSR collection is provided by the Routine Services Division and is described in Section 3.4.

Barriers to Mixed Refuse Collection

The assessment of the City's mixed refuse and SSR collection program identified the following primary barriers to effective mixed refuse collection service:

1. **Staffing Shortages**: Hiring and retaining personnel, and particularly CDL drivers, has been extremely difficult. While the City offers many long-term benefits over private companies (job stability, benefits, etc.), private trucking companies offer a significantly higher starting pay than the City. As such, the City often has difficulty hiring new drivers and retaining existing drivers.
2. **Inconsistent Collection**: Regularly scheduled mixed refuse and SSR collection dates are sometimes not honored (mostly due to staffing issues). There is currently no back-up plan when this happens, and residents have to wait until the next schedule collection day for their trash or SSR to be collected.
3. **Limited Refueling Locations**: There is currently only one location where City collection vehicles can refuel (at the central yard). This makes refueling inefficient, particularly when there is traffic in the city.
4. **Aging Collection Fleet**: Many of the collection vehicles are near or exceeding their service life, leading to high equipment down time. These vehicles will need to be replaced over the next two years.
5. **Trash Can Color**: The municipal trash cans provided to residents by DPW are green. This leads to some confusion with residents who associate green bins with organics collection.
6. **Lack of Enforcement**: The state generally delegates local government to enforce the laws related to solid waste (including recycling laws). DPW currently does not have an enforcement division but instead depends on the DHCD to enforce trash and SSR-related violations.
7. **Education and Outreach**: Some residents do not know that trash should be bagged before placing it in trash bins to protect collection workers from sharp or hazardous materials. Additionally, some residents use their recycling bin as a second trash can, leading to significant contamination in the SSR stream (discussed in more detail in Section 4.2).

Opportunities for Improvement

Surveys conducted as part of the LWBB Plan indicated that most residents are satisfied with their curbside collection services. However, some residents complained that roads and alleys are littered due to messy

waste collection practices and suggested providing collection crews with brooms and shovels to clean up waste dropped during collection. In 2022, the City prepared an operational review (Rubicon Report) of routine services operations to optimize collection routes for the City.[13] The Rubicon Report provides the following recommendations to improve trash and SSR collection:

1. **Rightsize Routes, Equipment, and Personnel in the Short Term**: The Rubicon Report found that trash collection routes put the City near the upper end of industry standard route sizes with 1,173 stops per route. To reduce the number of stops per route to 1,050 in the short-term, the Rubicon Report recommended that the City maintain a fleet of at least 60 load packers with less than 20% breakdown factor, increase the number of CDL trash-collection drivers to 60, and increase the number of trash laborers to 120. For SSR collection, the Rubicon Report found that the City was near the upper end of industry standard route sizes with 2,608 stops per route. To reduce the number of stops per route to 2,200 in the short term (while maintaining collection once every two weeks), the report recommended that the City maintain a fleet of at least 29 load packers with less than 20% breakdown factor, increase the number of CDL SSR-collection drivers to 29, and increase the number of SSR laborers to 58.
2. **Rightsize Routes, Equipment, and Personnel Long Term (Final):** For trash collection in the long term, the Rubicon Report recommends reducing the number of stops per trash collection route to 950 by maintaining a fleet of at least 66 load packers with less than 20% breakdown factor, increasing the number of CDL trash-collection drivers to 66, and increasing the number of trash laborers to 132. For SSR collection in the long-term the Rubicon Report recommends reducing the number of stops per recycling collection route to 1,300 by maintaining a fleet of at least 48 load packers with less than 20% breakdown factor, increasing the number of CDL SSR-collection drivers to 48, and increasing the number of SSR laborers to 196.
3. **Increase Funding Levels to Sustain Fleet and Staffing**: To improve the long-term performance of trash collection in the city, the Rubicon Report recommends increasing future funding levels to sustain at least a 20% reserve of vehicles and personnel.
4. **Maintain Onboard Technology for Employee and Departmental Success**: The Rubicon Report recommends installing onboard technology to verify collection service in real time and provide drivers with intuitive tools to enhance their workflow.
5. **Implement a Collection Performance Standard**: The Rubicon Report recommends that the Routine Services Division adopt an appropriate performance management system for trash collection that tracks route completion time and customer complaints.

Additional opportunities to improve mixed refuse and SSR collection include increasing starting pay for CDL drivers, adding additional refueling stations (possibly at residential drop-off centers), enforcing

[13] *Baltimore Routine Services Operational Review* (2022).
https://publicworks.baltimorecity.gov/sites/default/files/FINAL%20DPW%20Rubicon%20Report.pdf

existing trash and recycling collection programs (e.g., for multifamily dwellings), and improving education and outreach to improve worker safety and reduce contamination in the SSR stream.

Summary

A summary of the City's assessment of its existing mixed refuse collection program is found below.

Component		Assessment
	**Barriers**	• Staffing shortages • Inconsistent collection • Limited refueling locations • Aging collection fleet • Trash can color • Landlords do not always provide trash bins to tenants • Lack of enforcement • Education and outreach
	**Opportunities**	**Administrative:** • Increase funding levels to sustain fleet and staffing • Implement a collection performance standard • Increase starting pay for CDL drivers • Enforce existing trash collection programs • Improve education and outreach **Programmatic:** • Rightsize routes, equipment, and personnel in short term • Rightsize routes, equipment, and personnel long term (Final) • Maintain onboard technology for employee and departmental success • Add additional refueling stations

4.4.2 Bulk Waste Collection

Bulk waste collection is provided curbside, by calling 311, or at residential drop-off centers. Bulk waste collection is described in Section 3.4.

Barriers to Bulk Waste Collection

The assessment of the City's bulk waste collection program identified the following barriers to effective operation:

1. **Lack of Accessibility**: While the City does provide curbside collection of bulk waste and collection at residential drop-off centers for bulk waste disposal, it does not provide collection of bulk waste for diversion or reuse.

Opportunities for Improvement

The LWBB Plan includes several strategies for improving bulk waste collection in the City:

1. **Collect Bulk Waste for Donation**: DPW currently recycles or disposes of bulk trash collected at residential drop-off centers and via curbside collection. Working with local charitable and reuse organizations (e.g., the Salvation Army, Goodwill, Habitat for Humanity ReStores) to offer donation of bulk items might encourage more participation in the program.
2. **Charge residents for bulk waste collection**: This would encourage reuse, repurposing, and resale of bulk items. As an example, Seattle, Washington, currently charges residents $30 per item collected and $38 for items with refrigerants. However, this option could also encourage illegal dumping.
3. **Reduce the Amount of Bulk Trash that Can Be Collected via Curbside Collection**: The City already limits the amount of bulk waste per household to three items per household per month. However, this could be reduced to encourage residents to pursue other options (such as donation). Currently, many other cities (e.g., Washington DC and San Francisco) have limits on the amount of bulk waste collected per household in order to reduce disposal of bulk waste. However, this option could also encourage illegal dumping.
4. **Construct a Large, Accessible Recycling Center for Bulk Waste**: This facility would not need to be open every day, but its opening hours would need to be clearly communicated to residents to encourage recycling. This facility could be part of an expanded network of residential drop-off centers (see above). Monterey, California, operates a facility called "Last Chance Mercantile."

Summary

A summary of the City's assessment of its bulk waste collection program is found below.

Component		Assessment
	**Barriers**	• Long wait times for bulk waste collection • Lack of accessibility
	**Opportunities**	**Administrative:** • Charge residents for bulk waste collection • Reduce the amount of bulk trash that can be collected via curbside collection • Increase staffing for 311 calls **Programmatic:** • Collect bulk waste for donation • Construct a large, accessible recycling center for bulk waste

4.4.3 Yard Waste and Leaf Collection

Yard waste and leaves are not collected separately within the city. Instead, residential yard waste is collected with mixed refuse on trash collection days and sent to WIN Waste for incineration with the residential trash. Additional information on yard waste and leaf collection is provided in Section 3.4.

Barriers to Yard Waste and Leaf Collection

As indicated, yard waste is not currently diverted from the waste stream. This is a missed opportunity for the City that needs to be corrected. Yard waste should be collected separately from residential waste and diverted through a combination of community based, small-scale programs (e.g., backyard composting or community composting) and centralized collection and diversion programs (e.g., through separate collection and diversion to an organics management facility). The assessment of the City's yard waste and leaf collection program identified the following barriers to effectively implementing a yard waste diversion program in the city:

1. **Education and Outreach**: Due to a lack of educational materials, many residents are unaware of existing community-based composting programs and/or do not know how to begin composting at home.
2. **Lack of Separate Collection**: Yard waste and leaves are not currently collected separately from residential trash. As such, they cannot be diverted from disposal.
3. **Lack of Organics Recycling Infrastructure**: There are currently no large-scale composting or anaerobic digestion facilities that accept yard waste in the city. This lack of infrastructure inhibits the City from developing a yard waste and leaf diversion program.

Additional barriers to yard waste and leaf collection include staffing shortages (particularly for CDL drivers), which inhibit the development of a separate yard waste collection program.

Opportunities for Improvement

The following opportunities for improving yard waste and leaf collection were identified as part of this assessment:

1. **Improve education and outreach**: Education and outreach initiatives should be improved and focused on connecting residents with existing community-based composting programs and educate residents on how to effectively compost at home.
2. **Increase Backyard Composting**: Increase opportunities for backyard composting by providing residents with subsidized backyard composting tools.
3. **Develop a Separate Yard Waste and Leaf Collection Program**: If a separate yard waste and leaf collection program were implemented in the city, yard waste and leaves could be diverted from disposal. In addition to starting a separate collection program, the City could increase starting pay for CDL drivers to alleviate staffing shortages.

4. **Construct or Encourage Construction of an Organics Recycling Facility**: By constructing an organics recycling facility in the city, there would be infrastructure available to facilitate a separate yard waste and leaf collection program.

Summary

A summary of the City's assessment of its yard waste and leaf collection program is found below.

Component		Assessment
	**Barriers**	• Lack of education and outreach • Lack of separate collection • Lack of organics recycling infrastructure
	**Opportunities**	• Improve education and outreach initiatives • Improve access to backyard composting • Develop a separate yard waste and leaf collection program • Construct or encourage construction of an organics recycling facility in the city

4.4.4 Illegal Dumping

Illegal dumping remains a persistent problem in the city with an annual cleanup cost to the City of over $26.7 million. Additional information on illegal dumping collection is provided in Section 3.4.

Barriers to Reducing Illegal Dumping

The assessment of the City's illegal dumping problem identified the following barriers:

1. **Lack of Working Mechanism to Prevent Illegal Dumping**: In fiscal year 2022, 325 citations were issued for illegal dumping activities. These citations included fines ranging from $50 to $30,000, and in some cases, included imprisonment. However, the problem of illegal dumping persists in the city.
2. **Fees Imposed on Small Haulers**: The fees imposed on small haulers as part of the small hauler program may incentivize illegal dumping.
3. **Illegal Dumping is Not Reliably Collected**: The City has trouble keeping up with the illegal dumping problem in the city. As such, illegally dumped material becomes an eyesore until it can be collected. If waste is not collected, more waste is added by other illegal dumping activities.

Opportunities For Improvement

The LWBB Plan highlights several opportunities to reduce illegal dumping in the City. These include:

1. Provide stronger enforcement of fines for illegal dumping violations equally throughout the city.

2. Offer more bulk trash pickup.
3. Use surveillance cameras in highly impacted areas to identify people illegally dumping their trash.
4. Remove fees for small haulers and residents using commercial vehicles (e.g., U-Haul vans) at QRL, NWTS, and the other residential drop-off centers.
5. Contract residents and/or small haulers to pick up and transport illegally dumped waste in their private vehicles.
6. Increase DPW staff capacity to improve reliability of waste collection services and information and to provide better response to illegal dumping, including following up more promptly on complaints from 311 calls/website.
7. Identify common illegal dumping sites (e.g., in Carrollton Ridge, Shipley Hill, and Edmondson Village), place a dumpsters at those sites, and schedule regular collections.
8. Get input from local haulers who could help identify the culprits of illegal dumping.
9. Require small haulers of junk to report where they take the materials they collect.
10. Maintain a list of registered contractors to help track and identify where illegally dumped material is coming from.
11. Use social media to reward those reporting illegal dumping and to publicize contractors and small haulers determined to be illegally dumping so others don't use them.
12. Establish a smartphone app that would provide credits or coupons to people who take verifiable pictures of illegal dumping in the act.
13. Work more closely with community development organizations, neighborhood business districts, conservation land trusts, BMORE Beautiful, small haulers, and other interested parties to explore and provide opportunities for the purchase and transfer of derelict land and buildings to residents and nonprofits to create public safe clean green spaces, reduce blight, and implement a vision of community led stewardship for the land.
14. Require absentee landowners to perform cleanups and make the site improvements required by the City or forfeit their property under eminent domain for transfer to a Conservation Land Trust that is willing to make those site improvements.
15. Transfer lands in public ownership (e.g., plots where public housing was torn down but not replaced) to Conservation Land Trusts to begin pilot programs.

Summary

A summary of the City's assessment of its illegal dumping program is found below.

Component		Assessment
	**Barriers**	• Lack of working mechanism to prevent illegal dumping • Fees imposed on small haulers • Illegal dumping is not reliable collected
	**Opportunities**	**Administrative:** • Increase enforcement • Remove fees for small haulers and residents using commercial vehicles • Increase DPW staff capacity to improve response to illegal dumping • Interview small haulers to identify likely culprits • Require small haulers to report where they take their waste • Maintain a list of registered contractors to track illegal dumping • Use social media to reward those reporting illegal dumping and publicly identify contractors who have illegally dumped material • Establish a smartphone app • Work closely with community development organizations • Require absentee landowners to perform cleanups or forfeit their property • Transfer land in public ownership to Conservation Land Trusts **Programmatic:** • Offer expanded bulk trash collection • Install and monitor surveillance cameras in highly impacted areas • Contract residents and/or small haulers to collect illegally dumped materials • Place dumpsters in common illegal dumping sites

4.4.5 Street and Sidewalk Sweeping

Street and sidewalk sweeping is provided by the Street Sweeping and Roll-Off Division and is described in Section 3.4.

Barriers to Effective Street and Sidewalk Sweeping

The assessment of the City's street and sidewalk sweeping program identified the following barriers:

1. **Year-Round Operation**: Street sweepers in the City run year-round, but they may not be needed in the winter when freezing conditions prevent debris collection.
2. **Inconsistent or Nonexistent Service**: Street sweeping is reportedly inconsistent or nonexistent in some neighborhoods. This issue is due predominantly to a lack of enforcement when parked cars are not moved during street sweeping days.

3. **Dated Street Sweeping Fleet**: The City's street sweeping equipment is dated, with the newest vehicles purchased in 2016.
4. **Ineffective for Collecting Leaves**: The City's current street sweeping trucks are not appropriate for collecting leaves from the city's streets.
5. **Ineffective for Bike Lanes**: The City's current street and sidewalk sweeping trucks are ineffective for cleaning bike lanes.

Opportunities for Improvement

This assessment identified multiple ways to improve street sweeping in the city:

1. **Streamline Street Sweeping Schedule**: The current street sweeping schedule is seen as intermittent and hard to understand. This could be improved by ensuring sweepers come as scheduled and by making the schedule simpler to understand. The efficacy of street sweeping could be improved by offering sweeping services in more places (e.g., alleys) and by enforcing parking rules for sweeping days.
2. **Improve Enforcement**: Reliable enforcement of parking laws would allow City crews to access more neighborhoods and provide more consistent service.
3. **Procure New Street Sweeping Vehicles**: Procuring new street sweeping vehicles may help the City better service underserved areas. It may also improve collection efficiency.
4. **Redesign Bike Lanes**: If bike lanes were redesigned such that existing street sweeping vehicles could access them, the City could improve cleaning on streets with bike lanes.
5. **Procure Specialized Vehicles for Cleaning Bike Lanes**: If bike lanes cannot be redesigned, the City could procure additional smaller street sweeping vehicles to clean bike lanes.
6. **Procure Additional Leaf Collection Vehicles**: Procuring additional vehicles specifically for leaf collection would reduce the hazards (e.g., fires) associated with collecting leaves with street sweeping vehicles.

One additional opportunity is to suspend street and sidewalk cleaning during winter months to free up drivers for snow plowing. However, this would only be advisable during periods of freezing temperatures and snowfall.

Summary

A summary of the City's assessment of its street and sidewalk sweeping program is found below.

Component		Assessment
	**Barriers**	• Year-round operations • Inconsistent or nonexistent service • Ineffective leaf collection • Ineffective bike lane sweeping
	**Opportunities**	**Administrative:** • Implement educational programs to reduce litter • Improve enforcement **Programmatic:** • Redesign bike lanes • Procure specialized vehicles for cleaning bike lanes • Procure leaf collection vehicles

4.4.6 Small Hauler Program

The City's small hauler program is described in Section 3.4.

Barriers to Small Hauler Program Operation

The assessment of the City's small hauler program identified the following barriers:

1. **Inefficient Payment System**: Currently, small haulers pay a set fee for every load they dump at NWTS or QRL. However, small haulers have to pay every time they enter the facilities, which can be slow (particularly when paying with cash).
2. **Lines at NWTS and QRL**: Since rollout of the small hauler program, small haulers have significantly outnumbered residents and commercial haulers at NWTS and QRL. This has led to lines at both facilities (particularly on Saturdays).

Opportunities for Improvement

The following opportunities for improving the small hauler program have been identified:

1. **Setup an Automatic Payment System**: Setting up an automatic payment system where small haulers had registered accounts to charge would make the program easier, safer, and more efficient and may help to reduce lines at QRL and NWTS.
2. **Expand the Small Hauler Program to Additional Locations**: While the City does not currently have other locations where small haulers could bring waste (existing residential drop-off centers are space constrained), if the City develops a new facility (e.g., an eco-park or a new drop-off center), the small hauler program could be expanded at that new facility.

Summary

A summary of the City's assessment of its small hauler program is found below.

Component		Assessment
	**Barriers**	• Inefficient payment system • Lines at QRL and NWTS
	**Opportunities**	• Setup an automatic payment system • Expand small hauler program to additional locations

4.4.7 Other Waste Collection Programs

The City's other waste collection programs are described in Section 3.4.

Barriers to Collecting Other Waste

The assessment of the City's other waste collection programs identified one primary barrier regarding collection of sharps and human waste from encampments. City collection crews and DPW employees are not properly trained to safely handle biological waste or sharps. Expanding DPW's collection services to include cleanup of human waste and sharps would require a significant investment in training, collection equipment, and personal protective equipment.

Opportunities for Improvement

One potential opportunity to improve collection of human waste and sharps is for the City to contract with a private company to provide collection of these materials from encampments. This would prevent the City from incurring excessive training and materials costs for such a specialized collection task. Currently, the City is piloting a program to contract with a cleaning service to remove sharps and human waste from encampments. If the pilot is successful, this program could be implemented at a larger scale.

Another potential opportunity is for the City to provide safe needle deposit boxes in public green spaces. The City currently partners with Charm City Land Trust to provide a safe needle deposit box, which has significantly improved safety with respect to discarded sharps. Installing other safe needle deposit boxes in similar locations could improve safety for others who currently need to clean and dispose of sharps.

4.5 Waste Transfer

Currently, the City only operates one transfer station: NWTS. This section will focus on NWTS and opportunities to expand the City's transfer capacity. This section will not focus on transfer stations operated by the private sector because these facilities are outside of the City's control.

4.5.1 Northwest Transfer Station

As indicated in Section 3.6, NWTS is currently operated by DPW as a transfer station to consolidate mixed refuse and SSR loads collected curbside by DPW's load-packer trucks into larger truckloads. It also serves as a drop-off point for the small hauler program and operates a residential drop-off center. Mixed recyclables are sent from NWTS to the WMRA and World Recycling MRFs, while trash is sent to QRL and WIN Waste. NWTS has a permitted capacity of 150,000 tons per year. However, in 2021, only about 22,100 tons of recyclables and 59,200 tons of mixed refuse were handled at the facility. It is noted that since 2019, NWTS has been used only as a drop-off center for small haulers and residents and for transfer of curbside recyclables, but this is mainly due to a current shortage of transfer truck drivers at DPW. As indicated in Section 3.7, NWTS has a permitted capacity of 150,000 tons per year but an average throughput of 70,000 tons per year or less (likely the result of the facility's popularity among small haulers, which results in longer lines and smaller average loads per vehicle). The facility's operational life is expected to exceed 20 years.

Barriers to Operation

An assessment of NWTS identified the following barriers to efficient operations:

1. **Staffing Limitations**: Due to a shortage of CDL transfer truck drivers, waste and recyclables currently accumulate on the tipping floor. On especially busy days, this can force operations to stop, causing lines.
2. **Small Hauler Program**: One reason for this lower throughput has been the implementation of the small hauler program at NWTS, which has limited the volume of load packer trucks that the site can easily accommodate. The small hauler program would have to be significantly cut back or relocated to another location to operate NWTS at its permitted capacity of 150,000 tons per year.
3. **Size Constraints**: Expansion of NWTS is constrained by the location and size of the property and existing infrastructure. In order to process the permitted capacity of 150,000 tons per year, NWTS would have to expand operation to include more shifts and/or longer working hours (which may require a permit amendment from MDE).

Opportunities for Improvement

Opportunities for improving or expanding the existing waste transfer system are taken from the LWBB Plan and other publicly available planning documents.

1. **Reconfigure NWTS for Out-of-City Disposal**: To reduce the City's reliance on WIN Waste and conserve airspace in QRL, the LWBB Plan recommends upgrading NWTS to operate at its full permitted capacity of 150,000 tons per year (the facility processed 81,400 tons in 2021) and reconfiguring the facility for out-of-city disposal. It is estimated that this would require adding additional shifts and equipment to keep the facility open for longer (potentially 24 hours a day, 6 days a week, depending on permit conditions and local neighborhood concerns).

2. **Construct an Additional Truck Transfer Facility**: To relieve some of the small hauler pressure at NWTS and allow load packers servicing the east side of the city a way to consolidate loads, the LWBB Plan recommends constructing a transfer station on the east side of the city.

Summary

A summary of the City's assessment of NWTS is found below.

Component		Assessment
	**Barriers**	• Staffing limitations • Lines due to small hauler program • Size constraints
	**Opportunities**	• Reconfigure NWTS for out-of-city disposal • Construct an additional truck transfer facility

4.5.2 Opportunities for Expanded Transfer Capacity

Opportunities for improving or expanding the existing waste transfer system are taken from the LWBB Plan and other publicly available planning documents.

Eastside Transfer Station

There is not currently a transfer point that allows load packers servicing the eastern part of the city to consolidate their loads prior to hauling waste for disposal at WIN Waste or QRL or recycling at out-of-city facilities. As such, load packers servicing the eastern part of the city must either go directly to WIN Waste or QRL (and wait in potentially long lines) or travel across the city to dump their loads at NWTS. To provide a central transfer point to the eastern part of the city and increase the city's overall transfer capacity, the LWBB Plan recommends constructing an additional truck transfer facility in the eastern part of the city. The LWBB Plan includes a conceptual layout for the Eastside Transfer Station (ETS) at the Bowleys Lane Drop-Off Center.

Large Regional Transfer Station

The LWBB Plan recommends constructing a large regional transfer station (RTS) to reduce the city's reliance on WIN Waste and conserve airspace in QRL (particularly given that the City's contract with WIN Waste expires in 2031). Such a facility would likely be constructed so it could be operated as a truck transfer station but would be built along a rail spur to allow for containerization and rail shipment to suitable out-of-city landfills if rail was determined to be the preferred transfer mechanism. This option would allow waste to be sent to regional landfills or even more distant facilities as needed. Likely locations for a large RTS are QRL (rail lines currently run around the northern property boundary) or the Western Acceptance Facility in Baltimore County. If the Western Acceptance Facility is chosen for development, it

will require a collaborative agreement with Baltimore County to construct the facility. Adding a rail spur at Western Acceptance Facility will likely be more challenging than at QRL.

4.6 Waste Processing and Recycling

The only waste processing facility currently operated by the City is Camp Small. This section will assess Camp Small and also offer opportunities for constructing additional processing capacity in the city.

4.6.1 Camp Small

Camp Small is a 5-acre facility operated by the Department of Recreation and Parks for processing wood waste from tree debris. In 2021, Camp Small received 8,500 tons of material. Of that volume received, 1,300 tons of logs and 2,100 tons of wood chips were repurposed. Additional information is provided in Section 3.7.

Barriers to Efficient Operation

An assessment of Camp Small identified the following barriers to efficient operations:

1. **Space Constraints**: As a relatively small site, Camp Small has very limited opportunities to expand operations or store materials and equipment.
2. **Lack of Equipment**: The facility currently requires a large grinder to grind large logs and branches.
3. **Staffing Limitations**: Two full-time employees currently have to split their time between processing high-value woods to sell as prime logs, chipping less-valuable woods to generate mulch, sorting all incoming materials, and completing administrative work. If staffing limitations were alleviated, Camp Small could accept and process additional wood.
4. **Lack of Marketing/Visibility**: Many residents are not aware that Camp Small exists or that they can purchase mulch, logs, and other wood products from the facility. As such, mulch has been accumulating at the site.

Opportunities for Improvement

The following opportunities for improving Camp Small have been identified:

1. **Improve Education and Outreach**: Education and outreach can help improve visibility of the facility and help the facility to sell more mulch and wood products.
2. **Use Stored Mulch as a Carbon Bank**: Due to the large amount of stored mulch at the site, there is an opportunity to use Camp Small as a carbon bank if the City constructs or facilitates construction of a composting facility (described in more detail below).
3. **Increase Staffing and Funding**: Increasing staffing and funding for the facility could allow the facility to purchase a large grinder and hire additional personnel to process wood waste more efficiently.

Summary

A summary of the City's assessment of Camp Small is found below.

Component		Assessment
	**Barriers**	• Space constraints • Lack of equipment • Staffing limitations • Lack of marketing/visibility
	**Opportunities**	• Improve education and outreach • Use stored mulch as a carbon bank • Increase staffing and funding

4.6.2 Opportunities for Expanded Processing Capacity

Opportunities for improving or expanding the existing waste processing and recycling system are taken from the LWBB Plan and other publicly available planning documents.

Opportunities to Improve Single-Stream Recycling Processing Capacity

The LWBB Plan includes several opportunities to improve SSR processing capacity in the city. To reduce transportation costs and reliance on out-of-city recycling facilities, these opportunities involve the expansion of in-city processing capacity. Opportunities include the following:

1. **Expand existing MRFs in the City**: The City may partner with existing MRFs in the city to expand in-city SSR processing capacity and reduce reliance on an out-of-city processing facility. Older facilities focus on providing recycling services to bulk customers, mainly in the construction industry, and are not equipped to handle high volumes of SSR. Further, the changing composition of SSR and markets for recovered materials requires MRFs to make regular upgrades to include newer technology into their facilities. While older facilities may be retrofitting with new technology, this is unlikely to be economical for the owners unless the City is willing to help fund the upgrades.
2. **Construct a City-Operated Centralized MRF**: The City could develop a new centralized MRF (either directly or by entering into an agreement with the private sector) to process SSR locally. However, it seems unlikely this would provide a more cost-effective solution, when considering all capital costs and marketing experience needed.
3. **Construct City-Operated Decentralized Mini-MRFs**: The City could develop a system of mini-MRFs to try to process SSR locally at a lower cost than can be offered by WMRA. This option offers flexibility, as the City can choose to construct some mini-MRFs while continuing to send excess recyclables to WMRA for processing. Mini-MRFs could be developed by community organizations in collaboration with experienced small haulers and licensed contractors, with the City potentially

providing small business development grants. Due to their small operational footprint, mini-MRFs can be installed relatively easily within disused or abandoned warehouses or industrial buildings. With a smaller system, haulers would develop relationships with residents while mini-MRFs would also provide a source of jobs for the local community. Shorter haul routes could even allow investment in smaller trucks (ideally noncompacting) to reduce contamination and produce a higher-quality product.

Opportunities to Improve Organics Processing Capacity

One central recommendation from the LWBB Plan and the BFWRS is the need to develop in-city organics processing capacity (either composting or anaerobic digestion). It is expected that organics diversion efforts in Baltimore will increase over the planning period. To reduce the transportation costs associated with hauling organic waste outside of the city for processing, additional in-city processing capacity should be created. The LWBB Plan offers three methods for the City to increase organics processing capacity:

1. Build, permit, and operate its own organics processing facilities.
2. Partner with private companies to design, build, and operate organics processing facilities under a public-private partnership (PPP).
3. Contract with other existing public or private entities to accept organics for processing.

The BFWRS provides further guidance on how to expand organics processing in Baltimore, including conducting a feasibility and cost-benefit analysis for establishing composting or anaerobic digestion facilities at City-owned sites; working with surrounding counties to identify viable locations for small, medium, and large-scale composting and anaerobic digestion facilities; and issuing joint request for proposals for private organics management companies to develop processing facilities at selected sites.

If the City chooses to construct (or facilitate construction) an organics processing facility, it has two options:

1. **Construct a Centralized Facility**: Site, permit, construct, and operate one large facility capable of processing all SSO collected from residential sources as well as City government and public schools. This facility would likely be sited at or near QRL.
2. **Construct Decentralized Facilities**: Site, permit, construct, and operate a series of small facilities to process SSO. These would be distributed around the city and developed sequentially as demand for additional SSO processing capacity builds.

The main advantage of the centralized option is economies of scale, as it would be less expensive in the long term to staff and operate one large facility rather than a series of small facilities. Another advantage is that a large facility requires only one plot of land while a decentralized would require multiple plots of land. If only one facility is constructed, a temporary or permanent shutdown of the facility would completely eliminate the ability to process organic waste.

The main advantage of a decentralized approach is redundancy and reducing vehicle miles. If there is a problem and one of the facilities has to temporarily (or permanently) shut down, capacity could be relatively easily transferred to the other facilities. Decentralized systems are thus more robust to climate change impacts, such as flooding or storms. Another advantage of decentralization is that capacity can be scaled up with time to match the demands of the SSO collection program. SSO collection would most likely be rolled out in phases; therefore, constructing a series of small organics processing facilities would allow processing capacity to match demand and require less initial capital and operational funding. Developing multiple facilities also entails more permitting and environmental monitoring effort.

Opportunities to Improve Construction and Demolition Processing Capacity

The LWBB Plan outlines three strategies for increasing C&D processing capacity in the city:

1. **Construct and operate a C&D MRF**: This would allow the City to implement full control over all aspects of C&D recycling. However, it would also force the City to bear all the responsibility for any operational issues.
2. **Construct a C&D MRF in Coordination with a Private Company under a PPP**: With this option, the City would own the facility while the private company would operate it.
3. **Allow Private Companies to Expand Existing Facilities and/or Develop a New C&D MRF**: Baltimore is already home to at least two large operational C&D MRFs. If increased C&D recycling is mandated, it is likely that private companies could expand capacity without any help or direction from the City.

Opportunities for Developing a Mixed Waste Processing Facility

The LWBB Plan considered the development of a mixed waste processing (MWP) facility to improve diversion. MWP facilities are complex operations that use a multistage approach to sort and process the incoming mixed-waste stream. A typical MWP facility includes a “dirty” MRF to recover recyclables and separate out undesirable materials prior to processing, an anaerobic digestion facility to convert organics separated from the MRF to methane, and other processing technologies (e.g., gasification) to convert plastics and other high calorific wastes to energy or fuel. An MWP facility may not include all these technologies or may use different technologies in alternative configurations. However, the main goals of MWP are to generate energy, recover recyclables, create reusable products, and reduce the final quantity of waste that requires disposal.

Ultimately, the LWBB Plan did not recommend construction of a MWP facility in the City for the following reasons:

1. MWP technologies are largely unproven for use in the U.S.
2. MWP technologies also tend to be capital intensive and expensive to operate, especially when compared to other waste disposal options, such as continued use of WIN Waste or constructing a transfer station.

3. MWP facilities work in opposition to reduction/diversion measures. In other words, MWP performs best when all organic and recyclable material is left in the mixed-waste stream. MWP may thus be an inefficient, expensive, and highly centralized method of meeting diversion goals, which could be better achieved by implementing some of the reduction and diversion options detailed in Sections 4.1 and 4.2.

4.7 Waste Disposal

The City currently uses two facilities for waste disposal: QRL and WIN Waste. This section presents an in-depth assessment of QRL because this facility is owned and operated by the City and is thus entirely under the City's control. Because WIN Waste is not directly under City control, the assessment for this facility focuses primarily on the limitations of the current agreement with WIN Waste and opportunities to improve waste disposal methods.

4.7.1 Quarantine Road Landfill

The permitted capacity of QRL is 18,320,799 cubic yards. As of 2021, 15,653,479 cubic yards had been consumed, leaving 2,667,320 cubic yards of permitted capacity. It is anticipated that the landfill's remaining permitted capacity will be consumed in 2028. However, a lateral expansion of QRL onto the adjacent Millennium Landfill is currently planned, with submission of the Phase III permit application report to MDE occurring in October 2022. Based on the Phase III report, the lateral expansion will increase the landfill's total capacity by 5.7 million cubic yards and extend its service life through 2035. It is possible that QRL could be vertically expanded at a subsequent date, which would further increase its capacity and service life.

Barriers to Efficient Operation

An assessment of QRL identified the following barriers to efficient operation:

1. **Payment Issues**: QRL currently does not accept credit cards for payment. As such, an armed off-duty police officer must be present at the scale house during operating hours to prevent theft of cash payments. Further, the lack of credit card payments means that some haulers who do not have cash, simply do not pay for disposal because there is currently no means to penalize haulers that do not pay.
2. **Unacceptable Materials**: There are currently cameras in place at the scale house so that cashiers can identify unacceptable loads. However, cashiers are typically busy processing payments and often do not have time to inspect every load. As such, unacceptable loads often make it to the active face where they may be landfilled if they are not identified by on-site workers. The most common unacceptable wastes encountered at QRL are tires.
3. **Mattresses**: Mattresses are very difficult to landfill as they are large, bulky, and they do not compact well.

4. **Wastewater Treatment Plant Sludge**: QRL is temporarily accepting sludge from the BRWWTP while maintenance of the facility is underway. However, sludge is a weak material that requires mixing with waste and ash prior to placing it to maintain stability of the landfill.
5. **Lack of Signs/Communication**: There is a general lack of signs and communication with customers and residents.
6. **Lack of Equipment**: QRL currently does not have a roll-off truck on-site to haul roll-offs (and particularly tires) collected at the residential drop-off center. As such, the landfill manager must schedule removal of all roll-offs from the site. Additional roll-off containers are also required to store bulk waste.
7. **Staffing Limitations**: Hiring and retaining personnel is a problem at QRL. Laborers had to be hired through a third party to remove litter from the site as there were not enough on-site personnel. Equipment operators are also hard to hire and retain because starting salaries are considerably lower at QRL than for private-sector jobs.
8. **Power Outages**: There is an issue with the power supplied to the site, which has led to shutdowns of the landfill gas flare and leachate pump stations.
9. **Wait Times and Lines**: Particularly on busy days (e.g., Saturdays), QRL is subject to significant wait times and lines. These lines are often the result of limited on-site roll-off containers at the residential drop-off center.
10. **GHG Emissions**: The GHG Emissions Inventory for the City produced by the Baltimore Office of Sustainability estimates that QRL generated approximately 636,000 tons of carbon dioxide equivalents (using a global warming potential of 20 years) in 2020. This represents approximately 2.5 tons of carbon dioxide equivalents (TCO_2E) produced per ton of waste landfilled in 2020. These emissions are largely driven by methane produced from the anaerobic degradation of organic waste in the landfill.
11. **Potential PFAS Contamination**: There is potential that the leachate generated at QRL contains PFAS, which may subject the landfill to strict treatment requirements.
12. **Expiration of WIN Waste Contract**: When the existing disposal contract with WIN Waste expires in 2031, QRL will be the only waste disposal facility in the city.

Opportunities for Improvement

The assessment of QRL identified several opportunities to improve efficient operation of the facility:

1. Install internet capabilities and credit card readers at the scale house.
2. Train cashiers to identify unacceptable waste at the scale house.
3. Use cameras more consistently at the scale house to identify unacceptable waste.
4. Install radiation sensors at scale house to identify unacceptable waste.

5. Procure a roll-off truck and additional roll-off containers to provide additional storage and hauling capacity and reduce lines and complaints.
6. Increase pay, adding retention bonuses, and improving training to improve hiring and retention (particularly of CDL equipment operators).
7. Provide more-specific job postings to target equipment operators.
8. Install license plate readers and gates at the scale house to prevent people from leaving without paying.
9. Procure driver's license scanners for use at the residential drop-off center to facilitate identification of nonresidents and commercial haulers.
10. Work with local utility to reduce power outages at the site.
11. Increase diversion away from the landfill (particularly organic waste) to reduce GHG emissions and reduce disposal pressure on QRL when the WIN Waste contract expires.
12. Construct a large RTS (as described in Section 4.5) to provide additional disposal options for the City and reduce disposal pressure at QRL.

Summary

A summary of the City's assessment of QRL is found below.

Component		Assessment
	**Barriers**	• Payment issues • Unacceptable materials • Mattresses • Wastewater treatment plant sludge • Lack of signage/communication • Lack of equipment • Staffing limitations • Power outages • Wait times and lines • GHG emissions • Potential PFAS contamination (leachate) • Expiration of WIN Waste contract

Component		Assessment
	**Opportunities**	• Train cashiers to identify unacceptable waste • Use cameras more consistently to identify unacceptable waste • Install radiation sensors to identify unacceptable waste • Procure of roll-off truck and roll-off containers • Increase pay, bonuses, and training of equipment operators • Provide more-specific job postings to attract equipment operators • Install license plate reads and gates at the scale house • Install internet and credit card readers at the scale house • Procure driver's license scanners for the residential drop-off center • Work with local power company to reduce power outages • Increase diversion efforts • Construct a large RTS

4.7.2 WIN Waste

WIN Waste has a capacity of 2,250 tons of refuse per day, and the anticipated remaining service life of the plant is approximately 10 years. Currently, the city sends most of its waste to WIN Waste under a contract with the Northeast Maryland Waste Disposal Authority which expires in 2031.

Barriers to Efficient Operation

An assessment of the City's usage of WIN Waste for waste disposal identified the following barriers:

1. **Emissions**: The GHG inventory for the City produced by the Baltimore Office of Sustainability estimates that WIN Waste generated approximately 653,000 TCO_2E (using a global warming potential of 20 years) in 2020. This represents approximately one TCO_2E produced per ton of waste disposed in 2020. Additionally, WIN Waste produces particulate matter, heavy metals, sulfur oxides, nitrogen oxides, and other pollutants that can have a negative impact on the health of city residents.
2. **Mattresses**: WIN Waste has stopped accepting mattresses, which contributes to the mattress problem experienced at QRL.
3. **Contract Ending in 2031**: If the City's contract with WIN Waste is allowed to expire in 2031, the City will need to be prepared to maximize source reduction, waste diversion, and development of alternative waste disposal methods.

Opportunities for Improvement

This assessment identified the following opportunities for improving the City's use of WIN Waste:

- **Increase Diversion**. Increase diversion away from disposal to prepare the City for the expiration of the WIN Waste contract in 2031 and to reduce the City's GHG emissions.

- **Construct of additional transfer capacity**: The LWBB Plan recommends constructing a large transfer station to reduce the City's reliance on WIN Waste and conserve airspace in QRL (particularly given that the City's contract with WIN Waste expires in 2031). This facility is described further in Section 4.5.

Summary

A summary of the City's assessment of WIN Waste is found below.

Component		Assessment
	**Barriers**	• GHG emissions • Mattresses • Expiration of WIN Waste contract
	**Opportunities**	• Increase diversion efforts • Construct a large RTS

4.8 Plan to Return to Pre-Pandemic Services

As discussed in Section 3.1, the City had to reduce services during the COVID-19 pandemic to accommodate significant staff shortages and equipment breakdowns. As a result, the City has had to shift curbside recycling collection services from once a week to once every two weeks. The City is currently planning to reestablish weekly recycling collection by hiring additional staff (particularly drivers) and procure additional load packers. Current efforts to provide job opportunities include training programs, open positions, job fairs, and other opportunities. These efforts will continue until the City can hire enough workers to provide weekly recycling pickup.

4.9 Potential Limitations on Development

This section contains information on the limitations for developing new solid waste management facilities in Baltimore. Solid waste management facilities considered in this section include transfer stations, solid waste processing facilities, and compost facilities. As indicated in Section 4.6, no new landfills or incinerators are planned in the city; therefore, these facilities are not considered in this section.

4.9.1 Geographic Considerations

Location and Topography

The location selected for development of any new solid waste management facility will likely need to be fairly flat to allow for site access and facility construction. The facility should be located in such a way that it does not negatively impact any adjacent communities (by increasing traffic, generating noise, generating air or water pollution, etc.).

Land Use

The location selected for development of any new solid waste management facility should be consistent with historic land use for the site. As such, historically industrial sites should be considered first for development of a new solid waste management facility.

Zoning

Zoning requirements for solid waste management facilities are described in Section 2.3 and Appendix C.

Defined Critical Areas

Maryland's Critical Areas Law requires a buffer of at least 1,000 feet from tidal waters and tidal wetlands. Any proposed development of new solid waste management facilities will meet this buffer.

4.9.2 Geologic and Hydrogeologic Considerations

Soil Types and Characteristics

Soil types should be considered when siting a proposed solid waste management facility. Soil types and characteristics can have implications for stormwater management, infiltration, erosion and sediment control, and groundwater contamination and monitoring.

Geologic Conditions

Geologic conditions should also be considered when siting a potential solid waste management facility. Geologic conditions can determine the locations of aquifers (typically in coarse-grained or fractured, permeable geologic layers) and aquitards (typically in fine-grained, low-permeability geologic layers). As such, geologic conditions can greatly impact the location and flow of groundwater at a site.

Aquifers

The location, depth, flow, and usage of aquifers at a proposed site should be considered when siting a new solid waste management facility. The facility should be designed in such a way as to minimize impacts to aquifers (particularly those that are used for drinking water), and groundwater monitoring wells should be installed to monitor potential impacts to all aquifers potentially impacted by site development and operation.

4.9.3 Hydrologic Considerations

Site Water Management

A stormwater management plan for a potential solid waste management facility will be drafted and approved by DPW prior to construction of the facility. Stormwater must be managed consistent with the approved stormwater management plan.

Any contact water produced at the proposed solid waste management facility will be collected and treated in accordance with the approved operations and maintenance manual for the facility. Discharge to waters

of the state must be limited to those allowable under permits governing solid waste disposal and water pollution control.

Surface Water

Proposed solid waste management facilities should be sited to minimize impacts to surface water sources. No water containing pollutants shall be discharged from the site.

Wetlands

A proposed solid waste management facility should be sited to minimize impacts to nontidal wetlands. If wetland impacts cannot be avoided, a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland must be filed with MDE.

Floodplains

Solid waste management facilities cannot be sited within FEMA-designated floodplains.

Watersheds

Development of a proposed solid waste management facility should not significantly alter watershed drainage areas or cause potential impacts to downstream facilities.

4.9.4 Existing Water Quality

The existing water quality for a given site should be considered when siting a proposed solid waste management facility. Development of the proposed facility should not lead to significant impacts to existing surface or groundwater quality. Construction of monitoring wells may be required prior to site development to determine the existing water quality conditions for the site.

4.9.5 Planned Long-Term Growth Patterns

Long-term growth patterns should be considered when siting a proposed solid waste management facility. As previously indicated, solid waste management facilities should be located where they will not negatively impact any adjacent communities. Similarly, long-term growth patterns should be considered such that the facility will not negatively impact any future communities over the proposed life of the facility.

4.10 Asbestos Disposal Capacity

The disposal of asbestos is largely unaddressed. Private companies that remove asbestos from older buildings in the city are mandated to transport that asbestos out of Baltimore for disposal. Asbestos removal from City-owned buildings is contracted out to private firms.

4.11 Emergency Response Procedures for Hazardous Leaks and Spills

State regulations for the development of comprehensive solid waste management plans require that Chapter 4 evaluates programs and procedures for responding to the unplanned (emergency) spilling or leaking of hazardous wastes within the local jurisdiction. In compliance with this requirement, the City's emergency response system for hazardous wastes is summarized below.

The Office of Emergency Management has developed an Emergency Operations Plan, which includes instructions for handling hazardous material emergencies, sources of information, and parties to be notified.

The City's emergency response system is activated by telephone calls to 911. Callers are asked to provide as much information as possible about the nature of the hazardous material, impending danger, and location and extent of the incident. The facility where the incident occurred, or the transporter, is required to notify the National Response Center of the incident after calling 911.

The fire department responds to 911 hazardous materials calls by dispatching a hazardous material task force of fire engines/trucks and a rescue team. Other agencies and resources are notified as required. At the site of the incident, an operations command post is established, and the severity of the incident is determined based on the likelihood of public impact. Depending on the public impact and its probable extent, the incident commander may initiate "secure premises," "public relocation," or a “general information” procedure to protect the public until the hazard has been neutralized.

The entire response to the emergency is coordinated by the fire department, whose personnel are trained and equipped to handle hazardous material emergencies. Other agencies respond only at the direction of the fire department's incident commander, to avoid any duplication of efforts or confusion.

The City's Emergency Operations Plan is incorporated by reference into this solid waste plan.

4.12 Adequacy of Local Zoning and Master Plan

As indicated in Section 2.4, the City’s Comprehensive Plan provides the policy basis for guiding redevelopment and revitalization of the City’s developed neighborhoods. Any proposed development of new solid waste management facilities will be conducted in accordance with this plan.

5. PLAN OF ACTION

Chapter 5 provides a plan of action for the City to continue meeting its environmental and public service obligations while improving the performance of its solid waste management and recycling system during the 10-year planning period covered by this Plan (i.e., 2024 through 2033). This plan of action includes input from the public, which was received predominantly in the form of comments collected at public meetings and hearings conducted as part of the development of this Plan.

This plan of action is organized as summarized below:

Section 5.1: "Sources of Information and Funding Mechanisms" describes the potential funding mechanisms that the City intends to use to finance the plan of action.

Section 5.2: "Waste Reduction and Diversion Goals and Programs" describes the specific action items that the City intends to take to meet short- and long-term diversion goals. Action items are grouped by waste or recyclable type, including SSR, organics, C&D debris, bulk waste, other waste, and litter.

Section 5.3: "Residential Drop-off Centers" describes specific action items that the City intends to take to improve operations, access, and diversion from residential drop-off centers.

Section 5.4: "Waste Collection System" describes specific action items to improve waste collection efficiency and efficacy. Action items are grouped by collection type, including curbside collection of mixed refuse and SSR, bulk waste collection, yard waste and leaf collection, illegal dumping, street and sidewalk sweeping, the small hauler program, and other waste collection programs.

Section 5.5: "Waste Transfer System" establishes a plan of action to improve the city's waste transfer system. Action items are organized by facility, including NWTS, the proposed ETS, and the proposed RTS.

Section 5.6: "Waste Processing and Recycling System" establishes a plan of action to improve the city's waste processing and recycling system. Action items are organized by facility, including Camp Small, proposed MRFs, and proposed composting facilities.

Section 5.7: "Waste Disposal System" establishes a plan of action to improve the city's waste disposal system. Action items are organized by facility, including QRL and WIN Waste.

Action items in each subsection of this plan of action are broken down into legislative, administrative, and programmatic actions, with estimates of implementation time frame, diversion potential (if relevant), costs, permitting requirements (if relevant), funding mechanisms, and benefits for each action item discussed. The proposed changes to the waste disposal system detailed in this plan of action (broken down by waste category) are summarized in Table 5-1.

Table 5-1. Proposed Changes to the Waste System

Waste Category	Proposed Changes to Waste System
Residential (MSW)	• Reduction: Section 5.3 (SSR, organics, bulk waste, other) • Diversion: Section 5.3 (SSR, organics, bulk waste, other) • Residential drop-off centers: Section 5.4 • Collection: Section 5.5 (Mixed refuse, SSR, yard waste) • Transfer: Section 5.6 (ETS, RTS) • Processing: Section 5.7 (Camp Small, mini-MRFS, composting facilities) • Disposal: No change
Commercial (MSW)	• Diversion: Section 5.3 (SSR, organics) • Transfer: Section 5.6 (RTS) • Processing: Section 5.7 (mini-MRFs, composting facilities) • Collection, disposal: No change
Industrial (solids, liquid, etc.)	• No change
Institutional (schools, hospitals etc.)	• Included with commercial waste
Demolition Debris (C&D)	• Diversion: Section 5.3 (C&D) • Collection, transfer, disposal: No change
Land Clearing	• Included with C&D debris
Controlled Hazardous Substance (CHS)	• No change
Dead Animals[(1)]	• Diversion: Section 5.3 • Collection, transfer, processing, disposal: No change
Bulk or Special Waste	• Diversion: Section 5.3 (bulk, other) • Residential drop-off centers: Section 5.4 • Collection: Section 5.5 (bulk, other) • Transfer, processing, disposal: No change
Vehicle Tires	• No change
Treatment Plant Sludge	• No change
Wood	• Processing: Section 5.7 (Camp Small) • Diversion, collection, transfer, disposal: No change
Asbestos	• No change
Soil	• Diversion: Section 5.3 (C&D) • Collection, transfer, disposal: No change
Special Medical Waste	• No change
Asphalt	• Diversion: Section 5.3 (C&D) • Collection, transfer, disposal: No change
Concrete/Brick	• Diversion: Section 5.3 (C&D) • Collection, transfer, disposal: No change
Septage	• No change

5.1 Sources of Information and Funding Mechanisms

Sources of information for costs and benefits associated with action items reported in this section as well as potential funding mechanisms that the City intends to leverage to fund the action items reported in this section are described below.

5.1.1 Potential Costs

Potential costs reported in Section 5 are estimates and are provided for planning purposes only. All costs are provided in 2023 dollars and do not account for future inflation or price volatility. Potential costs were taken from the following sources:

1. The LWBB Plan: Potential costs taken from the LWBB Plan (published in 2020) were inflated to 2023 dollars using the consumer price index inflation calculator published by the United States Bureau of Labor Statistics.
2. Current Grant Applications: Potential costs taken from current grant applications are reported in 2023 dollars.
3. The City's Capital Improvement Program Budget Estimates: Potential costs taken from the Capital Improvement Program budget as prepared by DPW. Note that these costs may not reflect the full development costs for a given item, as DPW is limited in the amount of money they can request.

5.1.2 Potential Funding Mechanisms

All the action items presented herein are contingent on securing funding. Potential funding mechanisms considered for the various action items presented in this section include the following:

1. Public Funding
    a. **Grants**: The City has historically pursued grants from the state and federal government to secure funding for diversion activities, capital improvements, community initiatives, etc. The City intends to continue pursuing grant opportunities for many of the action items listed in Section 5 to reduce the cost burden to Baltimore residents and businesses.
    b. **General Fund**: The City's general fund is used to provide funding for many existing solid waste programs. Revenue from several solid waste programs (e.g., the plastic bag ban) also goes to the general fund. The City intends to continue using the general fund to finance new solid waste programs and infrastructure (particularly as several solid waste revenue streams are directed to the general fund), but will generally seek other funding sources where possible to reduce the cost burden to Baltimore residents and businesses.

c. **Enterprise Fund**: An enterprise fund or other innovative funding mechanism would have Collaborating with philanthropic partners is another private sector source of funding the city will explore.to be investigated and scoped to determine its feasibility. The responsibility for carrying out these actions is shared by DPW with other City agencies.

d. **Bonds**: The City may issue bonds to fund capital improvement projects.

2. **Private Funding**: There are currently many privately run solid waste hauling, recycling, transfer, and disposal companies and facilities in the City (as described in Section 3). These companies and facilities predominantly handle solid waste generated by the private or commercial sector in the city. The City intends to leverage these existing private facilities wherever possible to continue processing solid waste and recyclables generated by the private sector. The City also intends to stimulate additional in-city private solid waste development by advocating for legislative action that will promote additional diversion from the private sector (e.g., waste bans). Collaborating with philanthropic partners is another private sector source of funding the city will explore.

3. **PPP**: For large capital-intensive projects, the City may consider partnering with private companies through a PPP. Under a PPP, the City would provide a land lease and a partially guaranteed waste stream with a third party (likely a private company, although a state agency such as Maryland Environmental Service [MES] could be involved) serving to construct and operate the facility.

In addition to reassessing funding mechanisms, the City will revise its contract policies to ensure that checks and balances are in place to guarantee optimal performance, health and equity standards for contracted service providers and private partnerships.

5.1.3 Potential Benefits

Potential benefits considered in this analysis include the following:

1. **Greenhouse Gas (GHG) Emissions Reductions and Climate Change Resiliency:** Estimates of GHG emissions reduction are taken from the LWBB Plan and are reported on a per-ton basis (e.g., per ton of waste diverted from landfill or incineration). Additional improvements to climate change resiliency, such as supporting local recycling markets and community composting initiatives, are also highlighted but not quantified.

2. **Airspace Savings at QRL**: Estimates of airspace savings at QRL were not quantified. However, any waste diverted from disposal represents airspace savings and potential service life extension of QRL. Extending the service life of QRL allows the City to maintain local in-city disposal capacity, which contributes to solid waste independence and resilience.

3. **Job Creation and Economic Benefits**: Shifting away from disposal and toward reuse, recycling, and composting can lead to significant job creation, as diversion-oriented industries tend to be more labor intensive than landfills or waste incinerators. The City intends for these new jobs to be local, stable, sustainable, and competitive with respect to pay and benefits.

4. **Health Benefits**: The health benefits associated with reducing reliance on waste disposal technologies were not quantified. However, emphasizing waste reduction and diversion over waste disposal can reduce air pollution (particularly particulates), noise, vermin, and many other health concerns associated with waste disposal.

5.1.4 Time Frame

The action items considered in this section are assigned to general time frames based on their expected implementation date. These time frames correspond with the time frames associated with the City's solid waste management goals detailed in Section 1:

1. **Short-Term (2024-2028)**: It is anticipated that these action items will be implemented within the first five years of the planning period. These action items are intended to help the City meet the short-term goals listed in Section 1.1.1.

2. **Medium-Term (2029-2033)**: It is anticipated that these action items will be implemented within the second five years of the planning period. These action items are intended to help the City meet the medium-term goals listed in Section 1.1.1.

3. **Long-Term (2034 and beyond)**: It is anticipated that these action items will be implemented after the planning period to help the City meet the long-term goals detailed in Section 1.1.2. However, planning for these action items will begin during the planning period; hence, they are included in this Plan.

5.2 Waste Reduction and Diversion Goals and Programs

This section builds on the assessment provided in Sections 4.1 and 4.2 and provides a plan of action for the City to meet its short- and long-term waste reduction and diversion goals. Specifically, this section provides a roadmap for the City to achieve an MRA recycling rate of at least 35% during the planning period while also laying a foundation for the City to achieve its long-term zero-waste goals (as laid out in the BSP, the BFWRS, the LWBB Plan, and other City planning documents). Specific action items in this section are grouped by major waste and recyclable categories.

5.2.1 Single-Stream Recyclables

This section provides a plan of action to improve SSR diversion during the planning period. For a summary of existing SSR programs, see Section 3.3. The City's current diversion rates for SSR are 14.9% and 16.3% for the residential and commercial sector, respectively (Table 4-3). To meet the its long-term diversion rate of 90%, the City will need to increase diversion by an estimated 113,400 tons of residential SSR and 137,100 tons of commercial SSR per year (for a maximum diversion potential of 250,500 tons per year).

Plan of Action

To improve diversion of SSR, DPW plans to take the following actions over the planning period:

Legislative Actions

1. Support local and state legislation that bans recyclable materials from landfill and incineration. Any material with publicly accessible avenues for recycling should be considered for a disposal ban.
2. Support local and state legislation banning single-use plastics. Examples include outright bans (such as the polystyrene and plastic bag bans implemented by the City) or "skip the stuff" laws which ban restaurants from automatically supplying straws, cutlery, sauce packets, etc. unless they are specifically requested by customers.
3. Support City ordinances that require deposits on beverage containers. These deposits can be repaid upon recycling the bottles (container deposit law).
4. Support local and state legislation that requires businesses of all sizes to recycle.
5. Support a City ordinance or state legislation requiring mandatory recycling reporting from all nonresidential entities.
6. Support local and state legislation to create recyclable content purchase mandates for private businesses (including, but not limited to restaurants, offices, and hotels).
7. Support local legislation to create enforcement mechanisms that penalize violation of recycling requirements.
8. Propose local laws to enable and encourage refill businesses (i.e., those businesses that use reusable packaging or those that sell their products without packaging).

Administrative Actions

9. **Improve Education and Outreach**: The City plans to expand its existing education and outreach program to educate residents and businesses about what types of materials may be recycled, reduce social and cultural barriers to recycling, and improve trust in the recycling process. The following are specific actions that the City plans to take to improve education and outreach:

    a. Hold community-engaged seminars intended to gather data on residents' barriers and motivations as they relate to recycling, gather group pledges to foster behavior change around recycling habits, and build public understanding of the connections between zero waste, recycling, health, climate change, and local resilience.

    b. Build a zero-waste coalition to gather stakeholders from the residential, institutional, and recycling sectors with the city to identify benefits, barriers, and priorities for zero -waste programs and services in the city.

c. Develop and deploy resources to improve recycling habits. Resources may include a guide to dispose of hard-to-recycle materials at residential drop-off centers, a reuse directory, social media campaigns to dispel myths around recycling, or a "business case for zero waste" flyer to highlight the incentives of recycling. Resources can be deployed to residents, businesses, and city schools to improve recycling behaviors.

d. Develop community-based social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.

e. Offer workshops to help residents experiment with sustainable resource management behavior shifts. Workshops may include creative reuse classes or community recycling sorts to identify contamination.

f. Offer recycling and reuse educational workshops at Baltimore City Schools to promote waste prevention habits in K-12 students.

g. Standardize recycling in city-owned and leased buildings (such as City Hall, The War Memorial Building, public markets, and other event venues) to educate city staff about proper recycling practices and minimize waste generated within city-owned and leased buildings.

h. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.

10. **Improve Compliance with State Mandates**: The City plans to improve compliance with state recycling mandates for apartments and condominiums, office buildings, and public schools as follows:

    a. Coordinate with the DHCD, BCHD, and other City agencies to develop incentive programs for apartments and condominiums that recycle and self-report their recycling tonnages.

    b. Coordinate with DHCD to determine mechanisms to enforce recycling at apartments and condominiums. Note that improving enforcement will likely require hiring additional staff (or reallocating staff) to perform inspections. Due to the current state of the labor market and staffing shortages at the City, this is currently unlikely. However, over the planning period, it is anticipated that the City will be able to hire additional staff or reallocate existing staff to perform inspections and improve enforcement.

    c. Improve education and outreach at public schools to improve participation in existing recycling programs. It is hoped that by holding workshops and events at public schools, the City may inspire school leadership to prioritize recycling and provide more consistent recycling services.

11. **Review and Update Contract Policies and Standards for Issuing Requests for Proposals**: The City intends to require MRFs and other disposal contractors to report on end markets for materials to improve reporting.
12. **Improve Transparency**: Consider ways to improve transparency around recycling rates, recycling contamination, recycling markets and vendors, city contracts, and where waste and recycling is exported.
13. **Assess Funding**: Access funding mechanisms by conducting a comprehensive capital, operational, and fiscal study on potential funding mechanisms for waste diversion and disposal.
14. **Create Incentives for Growth of Local Recycling Markets**:
    a. Collaborating with other Agencies and entities like the Baltimore Development Corporation and the Mayor's Office of Employment Development.
    b. Advocate for green procurement processes for the City that mandate recycled paper and paper products constitute at least 50% of the total dollar value of paper and paper products purchased by or for the City government.
    c. Hold market development workshops between local businesses that use recycled materials and local recyclers to promote the development of local recycling markets.

Programmatic Actions

15. **Apply for Grants**: Apply for public, private, federal, state, and philanthropic funding opportunities to support waste diversion programming.
16. **Offer a Sustainable Business Certification**. Offer sustainable business certification to promote waste diversion programs and waste prevention planning in the private sector and build a network of organizations that regularly report and measure their waste streams.
17. **Improve Recycling in Public Spaces**. The City will deploy additional recycling cans in public spaces (such as parks, public markets, city-owned/leased buildings etc.) to improve collection of recyclables and reduce litter. The City may also consider using public recycling cans that feature distinctively shaped lids to incentivize the separated collection of paper from bottles and cans.
18. **Reinstate Weekly Recycling Collection:** The City plans to reinstate weekly recycling collection to improve waste diversion. This is described further in Section 5.4.
19. **Optimize Routes**: The City will optimize routes to ensure that recycling pick up schedules and routes are efficient and logistically reliable. This is described further in Section 5.4.

Expected Time Frame

It is expected that the plan of action for improving SSR diversion will be implemented in stages, with the expected implementation time frames for each component listed below. This implementation time frame is contingent on the City securing funding for all programs outlined:

1. **Legislative Actions**: The City intends to advocate for legislative change as soon as possible with some legislative action expected in the short-term (2024-2028) and some expected over the medium term (2029-2033).
2. **Administrative Actions**: The City intends to begin implementing administrative actions as soon as possible to improve diversion of SSR. Specific initiatives will be rolled out as funding becomes available with the following broad implementation time frame:
    a. Short-term (2024-2028): Improve education and outreach (focus on underserved communities), review and update contract policies and standards, consider ways to improve transparency around recycling, assess funding mechanisms for waste diversion initiatives, incentivize growth of local recycling markets.
    b. Medium-term (2029-2033): Improve education and outreach, improve compliance with state mandates, incentivize growth of local recycling markets.
3. **Programmatic Actions**:
    a. Short-term (2024-2028): Apply for grant funding opportunities, reinstate weekly recycling collection (see Section 5.4), optimize recycling routes (see Section 5.4).
    b. Medium-term (2029-2033): Apply for grant funding opportunities, offer sustainable business certification, improve recycling in public spaces

Diversion Potential

The LWBB Plan estimates a performance time frame of 10 years to reach the maximum diversion potential for SSR assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 50% of the maximum diversion potential outlined in Section 4.1, or about 125,300 tons per year, during the planning period.

SINGLE-STREAM RECYCLABLES PLAN SUMMARY		
Metric		**Description**
	**Plan of Action**	**Legislative:** 1. Support legislation that bans recyclables from disposal 2. Support legislation banning single use plastics 3. Support legislation requiring all businesses to recycle 4. Support City bottle container deposit law 5. Support legislation requiring mandatory commercial recycling reporting 6. Support legislation to create minimum recycled content purchase mandates 7. Support legislation to create enforcement mechanisms for recycling mandates

SINGLE-STREAM RECYCLABLES PLAN SUMMARY		
Metric		**Description**
		8. Propose local laws, programs, and structures to enable and encourage refill businesses **Administrative:** 9. Improve education and outreach about recycling, reuse, and post-consumer waste 10. Improve compliance with state mandates 11. Review and update contract policies and standards 12. Consider ways to improve transparency around recycling 13. Assess funding mechanisms for waste diversion initiatives 14. Create incentives for growth of local recycling markets **Programmatic:** 15. Apply for grant funding to support waste diversion programming 16. Offer sustainable business certification 17. Improve recycling in public spaces 18. Reinstate weekly recycling collection 19. Optimize recycling collection routes
	**Time Frame**	Short-term (2024-2028) and Medium-term (2029-2033)
	**Diversion Potential**	125,300 tons/year
	**Costs**	**Legislative Actions:** staff hours **Administrative Actions:** • Education and outreach: operational expense (OPEX): $60,000/year • Improve enforcement: OPEX: $210,000/year • Incentive growth of local recycling markets: staff hours **Programmatic Actions:** • Apply for grant funding: staff hours • Offer green business certification: staff hours • Improve recycling in public spaces: capital expense (CAPEX): $9.5 million • Reinstate weekly collection: see Section 5.4 • Optimize recycling collection routes: see Section 5.4
	**Funding Mechanisms**	• Public (grants, general fund)
	**Benefits**	**GHG:** 2.3 TCO_2E/ton of SSR diverted **Airspace:** Extend service life of QRL

5.2.2 Organics

This section provides a plan of action to improve source reduction, donation, reuse, and diversion of organics during the planning period. For a summary of existing organics programs, see Section 3.3. The major organic waste categories considered in this Plan include yard waste and food waste. As indicated in Table 4-3, the City's current diversion rates for food waste are 0.6% and 2.1% for the residential and commercial sector, respectively. Also shown in Table 4-3, the City's current diversion rates for yard waste are 8.8% and 6.4% for the residential and commercial sector, respectively.

To improve source reduction, donation, and diversion of organics, the City intends to focus on two strategies: (i) reducing organic waste (and particularly food waste) through source reduction, donation, and food rescue, and (ii) diverting remaining organic waste from disposal to composting or other organic processing facilities. It is recognized that tracking and quantification of organic waste reduction in the City will be challenging. However, the City is committed to prioritizing higher strategies to recirculate nutrients from wasted food back into the environment and food waste reduction strategies before composting and organics diversion during the planning period.

As shown in Table 4-4, to meet the City's long-term food waste reduction rate of 80% for the residential sector and 50% for the commercial sector, it is estimated that the City will need to reduce residential food waste by 51,300 tons per year and commercial food waste by 33,800 tons per year (for a maximum reduction potential of 85,100 tons per year). Also shown in Table 4-4, to meet the City's long-term organics diversion rate of 80% for the residential sector and 50% for the commercial sector, it is estimated that the City will need to divert an additional 9,900 tons of residential food waste, 15,500 tons of commercial food waste, 27,600 tons of residential yard waste, and 12,300 tons of commercial yard waste per year (for a maximum diversion potential of 65,300 tons per year).

Plan of Action

The City's plan of action to improve source reduction, donation, food rescue, and diversion of organics is presented below. Action items meant to improve source reduction, food rescue, and donation of organics are underlined and presented in green font, while those meant to improve diversion of organic waste are not underlined and remain in black font.

Legislative Actions:

1. Support state legislation that expands upon the Bill Emerson Good Samaritan Act to extend liability protection to nonprofits selling recovered food at discounted prices (as well as their donors), extends liability protections to donations made by food service establishments and retailers directly to individuals, and explicitly extend protections to past-date foods.
2. Support the revision or implementation of local legislation and zoning codes to ensure that City code allows for organics collection and processing.

3. Support MDE in enforcing HB264 (2021) by supporting food waste related data collection among food waste generators including grocery stores, restaurants, food halls and/or eateries/markets and large food production sites such as hospitals and universities.
4. Support a ban on commercial organics disposal in the city. To build on HB264, the City will support a total ban on commercial organics disposal during the planning period. This ban could be implemented at the city or state level. In addition to a total ban on organics disposal, the City may also support implementing incentives for businesses that report their diversion activities to the City.
5. Support a blanket landfill ban on organic materials.

Administrative Actions:

6. Improve education and outreach campaigns around food waste reduction for city residents, institutions, and businesses. Specific action items include the following:
    a. Hold community-engaged seminars intended to gather data on residents' barriers and motivations as they relate to food-waste-reduction activities, gather group pledges to foster behavior change around food-waste-reduction habits, and build public understanding of the connections between zero waste, food waste, health, climate change, and local resilience.
    b. Build a zero-waste coalition to gather stakeholders from the residential, institutional, and food-service sectors with the City to identify benefits, barriers, and priorities for zero-waste programs and services in the city.
    c. Develop and deploy resources to improve food-waste-reduction habits. Resources may include a food waste donation directory, guides to reduce food waste at home, social media campaigns to dispel myths around reducing food waste, donation and food rescue, online food-waste-reduction tools, or a "business case for zero waste" flyer to highlight the financial incentives of reducing food waste or donating food. Resources can be deployed to residents, businesses, and city schools to improve food-waste-reduction behaviors.
    d. Develop interactive community-based social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.
    e. Schedule workshops, such as circular cooking classes, to help residents experiment with sustainable resource management behavior shifts.
    f. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.
7. Help match food waste generators with food waste donation organizations and processing facilities. This would likely be supported by multiple agencies including the Office of Sustainability,

the Food Policy and Planning Division, and the Waste Diversion Office of DPW. Specific actions include the following:

a. Support or develop online or mobile applications and mobile apps to connect food rescue agencies and LMOs with consumers and clients.

b. Hold regular stakeholder meetings between the City, food donors, food rescue organizations, LMOs, and clients build relationships and support strategic planning.

c. Encourage the use of produce "seconds" by creating a resource guide for individuals and businesses wishing to use produce "seconds" and support creation of a vendors market for unsold produce from wholesale distributors.

d. Support the development of a Food Recovery Network chapter in every higher education institution in the city.

e. Evaluate strategies for making donated food more geographically accessible to clients.

8. Improve tracking of how surplus food is managed including the amount wasted, rescued for human consumption, rescued for animal consumption, or sold at a reduced price, as follows:

    a. Conduct a needs assessment for the city's food recovery system.

    b. Conduct surveys to see if there are enough community partners to handle the volume of all surplus food that can be rescued or donated and checking that these partners are adequately resourced (refrigeration, hauling, etc.).

    c. Track food donations received from local sources each year at food rescue organizations.

    d. Conduct a detailed study of individual communities in the city to gauge the desire and interest in consuming surplus foods.

9. Explore and develop incentive programs for food donation, or businesses sourcing recovered food.

10. Promote the use of applications that allow customers to support restaurants and save money on popular food items.

11. Create and support food waste audits for City businesses, institutions, and residents as follows:

    a. Consider audit subsidies.

    b. Distribute how-to guides on do-it-yourself audits.

    c. Develop guidelines for "rightsizing" food ordering to reduce food waste.

    d. Encourage food waste tracking to help residents and businesses improve their bottom line through food waste reduction and charitable donations of edible surplus food to local communities in need.

12. Explore methods to estimate and track food waste generation in the city as a way to track the progress and success of food-waste-reduction initiatives.

13. Explore and develop incentive programs to support and encourage development of yard waste reuse facilities, including wood pellet energy and biochar production.
14. Assess disposal fee restructuring. The City intends to assess disposal fee restructuring to allow tip fees at organics processing facilities to remain lower than those at disposal facilities in the city. This could provide a financial incentive for businesses and residents to divert rather than dispose of organics or a "shared savings" model, where compost businesses receive revenue from the City that represents the cost savings in avoiding disposal tipping fees.
15. Improve education and outreach campaigns around organics diversion for Baltimore residents, institutions, and businesses. Specific actions include the following:
    a. Hold community-engaged seminars intended to gather data on residents' barriers and motivations as they relate to organics diversion activities, gather group pledges to foster behavior change around organics diversion habits, and build public understanding of the connections between zero waste, organics diversion, health, climate change, and local resilience.
    b. Develop and deploy resources to improve organics diversion habits. Resources may include a guide to divert organic material at residential drop-off centers, a directory of community composting organizations, social media campaigns to dispel myths around organics diversion, or a "business case for zero waste" flyer to highlight the financial incentives of diverting organic waste. Resources can be deployed to residents, businesses, and city schools to improve organics diversion behaviors.
    c. Develop community-based social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.
    d. Hold workshops, such as home composting courses, to help residents experiment with sustainable resource management behavior shifts.
    e. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.
16. Improve compliance with food waste diversion initiatives (HB264): To improve compliance with HB264, which mandates diversion of food waste from large commercial generators, the City will take the following actions:
    a. Coordinate with the DHCD to develop incentive programs for large commercial generators that divert food waste and self-report their diverted tonnages.
    b. Coordinate with the MDE and DHCD to improve enforcement of diversion from large commercial generators. Note that improving enforcement will likely require hiring additional staff (or reallocating staff) to perform inspections. Due to the current state of the labor market and staffing shortages at the City, this is currently unlikely. However,

over the planning period it is anticipated that the City will be able to hire additional staff or reallocate existing staff to perform inspections and improve enforcement.

17. Review the City's zoning code to see what if any changes would be needed to facilitate private development of composting facilities in the city.

Programmatic:

18. Expand the use of existing processing capacity as follows:
    a. Improve access to backyard compost bins to residents by subsidizing or providing free backyard composting tools.
    b. Initiate education and outreach programs to promote backyard composting.
    c. Support the creation of community composting locations in Baltimore neighborhoods.
    d. Expand the use of City-owned organics processing facilities (e.g., Camp Small).
    e. Encourage on-farm composting (perhaps by expanding on partnerships developed from the Food Matters Program).
    f. Expand existing food scrap drop-off locations to take meat and animal products.
19. Expand the existing organics collection program from residential drop-off centers and farmers markets to include public schools, City government offices, libraries, community centers, universities, and some residents (Pilot). The Pilot expansion includes:
    a. Conducting a feasibility study to identify funding, staffing, and equipment needs;
    b. Securing the necessary funding, human capital, and equipment needed to properly staff and equip the Pilot expansion (based on the results of the feasibility study);
    c. Expanding collection of SSO from public schools (PS) and city government offices (CG) after securing funding, human capital, and equipment by supplying bins and dumpsters to participating PS and CG locations for collecting and consolidating SSO.
    d. Establishing a three-bin pilot program for collecting trash, recycling, and organics from single family residences in representative samples of the city by providing bins and weekly SSO collection to each serviced residence.
20. Expand the existing organics collection program in a stepwise manner to all residents (Phase II). Expansion to Phase II will depend on the success and performance of the Pilot program. The Phase II expansion includes:
    a. Conducting a performance evaluation for the Pilot program by evaluating metrics such as participation rate, contamination, collection costs, etc. The Phase II expansion will only be pursued after the Pilot is deemed successful;
    b. Conducting a feasibility study to identify funding, staffing, and equipment needs at each stage of the proposed expansion;

c. Securing the necessary funding, human capital, and equipment needed to properly staff and equip each stage of the expansion (based on the results of the feasibility study); and

d. Expanding the three-bin pilot program to all city neighborhoods in a staged manner by providing bins and weekly SSO collection to all single-family residences in the city.

21. Construct (or facilitate construction) of in-city organics processing capacity (compost facilities). The City intends to take a phased approach that includes:

    a. Constructing a compost training facility. The facility will be less than 5,000 square feet in size (and so will not require a compost facility permit per COMAR 27.04.11.05) and have a capacity of approximately three tons of organic waste per week. This training facility will not only be used to process organics collected from the City's residential drop-off centers and Pilot collection program but will also be used to host workshops and trainings to build resident and workforce competency in the composting field (i.e., to support community composting efforts).

    b. As organics collection through the Pilot program increases, the City intends to develop several covered aerated static pile (CASP) composting facilities to facilitate SSO diversion. This is described in more detail in Section 5.6.

Expected Time Frame

It is expected that the plan of action for improving source reduction, reuse, donation, and diversion of organics will be implemented in stages, with the expected implementation time for each component listed below. Note that this implementation time frame is contingent on the City securing funding for all programs outlined:

1. **Legislative Actions**: The City intends to advocate for legislative change as soon as possible with some legislative action expected in the short-term (2024-2028) and some expected over the medium term (2029-2033).

2. **Administrative Actions:** The City intends to begin implementing administrative actions as soon as possible to improve source reduction, reuse, donation, and diversion of organics. Specific initiatives will be rolled out as funding becomes available with the following broad implementation time frame:

    c. Short-term (2024-2028): Improve education and outreach (focus on underserved communities), help match food waste generators with food waste donation organizations and processing facilities, explore incentive programs for food donation, promote the use of apps to support restaurants, explore methods to estimate and track food waste generation, explore incentive programs to encourage yard waste reuse, and review the City's zoning code to facilitate private development of composting facilities.

    d. Medium-term (2029-2033): Improve education and outreach, improve tracking of food waste donation, create and support food waste audits, assess disposal fee restructuring, and improve compliance with HB264.

3. **Programmatic Actions**:
    a. Expand the use of existing processing capacity: Programs to expand existing processing capacity will begin in 2024 and expand as funding becomes available over the short- and medium-term (2024–2033).
    b. Launch a Pilot SSO collection program: Feasibility planning and assessment will begin in the short term (2024-2028). Rollout of the pilot program is contingent on securing funding, human capital, and equipment.
    c. Conduct the Phase II SSO collection program: Feasibility planning and assessment will begin in the medium term (2029-2033) following the success of the pilot program. Rollout of the Phase II collection program is contingent on securing funding, human capital, and equipment.
    d. Construct in-city organics processing capacity: Assuming that funding is secured, the compost training facility will be constructed in the short-term (2024-2028). A time frame for construction of subsequent larger-scale composting facilities is presented in Section 5.6.

Reduction and Diversion Potential

The LWBB Plan estimates a performance time frame of 20 years to reach the maximum food waste reduction potential assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 30% of its maximum reduction potential, or about 25,500 tons per year, during the planning period.

The LWBB Plan estimates a performance time frame of 20 years to reach the maximum organics diversion potential assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 30% of its maximum diversion potential, or about 19,600 tons per year, during the planning period.

ORGANIC WASTE REUSE AND REDUCTION SUMMARY		
Metric		**Description**
	**Plan of Action**	**Legislative:** 1. Support state legislation that extends liability protection for entities selling recovered food and donors that donate past-date foods 2. Support local legislation implementing a food safety code 3. Support local legislation to enforce HB264 4. Support a ban on commercial organics disposal 5. Support a blanket landfill ban on organic material **Administrative:**

ORGANIC WASTE REUSE AND REDUCTION SUMMARY		
Metric		**Description**
		6. Improve education and outreach campaigns for food waste reduction 7. Help match food waste generators with food waste donation organizations and processing facilities 8. Improve tracking of food waste donation 9. Explore incentive programs for food donation 10. Promote the use of apps to support restaurants and save money 11. Create and support food waste audits 12. Explore methods to estimate and track food waste generation 13. Explore incentive programs to encourage yard waste reuse 14. Assess disposal fee restructuring 15. Improve education and outreach for organics diversion 16. Improve compliance with HB264 17. Review the City's zoning code to facilitate private development of composting facilities **Programmatic:** 18. Expand the use of existing processing capacity 19. Pilot organics collection program 20. Phase II organics collection program 21. Construct in-city organics processing capacity
	**Time Frame**	Short-term (2024-2028) and Medium-term (2029-2033)
	**Reduction/ Diversion Potential**	**Reduction Potential**: 25,500 tons/year **Diversion Potential**: 19,600 tons/year
	**Costs**	• Education and outreach: OPEX: $120,000 per year • Program management: OPEX: $580,000 per year • Health monitoring: OPEX: $1.3 million per year • Education and outreach: OPEX: $700,000 per year • Program management: OPEX: $210,000 per year • Enforcement of organics disposal bans: OPEX: $210,000 per year • Curbside bins and dumpsters at public schools and City government offices: CAPEX: $480,000 • Curbside bins at residences: CAPEX: $50 per household • Collection vehicles: CAPEX: $210,000 per vehicle • Collection services: OPEX: $200,000 per vehicle per year • Compost training facility: CAPEX: $350,000

ORGANIC WASTE REUSE AND REDUCTION SUMMARY		
Metric		**Description**
		• Total CAPEX of $480,000+($50*190,000)+($210,000*50)+$350,000 = $21,000,000 • Annual OPEX of 120+580+1300+700+210+210+(200*50) = $15,000,000
	**Funding Mechanisms**	• Public (grants or general fund)
	**Benefits**	**GHG:** 4.2 TCO_2E/ton reduced; 0.1 TCO2E/ton diverted **Airspace:** Extend service life of QRL

5.2.3 Construction and Demolition Debris

This section provides a plan of action to improve C&D reuse and diversion during the planning period. The city does not currently offer any C&D diversion programs or initiatives, but C&D reuse and diversion provided by the private sector is described in Section 3. As indicated in Table 4-3, the City's current diversion rates for C&D debris are 100.0% and 35.5% for the residential and commercial sector, respectively. As shown in Table 4-4, to meet the City's long-term reduction and diversion rates of 4% and 90%, respectively, it is estimated that the City will need to reduce C&D debris generation by 17,300 tons and increase diversion by 220,300 tons of commercial C&D debris per year.

Plan of Action

To improve C&D reuse and diversion, the City plans to take the following actions over the planning period:

Legislative

1. Support City-mandated deconstruction policy to require C&D projects to divert a certain percentage of their waste from disposal and encourage reuse of C&D materials. It is anticipated that this deconstruction policy will target high-value reusable components of C&D debris such as lumber and clay bricks. The City will also support a policy that retains industrial zoned buildings for use by local manufacturers.
2. Support City-mandate on source separation of recyclable materials from construction, remodeling, and demolition projects.
3. Support a mandatory diversion ordinance to improve C&D diversion. It is anticipated that the ordinance could be implemented in a stepwise manner to facilitate construction and expansion of private C&D MRFs in the city to accommodate the expected increase in diversion.
4. Remove any barriers to reuse in building inspection code.

Administrative

5. Support a citywide policy and procedure for procuring construction services that prioritize the use of recycled materials instead of virgin materials for city-led construction or repair projects.
6. Support a citywide policy and procedure to encourage architectural salvage programs by ensuring that City-generated deconstruction materials are being diverted to higher use via local salvage businesses before being recycled or disposed of. To support this policy, the City intends to provide educational materials and seek out partnerships with construction companies to improve reuse of C&D materials.
7. Develop a comprehensive C&D diversion and reuse plan to guide City strategy over the planning period.

Expected Time Frame

It is expected that the plan of action for improving C&D diversion will be implemented in stages. It is hoped that legislative actions (City-mandated deconstruction and a mandatory diversion ordinance) can be enacted during the short-term (2024–2028), with periodic increases in the minimum required diversion percentage enacted subsequently over the medium term (2029–2033). Administrative actions will be pursued over the entire planning period (2024–2033).

Reduction and Diversion Potential

The LWBB Plan estimates a performance time frame of 10 years to reach the maximum reduction potential for C&D debris assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 75% of its maximum reduction potential, or about 13,000 tons per year, and 30% of its maximum diversion potential, or about 66,100 tons per year, during the planning period.

SUMMARY OF C&D PLAN		
Metric		**Description**
	**Plan of Action**	**Legislative:** 1. Support City-mandated deconstruction policy 2. Support City mandate on source separation of recyclable materials 3. Support a mandatory diversion ordinance **Administrative:** 4. Support citywide policy to prioritize use of recycled materials in construction and repair projects 5. Support a citywide policy to support architectural salvage programs 6. Develop comprehensive C&D reuse and diversion plan
	**Time Frame**	Short-term (2024-2028) and Medium-term (2029-2033)

SUMMARY OF C&D PLAN		
Metric		**Description**
	**Reduction Potential**	**Reduction Potential:** 13,000 tons/year **Diversion Potential:** 66,100 tons/year
	**Costs**	$150,000 per year
	**Funding Mechanisms**	Public (grants, general fund, enterprise fund): The City will cover administrative costs associated with the plan of action Private: the private sector will cover costs associated with increased diversion (e.g., by expanding MRFs or expanding salvage businesses.
	**Benefits**	**GHG:** 0.9 TCO_2E/ton of C&D reduced; 0.2 TCO_2E/ton C&D diverted **Airspace:** Negligible (C&D debris is currently largely disposed at out-of-city landfills)

5.2.4 Bulk Waste

This section provides a plan of action to improve bulk waste reuse and diversion during the planning period. The City currently supports bulk waste diversion at residential drop-off centers (as described in Section 3.4) and via 311 requests (as described in Section 3.5). As indicated in Table 4-3, the City's current diversion rates for bulk waste are 40% and 93% for the residential and commercial sector, respectively. As shown in Table 4-4, to meet the City's long-term reduction and diversion rates of 50% and 60%, respectively, it is estimated that the City will need to reduce residential bulk waste generation by 2,000 tons and commercial bulk waste generation by 27,800 tons (for a total maximum reduction potential of 29,800 tons).

Plan of Action

To improve bulk waste reuse and diversion, the City plans to take the following actions over the planning period:

Legislative

1. Support right to repair bills intended to allow consumers the ability to repair and modify their own consumer products, rather than being obligated by the manufacturer of such devices to use their (often expensive) repair or replacement services, at the state level for electronics, vehicles, and industrial equipment.

Administrative

2. Improve education and outreach by expanding the existing City education and outreach program to educate residents and businesses about where and how bulk materials may be repaired rather

than thrown away, what types of bulk materials may be reused/donated or recycled, and how to reuse and recycle bulk waste. Specific actions that the City plans to take to improve education and outreach include the following:

a. Hold community-engaged seminars intended to gather data on residents' barriers and motivations as they relate to bulk waste reuse and recycling activities, gather group pledges to foster behavior change around bulk waste reuse and recycling habits, and build public understanding of the connections between zero waste, recycling, health, climate change, and local resilience.

b. Build a zero-waste coalition to gather stakeholders from the residential, institutional, and bulk waste donation and recycling sectors with the city to identify benefits, barriers, and priorities for zero waste programs and services in the city.

c. Develop and deploy resources to improve bulk waste reuse and recycling habits. Resources may include a guide to dispose bulk waste materials at residential drop-off centers, a reuse directory, social media campaigns to dispel myths around bulk waste recycling, or a "business case for zero waste" flyer to highlight the incentives of bulk waste recycling. Resources can be deployed to residents and businesses to improve recycling behaviors.

d. Develop community-based social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.

e. Offer workshops to help residents experiment with sustainable resource management behavior shifts. Workshops may include creative reuse classes or repair clinics.

f. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.

3. Support programs that turn waste into art by donating bulk waste to local artists, which could help raise awareness of bulk waste recycling opportunities in the community. The City plans to reach out to reach out to the Maryland Institute College of Art and other art institutions to partner on this initiative.

Programmatic

4. Support or provide fix-it/repair clinics at existing facilities such as Green Resources and Outreach for Watersheds (GROW) Centers to help residents learn how to repair broken electronics, appliances, bikes, etc., rather than disposing of them. This will also encourage residents to be more thoughtful about consumption and reduce their waste generation.

5. Provide opportunities for reuse and swap events, which could be hosted at existing facilities or GROW Centers to help facilitate reuse or exchange or appliances or other bulk wastes.

6. Develop additional recycling and reuse/donation capacity for bulk waste. It is anticipated that additional recycling and donation capacity for bulk waste would be hosted at existing residential drop-off centers. This described in more detail in Section 5.4.

Expected Time Frame

It is expected that the plan of action for improving bulk waste diversion could be implemented as follows:

1. **Legislative Actions**: The City will support legislative actions over the entire planning period short- and medium-term (2024–2033).
2. **Administrative Actions**: The City intends to begin implementing administrative actions as soon as possible to improve reuse and diversion of bulk waste. Specific initiatives will be rolled out in the short- and medium-term as funding becomes available (2024–2033).
3. **Programmatic Actions**: The City will begin implementing programmatic actions when funding becomes available. It is expected that programmatic actions will be implemented in the medium-term (2029 – 2033).

Reduction Potential

The LWBB Plan estimates a performance time frame of 10 years to reach the maximum reduction potential for bulk waste assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 50% of its maximum reduction potential, or about 1,000 tons of residential bulk waste and 13,900 tons of commercial bulk waste per year, during the planning period (for a total reduction potential of 14,900 tons per year).

SUMMARY OF BULK WASTE PLAN		
Metric		**Description**
	**Plan of Action**	**Legislative:** 1. Support right to repair bills **Administrative:** 2. Improve education and outreach 3. Investing in waste-to-art initiatives **Programmatic:** 4. Support or provide fix-it/repair clinics 5. Hold reuse or swap events 6. Develop additional reuse/donation/recycling opportunities (see Section 5.3)
	**Time Frame**	Short-term (2024-2028) and Medium-term (2029-2033)

SUMMARY OF BULK WASTE PLAN		
Metric		**Description**
	**Reduction Potential**	14,900 tons/year
	**Costs**	Education and outreach, staffing: $140,000 per year
	**Funding Mechanisms**	Public (grants or general fund)
	**Benefits**	**GHG:** 2.8 TCO_2E/ton of bulk waste reduced **Airspace:** Extend service life of QRL

5.2.5 Other Diversion Programs

This section provides a plan of action to improve reuse and diversion of other waste during the planning period. The City currently supports diversion of other waste (including tires, batteries, electronics, HHW, mattresses, textiles, Christmas trees, etc.) at residential drop-off centers (as described in Section 3.4). As indicated in Table 4-3, the City's current diversion rates for other waste are 0% and 62% for the residential and commercial sector, respectively. As shown in Table 4-4, to meet the City's long-term diversion goal of 90%, it is estimated that the City will need to divert 67,700 tons of other residential waste and 45,800 tons of commercial other waste (for a total maximum diversion potential of 113,500 tons).

Plan of Action

To improve diversion of other, hard to recycle materials, the City plans to take the following actions over the planning period:

Legislative

1. Support EPR bills at the state level to encourage producers to take more responsibility for the waste that they generate (either through packaging or the product itself).
2. Support statewide or local product stewardship legislation to encourage manufacturers to produce reusable, recyclable, and biodegradable products.

Administrative

3. Improve education and outreach to promote participation in existing and proposed diversion programs. Specific action items include the following:
    a. Hold community-engaged seminars intended to gather data on the barriers and motivations of residents as they relate to waste reuse and recycling activities, gather

group pledges to foster behavior change around waste reuse and recycling habits, and build public understanding of the connections between zero waste, recycling, health, climate change, and local resilience.

b. Build a zero-waste coalition to gather stakeholders from the residential, institutional, and bulk-waste donation and recycling sectors with the city to identify benefits, barriers, and priorities for zero-waste programs and services in the city.

c. Develop and deploy resources to improve reuse and recycling habits. Resources may include a guide to dispose of other waste materials at residential drop-off centers, improved signage at residential drop-off centers, a reuse directory, and social media campaigns to dispel myths around recycling. Resources can be deployed to residents and businesses to improve recycling behaviors.

d. Develop community-based social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.

e. Offer workshops to help residents experiment with sustainable resource management behavior shifts and roundtables with community members to solicit feedback on program improvements and possible new offerings.

f. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.

Programmatic

4. Implement a mattress recycling program. The City intends to contract with a private recycling company to recycle residential mattresses collected at the residential drop-off facility at the landfill and discourage disposal of mattresses at QRL.
5. Participate in textile recycling through the contract available with the Northeast Maryland Waste Disposal Authority.
6. Improve Christmas tree recycling. To prevent the disposal of unclaimed mulch at WIN Waste, the City intends to partner with nonprofits and local farmers to divert whole Christmas trees for shoreline restoration or goat feed.
7. Implement an animal carcass recycling program. To divert animal carcasses from incineration, DPW intends to partner with the Department of Health and a local organics processing facility to accept animal carcasses for composting.

Expected Time Frame

It is anticipated that the diversion programs for other materials could be implemented in stages throughout the planning period (short- and medium-term) as funding becomes available. (2024–2033).

Diversion Potential

The diversion potential for other waste diversion activities is quantified in Section 5.4 when considering improvements to the residential drop-off centers.

SUMMARY OF OTHER DIVERSION PLANS	
Metric	**Description**
Plan of Action	**Legislative:** 1. Support EPR bill 2. Support statewide or local product stewardship legislation **Administrative:** 3. Improve education and outreach **Programmatic:** 4. Implement a mattress recycling program 5. Participate in textile recycling through existing contract 6. Improve Christmas tree recycling 7. Implement an animal carcass recycling program
Time Frame	Short-term (2024-2028) and Medium-term (2029-2033)
Diversion Potential	**See Section 5.4**
Costs	**Not quantified:** • Education and outreach • Education and outreach, staffing: $140,000 per year • Program management • Fees paid to partner organizations for processing/recycling materials.
Funding Mechanisms	Public (grants or general)
Benefits	**Not quantified:** • Divert nuisance materials from disposal • Provide residents additional diversion opportunities

5.2.6 Litter Reduction and Cleanup Programs

This section provides a plan of action to reduce litter during the planning period. The City currently supports multiple litter reduction and cleanup programs as described in Section 3.3. However, litter is a persistent problem in the city that will require significant behavior change to completely solve. As such, the City plans to operate both proactively (through community engagement to change behaviors that lead to littering) and reactively (through continued cleanup operations) to reduce litter and improve litter

cleanup during the planning period. Additional information on the City's plan to reduce litter and illegal dumping can be found in the Blight Eradication Plan[14].

Plan of Action

To reduce litter and improve cleanup programs in the city, the City plans to take the following actions over the planning period:

Administrative

1. Identify vulnerable communities where litter is persistent: As a first step to tackle litter, the City plans to identify and support vulnerable communities that are bearing the greatest impact of litter and illegal dumping by implementing the following:
    a. Use available City data and engaging multiple City departments (including DOT, DHCD, Baltimore City Police Department [BCPD], and DPW) and nearby universities to assess litter in the city and identify vulnerable neighborhoods. As part of this process, DPW will create a new internship position to focus on data assessment.
    b. Contact and engage with selected residents, community leaders, and public officials in impacted, vulnerable communities to conduct public meetings, identify new or recurring incidents, and respond to those incidents promptly.
    c. Recruit, train, and promote future employees from impacted, vulnerable neighborhoods to create a pipeline of job opportunities in DPW for young people aged 18–24.
2. Improve educational programs to reduce litter: The City intends to educate communities about illegal dumping and empower them with resources to dispose of waste appropriately and reduce the amount of trash dumped on the streets. Specific action items include the following:
    a. Work with community partners to stress the negative impacts of blight and litter.
    b. Conduct a robust communications campaign about available programs and regarding blight and litter removal.
    c. Deliver a comprehensive educational program to children in Baltimore public schools through the ECO Ambassador Program.
    d. Organize and launch a robust volunteer program citywide that will empower residents to take ownership of the conditions in their neighborhoods.
    e. Promote awareness of composting opportunities through educational materials and social media.
    f. Conduct a robust communications campaign educating residents regarding enforcement, codes, and potential fines for litter.

[14] Insert link when available

g. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.

Programmatic

3. Improve litter cleanup efforts by implementing the following:

    a. Partner with programs that offer day-labor and provide mandated community service work, such as Youth Works, ECO Ambassador programs, and YH2O, to create volunteer projects.

    b. Prioritize litter collection in the most vulnerable neighborhoods through coordinated deployment of City departments, community partners, volunteers, and residents.

    c. Increase the use of signs regarding litter and illegal dumping.

    d. Establish proactive protocols for communication across City departments.

    e. Create a method to inform residents of service request status.

    f. Coordinate community volunteers to engage in street cleanup efforts and publicly acknowledging communities where behavior demonstrates change.

    g. Identify accessible locations within the city for easy access for organizations and individuals to pick up supplies.

    h. Provide operations support with community organizations engaged in the Mayor's Clean Corps program by using community liaisons to provide communication and feedback loops.

    i. Expand the Community Pitch-in Program capacity.

    j. Improve coordination between the Pitch-In Program and 311.

    k. Expand the number of interior neighborhood trash and recycling cans following an assessment of staffing and operational needs.

4. Improve enforcement: DPW plans to improve enforcement of existing litter and illegal dumping laws as follows:

    a. Pursue a multipronged and interdepartmental approach to enforcement using tickets, signs, resident reporting, license plate tracking, and other tools to identify those who litter and dump illegally. City departments that will be involved in this effort include DPW, DHCD, BCPD, and the mayors' office.

    b. Create a DPW Environmental Enforcement Unit to patrol high-incidence areas and cite violators. This unit will focus on litter and illegal dumping hot spots and will rely on

interagency collaboration, increased enforcement staffing, and community liaison presence.

5. Implement improved graffiti removal process as follows:
    a. Create a graffiti art program to promote storytelling, public art initiatives, and mural programs.
    b. Designate graffiti walls for graffiti artists.

Expected Time Frame

It is anticipated that action items for reducing litter and improving cleanup programs will be implemented in the short-term (2024-2028), but litter reduction programs and initiatives will likely remain in place throughout the planning period.

SUMMARY OF LITTER REDUCTION AND CLEANUP PLAN		
Metric		**Description**
	**Plan of Action**	**Administrative:** 1. Identify vulnerable communities where litter is persistent 2. Improve education and outreach **Programmatic:** 3. Improve litter cleanup efforts 4. Improve enforcement
	**Time Frame**	Short-term (2024-2028)
	**Diversion Potential**	**Not quantified:** • likely negligible
	**Costs**	**Not quantified:** • Education and outreach • Education and outreach, staffing: $140,000 per year • Program management • Fees/wages paid for “on call” cleanup crews • Wages for inspectors
	**Funding Mechanisms**	Public (grants or general)
	**Benefits**	**Not quantified:** • Vector reduction • City beautification • Improved resident behavior

5.2.7 Interim Plan to Achieve 35% MRA Recycling Rate

The City's interim plan to achieve an MRA recycling rate of 35% or above is summarized below. Note that all of the strategies listed below are described in more detail in the referenced sections:

1. Improve education and outreach around diversion programs and initiatives: Described in Section 5.2 (SSR, organics, bulk waste, and other diversion programs). Improving education and outreach should improve participation in existing programs and increase residential diversion rates.
2. Reinstate weekly curbside SSR collection: Described in Section 5.4 (curbside collection of SSR). Reinstating weekly curbside collection should improve participation and increase diversion rates for residential SSR (which are currently below 35% for paper, plastic, and metals).
3. Improve and expand organics collection: Described in Section 5.2 (organics) and Section 5.4 (yard waste and leaf collection). Expanding organics collection programs should allow more people to participate, improving diversion rates for organic waste (which are currently well below the 35% goal).
4. Construct (or support construction) of an in-city composting facility: Described in Section 5.2 (pilot facility) and Section 5.6 (full-scale facilities). Constructing an in-city organics processing facility should improve organics diversion from both the residential and commercial sectors (which are considerably below the 35% goal).
5. Improve reporting and enforcement of recycling from the commercial sector: Described in Section 5.2 (SSR, organics) and Section 5.4 (SSR collection). Improving enforcement of existing recycling mandates should improve participation in the programs, which should improve MRA rates. Improving reporting of recycling tonnages from the commercial sector should also improve MRA rates.

In addition to the action items listed above, the City also intends to monitor MRA recycling rates and tonnages annually to identify which waste streams are showing improved diversion and which require additional investment or attention. This will allow the City to adjust its plan of action to target waste streams where diversion is lagging below the required 35% rate. The City plans to achieve a 35% recycling rate beginning in 2027.

5.3 Residential Drop-Off Centers

City residents may drop off waste and recycling for free at the residential drop-off centers located at QRL, NWTS, Reedbird Avenue Drop-off Center, Bowleys Lane Drop-off Center, and Sisson Street Drop-off Center. In addition, DGS operates three drop-off centers that only accept commingled recyclables—York Road Substation, Calverton Road Substation, and Lewin Substation. Residential drop-off centers are described in Section 3.4 and assessed in Section 4.3. As indicated in Figure 3-1, it is estimated that approximately 4,000 tons of recyclables and 5,000 tons of MSW were collected at residential drop-off centers in 2021.

5.3.1 Plan of Action

The plan of action to improve the residential drop-off centers is detailed below. It is separated into short-term actions that can be implemented over the first half of the planning period and medium-term actions that may be implemented later in the planning period.

Short Term (2024-2028)

1. Install tag readers and driver's license scanners: The City plans to install license tag readers and license scanners at QRL and the transfer station to better identify out-of-city vehicles and commercial haulers.
2. Increase security measures and fencing: The City plans to install additional fencing and security cameras at residential drop-off centers to keep trespassers out and reduce illegal dumping inside the facilities.
3. Work to improve pay, benefits, and retention of workers: DPW will advocate for improved pay and benefits for workers (particularly CDL drivers) to attract additional drivers and relieve staffing shortages. Specifically, DPW will implement the following:
    a. Work with the Department of Human Resources to complete a class and compensation study to improve pay and benefits.
    b. Implement a retention and hiring bonus policy for CDL drivers.
    c. Hold monthly hiring fairs where CDL positions are prioritized.
    d. Expand the CDL training program to allow for external candidates to participate in the program.
4. Upgrade staff facilities: The City will provide shelters and upgrade break facilities for laborers at residential drop-off centers.
5. Evaluate how to Improve accessibility. Create a plan to improve accessibility at residential drop-off centers.
6. Determine infrastructure priorities (both in-city and regionally):The City intends to assess priorities for constructing a regional resource recovery park, reuse and repair clinics, and tool libraries to supplement the existing system of residential drop-off centers. The City is committed to engaging with regional partners to develop strategies and solid waste infrastructure to encourage source reduction, reuse, and diversion.
7. Consider implementing a cardboard bailing operation at one of the drop-off centers.
8. Consider a glass separation pilot program to improve the quality of diverted glass.
9. Expand opportunities for tire, HHW, and metal recycling.
10. Assess ways to increase the number of HHW recycling days offered at drop-off centers.

Medium Term (2029-2033)

11. Expand Bowleys Lane Drop-off Center: Following an environmental and safety study at the adjacent closed landfill, the City intends to expand the Bowleys Lane Drop-off Center to increase capacity and functionality. Specific actions are as follows:
    a. Repair or replace the inactive maintenance building.
    b. Repair deteriorating parking lot and road conditions.
    c. Construct a composting facility (see Section 5.6 for additional details).
    d. Encourage construction of a nearby reuse facility (such as a food bank, C&D salvage and reuse center, a thrift store, or a fix-it/repair clinic). It is anticipated that this facility would be constructed by the private sector.
    e. Improve functionality and traffic flow.
    f. Construct ETS (see Section 5.5 for additional details).
12. Expand and Renovate other Drop-off Centers: Following environmental and safety studies, the City intends to expand and renovate the other drop-off centers to improve waste diversion and increase capacity and functionality.
13. Expand reuse and diversion opportunities at existing facilities: After expanding the Bowleys Lane and Reedbird Drop-off Centers, the City intends to provide additional reuse and diversion opportunities at these and the Sisson Street facility. Additional reuse and diversion opportunities considered at the expanded facilities include the following:
    a. Bulk waste donation and reuse
    b. Mattress recycling
    c. Textile donation

5.3.2 Expected Time Frame

It is anticipated that short-term improvements to residential drop-off centers could be completed within the first five years of the planning period (2024–2028), and the long-term improvements could be completed within the second half of the planning period (2029–2033).

5.3.3 Diversion Potential

The LWBB Plan estimates a performance time frame of five years to reach the maximum diversion potential from residential drop-off centers assuming that all recommended programs and initiatives are initiated in year one. Given the proposed implementation time frame for the plan of action outlined above, it is estimated that the City could achieve 100% of its maximum diversion potential, or about 16,100 tons per year, during the planning period. Maximum diversion potential is based on diverting select

materials from the "Other" waste category and meeting long-term solid waste goals described in Section 4.1.

SUMMARY OF RESIDENTIAL DROP-OFF CENTER PLAN		
Metric		**Description**
	**Plan of Action**	**Short-Term:** 1. Install license tag and driver's license readers 2. Install security fencing and gates 3. Work to improve pay, benefits, and retention for workers 4. Upgrade staff facilities (shelter and breakrooms) 5. Create a plan to improve accessibility at residential drop-off centers 6. Determine infrastructure priorities 7. Consider implementing cardboard bailing operation 8. Consider a glass separation pilot program 9. Expand opportunities for tire and metal recycling 10. Assess adding additional HHW collection days **Long-Term:** 11. Expand Bowleys Lane Drop-off Center 12. Expand and renovate other drop-off centers 13. Expand reuse and diversion opportunities at existing facilities
	**Time Frame**	Short-term: 2024–2028 Long-term: 2029–2033
	**Diversion Potential**	16,100 tons/year
	**Costs**	• Short-term improvements: Not quantified. • Expand Bowleys Lane Drop-off Center: CAPEX: $6.0M • Expand other drop-off centers: CAPEX: $10.8M • Expand reuse/diversion opportunities: CAPEX: $375k, OPEX: $420k/year
	**Funding Mechanisms**	• Public (grants, general fund, enterprise fund)
	**Benefits**	**GHG:** 1.6 TCO_2E/ton of waste reduced or diverted **Airspace:** Based on current tip fee at QRL

5.4 Waste Collection System

The City's waste collection system is described in Section 3.5 and assessed in Section 4.4. The plan of action for improving these programs is detailed below.

5.4.1 Curbside Collection of Mixed Refuse and Single-Stream Recyclables

To improve collection of mixed refuse and SSR, the City plans to take the following actions over the planning period:

Administrative

1. Propose an increase in funding levels to sustain fleet and staffing: the Rubicon Report found that the City is operating at a deficit for both operational vehicles and staff for trash and SSR collection. To correct this, the City will advocate for an increase in funding levels to maintain a 20% reserve of vehicles and staff.
2. Implement a collection performance standard: Using recommendations from the Rubicon Report, the City intends to develop and implement a collection performance standard for its trash and SSR collection fleet.
3. Work to improve pay, benefits, and retention of workers: To attract additional drivers and relieve staffing shortages, DPW will advocate for improved pay and benefits for laborers and CDL drivers. The City intends to take the following actions:
    a. Work with the Department of Human Resources, labor unions representing solid waste workers, and the Office of the Labor Commissioner to complete a class and compensation study to improve pay and benefits.
    b. Implement a retention and hiring bonus policy.
    c. Hold monthly hiring fairs where CDL positions are prioritized.
    d. Expand the CDL training program to allow for external candidates to participate in the program.
4. Improve compliance with existing trash collection programs: The City plans to improve enforcement of state trash and recycling mandates by implementing the following:
    a. Coordinate with DHCD to develop incentive programs for landlords that provide trash and recycling bins to residents.
    b. Coordinate with DHCD to improve enforcement of trash and recycling collection at apartments and condominiums. Note that improving enforcement will likely require hiring additional staff (or reallocating staff) to perform inspections. Due to the current state of the labor market and staffing shortages at the City, this is currently unlikely. However, over the planning period it is anticipated that the City will be able to hire

additional staff or reallocate existing staff to perform inspections and improve enforcement.

5. Implement stricter hauler licensing and reporting: The City intends to implement stricter hauler licensing requirements to require private haulers to report on the source, destination, and tonnage of all materials collected or disposed in or outside the city.
6. Improve education and outreach: The City will increase educational initiatives to inform residents about the proper way to bag their trash and what is and is not recyclable (to improve SSR collection and reduce contamination). The City intends to take the following actions:
    a. Hold community-engaged seminars intended to gather data on the barriers and motivations of residents as they relate to recycling activities, gather group pledges to foster behavior change around recycling habits, and build public understanding of the connections between zero waste, recycling, health, climate change, and local resilience.
    b. Build a zero-waste coalition to gather stakeholders from the residential, institutional, and recycling sectors with the City to identify benefits, barriers, and priorities for zero-waste programs and services in the city.
    c. Develop and deploy resources to improve recycling habits. Resources may include a guide to what is and is not recyclable in the curbside program or social media campaigns to dispel myths around recycling.
    d. Develop community-based, social-marketing campaigns to inspire behavior change using social norms, social diffusion, and public pledges as mechanisms for change.
    e. Offer workshops to help residents experiment with sustainable resource management behavior shifts. Workshops may include community recycling sorts to identify contamination.
    f. Ensure education and outreach initiatives are equitable and accessible by incorporating language access practices, providing access to residents with disabilities, and holding workshops and seminars in locations that are accessible by public transit.

Programmatic

7. Rightsize routes, equipment, and personnel in the short term: The City intends to hire additional drivers and laborers to meet the recommendations of the Rubicon Report. It also intends to improve maintenance of its existing fleet to meet industry standard breakdown rates. Specific actions are as follows:
    a. Increase the number of full-time CDL trash and SSR collection drivers and laborers.
    b. Improve vehicle maintenance to achieve a breakdown rate of less than 20%.
    c. Reduce the number of stops per route to 1,050 for trash collection and 2,200 for recycling collection.

8. Rightsize routes, equipment, and personnel long term (final): The City intends to hire additional drivers, hire additional laborers, and purchase additional load packers to meet the recommendations of the Rubicon Report and return to weekly SSR collection. The City intends to take the following actions:
    a. Increase the number of full-time CDL trash and SSR collection drivers and laborers.
    a. Increase the size of the SSR collection fleet.
    b. Work with the Department of Planning, DGS, and DOT to update fleet to accommodate alleys and bike lanes.
    c. Reduce the number of stops per route to 950 for trash collection and 1,300 for recycling collection.
    d. Return to weekly recycling collection as soon as possible contingent on acquiring necessary equipment and meeting staffing demands.
9. Maintain onboard technology: The City intends to upgrade its collection fleet to include onboard technology to improve routing efficiency and performance.
10. Develop a system to improve data tracking on business recycling collected curbside.

5.4.2 Bulk Waste Collection

To improve collection of bulk waste, the City intends to take the following actions:

1. Expand route optimization to bulk pickup. The City intends to perform an operational review to determine the best path forward to optimizing bulk waste collection.
2. Improve staff training.
3. Create a method to recycle white goods collected curbside.
4. Improve the process for tire and propane tank pickup.
5. Explore options to make bulk waste pickup more accessible to residents with disabilities.

5.4.3 Yard Waste and Leaf Collection

To improve collection of yard waste, the City plans to take the following actions over the planning period:

Administrative

1. Improve education and outreach initiatives: See Section 5.3 (Organics).

Programmatic

2. Improve access to backyard composting: See Section 5.3 (Organics).
3. Develop a separate yard waste and leaf collection program: See section 5.2 (Organics).

4. Construct or encourage construction of an organics processing facility: See Section 5.7 (Proposed Composting Facilities).

5.4.4 Illegal Dumping

To reduce illegal dumping, the City plans to take the following actions over the planning period:

Administrative

1. Identify vulnerable communities where illegal dumping is persistent: As a first step to tackle illegal dumping, the City plans to identify and support vulnerable communities that are bearing the greatest impact of litter and illegal dumping. The City intends to take the following actions:
    a. Use available City data and engaging multiple City departments (including DOT, DHCD, BCPD, and DPW) and nearby universities to assess litter and illegal dumping in the city and identify vulnerable neighborhoods. As part of this process, DPW will create a new internship position to focus on data assessment.
    b. Contact and engage with selected residents, community leaders, and public officials in impacted, vulnerable communities to conduct public meetings, identify new or recurring incidents, and respond to those incidents promptly.
    c. Recruit, train, and promote future employees from impacted, vulnerable neighborhoods to create a pipeline of job opportunities in DPW for young people aged 18–24.
2. Improve educational programs to reduce illegal dumping: The City intends to educate communities about illegal dumping and empower them with resources to dispose of waste appropriately and reduce the amount of trash dumped on the streets. The City intends to take the following actions:
    a. Work with community partners to increase awareness of the negative impacts of blight and illegal dumping.
    b. Conduct a robust communications campaign about available programs and services regarding blight, illegal dumping, and litter removal.
    c. Deliver a comprehensive educational program to children in Baltimore public schools through the ECO Ambassador Program.
    d. Organize and launch a robust volunteer program citywide that will empower residents to take ownership of the conditions in their neighborhoods.
    e. Promote awareness of composting opportunities through educational materials and social media.
    f. Conduct a robust communications campaign educating residents regarding enforcement, codes, and potential fines for litter and illegal dumping.

Programmatic

3. Improve illegal dumping cleanup efforts by implementing the following:
    a. Partner with programs that offer day-labor, and provide mandated community service work, such as Youth Works, ECO Ambassador programs and YH2O to create volunteer projects.
    b. Prioritize illegal dumping collection in the most vulnerable neighborhoods through coordinated deployment of City departments, community partners, volunteers, and residents.
    c. Increase signs regarding litter and illegal dumping.
    d. Establish proactive protocols for communication across City departments.
    e. Create a method to inform residents of service request status.
    f. Coordinate with community volunteers to engage in street cleanup efforts and publicly acknowledging communities where behavior demonstrates change.
    g. Identify accessible locations within the city for easy access for organizations and individuals to pick up supplies.
    h. Provide operations support with community organizations engaged in the Mayor's Clean Corps program by using community liaisons to provide communication and feedback loops.
4. Improve enforcement: DPW plans to improve enforcement of existing litter and illegal dumping laws by implementing the following:
    a. Pursue a multipronged and interdepartmental approach to enforcement using tickets, signs, resident reporting, license plate tracking, and other tools to identify those who litter and dump illegally. City departments that will be involved in this effort include DPW, DHCD, BCPD, and the mayor's office.
    b. Creating a DPW Environmental Enforcement Unit to patrol high incidence areas and cite violators. This unit will focus on litter and illegal dumping hot spots and will rely on interagency collaboration, increased enforcement staffing, and community liaison presence.

5.4.5 Street and Sidewalk Sweeping

To improve street and sidewalk sweeping, the City plans to take the following actions over the planning period:

Administrative

1. Improve educational programs to reduce litter: see Section 5.2, Litter Reduction and Cleanup Programs.

2. Improve signage: The City will work to improve signage to alert residents to parking restrictions for street sweeping.
3. Improve enforcement: The City will work with the DOT to improve enforcement of street sweeping parking ordinances. This will allow DPW to access and properly clean streets.

Programmatic

4. Work with DGS to procure specialized vehicles for cleaning bike lanes.
5. Consider procuring leaf collection vehicles: The City will propose funding to purchase specialized vacuum collection trucks to collect leaves from streets and sidewalks.

5.4.6 Small Hauler Program

The City will improve the small hauler program during the planning period by taking the following actions:

1. Set up an automatic payment system: The City will encourage small haulers to register accounts tied to their permits to make the payment process safer, easier, and more efficient. This will reduce the lines at QRL and NWTS.
2. Expand the small hauler program to additional locations: The City will construct a designated small hauler area at the proposed ETS (see Section 5.6).
3. Improve permitting enforcement to make sure that small haulers that dump at NWTS and QRL are permitted.
4. Transfer the permitting process from the Health Department to DPW.

5.4.7 Other Waste Collection Programs

The City intends to take the following actions to improve other waste collection systems:

1. Continue to pilot a program to contract with a cleaning service to remove sharps and human waste from encampments. If this pilot program is successful, the City will expand the program throughout the city.
2. Explore a collaborative approach with City agencies and local organizations for sharps drop off and management strategies.
3. Purchase new skimmer boats to improve collection of waste from waterways.
4. Consider installing a storm debris catcher near outfalls to catch litter form Jones Falls during storm events.
5. Consider a pilot program for reproductive disruption for rat management.
6. Consider implementing routing software for property management personnel.

5.5 Waste Transfer System

Given the limitations on existing transfer capacity and the need to improve collection efficiency and provide long-term disposal alternatives to WIN Waste and QRL (as indicated in Section 4.7), the City intends to expand its transfer capacity during the planning period. The LWBB Plan specifically recommended developing long-haul transfer capacity as soon as possible so the City could reduce its reliance on WIN Waste and preserve airspace at QRL for emergencies and disaster debris management.

Contingencies for disruption to transfer/disposal facilities are best addressed by adopting a decentralized approach that provides redundancy (e.g., by developing multiple facilities rather than relying on one centralized facility) and ensuring the total capacity of decentralized facilities exceeds the total capacity requirement (e.g., if three facilities are developed, each should offer more capacity than simply a third of the total required). In this section, the City's plan to develop a decentralized and resilient transfer network is described.

5.5.1 Northwest Transfer Station

DPW operates NWTS as an intra-city truck transfer facility where waste collected from Baltimore's northern neighborhoods can be transferred from smaller load-packer trucks to larger roll-off trucks for transportation to WIN Waste or QRL. The current permit for the facility expires in 2026, but the City intends to renew and extend this permit so that the facility can continue to serve the city through the entire planning period. No changes are proposed to the operation of NWTS during the planning period.

Plan of Action

The City plans to take the following actions over the planning period to improve operation of NWTS:

1. Improve existing infrastructure: The City intends to install a ventilation system for the transfer facility to improve air circulation and employee health. The City also intends to improve the existing floor drain system to improve stormwater and leachate collection.
2. Replace aging equipment: To replace aging equipment and improve operations at NWTS, the City intends to purchase a new scale, additional front-end loaders, and additional transfer trailers.
3. Hire additional staff: The City intends to hire additional staff, including CDL drivers and equipment operators, to improve operations at the site.
4. Work to improve pay, benefits, and retention of workers: To improve staff retention, the City intends to advocate for improved pay and benefits for NWTS workers (particularly CDL drivers and operators) by the following actions:
    a. Work with the Department of Human Resources to complete a class and compensation study to improve pay and benefits.
    b. Implement a retention and hiring bonus policy for CDL drivers.

c. Hold monthly hiring fairs where CDL positions are prioritized.

d. Expand the CDL training program to allow for external candidates to participate in the program.

Anticipated Permit Requirements

There are no planned expansions or operational changes at NWTS; therefore, there are no new permit requirements. As indicated previously, the facility will be operational during the entire planning period, and existing permits will be renewed as necessary to provide continued operation.

Potential Costs and Funding Mechanisms

There are no proposed large-scale changes to infrastructure or operations at NWTS; therefore, costs were not estimated. All planned expenditures at NWTS will be funded by the City. Costs will be covered through grants, or by allocating money from the general fund.

Potential Benefits

Maintaining existing equipment, replacing aging equipment, hiring additional staff, and improving retention are expected to generally improve operation and throughput at NWTS.

Expected Time Frame

Planned improvements at NWTS will be implemented over the short- and medium-term, from 2024 through 2033.

5.5.2 Proposed Eastside Transfer Station

Pending the results of an environmental and safety assessment, the City proposes to construct ETS at the Bowleys Lane Drop-off Center. ETS is intended to improve collection efficiency by providing a second transfer station where mixed refuse, small hauler loads, and SSR can be consolidated prior to disposal (mixed refuse and small hauler loads) or recycling (SSR). While NWTS serves the northern and western parts of the city, ETS will serve the eastern and southern parts of the city.

Plan of Action

The City will construct ETS at the Bowleys Lane Drop-off Center (or an alternative location if the environmental and safety assessment indicate that the Bowleys Lane site is unsuitable). ETS will primarily service Baltimore's eastern and southern neighborhoods, but over time as residential recycling and diversion measures take effect the facility could also serve commercial MSW haulers. The ETS will be sized to accommodate all the residential MSW and SSR collected in the city except for the waste and SSR handled by NWTS. As indicated in Table 3-2, it is anticipated that residential MSW and SSR will total approximately 310,000 tons by 2033. Assuming that constructing ETS will help to divert small hauler traffic and allow NWTS to operate at its maximum permitted capacity of 150,000 tons per year, it is expected that ETS will be constructed with a permitted capacity of 200,000 tons per year.

Anticipated Land and Permit Requirements

It is estimated that ETS would require at least 10 acres of land. If Bowleys Lane Drop-off Center is deemed unsuitable for development of ETS, other potential sites include the closed Monument Street Landfill, former Pulaski Incinerator property, City-owned land at Wagners Point, unused areas at Port of Baltimore properties in Dundalk or Locust Point, or unused areas at Sparrows Point. Development of ETS at QRL or the Western Sanitation Yard (Reedbird Avenue Drop-off Center) may also be possible.

The expected permit requirements and approvals required for development of ETS are summarized below:

- Refuse Disposal Permit: Issued by MDE
- Erosion and Sediment Control Plan: Reviewed and approved by Baltimore DPW
- Stormwater Management Plan: Reviewed and approved by DPW
- Building Permit: Issued by DHCD
- NPDES Industrial Discharge Permit: Issued by MDE

Potential Costs

The potential costs for constructing and operating ETS are summarized below:

- CAPEX: estimated to be $93/ton of annual capacity (expected to be 200,000 tons per year). This equates to a total CAPEX of approximately $18.6M.
- OPEX: anticipated at $87/ton of annual throughput (expected to be 165,000 tons per year) for a total expected annual OPEX of $14.4M. Note that this cost includes the costs of out-of-city transfer and disposal. This cost would be partially offset by eliminating corresponding disposal costs at WIN Waste or QRL. OPEX for out-of-city transfer and disposal were estimated based on current contracts in place in Maryland.

Potential Funding Mechanisms

The following are potential funding mechanisms for ETS:

- Public: Under the public option, DPW would self-develop and operate ETS, with costs covered by allocating money from the general fund, establishing an enterprise fund, direct billing, or adding a line item on property tax bills.
- PPP: Under a PPP option, the City could provide a land lease and a guaranteed waste stream with a third party (either a private company or a state agency such as MES) constructing and operating the facility. A PPP contract would be most attractive for bundled operation of ETS in conjunction with the proposed RTS. Some minor outreach efforts by DPW would be needed to inform residents and small haulers of facility usage rules, especially if it involves redevelopment of an existing residential drop-off center such as Bowleys Lane Drop-Off Center.

Potential Benefits

The estimated benefits for ETS include job creation and GHG emissions reductions:

- Job creation: It is anticipated that ETS would create as many as 14 additional jobs. This value was calculated by assuming an employment rate of 0.02 people per ton of waste transferred at the facility each day, with one additional supervisor.
- GHG emissions are likely to decrease with construction of ETS. Operating a second transfer station would decrease haul distances for individual load packers, allowing fewer, larger transfer trucks to haul waste and recyclables to their final destination.

Expected Time Frame

It is anticipated that it will take two years to design ETS, two years to permit ETS, and two years to construct ETS for a total of six years. Assuming design begins in 2024, it is anticipated that ETS will be operational beginning in 2030.

Summary

A summary of the plan of action and associated costs and benefits is provided below:

Metric		Description
	**Plan of Action**	• Proposed location: Bowleys Lane Drop-Off Center • Permitted capacity of 200,000 tons per year
	**Land and Permitting**	• Land requirements: at least 10 acres • Permit requirements: ○ Refuse disposal permit (MDE) ○ Erosion and sediment control plan (DPW) ○ Stormwater management plan (DPW) ○ Building permit (DHCD) ○ NPDES industrial discharge permit (MDE)
	**Costs**	• CAPEX: $18.6 million • OPEX: $14.4 million per year
	**Funding Mechanism**	• Public • PPP
	**Benefits**	**Jobs:** 14 **GHG:** Likely to decrease due to waste consolidation at ETS
	**Time Frame**	Design, permitting, and construction complete by 2030

5.5.3 Develop Long-Haul Disposal Plan

In addition to constructing ETS to complement NWTS, DPW will also need to develop a long-haul disposal plan to reduce dependence on WIN Waste and preserve airspace at QRL for emergency and disaster debris management. Long-haul disposal will likely require the construction of a regional transfer station (RTS), where transfer operations can be consolidated and provided more efficiently. With QRL expected to reach full capacity in 2035 and the City's contract with WIN Waste set to expire in 2031, RTS would provide the city a long-term method to manage its solid waste. RTS would likely be constructed so that it could be operated as a truck transfer station but will be built along a rail spur to allow for containerization and rail shipment of waste. This would provide maximum flexibility for long-haul disposal.

Plan of Action

As a first step in developing long-haul transfer capacity, the City will conduct an extensive feasibility study to assess the city's needs for long-haul disposal and to select the most financially viable, environmentally friendly, and sustainable option for developing RTS. This study will consider historical and projected waste disposal tonnages as well as trends in waste diversion to assess the need and time frame for developing RTS. The feasibility study will also consider various treatment options available to reduce disposal tonnages to the maximum extend practical (e.g., MWP or anaerobic digestion). Following completion of this study, the City will identify locations for constructing RTS. RTS should be constructed at a location suitable for installing a rail spur to provide maximum flexibility with respect to waste transfer options (e.g., transfer by truck or by rail). Potential sites include Baltimore County's Western Acceptance Facility (WAF), which would require a collaborative agreement with Baltimore County. Adding a rail spur at WAF could be challenging. Other potential sites include the former Pulaski Incinerator property, City-owned land at Wagners Point, unused areas at Port of Baltimore properties in Dundalk or Locust Point, or unused areas at Sparrows Point.

Developing RTS would be a capital-intensive project; therefore, it is assumed the facility will be sized to accept waste from the commercial as well as residential sectors in Baltimore (and potentially surrounding counties) to help make it economically viable. Following construction of RTS, NWTS and ETS are expected to function as intra-city transfer stations sending residential waste to RTS for consolidation. RTS will be sized to handle the city's combined disposed residential and commercial MSW (estimated to be 282,400 tons of residential MSW and 250,100 tons of commercial MSW, for a total of approximately 530,000 tons/year). Applying a factor of safety of 1.2 gives a design capacity of 640,000 tons per year. Note that this estimate is conservative; waste disposal is expected to decrease due to waste reduction and diversion efforts.

Anticipated Land and Permit Requirements

It is estimated that RTS would require at least 20 acres of land next to an existing rail line. The expected permit requirements and approvals required for development of RTS are summarized below:

- Refuse Disposal Permit: Issued by MDE

- Erosion and Sediment Control Plan: Reviewed and approved by DPW
- Stormwater Management Plan: Reviewed and approved by DPW
- Building Permit: Issued by DHCD
- NPDES Industrial Discharge Permit: Issued by MDE

Potential Costs

The potential costs for constructing and operating RTS are summarized below:

- CAPEX: Estimated to be $110/ton of annual capacity, which is conservatively estimated at 640,000 tons (120% of the maximum expected annual throughput of 530,000 tons). This equates to a total CAPEX of $70.5M.
- OPEX: Estimated to be about $58/ton of annual throughput, yielding maximum expected annual OPEX of $30.7M, including the costs of out-of-city transfer and disposal. OPEX for out-of-city transfer and disposal were estimated based on current contracts in Maryland for out-of-state waste disposal as well as estimated rail transfer costs.
- Cost Offsets: Operating costs would be partially offset by eliminating corresponding disposal costs at WIN Waste or QRL. RTS would also charge a tip fee for commercial waste accepted. Assuming that RTS would be capable of processing all of the commercial MSW generated in the city (approximately 250,000 tons per year) and using an estimated tip fee of $81/ton, this could generate revenues of up to $20.3M annually.

Potential Funding Mechanisms

The potential funding mechanisms for RTS include the following:

- Public: Under the public option, DPW would self-develop and operate RTS, with costs covered by allocating money from the general fund, establishing an enterprise fund, direct billing, or adding a line item on property tax bills. However, given the high capital costs, the public option is the least preferred.
- Private: Private development would see the private sector develop the facility with DPW simply delivering residential waste as a customer. However, this option does not give the City any control over pricing or use.
- PPP: The preferred delivery mechanism would be a PPP contract, with the City providing a land lease and a partially guaranteed waste stream with a third party (likely a private company, although a state agency such as MES could be involved) serving to construct and operate the facility. A PPP contract would be particularly attractive for bundled operation of RTS in conjunction with ETS and/or NWTS.

Potential Benefits

The estimated benefits for RTS include job creation and GHG emissions reductions:

- Job creation: It is anticipated that RTS would create as many as 42 additional jobs. This value was calculated by assuming an employment rate of 0.02 people per ton of waste transferred at the facility each day, with one additional supervisor.
- Although emissions associated with long-haul waste transport are lower than those for load packer trucks on a per-mile basis, GHG emissions may increase if waste is transferred a long distance out-of-city. The LWBB report estimates that GHG emissions may increase by as much as 30,000 TCO_2E per year if residential waste is transferred via RTS rather than being incinerated at WIN Waste.

Expected Time Frame

It is anticipated that the feasibility study for RTS will take approximately one year to complete. Following completion of the feasibility study, location selection and land acquisition is likely to take another two years. Once the site is selected, it is anticipated that it will take 6 years to design and permit RTS, and 4 years to construct RTS and its associated rail spur, for a total of 13 years. Assuming the feasibility study is performed in 2024, it is anticipated that ETS will be operational beginning in 2037.

Summary

A summary of the plan of action and associated costs and benefits is provided below:

Metric		Description
	Plan of Action	• Feasibility study • Potential locations include WAF, Pulaski Incinerator property, City-owned land at Wagners Point, unused areas at Port of Baltimore properties in Dundalk or Locust Point, or unused areas at Sparrows Point • Permitted capacity of 640,000 tons per year
	Land and Permitting	• Land requirements: at least 20 acres with rail access • Permit requirements: ○ Refuse disposal permit (MDE) ○ Erosion and sediment control plan (DPW) ○ Stormwater management plan (DPW) ○ Building permit (DHCD) ○ NPDES industrial discharge permit (MDE)
	Costs	• CAPEX: $70.5 million • OPEX: $30.7 million per year • Cost offsets: $20.3 million per year
	Funding Mechanism	• Public • Private • PPP (preferred)

Metric		Description
	**Benefits**	**Jobs:** 42 **GHG:** May increase by as much as 30,000 TCO_2E/year due to long haul transport costs
	**Time Frame**	Feasibility study: short term (2024-2028). Site selection: short-term (2024-2028) Design, permitting, and construction: medium to long-term (2029 – 2037)

5.6 Waste Processing and Recycling System

Given the limitations on existing processing and recycling capacity in the City (as indicated in Section 4.6), and the desire for the City to improve its diversion and recycling programs (as indicated in Section 5.3), the City intends to expand its waste processing and recycling capacity during the planning period. Specific action items for each existing and proposed waste processing and recycling facility are described below.

5.6.1 Camp Small

As discussed in Section 4.6, Camp Small has an opportunity to increase the number of felled trees that are recovered and processed into lumber and other high-value wood products but is currently limited by lack of staff, equipment needs, and a lack of visibility. As such, the City intends to increase Camp Small's wood waste processing capacity by purchasing several pieces of equipment, hiring additional personnel, and increasing marketing efforts to promote and sell wood products. These efforts will be led by Camp Small under DRP in partnership with DPW and the Office of Sustainability.

Plan of Action

To improve the amount of wood that is processed and sold at Camp Small, the City plans to purchase additional equipment, hire additional personnel, and improve education and outreach as follows:

1. Purchase additional equipment to increase the amount of material that can be accepted and processed. Specifically, the City intends to purchase the following:
    a. Horizontal Grinder: This grinder will allow Camp Small to grind sub-prime woody materials for composting in partnership with DPW (see Section 5.2.2 and 5.6.3).
    b. Pyrolysis Unit: This unit will allow the city to process low-value biomass (wood chips and grindings) into biochar while also using the thermal energy to heat the expanding facilities at Camp Small. The biochar will be made available to the City for use in bioretention efforts, enhancing soils for tree plantings, and urban farming.
    c. 55-Inch-Wide Sawmill: This sawmill will increase the maximum size of logs that can be processed at Camp Small, more than doubling the facility's lumber production.

d. Vacuum Kiln: This kiln will allow the City to kiln dry another 18,000 board feet each year, more than doubling the current production of kiln dried lumber.

e. Wood Shop Equipment: the addition of a large slab-flattener and a wide planer will allow Camp Small to market and sell a more finished product. Which increases the value of the material while expanding the user audience.

2. Hire additional staff to improve the efficiency of operations. The City intends to implement a Workforce Development Program at Camp Small with a six-month paid training course to city residents facing employment barriers. Camp Small intends to increase permanent staff by hiring two full time workers from those who have gone through the program.
3. Conduct a marketing campaign to educate and inform residents about Camp Small and wood recycling. This marketing campaign will likely be conducted primarily through the City's webpage and social media accounts but may also include workshops, seminars, and training initiatives.
4. Collaborate with DPW and the Office of Waste Diversion to provide woody material for composting after the City develops local composting capacity (see Section 5.2.2 and 5.6.3).

Potential Costs

The potential costs for expanding operations at Camp Small are summarized below:

- CAPEX: Estimated to be $1,500,000 for equipment.
- OPEX: Estimated to be $200,000 per year for staff (inclusive of benefits). Marketing costs were not quantified.
- Cost Offsets: Cost offsets were not quantified, but Camp Small does sell mulch, logs, and finished wood pieces. By increasing production, there should be additional cost offsets.

Potential Funding Mechanisms

The improvements at Camp Small will be funded through a combination of grants and City funding (general fund, loans).

Potential Benefits

The plan of action above will enhance Camp Small's ability to recover and circulate woody materials at their highest and best use. These improvements will expand Camp Small's ability to produce lumber as well as make use of second-tier materials by making and selling biochar, which is particularly beneficial for tree planting. Biochar can also be added to compost to create a value-added compost product for Baltimore communities.

Camp Small will also implement a Workforce Development Program with a six-month paid training course to city residents facing employment barriers. Camp Small intends to increase permanent staff by hiring from those who have gone through the program.

Expected Time Frame

The plan of action for Camp Small will be implemented in the short-term (2024-2028).

Summary

Metric		Description
	**Plan of Action**	• Purchase equipment • Hire additional staff • Marketing and education campaign
	**Costs**	• CAPEX: $1,500,000 • OPEX: $200,000 per year • Cost offsets: Not quantified
	**Funding Mechanism**	Public (grants, general fund, loans)
	**Benefits**	**Jobs:** 2
	**Time Frame**	Short-term (2024-2028)

5.6.2 Proposed MRF Infrastructure Development

As discussed in Section 4.6, constructing an in-city SSR processing facility is important to reduce transportation costs and reliance on out-of-city vendors (particularly given the expected expansion in SSR diversion described in Section 5.3). As such, the City intends to construct (or facilitate construction of) in-city or regional SSR processing facilities over the planning period. Specifically, the City plans to explore a decentralized and incremental approach to developing in-city SSR processing capacity, with proposed construction of small-scale mini-MRFs as SSR diversion expands. In addition, the City will explore regional MRF development with surrounding jurisdictions.

Plan of Action

Section 4.6 identifies several opportunities for developing in-city SSR processing capacity, including constructing a large centralized MRF, retrofitting an existing in-city MRF, or constructing a system of small-scale "mini-MRFs." The first step in the plan of action will be to conduct a financial and feasibility study to determine the preferred option for developing additional processing capacity. Considerations as part of the feasibility study will include historic and projected diversion rates, space requirements and land availability, and potential partnerships with other jurisdictions to develop regional processing capacity.

Following completion of the feasibility study, the City will move forward with the desired option.

Anticipated Land and Permit Requirements

Development of any new processing capacity will require land. A large centralized MRF is likely to require significantly more land than a mini-MRF and would thus likely have to be pursued as a regional partnership outside of the City. It is estimated that each mini-MRF would require a minimum of a half-acre lot, but larger lots would be preferred to provide more flexibility. Permitting requirements for construction of either a centralized MRF or a mini-MRF are listed below:

- Refuse Disposal Permit: Issued by MDE
- Erosion and Sediment Control Plan: Reviewed and approved by DPW
- Stormwater Management Plan: Reviewed and approved by DPW
- Building Permit: Issued by DHCD
- NPDES Industrial Discharge Permit: Issued by MDE

Potential Costs

The potential costs for this option were not quantified. Cost estimates will be included in the financial and feasibility study.

Potential Funding Mechanisms

Several workable contract mechanisms exist for developing SSR processing capacity, including DPW constructing, owning, and operating MRFs, DPW contracting out MRF development to a private third party, or a PPP contract where DPW provides a property lease and guaranteed SSR feedstock with a private third party constructing and operating the facilities. Contract mechanisms involving the private sector are preferred.

Potential Benefits

The estimated benefits for developing SSR processing capacity include job creation and GHG emissions reductions:

- Job creation: It is anticipated that each mini-MRF would employ ten full time employees and one supervisor. A large, centralized MRF would likely employ more workers.
- GHG emissions reductions for diverting and recycling additional SSR are discussed in Section 5.3.

Expected Time Frame

The feasibility study will take one year starting in 2024. Land acquisition is expected to take at least one year following the feasibility study. Design, permitting, and construction are expected to take three to four years. As such, no new MRF is likely to be operational until 2029.

Summary

A summary of the plan of action and associated costs and benefits is provided below:

Metric		Description
	Plan of Action	• Financial and feasibility study • Implementation of chosen option based on feasibility study
	Land and Permitting	• Land requirements: at least ½ acre • Permit requirements: ○ Erosion and sediment control plan (DPW) ○ Stormwater management plan (DPW) ○ Building permit (DHCD) ○ NPDES industrial discharge permit (MDE)
	Costs	Not quantified
	Funding Mechanism	• Public • Private • PPP (preferred)
	Benefits	**Jobs:** 10 per facility (mini-MRF), more for centralized MRF **GHG:** Described in Section 5.3
	Time Frame	Medium-term (2029-2033)

5.6.3 Proposed Composting Facilities

As discussed in Sections 5.2, 5.3, and 5.4, constructing in-city organics processing capacity is critical to the City's plans to meet a minimum 35% MRA recycling rate, improve organics diversion from both the residential and private sectors, and improve yard waste collection. As such, the City intends to construct (or facilitate construction of) in-city organics processing capacity over the planning period. Specifically, the City will take a decentralized and incremental approach to developing organics processing capacity, in which several, small-scale composting facilities would be constructed on an as-needed basis.

Plan of Action

Although many processing methods could be combined to manage the volume of diverted residential organics expected over the planning period (see Section 5.3), a phased-in decentralized approach was ultimately identified as the best approach to organics management in the City. In this approach, 20,000 ton/year composting facilities would be developed sequentially to meet expected demand from the residential SSO collection program described in Section 5.3. It is assumed that this annual throughput capacity of 20,000 tons using a 1:1 carbon to nitrogen recipe, which may be supplied from Camp Small by Baltimore City Department of Recreation and Parks. It is further assumed these composting facilities would operate as covered aerated static piles (CASPs), the dominant technology used for organics

processing in the U.S.; however, other composting or anaerobic digestion (AD) technologies may be employed if at comparable performance and costs. As such, use of the term "composting facility" in this section is for simplicity only.

Anticipated Land and Permit Requirements

It is anticipated that each composting facility would require a minimum of four acres , but larger lots would be preferred to provide more flexibility and scope for expansion. Permitting requirements for each composting facility are listed below:

- Compost Facility Permit: Issued by MDE
- Erosion and Sediment Control Plan: Reviewed and approved by DPW
- Stormwater Management Plan: Reviewed and approved by DPW
- Building Permit: Issued DHCD
- NPDES Industrial Discharge Permit: Issued by MDE

Potential Costs

The potential costs for constructing and operating each composting facility (from LWBB) are summarized below:

- CAPEX: Estimated to be $174/ton of annual capacity, which is assumed to be 20,000 tons (including 14,000 tons of SSO and 6,000 tons of bulking material). This equates to a total CAPEX of approximately $3.5M per facility.
- OPEX: Estimated to be about $64/ton of annual throughput, yielding maximum expected annual OPEX of $1.3M, including the costs of labor, benefits, repair and maintenance, and disposal of residuals).
- Cost Offsets: Operating costs would likely be partially offset through the sale of compost. Assuming that high quality compost could be sold for $35/cubic yard, it is anticipated that each facility could generate annual revenue of approximately $580K.

Potential Funding Mechanisms

The potential funding mechanisms for each composting facility include the following:

- Public: Under the public option, DPW would self-develop and operate each composting facility, with costs covered by grants, allocating money from the general fund, establishing an enterprise fund, direct billing, or adding a line item on property tax bills.
- Private: Private development would see the private sector develop the facility with DPW simply delivering residential SSO as a customer. However, this option does not give the City any control over pricing or use.

- PPP: The preferred delivery mechanism would be a PPP contract, with the City providing a land lease and a partially guaranteed waste stream with a third party (likely a private company, although a state agency such as MES could be involved) serving to construct and operate the facility.

Potential Benefits

The estimated benefits for constructing composting facilities include job creation and GHG emissions reductions:

- Job creation: It is anticipated that each composting facility would employ eight full time employees and one supervisor.
- GHG emissions reductions for diverting and composting SSO are discussed in Section 5.3.

Expected Time Frame

Once funding and land have been acquired, it is anticipated that it will take two years to design and permit each composting facility plus an additional one year for construction. Assuming land and funding are acquired in 2024, it is estimated that design and permitting of the first composting facility will begin in 2025, such that the first facility will be operational in 2028. Additional facilities will be constructed as needed (i.e., when the amount of material collected via the SSO collection program described in Section 5.3 is expected to exceed the existing facility capacity).

Summary

A summary of the plan of action and associated costs and benefits is provided below:

SUMMARY OF WASTE PROCESSING PLAN		
	Plan of Action	• Phased, decentralized approach • Each facility is expected to have a permitted capacity of 20,000 tons per year (including 6,000 tons of bulking material)
	Land and Permitting	• Land requirements: at least four acres • Permit requirements: ○ Compost Facility Permit (MDE) ○ Erosion and sediment control plan (DPW) ○ Stormwater management plan (DPW) ○ Building permit (DHCD) ○ NPDES industrial discharge permit (MDE)
	Costs	• CAPEX: $3.5 million per facility • OPEX: $1.3 million per facility • Cost offsets: $580,000 per year

SUMMARY OF WASTE PROCESSING PLAN		
	Funding Mechanism	• Public • Private • PPP (preferred)
	Benefits	**Jobs:** 9 per facility **GHG:** Described in Section 5.3
	Time Frame	Design, permitting, and construction of first facility complete by 2028

5.7 Waste Disposal System

As indicated in Sections 5.3 and 5.6, the City intends to improve waste diversion and transfer capacity to relieve the disposal pressure on the existing disposal facilities in the City (specifically QRL and WIN Waste). As such, the City does not intend to expand its existing waste disposal system.

5.7.1 Quarantine Road Landfill

The City operates QRL for disposal of MSW, small hauler debris, sewage sludge, and incinerator ash from WIN Waste. As indicated in Section 4.7, the landfill's remaining permitted capacity will be consumed in 2028. However, a lateral expansion of QRL onto the adjacent Millennium Landfill is currently planned (with submission of the Phase III permit application report to MDE occurring in October 2022) that would extend the facility's service life through 2035.

Plan of Action

The City plans to take the following actions over the planning period to improve operation of QRL:

1. Permit and construct lateral expansion onto Millennium Landfill: The lateral expansion of QRL is expected to extend the facility's service life from 2028 through 2035. As such, permitting and constructing this expansion is critical to the continued operation of QRL over the planning period.
2. Install scale house improvements: To improve traffic flow, reduce lines, improve enforcement, and reduce instances where customers do not pay, the City intends to install new software and an enhanced payment and accounting system.
3. Improve identification of unacceptable waste: The City intends to train cashiers to identify unacceptable waste through both visual inspections and cameras. Additionally, the City intends to install radiation sensors at the scale house to help identify radiation emitting waste.
4. Replace aging equipment: The City intends to replace aging equipment to provide additional storage and hauling capacity and reduce lines and complaints at the residential drop-off center.

5. Work to improve pay, benefits, and retention of workers: To improve staff retention, DPW will advocate for improved pay and benefits for QRL workers (particularly CDL drivers and operators) by performing the following activities:
    a. Work with the Department of Human Resources to complete a class and compensation study to improve pay and benefits.
    b. Implement a retention and hiring bonus policy for CDL drivers.
    c. Hold monthly hiring fairs where CDL positions are prioritized.
    d. Expand the CDL training program to allow for external candidates to participate in the program.
6. Work with local utility to reduce power outages at the site: The City intends to work with the local utility provider to improve power supply to the facility and reduce power outages.
7. Increase diversion away from the landfill: Diverting materials from disposal at QRL will help to extend the estimated service life of the facility and reduce GHG emissions (particularly if organic waste is diverted from disposal). Specific diversion action items are described in Section 5.3.
8. Expand the landfill gas wellfield to more efficiently capture landfill gas, prevent off-gassing, and comply with new Maryland methane regulations published by MDE in December 2022.
9. Assess and determine a long-term disposal plan for the city.

Anticipated Land and Permit Requirements

Construction of the lateral expansion of QRL onto the Millennium Landfill will increase the facility's footprint area to 128 acres and will require the diversion of Quarantine Road and all utilities that run along the road right-of-way (including a water main, gas lines, and underground and overhead electrical lines). The expected permit requirements and approvals required for the lateral expansion of QRL are summarized below:

- Refuse Disposal Permit: Issued by MDE, major modification of existing permit
- Erosion and Sediment Control Plan: Reviewed and approved by DPW
- Stormwater Management Plan: Reviewed and approved by DPW
- Building Permit: Issued by DHCD
- NPDES Permit: Issued by MDE

Potential Costs

The estimated costs for the lateral expansion and improvement of QRL are summarized below:

- CAPEX: Estimated to be $99.5M for design and permitting, relocation of stockpiles at Millennium Landfill, relocation of Quarantine Road, facility improvements, and construction of the new landfill cells.
- OPEX: OPEX is not expected to change significantly.

Potential Funding Mechanisms

The improvement and expansion of QRL will be funded by the City through grants (particularly for small-scale improvements, such as scale house improvements, equipment purchase, etc.) and from the general fund (for large-scale improvements, like the lateral expansion of QRL).

Potential Benefits

The estimated benefits associated with improving and expanding QRL include the following:

- Extension of service life: the proposed expansion is expected to extend the service life of QRL from 2028 through 2035.
- Improved payment: Scale house improvements are expected to result in improved payment (and less customers avoiding paying).
- Reduced unacceptable waste: Scale house improvements and improved identification of unacceptable wastes are expected to result in less unacceptable waste being dumped at the facility.
- Improved operation: Improving the scale house, improving pay for workers, improving electrical service, and procuring additional equipment are expected to result in smoother operation of QRL.

Expected Time Frame

It is anticipated that design and permitting of the lateral expansion will be completed in 2024, with construction of the first disposal cell expected by 2026. Other improvements will be phased in over the planning period (between 2024 and 2033).

Summary

A summary of the plan of action and associated costs and benefits is provided below:

SUMMARY OF WASTE DISPOSAL PLAN	
Metric	**Description**
Plan of Action	1. Permit and construct lateral expansion onto Millennium Landfill 2. Install scale house improvements 3. Improve identification of unacceptable waste 4. Replace aging equipment 5. Improve pay and benefits for workers 6. Work with local utility to reduce power outages at the site 7. Increase diversion away from the landfill 8. Expand landfill gas wellfield 9. Assess and determine a long-term disposal plan for the city
Land and Permitting	• The expanded facility will be 128 acres • Permit requirements: ○ Refuse disposal permit (MDE) ○ Erosion and sediment control plan (DPW) ○ Stormwater management plan (DPW) ○ Building permit (DHCD) ○ NPDES industrial discharge permit (MDE)
Costs	• CAPEX: $99.5 million • OPEX: Not expected to change
Funding Mechanism	• Public: grants (small-scale improvements) and general fund (expansion of QRL)
Benefits	• Extension of service life • Improved payment • Reduced incidence of unacceptable waste • Improved operation
Time Frame	Design, permitting, and construction of first cell of expansion by 2026. Other improvements phased in from 2024 through 2033.

5.7.2 WIN Waste

The City's current contract with WIN Waste expires in 2031. Baltimore has adopted plans committed to maximizing waste reduction and diversion to achieve zero-waste goals and Mayor Scott has included decommissioning the use of waste incineration in the next decade as goal 1.1 of the Mayor's Action Plan. DPW is committed to expanding options for waste diversion over the course of the planning period. With this investment in recycling and reuse programs, the use of the WIN Waste facility for residential municipal waste processing is expected to decline over the course of the planning period. However, a large portion

of waste disposed of at WIN Waste is generated in the private sector or outside the city. Until there is universal, coordinated adoption of waste diversion practices across public and private sectors, it is likely that the facility will continue to operate at or near its current throughput.

Appendix A –City Council Resolution

Appendix A Placeholder Text

Appendix B – MDE Approval Letter

Appendix B Placeholder Text

Appendix C - Zoning Regulations

Baltimore City Code as of 4/12/2022 referenced herein.

Baltimore City Code, Article 32, Table 11-301

TABLE 11-301: INDUSTRIAL DISTRICTS – PERMITTED AND CONDITIONAL USES

USES	DISTRICTS							USE STANDARDS
	OIC	BSC	IMU-1	IMU-2	I-1	I-2	MI	
RESIDENTIAL								
Dwelling (Above Non-Residential Ground Floor)		P	P					
Dwelling: Live-Work			P		CB			
Dwelling: Multi-Family		P	P					
Dwelling: Rowhouse		P						
Residential-Care Facility (16 or Fewer Residents)		P	P					Per § 14-334
Residential-Care Facility (17 or More Residents)		CB	CB					Per § 14-334
Rooming House			CB					
INSTITUTIONAL								
Cultural Facility			CB					Per § 14-308
Educational Facility: Commercial-Vocational	P	P	P	P	P	CB	CB	
Educational Facility: Post-Secondary	CB	CB	CB					
Educational Facility: Primary and Secondary		P	P					
Government Facility	P	P	P	p	P	P	P	
Homeless Shelter			CO					
Hospital		P	CO					
OPEN-SPACE								
Community-Managed Open-Space Farm	CB	CB	CB					Per § 14-307
Community-Managed Open-Space Garden	P	P	P					Per § 14-307
Park or Playground	P	P	P					
Urban Agriculture	P	P	P	P	P			Per § 14-339

Baltimore City Code, Article 32, Table 11-301 (continued)

	OIC	*BSC*	*IMU-1*	*IMU-2*	*I-1*	*I-2*	*MI*	
COMMERCIAL								
Animal Clinic			P	P	P			Per § 14-317
Art Gallery			P	P				
Arts Studio			P	P				
Arts Studio: Industrial	P		P	P	P			
Banquet Hall	CB		CO	P				Per § 14-302
Body Art Establishment			P	P				
Broadcasting Station (TV or Radio)	P		P	P	P			
Car Wash				P	P	P		Per § 14-304
Carry-Out Food Shop		P	P	P	CB	CB		
Day-Care Center: Adult or Child	P	P	P	P [1]	P [1]	P [1]	P [1]	Per § 14-309
Drive-Through Facility	CB			CB				Per § 14-311
Entertainment: Indoor		P	P	P				Per § 14-312
Entertainment: Live			CB	CB				Per § 14-319
Entertainment: Live (Accessory to Restaurant, Tavern, Art Studio, or Art Gallery)		CB		P				Per § 14-319
Financial Institution	P [2]	P	P	P				
Gas Station				CB	CB	CB		Per § 14-314
Greenhouse		P	P	P	P			Per § 14-339
Health-Care Clinic	P	P	P					
Health and Fitness Center	P	P	P					
Heavy Sales, Rental, or Service			CO	CB	CB			
Hotel or Motel	P	P	CB					
Kennel			CB	P	P			Per § 14-317
Lodge or Social Club			P	CB	CB	CB	CB	Per § 14-320
Motor Vehicle Service and Repair: Major					CB	CB		Per § 14-326
Motor Vehicle Service and Repair: Minor			CO	P	CB	CB		Per § 14-326
Nursery		P	P	P	P			Per § 14-339
Office	P	P	P	P	CB [2, 3]	CB [2, 3]	CB [2, 3]	

Baltimore City Code, Article 32, Table 11-301 (continued)

Commercial (cont'd)	*OIC*	*BSC*	*IMU-1*	*IMU-2*	*I-1*	*I-2*	*MI*	
Outdoor Dining		P	P	CB				Per § 14-329
Personal Services Establishment	P [2]	P	P	P	CB			
Recreation: Indoor		P	P	P				Per § 14-312
Recreation: Outdoor			CB					Per § 14-312
Restaurant	P [2]	P	P	P	CB	CB		
Retail Goods Establishment (No Alcoholic Beverages Sales)	CB	P	P	P [2]	CB			
Retail Goods Establishment (With Alcoholic Beverages Sales)		P	CO	P [2]	CB			Per § 14-336
Tavern		P	CO	P	CB	CB		Per § 14-337
Truck Repair				P	P	P		
INDUSTRIAL								
Alternative Energy System: Commercial	P	P	P	P	P	P		
Boat Manufacturing, Repair, and Sales			CB	P	P	P	CB	Per § 14-303
Commercial Composting Facility				CB	CB	P		Per § 14-305
Contractor Storage Yard				CB	P	P		Per § 14-330
Food Processing: Light	P		P	P	P			
Freight Terminal				P	P	P	P	
Heliport		CB			CB	CB		
Helistop		CB			CB	CB		
Industrial Boat Repair Facility						P	P	Per § 14-323
Industrial: General				P		P	CB	Per § 14-315
Industrial: Light	P	P	P	P	P	P		
Industrial: Maritime-Dependent				P		P	P	
Landfill: Industrial						CB		Per § 14-318
Marina: Dry Storage			CB		P	P		Per § 14-323
Marine Terminal						P	P	
Materials Recovery Facility						P		Per § 14-324
Mini-Warehouse			P	P	P			

Baltimore City Code, Article 32, Table 11-301 (continued)

Industrial (cont'd)	*OIC*	*BSC*	*IMU-1*	*IMU-2*	*I-1*	*I-2*	*MI*	
Motor Vehicle Operations Facility					P	P		
Movie Studio	P		P	P	P	P		
Outdoor Storage Yard					P	P	P	Per § 14-330
Passenger Terminal			P	P	P	P	P	
Recyclable Materials Recovery Facility				P	P	P		Per § 14-333
Recycling Collection Station				CB	CB	CB		Per § 15-514
Recycling and Refuse Collection Facility				P	P	P		
Research and Development Facility	P	P	P	P	P	P	P	
Resource Recovery Facility						CB		Per § 14-335
Shipyard						P	P	
Truck Stop					P	P		
Truck Terminal					P	P		
Warehouse	P		P	P	P	P	P	
Waterfreight Terminal						P	P	
Wholesale Goods Establishment	P		P	P	P	P		
OTHER								
Alternative Energy System: Community-Based	P	P	P	P	P	P	P	Per § 14-306
Electric Substation: Enclosed or Indoor	P	P	P	P	P	P	P	Per § 14-340
Electric Substation: Outdoor	CB	CB	CB	CB	CB	P	P	Per § 14-340
Parking Garage (Principal Use)	P	P	CO	P	P	P	P	Per § 14-331
Parking Lot (Principal Use)	P	P	CO	CB	P	P	P	Per § 14-331
Telecommunications Facility [4]	CB, P	CB, P	CB, P	CB, P	CB, P	CB, P	CB, P	Per § 14-338
Utilities	CB	CB	CB	CB	CB	CB	CB	Per § 14-340
Wireless Communications Services [5]	CB, P	CB, P	CB, P	CB, P	CB, P	CB, P	CB, P	Per § 14-338

[1] Allowed only when (i) accessory to an office structure, research and development facility, or industrial use, and (ii) integrated into that structure, facility, or use to serve its employees.

[2] Allowed only when secondary to a primary industrial use.

[3] Office uses legally established as of the effective date of this Code are deemed conforming and are not required to be secondary to a primary industrial use.

[4] Only telecommunications base stations that comply with the stealth design standards of § 14-338 are considered permitted uses.

[5] Only Wireless Communication Services that are modifications to – and do not substantially change the physical dimension of – an existing telecommunications facility, are considered permitted uses.

(Ord. 16-581; Ord. 17-015; Ord. 18-171; Ord. 19-244; Ord. 19-261.)

Baltimore City Code, Article 32, Table 11-401

TABLE 11-401: INDUSTRIAL DISTRICTS – BULK AND YARD REGULATIONS

CATEGORIES	SPECIFICATIONS (PER DISTRICT)					
	OIC	BSC	IMU	I-1	I-2	MI
MINIMUM LOT AREA						
Dwelling: Live-Work, Multi-Family, or Rowhouse	N/A	300 sq.ft.	IMU-1: 300 sq. ft. IMU-2: N/A	10,000 sq. ft.	N/A	N/A
All Other Uses	None	None	5,000 sq. ft.	10,000 sq. ft.	20,000 sq. ft.	20,000 sq. ft.
MAXIMUM BLDG HEIGHT						
All Uses	60 feet	150 feet [1]	60 feet	60 feet	None [2]	None [2]
MINIMUM FRONT YARD						
All Uses	None	None	None [3]	10 feet	10 feet	10 feet
MINIMUM INTERIOR-SIDE YARD						
All uses	None [4]	None [4]	No interior-side yard required but, if one is provided, it must be a minimum of 10 feet	None [5]	None [6]	None [6]
MINIMUM CORNER-SIDE YARD						
All Uses	None	None	None [7]	10 feet	10 feet	10 feet
MINIMUM REAR YARD						
All Uses	None [8]	None [8]	None [8]	None [9]	None [9]	None [9]
BUFFER YARD REQ'T						
All Uses	None	None	Where the Landscape Manual requires a landscaped buffer yard between an industrial use and a non-industrial use, that buffer yard must be provided by the more recent use.			

Baltimore City Code, Article 32, Table 11-401 (notes)

[1] For a residential use, the Zoning Board may allow a height higher than 150 feet as a conditional use.

[2] However, if any part of the building is within 50 feet of an R, OR, C-1, C -1-E, C-1-VC, C-2, or C-3 Zoning District, that part of the building is limited to a maximum height of 60 feet.

[3] All outdoor storage areas must be set back 10 feet from the front lot line.

[4] However, if the interior-side lot line abuts an R Zoning District, a minimum interior-side yard of 10 feet is required.

[5] However, if the interior-side lot line abuts an R or OR Zoning District, a minimum interior-side yard of 10 feet is required.

[6] However, if the interior-side lot line abuts an R, OR, C-1, C -1-E, C-1-VC, C-2, or C-3 Zoning District, a minimum interior-side yard of 20 feet is required.

[7] All outdoor storage areas must be set back 10 feet from the corner-side lot line and the front lot line.

[8] However, if the rear lot line abuts an R Zoning District, a minimum rear yard of 15 feet is required.

[9] However, if the rear lot line abuts an R, OR, C-1, C -1-E, C-1-VC, C-2, or C-3 Zoning District, a minimum interior rear yard of 30 feet is required.

(Ord. 16-581; Ord. 17-015; Ord. 19-244.)

Appendix D - Solid Waste & Recycling Vendors

BSW Division	Contractor	Service Description
Street Sweeping and Roll-off	eRevival	Electronics recycling
	Auston Contracting	Scrap tires, appliance, and scrap metal recycling
	Wheelabrator	Trash incinerator
	Clean Harbors	Household hazardous waste recycling
	Maryland Environmental Services	Freon (from refrigerators) and motor oil recycling
	Goode Company[1]	Scrap metal recycling
	Compost Crew[2]	Food waste collection and composting
Marine Operations	Waterfront Partnership of Baltimore	Waterwheel Services
	Downtown Partnership of Baltimore	Cleaning Services in the Central/Downtown District
	DemoUsa	Cleaning shorelines around the Middle Branch waterways
	Ecube Labs	Solar trash compacting stations and companion recycling stations.
	Oyster Recovery Partnership	Oyster shell recycling
Property Management	P2 Cleaning	Vacant property cleaning and cutting high grass and weeds
	Living Classrooms	Vacant property cleaning and maintenance
Routine Services	SPEC Personnel	Curbside collection of mixed refuse and recycling
	The Lazarus Rite	Curbside collection of mixed refuse and recycling
	Spindler Refuse, Inc	Mixed refuse collection
	Waste Management Recycle America	Disposal and sorting of single stream recycling collections
	World Recycling	Disposal and sorting of single stream recycling collections.
	The Goode Companies, Inc.	Mixed refuse collection
	Synagro Water Technologies	Conversion of wastewater sludge biosolids to granular fertilizer
	Valley Pets	Dead animal transportation and disposal at Greenlawn Cemetery

Notes: 1. This is a City-wide contract
2. This contract is held by the Department of Planning

Appendix E - School Recycling Programs

School	Address
Dr. Nathan A. Pitts-Ashburton Elementary/Middle School	3935 Hilton Road, 21215
Edgewood Elementary	1900 Edgewood Street, 21216
FOREST PARK SENIOR HIGH SCHOOL	3701 Eldorado Avenue, 21207
Hampden EMS	3608 Chestnut Avenue, 21211
The Tunbridge School	5504 York Road, 21212
City Schools Headquarters	200 E. North Avenue, 21202
Frederick Douglass HS	2301 Gwynns Falls Parkway, 21217
Medfield Heights Elementary School	4300 Buchanan Ave, 21211
Beechfield Ems	301 S Beechfield Avenue, 21229
Billie Holiday Elementary School	2400 W Mosher Street, 21216
Booker T. Washington Middle School School For the Arts	1301 McCulloh Street, 21217
Francis Scott Key	1425 E Fort Avenue, 21230
Green Street Academy	125 N Hilton Street, 21229
Lakeland Elem/Middle	2921 Stranden Road, 21230
Mary Ann Winterling ES	220 N Bentalou Street, 21223
North Bend Elementary Middle School	181 North Bend Road, 21229
Renaissance Academy	1301 McCulloh Street, 21217
Rosemont EMS	2777 Presstman Street, 21216
Steuart Hill	30 S Gilmor Street, 21223
The Empowerment Academy	851 Braddish Avenue, 21216
Thomas Johnson EMS	100 E Heath Street, 21230
George Washington Elementary School	800 Scott Street, 21230
Harlem Park Elementary Middle School	1401 W Lafayette Avenue, 21217
Govans Elementary School	5801 York Road, 21212
Lois T. Murray Elementary/Middle School	820 E. 43rd Street, 21212
Harford Heights Elementary	1919 N. Broadway St., 21213
The REACH! Partnership High School	2555 Harford Road, 21218
Sharp Leadenhall	1919 N. Broadway Street, 21213
Augusta Fells Savage	1500 Harlem Avenue, 21217
Leith Walk EMS	5915 Glennor Road, 21239
Walter P. Carter Elementary/Middle School	820 E 43rd Street, 21212
City Neighbors High School	5609 Sefton Avenue, 21214

School	Address
Furley Elementary	5001 Sinclair Lane, 21206
Gardenville Elementary	5300 Belair Road, 21206
Hazelwood Elem/Middle School	4517 Hazelwood Avenue, 21206
Reginald F. Lewis High School	6401 Pioneer Drive, 21214
The Belair-Edison School	3536 Brehms Lane, 21213
Abbottston Elementary School	1300 Gorsuch Avenue, 21218
Armistead Gardens	5001 E Eager Street, 21205
Baltimore Design School	1500 Barclay Street, 21202
Cecil Elementary	2000 Cecil Avenue, 21218
City Springs Elementary/Middle	100 S Caroline Street, 21231
Claremont	5301 Erdman Avenue, 21205
Lakewood Elementary School	2625 Federal Street, 21213
Stadium	1400 Exeter Hall Avenue, 21218
Tench Tilghman Elementary and Middle School	600 N Patterson Park Avenue, 21205
Vanguard Collegiate Middle School	5000 Truesdale Avenue, 21206
Wolfe Street Academy	245 S Wolfe Street, 21231
Baltimore Lab School (Private School)	2220 St Paul St, 21218
Fort Worthington Elementary/Middle School	2710 E Hoffman Street, 21213
Robert W. Coleman Elementary School	2400 Windsor Avenue, 21216
Baltimore City College	3220 The Alameda, 21218
John Ruhrah	701 Rappolla Street, 21224
Western High School	4600 Falls Road, 21209
Graceland/O'Donnell Heights Elementary Middle	6300 O'Donnell Street, 21224
Arundel Elementary School	2400 Round Road, 21225
ACCE	1300 W 36th Street, 21211
Frederick Elementary School	2501 Frederick Avenue, 21223
Dr. Bernard Harris Sr. Elementary	1400 N Caroline Street, 21213
Moravia Park Elementary	6001 Frankford Avenue, 21206
William S. Baer School	2001 N Warwick Avenue, 21216
Katherine Johnson Global Academy	1101 Braddish Avenue, 21216
Bay Brook Elementary Middle School	4301 10th Street, 21225
The Green School of Baltimore	2851 Kentucky Avenue, 21213

School	Address
Gwynns Falls Elementary School	2700 Gwynns Falls Parkway, 21216
Holabird Academy	1500 Imla Street, 21224
Wildwood Elementary Middle School	621 Wildwood Parkway, 21229
Roland Park Elementary Middle	5207 Roland Avenue, 21210
Windsor Hills Elementary/Middle School	4001 Alto Road, 21216
Commodore John Rodgers K-8 school	100 N. Chester Street, 21231
Southwest Baltimore Charter School	1300 Herkimer Street, 21223
Federal Hill Preparatory	1040 William Street, 21230
Dickey Hill Elementary Middle School	5025 Dickey Hill Road, 21207
Hilton Elementary School	3301 Carlisle Avenue, 21216
Hampstead Hills Elem / Mid	500 S Linwood Avenue, 21224
Digital Harbor High School	1100 Covington Street, 21230
Woodhome Elementary/Middle School	7300 Moyer Avenue, 21234
Fallstaff Elementary Middle School	3801 Fallstaff Road, 21215
Paul Laurence Dunbar	1400 Orleans Street, 21231
James McHenry Elementary Middle School	31 S Schroeder Street, 21223
Callaway Elementary School	3701 Fernhill Avenue, 21215
Midtown Academy	1398 W Mount Royal Avenue, 21217
City Neighbors Charter School	4301 Raspe Avenue, 21206
Baltimore Montessori Public Charter School	1600 Guilford Avenue, 21202
Creative City Public Charter School	2810 Shirley Avenue, 21215
Baltimore International Academy West	4300 Sidehill Road, 21229
Patterson Park Public Charter School	27 N Lakewood Avenue, 21224
Waverly EMS School	3400 Ellerslie Avenue, 21218
Elmer A Henderson: A Johns Hopkins Partnership School	2100 Ashland Avenue, 21205
Highlandtown Elementary/Middle School	6820 Fait Avenue Baltimore, 21244
Baltimore Collegiate School for Boys	2525 Kirk Avenue, 21218
William Paca Elementary	200 N Lakewood Avenue, 21224
Mary E. Rodman	3510 W. Mulberry Street, 21229
Arlington Elementary	3705 W Rogers Ave, 21215
Garrett Heights Elementary Middle School	2800 Ailsa Avenue, 21214
Thomas Jefferson Elementary/Middle School	605 Dryden Drive, 21229

School	Address
Yorkwood Elementary School	5931 Yorkwood Road, 21239
The Mount Washington School	1801 Sulgrave Avenue, 21209

Appendix F1 - Apartment Building and Condominium Recycling Plan

1. Program Description

In accordance with Section 9-1711 of the Environment Article within the Annotated Code of Maryland, the City of Baltimore created the Apartment Building and Condominium Recycling (ABCR) Program which requires all property owners or managers of apartment buildings and council of unit owners of a condominium that contain 10 or more dwelling units (property owners or managers) to provide recycling collection and removal. In addition, the ABCR Program requires property owners or managers to provide annual recycling tonnage reports to the Department of Public Works, Office of Waste Diversion.

2. Eligible Apartment Buildings And Condominiums

There are 1,104 apartment buildings and 64 condominiums with 10 or more dwelling units that are eligible for the ABCR Program. The list of eligible apartment buildings and condominiums are provided in Appendix F2. Per Section 9-1711 of the Environment Article within the Annotated Code of Maryland, any new apartment buildings or condominiums that fall under the requirements of this section are required to implement an ABCR program within three months of commencement of the business.

3. Outreach And Education

Property owners or managers are responsible for notifying their tenants and residents of the ABCR recycling program. In addition, property owners and managers are responsible for providing all outreach and education materials to encourage residents and tenants to recycle. Upon request, the Office of Waste Diversion may also provide recycling literature.

4. Responsibilities

Entities involved in implementing the ABCR Program include:

Mayor and City Council of Baltimore

- Adopt the MDE approved language of the ABCR Program for the 10 Year Solid Waste Plan/Recycling Management Plan amendments.

Department of Public Works, Bureau of Solid Waste, Office of Waste Diversion

- Notify property owners and managers of ABCR Program requirements;
- Upon request, provide property owners and managers with recycling literature and resources;
- Upon request, assist property owners and managers with their recycling program;
- Provide property owners or managers with an annual Recycling Report; and
- Monitor the progress and performance of the ABCR Program via receipt of the annual Recycling Report.

Department of Housing and Community Development

- Provide the Office of Waste Diversion with a current and up-to-date list of apartments and condominiums; and
- Notify the Office of Waste Diversion whenever a new apartment or condominium receives a housing permit.

Owner or Manager of the Apartment Building or Councils of the Unit Owners of Condominiums:

- Implement a recycling program for tenants and residents;
- Notify tenants and residents of ABCR Program requirements;
- Provide recycling outreach and education materials and recycling collection and removal services;
- Ensure recycling containers are clearly labeled and provided in easy-to-access areas adjacent to each trash collection bin or trash chute;
- Ensure recyclable materials are collected by a recycling hauler and transported to a legal recycling destination; and
- Submit the Annual Recycling Report to the Office of Waste Diversion with the requested documentation.

5. Collection And Process Of Materials

It is the responsibility of property owners or managers to determine how the materials will be stored, collected, and transported to recycling markets, but property owners or managers are still required to provide the following:

Materials to Recycle

At a minimum, owners or managers must recycle plastic, metal, glass, and paper. Regardless of the hauler, owners and managers must ensure that the recycling bin does not contain any food waste, plastic bags, hazardous materials, or any other contaminants.

Collection of Materials

Apartment and condominium owners and managers, except properties that are provided with City Recycling Collection services, are responsible for providing all containers, labor, and equipment necessary to fulfill ABCR Program requirements. In addition, containers for recyclable materials must be placed adjacent to trash containers or trash chutes and must be clearly labeled to indicate the appropriate materials to be placed inside for recycling. The quantity and size of recycling containers must also be sufficient for all building residents and tenants to store their recyclables. Condominiums that qualify under Baltimore City Code, Article 23, are exempt from this requirement.

Material Processing

Property owners or managers must ensure recyclable materials are collected and transported from apartment and condominium locations to markets or other legal recycling destinations. Residents are also responsible for placing recyclables in recycling containers prior to their removal on the scheduled pick up day.

6. Annual Recycling Report

Property owners and managers with 101 or more units must prepare and submit an Annual Report for each facility covering the previous calendar year to the Office of Waste Diversion on or before February 1st of each year. Apartment and condominiums with fewer than 100 units must prepare and begin submission of annual recycling reports within 60 days from receipt of a written request for reports from the Office of Waste Diversion.

Annual Reports must be submitted electronically on a form provided by the Office of Waste Diversion and must include the name of the collection hauler, tonnages of materials collected for recycling and for solid waste disposal, and a description of the entity's efforts to educate residents about its recycling program. If recyclable materials are self- hauled to a recycling facility, then the property owner or manager must obtain scale house tickets and provide these as documentation of quantity recycled for reporting requirements. If scale house tickets are not obtainable, receipts or other proof of quantity recycled may be substituted.

All reports must be signed and certified by an authorized entity, such as the property owner or responsible agent.

7. Program Implementation

Formal notification of mandatory collection and removal of recyclable materials in apartments and condominiums were provided via letter in February 2013. In addition, the Recycling Office will notify and provide new apartment buildings and condominiums with 90-days to comply with ABCR Program requirements.

8. Program Monitoring

The Baltimore City Bureau of Solid Waste, Recycling Office will monitor the ABCR Program by confirming program compliance through receipt of the Annual Recycling Report. If the Annual Recycling Report falls below a 35% recycling rate, then the Office of Waste Diversion may request to meet with the property owner or manager to discuss methods to improve their recycling program. Failure to submit an Annual Recycling Report will result in a written letter by the Office of Waste Diversion notifying the property owner or manager of their violation of the ABCR Program. The property owners or managers shall submit the Annual Recycling Report within 60 days of notification by the Office of Waste Diversion.

9. Program Enforcement

The Office of Waste Diversion will notify property owners and managers of the implementation requirements in accordance with Sections 9-1703 and 9-1711 of the Environment Article, Annotated Code of Maryland. Properties that fail to initiate corrective actions to any identified deficiencies within 60 days

of notification by the Office of Waste Diversion will be reported to the Department of Housing and Community Development.

Appendix F2 - List of Eligible Apartments and Condominiums

Name	Address
10 West Chase Street LLC	10 W Chase St
100 West University Associates	100 W University Pkwy
1111 Light Street LLC	1111 Light St
28 E. Mt. Vernon Place, LLC	28 E Mount Vernon Pl
2905 North Charles Street Limited Liability Company	2905 N Charles St
312 N Paca Street, Inc	312 N Paca St
3401 Ashburton, LLC	3401 Oakfield Ave
3503 N Charles Street, LLC	3503 N Charles St
3623 Seven Mile Lane, LLC	3621 Seven Mile Lane
3716 Elm Avenue, LLC	3716 Elm Ave
4206 Roland, LLC.	4206 Roland Ave
501 St. Paul Street, L.L.C.	501 Saint Paul Pl
520 Park Avenue Business Trust	520 Park Ave
600 Broadway Apartments, LLC	607 S Broadway
901 Associates, LLC	901 W University Pkwy
951 Fell Street Limited Partnership	951 Fell St
Ambassador Apartments L.L.C.	3811 Canterbury Road
Ashburton Apartments, LLC	2742 N Rosedale St
Ashland Park View LLLP.	1705 E Eager St
Baltimore Condo 2-8 LLC	118 N Howard St
Baybridge Lexington, LLC	114 E Lexington St
Belvedere Towers Gardens Associates, LLC	1190 W Northern Pkwy
Blue Ocean Nottingham South LLC	700 Nottingham Road
Bolton MCU, L.P.	1100 Bolton St
Bolton North, Lc	1600 W Mount Royal Ave
Bond St. Associates Mid City Developers Inc.	1601 E Eager St
Bond Street Associates	900 N Caroline St
BWC 125 W Saratoga Street, LLC	125 W Saratoga St
Caral Gardens Associates	400 Colleen Road
Carolina Apartments, LLC	108 W University Pkwy
Cathedral Court, LLC	900 Cathedral St
Center Of More Abundant Life, Inc., The	3915 Callaway Ave
Charles & Blackstone Apartments L.L.C.	3333 N Charles St

Name	Address
Christ Church Harbor Apts. Inc	600 Light St
City Arts Limited Partnership	440 E Oliver St
CJM, LLC	4 E 32nd St
Clipper Redevelopment Company, LLC	2010 Clipper Park Road
Consolidated-Fountainview LLC	3612 Fords Lane
Corbet Co., Inc., The	100 W 39th St
Corp Of The Roman Catholic Clergyman	5704 Roland Ave
CPC Retail, LLC	1600 Whetstone Way
Cross Country Apartments, LLC	3301 Clarks Lane
Cross Country Limited Partnership	3114 Parkington Ave
CRP South Charles Op, LLC	1901 S Charles St
CW Properties Limited Partnership	110 W 39th St
De Soto Apartments, LLC	3409 Greenway
Executive Apartments, LLC	7011 Park Heights Ave
Falls Court Apartments, LLC	1130 Fallshill Dr
Fells Point Station, LLC	1621 Bank St
Fordleigh Associates, LLC	3800 Fordleigh Road
Ftp Centerpoint, LP	20 N Howard St
G.S. Housing, Inc.	1651 E Belvedere Ave
Gallageher Mansion, Inc.	431 Notre Dame Lane
General Greene Limited Partnership	1200 Greenmount Ave
Green Acres Apartments LLC	6715 Park Heights Ave
Greenwich Gardens Inc	5100 Greenwich Ave
Gwynn Properties, LLC.	1600 N Hilton St
Hamilton Springs LLC	4808 Hamilton Ave
Harbor Court Associates	550 Light St
Hollins House LLC	1010 W Baltimore St
Homeland Garden Apartments,LLC	221 E Northern Pkwy
Horizon House Apartments Limited Partnership	1101 N Calvert St
Ivymount Associates	2201 Rogene Dr
JCK Investment, LLC	6650 Belair Road
Jenkins Memorial Inc., The	3300 Benson Ave
K And S Management, LLC	2126 Maryland Ave

Name	Address
KF Patterson Owner, LLC	101 S Ellwood Ave
Lakewood Apartments	1401 N Lakewood Ave
Lane Knightsbridge, LLC (etal)	5906 Park Heights Ave
Lankford, Charles A	1501 Guilford Ave
Lemko Housing Corp	603 S Ann St
Liberty Grace Development, LLC	3915 Liberty Heights Ave
Loch Raven Venture III, LLC	1557 Waverly Way
Loyola College In Maryland, Inc.	100 W Cold Spring Lane
Loyola College In Maryland, Inc.	14 W Cold Spring Lane
M On Madison, LP	301 W Madison St
Manor West Limited Partnership	3615 Fords Lane
Mayor And City Council (Fee)Redwood Apartments, LLP (LHD)	11 S Eutaw St
Melrose Apts. Inc	100 E Melrose Ave
Memorial Development Partners, LP	301 McMechen St
Moravia Park Community Development Corporation	6000 Moravia Park Dr
Mt. Washington Manor, LLC	2709 Hanson Ave
Mw Bartol, LLC	6111 Berkeley Ave
New Shiloh Baptist Church Incorporated	1901 Elgin Ave
Orchard Mews-Baltimore Limited Partnership	522 Orchard St
Park Crescent Apartments, LLC	6537 Falkirk Road
Penn North Plaza, Inc.	1520 W North Ave
Penn Square Limited Partnership	2614 Pennsylvania Ave
Preston Associates, LLC	218 E Preston St
R & D Nottingham LLC	901 Nottingham Road
Railway Express, LLC.	1501 Saint Paul St
Redwood Square Apartments Limited Partnership	412 W Redwood St
Renaissance Gardens, Inc	4311 Pimlico Road
Renaissance Place LLC	301 W Franklin St 21201
Rosemont Gardens, LLC	2408 Winchester St
Rwn-Colonnade Hotel LLC	4 W University Pkwy
Sage Park Heights, LLC	7211 Park Heights Ave
Sail Cloth Apartment Associates ,LLC	121 S Fremont Ave
Schnader Properties, Inc.	5101 Harford Road

Name	Address
Seminole Apartments, LLC	4300 Seminole Ave
Short, Harry C (Tr)Short, Jane M (Tr)	4005 White Ave
St Joachim House, Inc	3310 Benson Ave
St Marys Roland View Towers Inc	3838 Roland Ave
Stanrho, LLC	3901 Clarks Lane
Target City Associates	1630 E Monument St
The Betty Obrecht Ghezzi Trust	4 Upland Road
Tindeco Wharf, LLC	2809 Boston St
Triangle Realty &Construction Co, The	4000 Glengyle Ave
United Presbyterian Ministries Of Md, Inc	524 N Charles St
Venable Apartments Ii, Inc.	1030 E 33rd St
The Waban Corp.	4901 Gunther Ave
Wabash Manor, LLC.	3800 Wabash Ave
Walker Mews Apartments	6225 York Road
Walker Non-Profit Housing Corporation	711 Walker Ave
Wells Crp. Building, LLC	2 E Wells St
West Read, LLC	12 W Read St
Wyman Court Apartments	3522 Beech Ave
Wyman Towers, LLC	3100 Saint Paul St

Appendix G1 - Special Events Recycling Plan

1. Background

Consistent with Environment Article, §9-1712, Annotated Code of Maryland, Baltimore City works with agencies that issue event permit approvals for special events using public streets, public facilities, or public parks for their event, serve food or drink, and are expected to have 200 or more persons in attendance, to stipulate the event organizer to do the following:

- Provide recycling receptacles adjacent to each trash receptacle at the special event.
- Ensure that all recycling receptacles are clearly distinguished from trash receptacles by color or signage.
- Provide the labor and equipment necessary to facilitate recycling at the special event.
- Ensure material placed in recycling receptacles are collected and delivered for recycling.
- Pay any costs associated with recycling at the special event.

To the extent possible, the event organizer must also consider the collection of food scraps for recycling. If food scrap collection is provided at the special event, the special events organizer must provide separate containers for organic and non-organic recyclables.

2. Special Event Sites

All participating public sites in the special events recycling program (SERP) are provided in Appendix G2. In addition, every block within the city may receive a "block party permit" which makes every block a potential special event site. Special events held on any local, state, or federally owned streets are also included the SERP.

Note: Recycling at a State-owned or federally owned site must follow the respective State or Federal agency's recycling plan, if available. If no State of federal recycling program is available, then the special event organizer must set up a recycling program in accordance with the SERP. Recycling at municipally owned sites must follow any additional regulations established by the City of Baltimore.

3. Materials and Obligations

Special events organizers may use one or more of the following methods to ensure materials are collected and delivered for recycling:

- Self-hauling the materials to a Baltimore City recycling drop-off location;
- Contracting with a recycling hauler to collect the materials and deliver them for recycling; or
- Receiving prior agreement for the site owner to use an existing recycling collection system available at the site.

4. Stakeholders

The following stakeholders will be involved in the SERP:

Bureau Of Solid Waste

Responsible for overseeing the Office of Waste Diversion activities and assuring that all properties that potentially host events falling under the recycling mandate in §9-1712 are included in the SERP.

Office of Waste Diversion In Cooperation With The Baltimore City Department Of Transportation, Special Events And Street Vendors Section

Responsible for communicating the requirements of the law to prospective special events organizers and owners/operators of publicly owned sites in the City of Baltimore. The special event recycling guidelines can be found in Appendix G3 and the special events applicant checklist can be found in Appendix G4.

Special Events Organizer

Responsible for providing recycling bins and ensuring collection for recycling in accordance with the requirements in the previous Section 3 beginning on the date that this recycling plan is adopted.

5. Program Monitoring

The Bureau of Solid Waste, Office of Waste Diversion and special events organizers will monitor progress and performance of the SERP. Recycling at events subject to the SERP will be ensured as follows:

- Special events permit issued for use of City of Baltimore sites will include a statement on the permit application that recycling is required for events subject to the SERP.
- The application form will require a certification that the special event organizer will provide for recycling in accordance with the requirement of the SERP.
- Special events permit issued by the City of Baltimore will include provisions for compliance with the SERP.
- A fact sheet or other informational document outlining the requirements of the SERP will be distributed with each special event permit issued the City of Baltimore.
- The special event organizer is responsible for monitoring the implementation of recycling at the special event.
- Special event organizers must oversee placement of labeling of recycling receptacles and collection and recycling of recyclables.
- Performance of any recycling contractor engaged for compliance with the SERP must be monitored by the special events organizer.
- The special event organizer must promptly act to correct any deficiencies in the contractor's performance.

6. Program Enforcement

The Baltimore City Office of Waste Diversion will review submitted Special Events Recycling Plans to ensure recycling containers are provided adjacent to every trash can. Event organizers that do not provide a recycling plan that meets the provided requirements will not be able to receive a special event permit.

Appendix G2 - Special Event Location List

City Owned Special Event Location List

Zip Code 21201		
Facility Name	**Property Address**	**Zip Code**
Pearlstone Park	1001 N. Howard Street	21201
McKeldin Square	101 E. Pratt Street	21201
Howard and Center Park	310 W. Centre Street	21201
Saint Mary's Park	606 N. Paca Street	21201
Mt. Vernon Square Park	699 Washington Place	21201
Little Lithuania Park	836 Hollins Street	21201
B&O Slope Park	Intersection of Mt. Royal Avenue and Dolphin Street	21201
Zip Code 21202		
Facility Name	**Property Address**	**Zip Code**
Ambrose Kennedy Park	1002 Harford Avenue	21202
Fayette and I-83 Park	101 N. Frederick Street	21202
Robert C. Marshall Recreation Center	1201 Pennsylvania Ave	21202
McKim Park	1251 E. Fayette Street	21202
Rash Field	300 Key Highway	21202
Pratt Street Pavilion	399 E Pratt Street	21202
Henry H. Garnet Park	415 W Lafayette Avenue	21202
Holocaust Memorial Park	50 Market Place	21202
Shot Tower	701 E. Fayette Street	21202
Walter P Carter Recreation Center	820 E. 43rd St	21202
Johnston Square Park	Intersection of E. Biddle Street and Homewood Avenue	21202
Zip Code 21205		
Facility Name	**Property Address**	**Zip Code**
Madison Square Park	1050 N. Caroline Street	21205
Druid Hill Park	2700 Madison Avenue	21205
Bocek Park	3000 E. Madison	21205
Carroll F. Cook Community Center	5061 E. Eager Street	21205
Chick Webb Recreation Center	623 Eden Street	21205
Eden and Eager Park	911 N. Eden Street	21205

Zip Code 21206		
Facility Name	**Property Address**	**Zip Code**
Gardenville Recreation Center	4517 Hazelwood Ave	21206
Herring Run Recreation Center	5001 Sinclair Lane	21206
Silverbell Park	5100 Silverbell Road	21206
Barbara and Parkwood Park	5101 Mayview Avenue	21206
Radecke Park	5602 Radecke Avenue	21206
Burdick Park	6300 Walther Avenue	21206
Bucknell and Moores Park	Intersection of Bucknell Road and Moores Run Drive	21206
Moore's Run Park	Intersection of Cedgate Road and Cedonia Avenue	21206
Zip Code 21207		
Facility Name	**Property Address**	**Zip Code**
The Rawlings-Fulton Club House	2900 Hillsdale Road	21207
Zip Code 21209		
Facility Name	**Property Address**	**Zip Code**
Asbury Park	1317 Asbury Road	21209
Woodberry Woods	Greenshire Road and Edgehurst Road	21209
Western Run Park	Western Run Drive and Bonnie View Drive	21209
Zip Code 21210		
Facility Name	**Property Address**	**Zip Code**
Stoney Run Park	Linkwood Road and W. Cold Spring Lane	21210
Zip Code 21211		
Facility Name	**Property Address**	**Zip Code**
Hoes Heights Park	1040 W 43rd Street	21211
Roosevelt Park	1201 W. 36th Street	21211
Roosevelt Recreation Center	1221 W. 36th St	21211
Medfield Recreation Center	1501 Woodheights Ave	21211
Woodberry Park	2200 Druide Park Drive	21211
Elm Park	3416 Elm Avenue	21211
Jones Falls Trail	3900 Clipper Road	21211
Pleasant Place Park	3901 Pleasant Place	21211
Buena Vista Park	4001 Buena Vista Avenue	21211

Hooper and Rockrose Park	Intersection of Clipper Road and Rockrose Avenue	21211
Zip Code 21212		
Facility Name	**Property Address**	**Zip Code**
Alhambra Park	5201 Alhambra Avenue	21212
Govans Multipurpose Center	5225 York Road	21212
Dewees Park	5501 Ivanhoe Avenue	21212
Dewees Recreation Center	5501 Ivanhoe Avenue	21212
Willow Avenue Play Lot	603 Willow Avenue	21212
Kimberleigh Wilson Play Lot	Intersection of Kimberleigh Road and Richwood Avenue	21212
Evesham Park	Intersection of Marjorie Lane and Reverdy Road	21212
Zip Code 21213		
Facility Name	**Property Address**	**Zip Code**
Oliver Park	1300 E. Federal Street	21213
Caroline and Hoffman Park	1351 N. Eden Street	21213
Madison Square Recreation Center	1400 E. Biddle St	21213
Collington Square Recreation Center	1409 Collington Ave	21213
Oliver Recreation Center	1600 N. Spring St	21213
Lafayette and Aiken Park	1800 Aiken Street	21213
Rita Church Community at Clifton Park	2101 St. lo Drive	21213
Collington Square Park	2131 E. Hoffman Street	21213
Fort Worthington Recreation Center	2710 E. Hoffman Street	21213
Elmley Avenue Park	3347 Cliftmont Avenue	21213
Bonview Park	3831 Bonview Avenue	21213
Herring Run Park	Insection of Belair Road and Parkside Drive	21213
Lower Herring Run Park	Intersection of Brehms Lane and Parkside Drive	21213
Luzerne Avenue Park	On Luzerne Avenue in between E. Biddle Street and E. Chase Street	21213
Zip Code 21214		
Facility Name	**Property Address**	**Zip Code**
Harford Senior Center	4920 Harford Road	21214
Perring Parkway Pioneer Drive	Pioneer Drive and Crozier Drive	21214
Zip Code 21215		

Facility Name	Property Address	Zip Code
Edgecombe Park	2601 Edgecombe Circle North	21215
Irvin Luckman Park	2809 Glen Avenue	21215
Hyde Park	3214 Wylie Avenue	21215
Garrett Park	3560 3rd Street	21215
Pall Mall and Shirley	3902 Pall Mall Road	21215
Shirley Avenue Park	4001 Reisterstown Road	21215
Penhurst Park	4004 Penhurst Avenue	21215
Towanda Park	4126 Towanda Avenue	21215
Classen and Park Heights Park	4307 Reisterstown Road	21215
James D. Gross Recreation Center	4600 Lanier Ave	21215
Jack Paulsen Park	4700 Reisterstown Road	21215
C.C. Jackson	4910 Park Heights Ave	21215
C.C. Jackson Rec Wing	4910 Park Heights Avenue	21215
Garrison and Denmore Park	4910 Park Heights Avenue	21215
Powder Mill Park	5001 W Northern Parkway	21215
Winner Avenue Park	5400 Winner Avenue	21215
Cotwood Place Traffic Island	Intersection of Cotwood Place and Hilldale Place	21215
Greenspring Avenue Park	Intersection of Druid Park Avenue and Greenspring Avenue	21215
Queensbury Park	Intersection of Spaulding Avenue and Queensberry Avenue	21215
Cottage Avenue Park	Park Heights Avenue between Violet Avenue and Springhill Avenue	21215
Keyworth Avenue Park	Rear of 2610 Keyworth Avenue	21215
Zip Code 21216		
Facility Name	**Property Address**	**Zip Code**
Easterwood Park	1522 N. Bentalou Street	21216
Wilbur H. Waters Park	1600 N. Dukeland Street	21216
Hanlon Park	2731 N. Longwood Street	21216
Alexander Odum Park	3111 Presstman Street	21216
Cahill Performing Arts Center	4001 Clifton Ave	21216
Helen Mackall Park	600 Braddish Avenue	21216

Rosemont Park	840 N. Franklintown Road	21216
Elgin Park	Gwynns Falls Parkway between N. Dukeland Street and Poplar Grove Street	21216
Windsor Hills Park	Intersection of Duvall Avenue and Lawina Road	21216
Franklintown Park	Intersection of N. Franklintown Road and N. Rosedale Street	21216
Windsor Mill Park	Intersection of Windsor Mill Road and Lyndhurst Avenue	21216
Zip Code 21217		
Facility Name	**Property Address**	**Zip Code**
Harlem Inner Block Park 103	1120 Harlem Avenue	21217
Mount Royal Recreation Center	120 W. Mosher St	21217
Robert C. Marshall Park	1201 Pennsylvania Ave	21217
Harlem Inner Block Park 102	1201 W. Lanvale Street	21217
Harlem Inner Block Park 113	1211 Harlem Avenue	21217
Harlem Inner Block Park 90	1215 W. Lafayette Avenue	21217
Harlem Inner Block Park 101	1300 Harlem Avenue	21217
Lillian Jones Recreation Center	1310 N. Stricker St	21217
Rutter's Mill Park	1402 Rutter Street	21217
Harlem Inner Block Park 87	1511 W. Lafayette Avenue	21217
Shake and Bake Family Fun Center	1601 Pennsylvania Avenue	21217
F. Scott Fitzgerald Park	1627 Bolton Street	21217
Cumberland and Carey Park	1641 N. Carey Street	21217
Wilson and Etting Park	1701 Division Street	21217
Harlem Inner Block Park 85	1725 W. Lafayette Avenue	21217
Harlem Inner Block Park 96	1801 W. Lanvale Street	21217
Harlem Inner Block Park 84	1808 1/2 W. Lanvale Street	21217
Robert and McCulloh Park	1901 McCulloh Street	21217
Pennsylvania Triangle Park	2002 Pennsylvania Avenue	21217
John Eager Howard Recreation Center	2100 Brookfield Ave	21217
Madison and Whitelock Park	2325 Madison Avenue	21217
Arnold Sumpter Park	240 Laurens Street	21217
Maisel Street Park	2600 Madison Avenue	21217
Parkview Recreation Center	2610 Francis St	21217

Canton Soccer Park	3201 Toone Street	21217
McMechen and Etting Park	520 McMechen Street	21217
Newington Avenue-Triangle Park	699 Newington Avenue	21217
Harlem Inner Block Park 97	702 N. Mount Street	21217
Maple Leaf Park	709 W. North Avenue	21217
Harlem Inner Block Park 104	711 N. Arlington Avenue	21217
Reservoir Hill Park	751 Reservoir Street	21217
Lafayette Square Park	816 N. Arlington Avenue	21217
Harlem Inner Block Park 86	823 N. Mount Street	21217
Saint Katherine's Park	Intersection of Druid Hill Avenue and Presstman Street	21217
Mount Royal Terrace Park	Intersection of Mt. Royal Terrace and Reservoir Street	21217
Pauline Fauntleroy Park	Intersection of N. Stricker Street and N. Parrish Street	21217
Park Avenue Meridian Park	Intersection of Park Avenue and Wilson Street	21217
Harlem Inner Block Park 89	Intersection of W. Lafayette Avenue and N. Carey Street	21217
Harlem Inner Block Park 112	N. Woodyear Street and Harlem Avenue	21217
Douglas R. Morrison Park	Near the intersection of Brevard Street and Park Avenue	21217
Zip Code 21218		
Facility Name	**Property Address**	**Zip Code**
Andover and North Hill Park	1116 Andover Road	21218
Coldstream Park	1401 Fillmore St	21218
Coldstream Recreation Center	1401 Fillmore St	21218
Adams Park	1530 Montpelier Street	21218
Barclay Park	2201 N. Calvert Street	21218
King & Kennedy Park	2209 Hunter Street	21218
Greenmount Recreation Center	2304 Greenmount Ave	21218
Mund Park	2323 Greenmount Avenue	21218
Clifton Park	2801 Harford Road	21218
Montebello Park	2920 Harford Road	21218
Waverly Mini Park	2932 Independence Street	21218
Wyman Park	3100 N. Charles Street	21218

Hillen Triangle	3201 Hillen Road	21218
Mullan Park	4000 Old York Road	21218
Chestnut Hill Park	601 Chestnut Hill Avenue	21218
Cecil Kirk Community Center	909 E. 22nd Street	21218
32nd Street Park	Intersection of E. 32nd Street and Guilford Avenue	21218
Hadley Square Park	Intersection of E. 39th Street and Hadley Square East	21218
Bishop Square Park	Intersection of N. Charles Street and Bishops Road	21218
Montpelier & 30th Street Park	Montpelier Street and 30th St Park	21218
Zip Code 21222		
Facility Name	**Property Address**	**Zip Code**
Saint Helena Playground	Parnell Avenue and Ralls Avenue	21222
Zip Code 21223		
Facility Name	**Property Address**	**Zip Code**
Harlem Inner Block Park 114	1100 Edmondson Avenue	21223
Sarah Ann Park	1117 Sarah Ann Street	21223
Harlem Inner Block Park 127	1122 1/2 W. Franklin Street	21223
Vincent St. Park	122 N. Vincent Street	21223
Franklin Square Park	1301 W. Lexington Street	21223
Harlem Inner Block Park 125	1302 W. Franklin Street	21223
Betty Hyatt Park	1710 E. Baltimore Street	21223
Harlem Inner Block Park 121	1724 W. Franklin Street	21223
Harlem Inner Block Park 120 Lot 100	1814 Lauretta Avenue	21223
Warwick Avenue Park	2 N. Warwick Avenue	21223
Catherine Street Park	2311 Ashton Street	21223
Shipley Hill 2	2516 W. Lombard Street	21223
Shipley Hill 1	2533 W. Baltimore Street	21223
Union Square Park	31 S. Gilmor Street	21223
Stricker and Ramsey Park	401 S. Stricker Street	21223
Samuel F.B. Morse Recreation Center	424 S. Pulaski St	21223
Harlem Inner Block Park 122	513 N. Mount Street	21223

Harlem Inner Block Park 120 Lot 77	517 Kirby Lane	21223
Harlem Inner Block Park 123	529 N. Gilmor Street	21223
James McHenry Recreation Center	911 Hollins Street	21223
Gwynns Falls Park	Ellicott Driveway between Edmondson Ave and Frederick Avenue	21223
Lower Gwynns Falls Park	Intersection of Frederick Avenue and S. Dukeland Street	21223
Zip Code 21224		
Facility Name	**Property Address**	**Zip Code**
Patterson Park	100 S. Linwood Avenue	21224
O'Donnell Square Park	1021 S. Linwood Avenue	21224
Dypski Park	1225 S. Ellwood Avenue	21224
Janney Street Park	140 N. Janney Street	21224
Boston Street Pier Park	2601 Boston Street	21224
Virginia S. Baker Recreation Center at Patterson Park	2601 E. Baltimore St	21224
Saint Casmir's Park	2719 O'Donnell Street	21224
Hatton Senior Center	2825 Fait Avenue	21224
Canton Waterfront Park	3001 Boston Street	21224
Ellwood Avenue Park	420 N. Ellwood Ave	21224
Joseph E Lee Park	6200 E Pratt Street	21224
Fort Holabird Park	6401 Beckley Street	21224
Mora Crossman Recreation Center	701 Rappolla St	21224
Zip Code 21225		
Facility Name	**Property Address**	**Zip Code**
Farring Baybrook Park	1200 Church Street	21225
Reedbird Park	201 Reedbird Avenue	21225
Farring-Baybrook Recreation Center	4501 Farring Court	21225
Patapsco/Cherry Hill Recreation Center	844 Roundview Rd	21225
Zip Code 21226		
Facility Name	**Property Address**	**Zip Code**
Curtis Bay Recreation Center	1630 Filbert St	21226
Fort Armistead Park	4000 Hawkins Point Road	21226
Curtis Bay Park	4416 Curtis Avenue	21226

Zip Code 21228		
Facility Name	**Property Address**	**Zip Code**
Harlem Inner Block Park 126	1201 Edmondson Avenue	21228
Harlem Square Park	1500 Edmondson Avenue	21228
Zip Code 21229		
Facility Name	**Property Address**	**Zip Code**
Violetville Park	1095 Joh Avenue	21229
Saint Joseph's Park	230 Mc Curley Street	21229
Hilton Park	2950 Phelps Lane	21229
Fred B. Leidig Recreation Center	301 S. Beechfield Ave	21229
Franciis X. Gallagher Park	3350 Dulany Street	21229
Harlem and Dennison Park	3421 Harlem Avenue	21229
Mary E. Rodman Recreation Center	3600 W. Mulberry Street	21229
Kevin and Woodridge Park	4210 Woodridge Road	21229
Yale Heights Park	603 Bethnal Road	21229
Edgewood/Lyndhurst Park	835 Allendale St	21229
Edgewood-Lyndhurst Recreation Center	835 Allendale St	21229
Uplands Park	Intersection of Edmondson Avenue and Nottingham Road	21229
Irvington Park	Intersection of Martingale Avenue and India Avenue	21229
Daisy Field	Intersection of N. Hilton Street and Edmondson Avenue	21229
Flowerton Road Park	Kevin Road between Flowerton Road and Colborne Road	21229
Rokeby Road Park	Kevin Road between Rokeby Road and Flowerton Road	21229
Saint Charles Park	On Melbourne Road in between Gibson Road and Markham Road	21229
Zip Code 21230		
Facility Name	**Property Address**	**Zip Code**
Ella Bailey Recreation Center	100 E. Heath Street	21230
Gateway Park	101 Key Highway	21230
Solo Gibbs Park	1044 Leadenhall St	21230
Solo Gibbs Recreation Center	1044 Leadenhall St	21230

Henry Street Park	1240 Henry Street	21230
Carroll Park	1500 Washington Boulevard	21230
Latrobe Park	1529 E. Fort Avenue	21230
Desoto Park	1600 Desoto Road	21230
Locust Point Recreation Center	1627 Fort Ave	21230
Hollins Ferry and B&O Park	2300 Hollins Ferry Road	21230
Atlantic Avenue Park	2304 Atlantic Avenue	21230
Morrell Park	2415 Tolley Street	21230
Paca Street Park	2640 S. Paca Street	21230
Morrell Park Recreation Center	2651 Tolley St	21230
Lakeland Park	2761 Wegworth Lane	21230
Indiana Avenue Park	2810 Indiana Street	21230
Middle Branch Park	2913 Waterview Avenue	21230
Lakeland Recreation Center	2921 Stranden Rd	21230
Federall Hill Park	300 Warren Avenue	21230
Riverside Park	301 E. Randall Street	21230
Baltimore Rowing and Water Resource Center	3301 Waterview Avenue	21230
Cherry Hill Senior Center at the Rowing Center	3301 Waterview Avenue	21230
Conway Street Park	601 W. Conway Street	21230
Penn and Melvin Street Park	655 Melvin Drive	21230
Florence Cummings Park	Intersection of Nevada Street and Alaska Street	21230
Mount Olivet & Phelps Lane Park	Intersection of North Mount Olivet Lane and Phelps Lane	21230
Swann Park	Intersection of W. McComas Street and S. Hanover Street	21230
Zip Code 21231		
Facility Name	**Property Address**	**Zip Code**
City Springs Park	1600 E. Lombard	21231
Castle Street Park	2025 E. Fairmount Avenue	21231
Zip Code 21234		
Facility Name	**Property Address**	**Zip Code**
Keyes Park	3401 Taylor Avenue	21234
North Harford Park	6800 Hamlet Avenue	21234

Woodhome Recreation Center	7310 Moyer Ave	21234
Zip Code 21239		
Facility Name	**Property Address**	**Zip Code**
Northwood Recreation Center	1517 Winford Rd	21239
Chinquapin Run Park	5315 Northwood Drive	21239
Mount Pleasant Park	6001 Hillen Road	21239
Mount Pleasant Woods Park	6100 Hillen Road	21239
Woodbourne Avenue Park	Hillen Road between Woodbourne Avenue and Northbourne Road	21239
Pentwood Park	Intersection of Loch Raven Blvd and Pentwood Road	21239

State-Owned Special Event Locations

Facility Name	Property Address	Zip Code
Northwest Park	2101 W. Rogers Avenue	21209

Federally Owned Special Event Locations

Facility Name	Property Address	Zip Code
Fort McHenry National Monument and Historic Shrine	2400 E. Fort Avenue	21230

Appendix G3 – Special Event Guidelines

CITY OF BALTIMORE
Special Events and Street Vendors Section
200 Holliday Street, Lobby, Counter 4, Baltimore, MD 21201

SPECIAL EVENT GUIDELINES & FAQ

This guidelines document is intended to clarify the special events process for the public, provide greater predictability and answer common questions.

What is A Special Event & When Can the Special Event Application be Used?

Events including but not limited to: races, walk-a-thons, parades, church processions, festivals and concerts, leafleting, fairs and bazaars, exhibitions, outdoor plays, carnivals, circus. Furthermore, special events are—as the name implies—special, and not daily repetitious events or reservations of public space. Special events are planned, temporary activities open to the general public and taking place in the Right of Way or a City park.

What is a block party?

A block party is an event that is intended for the residents on the immediate block of the event, is organized by an applicant residing on the block, is closed to the general public and does not exceed 200 participants, is on a local residential street, ends before 9pm and where there are no sales of alcohol. Where all of these requirements are met, applicants can use the block party application found on the Department of Transportation's website.

What is Not a Special Event?

Extension of private dining services or restaurant seating by a private business applicant is not a special event. The Department of Transportation's Minor Privilege Office handles requests for extension of outdoor seating into the Right of Way. Curb lane closures for conferences or meetings are not special events. Additionally, private events are not special events. A private event is one that is not open to the general public. Examples are pavilion rentals, picnics and weddings. Private events may not be held in the Right of Way.

Events in private facilities such as concert halls, arenas, stadiums or stadium lots, or similar buildings and facilities where gathering events take place are not considered "special events."

Effective January 1, 2015

What About Farmer's Markets?

Applicants looking to establish a new farmer's market or obtain approval for an annual renewal of an existing market must complete the Farmer's Market application. If your farmer's market is in a City Park or one of the properties under the jurisdiction of the Department of Recreation and Parks you will be granted or denied approval from the Department of Recreation and Parks as part of the application review process. The Department will ensure that there is no conflict for the use of the space.

Where Do I Apply?

Baltimore City now offers a one-stop shop for special event permits. Applicants for all special events, including outdoor events on city streets, private lots, sidewalks or parks, should apply at the Department of Transportation's Special Events Office on the first floor at 200 N. Holliday Street – Counter 4.

Q: How Do I Apply?

All Special Event Permit applications must be submitted in person by the event organizer at the Special Events Office. Applications submissions by fax, email, mail are not accepted and will be returned if received. At submission you will receive a consultation with a Special Event Coordinator for your event who will walk you through the application to help you ensure it is complete and answer any questions you may have. Incomplete applications will not be accepted. Applications are not accepted nor considered complete without full payment of all required application fees. Applications submitted by a 3rd party who is not the event organizer will not be accepted. Out of state organizers of large events should contact the Special Events Office to discuss with the events coordinator before applying.

What Do I Need to Apply?

There is a Special Event application checklist you should use that helps identify what things are required or not needed based on the type of event you are planning. See below. If you are planning a block party, you will need a physical street address (not a P.O. Box) and a valid government issued identification card showing your address as the applicant.

What About Large and First Time Events?

Organizers of large and new events are required to participate in an Interagency Coordination of Events (ICE) meeting which will be scheduled and coordinated by the Office of Special Events and are held at the Abel Wolman Municipal Building at 200 N. Holliday Street. ICE meetings are always on a Wednesday.

Effective January 1, 2015

What Are the Application Processing Timelines and Deadlines?

Applicants are encouraged to submit applications anywhere between 3 to 4 months before their event. The earlier you apply the lower the application fee. ***Absolutely no applications will be accepted less than 6 weeks before the event date***.

When Are Security Plans Required?

Any special event involving the sale or consumption of alcohol will always require a security plan to gain approval from the Police Commander. A security plan will likely be required whenever conditions exists that affect public safety, security, or the conduct of usual daily activities. For more information see the Police Department Special Events Security Plan Guidance document on the Department of Transportation's website.

When Am I Required to Pay?

Costs and payment for special events include pre event and post event payments. Applicants are required to pay all application processing and inspection fees at the time of application and cannot submit an application without payment. After the event, fees for the delivery of City goods or services to facilitate the event are required within 30 days of receipt of invoice from the City of Baltimore; these services may include waste disposal, electrical work and public safety personnel and equipment from the Fire or Police Department. ***Any event or event organizer with outstanding fees due to the City of Baltimore will not be permitted to have a future event until the outstanding balance is paid in full.***

What are Special Event Fees and Costs?

Costs of events are broken into two categories: 1) application & processing fees and 2) the cost of City services provided to facilitate your event. Below is a table of relevant processing and service costs. Additional costs for equipment requested by event organizers are outlined in the Equipment Request Application

Filing Costs

Item or service	cost	Item or service	cost
Block Party application filing (>8 weeks prior)	$50	Equipment Request filing (>8 weeks prior)	$50
Block Party application filing (6-8 weeks)	$65	Equipment Request filing (8-6 weeks)	$65
Block Party application filing (4-6 weeks)	$80	Equipment Request filing (6-4 weeks)	$80
Special Event application filing (>10 weeks prior)	$80	Food Facility License (for each food vendor)	$50
Special Event application filing (10-8 weeks)	$125	Fire Department Review Fee (required for every permit except Park events)	$45
Special Event application filing (6-8 weeks)	$250	Noise Exemption	free
Parks event application filing and processing (>8 weeks)	$75	Park events security deposit (varies by location)	varies
Parks event application filing and processing (8-6 weeks)	$175	Park events daily impact fee (varies by location)	varies
Fire Department tent inspection for tents over 400sq feet (fee is one time, not a per-tent fee.)			$150

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Service Costs

Item or service	cost
Fire Marshall ($55 per hour where required as determined by Fire Dept based on size, footprint, capacity, etc…)	$55 hour
Fire Dept. EMS ambulance and crew (hourly charge where service requested by organizer)	varies
Police Detail (price established by Police Department varies based on: alcohol service, event size, footprint and location)	varies
Temporary zoning variance permit (price varies based on square footage of event area)	varies
Electrical work ($20--$25 per 5 kilowat depending on event type)	varies
Amusement device such as moon bounces, ride & slides, bounce houses &concessions, water slides etc. (per device)	$30
Waste Removal, Stages or Equipment (see price list on equipment request application. varies by item, quantity and size)	Varies

Does Baltimore Provide Support for or Encourage Special Events and Cultural Events?

Two of the goals of Mayor Stephanie Rawlings-Blake are to: 1) increase economic activity from tourism and entertainment and attraction offerings and; 2) to increase the number of citizens who rate the City as being rich in cultural opportunities. To this end, the City of Baltimore supports and provides for special events in a number of ways. We believe that small community and neighborhood events help strengthen the bonds between our residents and neighbors and the fabric of our communities. The Department of Transportation has a separate block party application for communities and neighborhoods that are looking to have an event on a residential block and meet certain criteria. The block party application is a reduced fee application; it is simpler and less expensive to file and complete this instead of the special events application. *This incentive is a reduction or savings to residents for block parties of $215.*

To help reduce the cost and encourage event organizers looking to provide festivals, concerts and other cultural events in Baltimore, the City has purchased the tents, generators, stages, bike racks, recycling bins and other items necessary for events and provides them at significantly discounted prices to organizers. Except in rare cases where electrical wiring is required, applicants are encouraged to use City generators. The City switched from providing electrical services to providing generators as a cost savings to applicants and the City. For example, previously, a 2 day event had cost an applicant $11,000 for wiring but by switching to generators it now costs around $2,400 for twelve generators for two days each (hours to be determined by the Department of Transportation).

The City offers a further 50% reduction in price on equipment items for events where there is a Baltimore City based non-profit sponsor (proof of 501(c)(3) status at the time of application required). This discount does not apply to public safety services such as Fire and Police delivered during an event. The 50% discount only applies to events sponsored by a non-profit that are open and free to the public.

For example, the savings and City rate for key special event equipment items for non-profit event organizers is:

- 10x10 Tent/canopy—first 10 free (if picked up by applicant)
- 10x15 Tent/canopy—first 10 free (if picked up by applicant)

- Electric generators (including overnight security and refueling where needed)—$50
- Where City tents are used, no tent inspection fee or additional permit is required. This is just one way that the City of Baltimore is taking steps to help local neighborhoods and special event organizers looking to increase the number of safe, culturally diverse and attractive events in the City.

For the complete list of equipment and reduced prices see the Equipment Request Application.

What Do I Need to Know About Equipment Rentals?

You can submit an equipment request at the special events counter when applying for your event. If City equipment is not available for your event date, you still have the option of purchasing or renting the desired equipment from one of the many companies that service the area. No equipment applications are accepted less than 4 weeks before the event date.

What Do I Need to Know About Public Safety Costs for Special Events?

Required police presence at special events serves to ensure public safety and integrity of events taking place in Baltimore City. This service also constitutes one of the largest cost components for special events in the City and should be considered when planning your event. The determination about both the need for a police detail and the level required is made by the Police Department. While a number of complex factors interact to produce this requirement, the following are standard contributing factors: the size of your event, historical data on the event regarding need or calls for service, presence of alcohol at your event, number of participants, number of intersections and street closures required. Where the determination is made and Police security participation required at your event it will be at the following rate: of $ 45 an hour for officers, $52 an hour for sergeants and $ $59 and hour for lieutenants. Please note there is a 4 hour minimum for police services. Guidelines you should anticipate and plan for are: 2 security guards per 100 guests, 2 Police officers for every 500 guests and 1 Police Lieutenant for 2 or more Police Sergeants.

How Do I Apply for Events on the Baltimore City Convention Center Campus?

Applicants looking to organize events on the streets surrounding the Convention Center are required to contact the Convention Center's Director of Building Services and applications must be cosponsored by the Convention Center.

What Are the Requirements for Erecting Tents and Other Temporary Structures?

Temporary structures erected for less than 6 weeks and that are 400 square feet or greater including connecting areas or spaces with common means of egress or entrance require obtaining a permit from the Special Events Office. Tents that are greater than 400 square feet require the following documents drawn to scale: 1) a site plan indicating the location of the temporary

structures, 2) section drawing, 3) tied on drawing(s) which shows how to securely fix the temporary structure to the ground. Signed and sealed construction drawings may be required for any non-tent structure over 400 square feet.

Is There a Checklist For Completing The City Special Events Application?

The following checklist is designed to walk applicants through what documents and information is required for their event and which they can use as a guide in organizing their race, festival, parade, concert, block party or other event in Baltimore City.

Required Item	When Required	Y/N	☑
Valid government issued identification verifying physical street address	Block party applicants		
Application listing purpose of event, agenda of activities & attendance info	Always		
Site plan/drawing showing location of parking, equipment - tents, fencing, bike racks etc.	Always		
Event site plan and plan for placement of any trash receptacles, dumpsters, load packers and recycling bins.	Always		
Organizer mobile phone number, email contact	Always		
Electrical site plan	Where electrical work performed		
Copy of proposed route or map (show turn by turn)	races, marches, parades, moving events		
Flyer or other promotional piece for event	Park event		
Musical entertainment program	Concerts, festivals, music events		
Entertainment program (other than music)	Where relevant		
Detailed listing of all street closures	Always when requesting a street closure		
Equipment application included	Where relevant		
Copy of Non-profit 501(c)3 status if required	Where relevant * always for park property if vending		
Detailed floor plan of the tent showing the location of fire extinguishers, exit signs, emergency lighting units.	Large private tents		
Security plan	Alcohol sales at event		
Signed copy of the "Patterson Park Addendum"/ "West Shore Park Addendum"/ "Mt. Vernon Square Addendum" to show acceptance of terms	When using these facilities with ≥ 200 people		
Temporary Noise Exemption Application	Concerts and festivals where requested		
Signed Financial Responsibility Form	When applying on behalf of organizer or beneficiary.		
Signed and sealed construction drawings for non-city stages, bridges, tents	Temporary structures exceeding 400sq feet		

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If – Then for Special Event Application Process

1. **If** you are having a special event which exceeds 200 attendees and which is on any public street or publicly owned site, facility or park, **then** you must provide a recycling receptacle immediately adjacent to each trash receptacle and ensure that all receptacles are clearly distinguished from trash receptacles by color or signage and ensure that all recyclable materials deposited into recycling receptacles at the event are collected for recycling. This is required of the event organizers by Senate Bill 781 regarding environment and recycling.
2. **If** you are having an event which includes the sale of alcohol, **then** you should notify the Liquor Board and must first obtain all required City permits before the Liquor Board will issue its permit.
3. **If** you are having an event in which you close streets or sidewalks, **then** you must obtain a permit from the Department of Transportation.
4. **If** you are having an event with a money wheel or, bingo, raffle or cash prize, **then** you must apply to the Department of Transportation.
5. **If** you are having food at your event, **then** you can apply to Department of Transportation where we have and will process for you both the special event applications and the Health Department food permit applications.
6. **If** you are having an event and require a noise waiver, **then** you can apply to the Department of Transportation where we have and will process for you the Health Department Noise Waiver application.
7. **If** you are having an event and require equipment such as dumpsters, roll offs, recycling bins, tents, stages etc…, **then** you must submit an equipment request application to the Department of Transportation. This application can be found on the Transportation website or at the counter at the Transportation's Special Events Office.
8. **If** you are having an event in which you both close streets and use an adjacent park, **then** you can apply to either the Department of Transportation or Recreation and Parks to obtain a permit for both the street closure and park usage.
9. **If** you are having an event in which you erect a temporary structure including private stage, bridge or tent larger than 400 square feet, **then** you must obtain a Special Event permit from the Department of Transportation's Special Events Section.
10. **If** you are having an event at which you use a private tent larger than 400 square feet, **then** upon your submission of application to the Department of Transportation, the Fire Department will contact you to perform a site inspection of the location and tent. In this instance there is no "tent permit" but there is a onetime $150 fee for inspection.
11. **If** you are having an event at which you close streets, use a park and erect a temporary structure, **then** you must submit an application to either Recreation and Parks or Transportation which will issue your permit and, also the Housing Department is required to review and approve the structure before issuance of the temporary structure permit.
12. **If** you are having an event on Maryland Stadium Authority property and the event is entirely contained within the footprint of the Maryland Stadium Authority property and or lots and does not require the use or closure of any City streets or curb lanes, **then** you are required to get approval from the Maryland Stadium Authority to use their property but are not required to obtain a street closure permit from the Department of Transportation. Additionally, you

cannot obtain final approval and contract to use the Maryland Stadium Authority lots until you have obtained the appropriate Health Department or Liquor Board permits from the City of Baltimore as required based on your event.

13. **If** you are having an event on Maryland Stadium Authority lots which will also impact or require the closure of Baltimore City streets, **then** you are required to apply to the Department of Transportation for the street closure using the Special Event Application no later than 5 business days after the submission to the Maryland Stadium Authority. The applications for Special Event must be submitted in person at the Special Events Office located on the first floor at 200 N. Holliday Street, Baltimore Maryland, 21202.

Accessibility Guidelines for Special Events

The City of Baltimore is committed to providing equal access to permitted special events to people with disabilities. We require the event organizers to comply with the provisions of the Americans with Disabilities Act (ADA). The Americans with Disabilities Act 2010 Standards provide guidelines for such temporary events as festivals, parades, and concerts. When submitting your application please make sure you adhere to the guidelines below.

PUBLICITY

If your event will be fully accessible integrate access symbols into the design of your ad, brochure, or flyer. When advertising your event, note wheelchair accessibility by using the wheelchair symbol, which indicates access for people with limited mobility. Use the symbol only if the facility and/or area are accessible to people using wheelchairs, including entrances, restrooms, assembly areas, etc. Other frequently used symbols include: access for individuals who are blind or have low vision, accessible parking, telephone typewriter (TTY), assistive listening systems, braille, volume-controlled phone, large print and info. If your event will be partially accessible because of site constraints only integrate the access symbols that apply. Access symbols can be found on the internet.

SIGNAGE:

Clear, easy-to-read signs placed in consistent locations help visitors find their way around an event site and make choices regarding which activities or exhibits to attend. The international symbol for accessibility should be used on directional signage. **Refer to PUBLICITY section above.

ACCESSIBLE PUBLIC TRANSPORTATION:

All MTA services are accessible for individuals with disabilities. For more information on MTA Bus, Metro Subway, Light Rail or Mobility service, call 410-539-5000, 1-866-RIDE-MTA (toll-free), TTY 410-539-3497

PARKING AND TRAFFIC CONTROL:

Accessible Parking Spaces: Use the table below to determine the required minimum number of spaces for your event based on the total spaces provided. When no on-site parking is provided, select the nearest possible parking area or garage and create accessible parking on an accessible route. If providing temporary parking in an unmarked area such as a field or blacktop you may designate accessible spaces by using traffic cones and temporary signage. Accessible parking must be within 200 feet of an accessible entrance.

Table 1

Total Parking in Lot	Required Minimum Number of Accessible Spaces	Total Parking in Lot	Required Minimum Number of Accessible Spaces
1 to 25	1	201 to 300	7
26 to 50	2	301 to 400	8
51 to 75	3	401 to 500	9
76 to 100	4	501 to 1000	2% of Total

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100 to 150	5	1001 to Over	20+1 for Each 100 over 1000
151 to 200	6		

*Van spaces. For every six or fraction of six accessible parking spaces, at least one shall be a van-accessible parking space. 1 in every 6 accessible spaces, but never less than one, must be van accessible. Dimensions (all dimensions are minimums): Accessible parking spaces are eight (8) feet wide; van-accessible spaces are eleven (11) feet wide. Access aisles for either type of space are five (5) feet wide. These adjacent aisles, which can be shared between two spaces, provide room for individuals to deploy vehicle-mounted wheelchair lifts and/or unload and use mobility devices such as wheelchairs, walkers, etc. An alternate design allows a van-accessible space to be eight (8) feet wide if the adjacent access aisle is also eight (8) feet wide.

Access aisles must be marked (e.g., painted with hatch marks) to discourage parking in them. This is especially important where the alternate design is used and an access aisle at a van-accessible space is the same size as the space. The surface of accessible spaces and access aisles must be smooth, stable, and virtually level in all directions to ensure safe use for people with disabilities, including those who must load, unload, and use wheeled mobility devices.

ACCESSIBLE ROUTE:

An accessible route is a 36" path clear of all activities and exhibits from the accessible parking area to the accessible entrance. This means clearance from tables, display booths, etc. Accessible routes shall be clear of barriers and protruding objects which are free standing or mounted to a fixed structure such as low hanging signs and newspaper dispensers.

ENTRANCES:

The entrance(s) should be barrier free with a minimum 32" opening. If a turnstile or revolving door is at the entrance, an alternate accessible route provided.

EQUIPMENT:

Stages: The stage is required to have direct access via a ramp if participants/spectators will be allowed on stage and if required by performers, speakers, etc. Stages over 6 inches require railing and edge protection. Stages provided by The City will be accessible. **Tables:** Provide 30" width tables for individual seating, 27 inches minimum knee clearance, and minimum 19 inches depth for dining and other activities; (BINGO, arts & crafts, etc.) See Table 2 below for quantity of tables required. **Counters:** A portion of the counter should be at least 36" wide and a maximum of 36" high. If accessible service counter/table is not provided, each vendor must offer to accommodate an individual by providing service in an alternate way. An example of an alternate way would be providing enough space beside the counter to pass items to customers who have difficulty reaching over a high counter. **Tents:** Guy wires should be located out of pedestrian pathways or have a detectable barrier or element such as a warning device such as sandbags. **Seating:** There should be an accessible seating area to accommodate a person(s) with the disability and their companion(s). The area should be 36" wide to accommodate the wheelchair. See Table 2 below for Number of Required Wheelchair locations; **Cables, Wires, Other Equipment or Vehicles:** Must not interfere with accessible routes or pose hazards to people with vision disabilities. **Portable Assistive Listening Devices:** Should be provided for special events such as a musical concert or seminar. (A portable assistive listening device is usually used as a system where the audio source is broadcast wirelessly over an FM frequency. The person who is listening may use a small FM Receiver to tune into the signal and listen at their preferred volume.)

Table 2

Capacity of Seating in Assembly Areas	Number of Required Wheelchair Locations
4 to 25	1
26 to 50	2
51 to 300	4
301 to 500	6
Over 500	6, plus 1 additional space for each total seating capacity increase of 100

SERVICE ANIMALS: Service animals are allowed and must be under the control of their owners, on a leash and with the owner at all times. Disruptive or dangerous animals will be asked to leave the site.

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FINANCIAL TRANSACTIONS: If you will be selling tickets for seating, you must provide a designated number of seating areas for guests with disabilities and their companion. See Table 2 above.

FOOD AND MERCHANDISE: Work with vendors to ensure that people with disabilities have access to food, drinks, merchandise, and services offered. Vendors should be advised to offer additional assistance to people with disabilities so they can participate equally. This generally involves only simple or minor procedural changes, such as bringing items to an interested individual from an inaccessible area. **Refer to EQUIPMENT section above for tables, counters & seating for eating.

WASTE REMOVAL:

Portable Toilets: If one portable toilet is used, it must be ADA accessible. Where multiple single-user portable toilets are clustered at a single location, no more than 5 percent of the toilet units at each cluster shall be required to be accessible. One toilet is required to be accessible if less that 5 are provided. However if there are several clusters of toilets located throughout the event area at least one must be accessible in each cluster. It is advised to locate the accessible toilets at the end of the clusters.

If food or beverages are available at the event, one portable toilet must be provided for every 125 people in attendance. If NO food or beverages are available, one portable toilet must be provided for every 250 people in attendance. Portable toilets must be fully accessible to persons with disabilities, in compliance with the Americans with Disabilities Act (ADA). Note: These services are not provided by the City of Baltimore. You are responsible for providing these services.

If you have any questions regarding the accessibility of your special event, please do not hesitate to contact Dr. Nollie P. Wood, Jr., Executive Director, Mayor's Commission on Disabilities. Please contact him via email at nollie.wood@baltimorecity.gov or phone at 443-984-3170.

ADA and ABA Accessibility Guidelines for Buildings and Facilities
www.access-board.gov/ada-aba/final.cfm

ADA Guide for Small Businesses
http://www.ada.gov/smbusgd.pdf

Americans with Disabilities Act - ADA HOME PAGE
www.ada.gov

Department of Justice - ADA Title III Highlights
http://www.ada.gov/t3hilght.htm

Federal Access Board
www.access-board.gov/about.htm

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Appendix G4 – Special Event Applicant Checklist

Special Events Applicant Checklist

As you plan your event and prepare your application, please use this checklist as a guide to determine if a particular item, plan or document is required and to track whether or not you have brought that item with you as you submit your application. If the item in the "when required" box applies to you, mark "Y" for yes and check off the corresponding box on the checklist when you have that item in your possession. When all the "Y"s align with checked boxes, you are ready to submit your application and we look forward to working with you to help plan and permit a fun, safe and awesome event in Baltimore City.

Required Item	When Required	Y/N	☑
Valid government issued identification verifying physical street address	Block party applicants		
Application listing purpose of event, agenda of activities & attendance info	Always		
Site plan/drawing showing location of parking, equipment - tents, fencing, bike racks etc	Always		
Event site plan and plan for placement of any trash receptacles, dumpsters, load packers and recycling bins.	Always		
Organizer mobile phone number, email contact	Always		
Electrical site plan	Where electrical work performed		
Copy of proposed route or map (show turn by turn)	races, marches, parades, moving events		
Flyer or other promotional piece for event	Park event		
Proof of insurance for park events	Park event –Where relevant (races, runs, large scale events, etc.)		
Musical entertainment program	Concerts, festivals, music events		
Entertainment program (other than music)	Where relevant		
Detailed listing of all street closures	Always when requesting a street closure		
Equipment application included	Where relevant		
Copy of Non-profit 501(c)3 status if required	Where relevant * always for park property if vending		
Health Department Special Event Food Vendor Application & Temporary Food Facility Application	Where vending or providing food		
Copies of security and EMS contracts and copy of bonding and insurance for each.	Alcohol sales at event, runs and races		
Detailed floor plan of the tent showing the location of fire extinguishers, exit signs, emergency lighting units.	Large private tents		
Security plan	Alcohol sales at event		
Signed copy of the "Patterson Park Addendum"/ "West Shore Park Addendum"/ "Mt. Vernon Square Addendum" to show acceptance of terms	When using these facilities with ≥ 200 people		
Temporary Noise Exemption Application	Concerts and festivals where requested		
Signed Financial Responsibility Form	When applying on behalf of organizer or beneficiary.		
Signed and sealed construction drawings for non-city stages, bridges, tents	Temporary structures exceeding 400sq feet		

Appendix H1 - Office Building Recycling Plan

1. Program Description

During the December 2019 legislative session, the Maryland General Assembly passed Senate Bill 370, Environment – Recycling – Office Buildings which requires the County recycling plan to address, by October 1st, 2020, the collection and recycling of recyclable materials from buildings that have 150,000 square feet or greater of office space. Owners of office buildings that meet the criteria are required to provide recycling receptacles for the collection of recyclable materials as of October 1, 2021.

2. Eligible Office Buildings

Owners of buildings that have 150,000 square feet or greater of office space are responsible for providing all containers, labor, and equipment necessary to fulfill recycling requirements, either directly or through contracting with a private sector company.

3. Outreach and Education

The City has notified building owners about the legislation. For future construction or renovations that result in buildings meeting the criteria, DPW will work with the City's Department of Housing and Community Development and Department of Planning to notify building owner, developers, or others who are seeking building permits and occupancy permits about the legislation.

4. Stakeholders and Participants

Entities involved in implementing the Office Building Recycling program include the owners, corporate management companies, and tenants of applicable office buildings.

Newly constructed office buildings (with use and occupancy permits issued after October 1, 2021) that meet the requirements of the Office Building Recycling Program under Section 9-1714 of the Environment Article, Annotated Code of Maryland, shall begin participating in the program within three months of being notified by Baltimore City.

5. Collection and Process of Materials

It is the responsibility of property owners or managers to determine how the materials will be stored, collected, and transported to recycling markets, but property owners or managers still required to provide the following:

Materials to Recycle

At a minimum, owners or managers must recycle corrugated cardboard, mixed paper, acceptable plastic bottles and jugs, and tin/aluminum beverage containers. Regardless of the hauler, owners and managers

must ensure that the recycling bin does not contain any food waste, plastic bags, hazardous materials, or any other contaminants.

Collection of Materials

Office building owners and managers are responsible for providing all containers, labor, and equipment necessary to fulfill Office Building Recycling Program requirements. In addition, containers for recyclable materials must be placed adjacent to trash containers or trash chutes and must be clearly labeled to indicate the appropriate materials to be placed inside for recycling. The quantity and size of recycling containers must also be sufficient for all office workers to store their recyclables.

Material Processing

Property owners or managers must ensure recyclable materials are collected and transported from office building locations to markets or other legal recycling destinations.

6. Program Implementation

Monitoring of the collection of recyclable materials required in office buildings will be conducted by the owner, corporate management company, or tenants of each applicable office building. The City will request the office building owner to submit an annual Maryland Recycling Act (MRA) report detailing the recycling tonnages removed from the office building(s) and the name of the markets or legal recycling destinations for the materials.

7. Program Enforcement

The Office of Waste Diversion will notify property owners, corporate management companies or tenants of applicable office buildings of the implementation requirements in accordance with sections 9-1703 and 9-1714 of the Environment Article, annotated code of Maryland.

Appendix H2 – Eligible Office Buildings

Appendix H2 Placeholder Text

Appendix I - Nearby Out-of-City Solid Waste Facilities

Nearby Out-of-City[1] Permitted Solid Waste Facilities

Name	Type	County	Owner Type
Days Cove Rubble Landfill	Landfill (C&D)	Baltimore	Private
Eastern Landfill	Landfill (MSW/C&D)	Baltimore	County
Honeygo Run Rubble Landfill	Landfill (C&D)	Baltimore	Private
Millersville Landfill	Landfill (MSW/C&D)	Anne Arundel	County
Curtis Creek PF & TS	Processing (MRF)	Anne Arundel	Private
Annapolis Junction PF & TS	Processing (MRF)	Anne Arundel	Private
Central Acceptance Facility PF &TS	Processing (MRF)	Baltimore	County
Eastern Transfer Station	Processing (Transfer Station)	Baltimore	County
Western Acceptance Facility Transfer Station	Processing (Transfer Station)	Baltimore	County
Tolson & Associates Rubble Landfill	Landfill (C&D)	Anne Arundel	Private
Biomedical Waste Services, Inc.	Processing (MRF)	Anne Arundel	Private
Recovermat Mid-Atlantic, LLC PF	Processing (MRF)	Baltimore	Private
Millersville Landfill And Resource Recovery Facility Composting Pad	Organics Processing (Compost)	Anne Arundel	County
Tolson & Associates LLC	Organics Processing (Compost)	Anne Arundel	Private
Veteran Compost - Lothian	Organics Processing (Compost)	Anne Arundel	Private
Eastern Sanitary Landfill Solid Waste Management Facility	Organics Processing (Compost)	Baltimore	County

Notes:

1. Includes out-of-city transfer stations, landfills, incinerators, materials recovery facilities, and organics processing facilities within 20 miles of Baltimore City.

Appendix J - In-City Potential Diversion Partners

In-City Potential Partners

Name	Description	Type
Food Rescue Baltimore	Non-profit food donation and rescue	Organics, food waste
Maryland Food Bank	Non-profit food donation and rescue	Organics, food waste
Helping Up Mission	Non-profit food donation and rescue	Organics, food waste
Paul's Place	Non-profit food donation and rescue	Organics, food waste
The Franciscan Center	Non-profit food donation and rescue	Organics, food waste
Bmore Community Food	Non-profit food donation and rescue	Organics, food waste
ChangeX Community Fridge	Non-profit food donation and rescue	Organics, food waste
Hidden Harvest	Non-profit food donation and rescue	Organics, food waste
Hungry Harvest	Non-profit food donation and rescue	Organics, food waste
Whitelock Community Farm	Food scrap composting	Organics, food waste
Baltimore Compost Collective	Weekly food scrap collection from homes in South Baltimore; Composts at Filbert St. Community Garden in Curtis Bay	Organics, food waste
Filbert St. Community Garden	Community garden in Curtis Bay	Organics, food waste
Village of Violetville	Collects compostable materials from neighborhood in local side alley and contracts with private hauler for composting	Organics, food waste
Compost Cab	Home pickup for compostables in Baltimore/Washington area.	Organics, food waste
Mundea	All in one waste management solutions for compost, recyclables, and residual waste	Organics, compost hauler
Waste Neutral	Compost hauler	Organics, compost hauler
Second Chance Inc	Nonprofit deconstruction and building material reuse center	C&D, reuse
The Loading Dock	A nonprofit building material reuse center. Accepts paint, lumber, plumbing fixtures, appliances, doors, cabinets, windows, caulk, moldings, and other reusable materials from the home building industry.	C&D, reuse
North Point Recycling	Purchases and recycles ferrous and non-ferrous scrap metals	Recycling, scrap metal
St. Vicente de Paul of Baltimore	Donation and resale of clothing, shoes, textiles	Reuse, clothing, shoes, textiles

Name	Description	Type
Goodwill	Operates multiple locations within Baltimore for the donation and resale of clothing, shoes, and household items	Reuse, clothing, shoes, textiles, household items
The Sew Lab	Operates multiple locations within Baltimore for the donation and resale of clothing, shoes, and household items	Reuse, clothing, shoes, textiles, household items
Helpsy	Operates multiple locations within Baltimore for the donation and resale of clothing, shoes, and household items	Reuse, clothing, shoes, textiles, household items
Planet Aid	Operates multiple locations within Baltimore for the donation and resale of clothing, shoes, and household items	Reuse, clothing, shoes, textiles, household items
The Salvation Army	Operates multiple locations within Baltimore for the donation and resale of clothing, shoes, and household items	Reuse, clothing, shoes, textiles, household items
Donation Town	Online resource connecting Baltimore City residents with local charities that will pick up donations from their homes	Online resource connecting residents with donation haulers
Sharp Dressed Man	Donation and redistribution of men's formal business attire to residents engaged in career and workforce development programs	Reuse, men's business clothing
The Lions Club	Donation and redistribution of old eyeglasses in Baltimore City	Reuse, eyeglasses
American Rescue Workers	Picks up donations of usable non-gas stoves, refrigerators, small appliances, clothing, furniture, household items and distributes them through a social service agency	Reuse, appliances, clothing, household items, white goods
At Jacob's Well	Accepts donations of garden equipment, sees, non-perishable food, toiletries, household items, small appliances	Reuse, garden equipment, food, household items
Baltimore Animal Rescue and Care Shelter	Accepts donations of pet supplies for animals at the shelter	Reuse, pet supplies
Baltimore Child Abuse Center	Accepts donations of wrapped snacks, school supplies, children’s books and DVDs	Reuse, children’s school supplies and snacks
Baltimore Teacher Supply Swap	Accepts donations of school supplies	Reuse, school supplies

Name	Description	Type
The Book Thing of Baltimore	Accepts donations of books, records, CDs, DVDs, and handheld electronics	Reuse, books, records, CDs, DVDs, handheld electronics
Community Assistance Network	Accepts donations of furniture, food, household items, small appliances, and beds	Reuse, appliance, clothing, household items, small appliances, beds
Earl's Place	Accepts donations of food, clothing, linens, toiletries	Reuse, food, clothing, toiletries
Maryland Book Bank	Accepts donations of books	Reuse, books
Maryland SPCA	Accepts donations of pet food and supplies	Reuse, pet supplies
Normal's	Buys new and used books, CDs and vinyl records	Reuse, books, records, CDs, DVDs
Our Daily Bread Employment Center	Accepts donations of food, spices, tea, forks, oatmeal, cereal	Reuse, food, cutlery
Play it Again Sports	Buys used sports equipment	Reuse, sports equipment
Sheperds Clinic	Accepts electronics , medications, office supplies	Reuse and recycling, electronics, office supplies
The Sound Garden	Buys CDs, DVDs, and video games	Reuse, CDs, DVDs, video games
Suited to Succeed	Accepts donations of women's professional attire	Reuse, women's business clothing
Ted's Musicians Shop	Accepts donations of musical instruments	Reuse and recycling, musical instruments
WYPR Car Talk Vehicle Donation Program	Accepts donations of vehicles	Reuse and recycling, vehicles

Appendix K – Out of City Potential Diversion Partners

Out-of-City Potential Partners

Name	Description	Type
The Rockefeller Foundation	National foundation promoting global wellbeing	General natural resource management
Natural Resources Defense Council	National nonprofit advocacy group supporting natural systems protection.	General natural resource management
The Recycling Partnership	Nonprofit supporting recycling programs nationwide	Recycling
GOODR	Private company offering secure ledger for businesses to track food waste from pickup to donation	Organics, food waste
ChowMatch	Non-profit matching food donations with food assistance organizations and organizing volunteers to transport the goods	Organics, food waste
Food For All	Nonprofit app available in New York and Boston allowing customers to buy leftovers from restaurants at a discount	Organics, food waste
Maryland Food Bank	Non-profit food donation and rescue	Organics, food waste
Food Recovery Network	Non-profit food donation and rescue	Organics, food waste
Our Daily Bread	Non-profit food donation and rescue	Organics, food waste
Center for Eco Technology	Non-profit food donation and rescue	Organics, food waste
Food Rescue US/Eat Management	Non-profit food donation and rescue	Organics, food waste
Veteran Compost	Food scrap collection and composting	Organics, compost hauler
Compost Crew	Food scrap collection	Organics, compost hauler
Habitat for Humanity of the Chesapeake	Nonprofit providing construction and renovation of homes, and operating ReStores, which accept donations of furniture, appliances, and building material.	C&D, reuse
Verde	National recycling reward program	National recycling reward program
Recyclebank	National recycling reward program	National recycling reward program

Name	Description	Type
Too Good to Go	Mobile application that connects customers to restaurants and stores that have surplus unsold food	Organics, food waste
AMVETS Pick Up Service	Picks up donations of clothing, electronics, household goods, linens, books, toys, bicycles, flat screen TVs, computers and exercise equipment and resells them in a store	Reuse, appliances, clothing, electronics, household items
Annapolis Office Technologies	Recycles computers, small electronics, inkjet and toner cartridges	Electronics recycling
Assistance Center of Towson Churches	Non-perishable food, toiletries, paper goods, brown paper and plastic bags accepted as donations and given to homeless and low income families	Food and toiletries donation
Baltimore County Animal Services	Accepts donations of pet supplies for animals at the shelter	Reuse, pet supplies
Maryland Department of Aging	Accepts small durable medical equipment in good condition; wheelchairs, walkers, metal canes, bedside commodes, bed rails, tub grab bars, etc.	Reuse, elder care supplies
Baltimore County Public Library	Accepts donations of gently used books	Reuse, books
Baltimore Humane Society/Bmore Kind Pet Food Bank	Accepts donations of pet food	Reuse, pet supplies
BCPS Education Foundation Exchangeree	Accepts donations of school and office supplies	Reuse, school and office supplies
Bentley Springs UMC Mission Central Hub & Disaster Relief Center	Accepts donations of school supplies, medical equipment, office supplies	Reuse, school, medical and office supplies
GRC Wireless Recycling	Accepts donations of mobile phones, tablets, and other handheld electronic devices	Reuse, handheld electronics
EPS Industry Alliance	Accepts donations of clean polystyrene packaging and EPS packing peanuts	Reuse, packing materials
GreenDrop LLC	Accepts donations of clothing, small appliances, household items, computers, eyeglasses, and musical instruments	Reuse

Name	Description	Type
Guitar Exchange	Accepts donations of new, used, or broken guitars	Reuse
Lutheran Mission Society/Compassion Place	Accepts donations of large and small appliances, household goods, baby items, beds, bicycles, books, handheld electronics, large electronics, tools, toiletries, toys, food.	Reuse, general goods
MADRE Helping Hands	Accepts donations of eyeglasses and contact lenses	Reuse, eyeglasses
National Children's Center	Accepts donations of clothing, small appliances, household items, computers, eyeglasses, and musical instruments	Reuse, general goods
OneSight	National eyeglass and sunglass donation program	Reuse, eyeglasses
Plato's Closet Baltimore	Buys used young adult clothing and accessories	Reuse, clothing, shoes
Priceless Gown Project	Accepts donations of gently used women's formal wear	Reuse, women's formal wear
Race Pace Bicycles	Accepts used bicycles with a $10 donation	Reuse, bicycles
Savers	Accepts donations of clothing, general goods, small furniture, and appliances	Reuse, general goods
Scene II by Hadassah	Accepts donations of clothing, housewares, small appliances	Reuse, general goods
Securis	Accepts information technology equipment	Reuse and recycling, electronics
The Surprise Shop	Accepts donations of small furniture, antiques, housewares and clothing	Reuse and recycling, clothing, furniture, housewares
Turtle Wings	Accepts electronics for recycling or refurbishment	Reuse and recycling, electronics
Ukazoo Books	Buys used books	Reuse, books
Vehicles for Change	Accepts donations of vehicles	Reuse and recycling, vehicles
Vietnam Veterans for America	Accepts donations of general household items	Reuse, general goods

10-Year Solid Waste Management Plan: 2024-2033

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