



REGIONS OF
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100



CITIES

ROADMAP TO ZERO WASTE

for

**THE CITY OF
PITTSBURGH, PA**



February 27, 2017

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1. EXECUTIVE SUMMARY

In coordination with 100 Resilient Cities, Regions 20 – Regions of Climate Action (R20) has offered to finance a “Roadmap to Zero Waste” document for the City of Pittsburgh to use as guideline when developing a Zero Waste Strategic Plan (ZWSP). Once written, the ZWSP will serve as the mechanism that ties all stakeholders together in the City’s quest for Zero Waste.

Based on site visit meetings and years of expertise, it is the belief of the R20 team that the City of Pittsburgh has the potential to achieve the goal of “Zero Waste by 2030” as pronounced by Mayor Peduto in 2015. The elements critical to the success of Zero Waste include, but are not limited to, committed leadership, modifiable and scalable infrastructure, engaged citizenry with proven adaptability, and innovation, all of which are currently possessed by the City in some form. Conversely, these elements are pitted against a city that is hampered with a decades-old, stagnant recycling program that has achieved modest success over the years largely due to limited financing and low landfill disposal fees.

To achieve the goal of Zero Waste by 2030, the City must change the existing value proposition from an expense-based (budget line item) approach to a resource management-based approach by thinking of waste as an asset to be managed instead of a liability. A key strategy that may well serve the city and accelerate Zero Waste efforts would be the formation of a public-private partnership (P3) to provide oversight and management of “Zero Waste Pittsburgh™”, a program specifically created to meet the City’s Zero Waste goal. By leveraging a P3 to coordinate and manage “Zero Waste Pittsburgh™”, the Mayor and City Council can mitigate the risk of tackling the Zero Waste goal alone, while taking advantage of the wealth and resources available to the City.

The P3 should consist of members from the City staff, government agencies, County and State officials, ALCOSAN, PRC, waste haulers and recyclers, universities, foundations, corporations, and not-for-profits, etc. In addition, the P3 should also leverage the City’s nationally recognized technology and innovation brand with the creation, management and oversight of a “Global Waste Innovation Center”. The P3’s directive of coordinating and managing both “Zero Waste Pittsburgh™” and a “Global Waste Innovation Center” is synergetic and adds an economic development aspect to legislation. Emulating the “Global Water Center” in Milwaukee, the “Global Waste Innovation Center” will attract waste entrepreneurs from around the world to one incubator site and will provide a location for conferences and collaborative efforts between entrepreneurs, academia, and corporations.

The ZWSP must be designed with scalability in mind to eventually include all residential (single-family and multi-family units), commercial, institutional, and industrial entities currently serviced by both public and private sector haulers while coordinating efforts with surrounding municipalities that comprise Allegheny County. Combining efforts with surrounding areas will significantly increase the available volume of recyclables, which provides greater incentives for recyclers through economies-of-scale. When developing the ZWSP, specific ideas and suggestions from this document should be selected to address the primary issues within the current waste and recycling program such as: lack of a transfer station, limited number of drop-off sites, lack of a standardized bin collection system, limited yard waste collections, and little to no policy enforcement.

2. BACKGROUND

Pittsburgh, a city of approximately 60 square miles and just over 300,000 people, could easily be characterized as “average” in regard to its current waste and recycling programs. Nevertheless, the City’s emerging national “brand” as an innovation and technology leader and the new-found status of being selected as one of the “100 Resilient Cities”, made it an easy decision for Regions 20 - Regions of Climate Action (R20) to offer to finance a “Roadmap to Zero Waste” document for the City. R20’s offer, in coordination with 100 Resilient Cities (100 RC), was accepted by the City of Pittsburgh and a plan to move forward was created.

During the week of November 28th, 2016, two members of the R20 team, Peter Lobin and Pamela Thurman, met with a number of stakeholders chosen by the city’s Resiliency and Environmental Services Departments for their knowledge and involvement in the City’s waste and recycling programs that included representatives from the following:

- City Public Works Department
- Senior Mayoral Staff
- City Division of Sustainability and Resilience
- Allegheny County Government
- State of Pennsylvania
- Pennsylvania Resources Council (PRC)
- Local Academia (e.g. Duquesne University, Carnegie Mellon University)
- Local Non-for-Profit Businesses (e.g. Construction Junction, Pittsburgh Center for Creative Reuse)
- ALCOSAN
- Recycle Source Materials Recovery Facility (MRF)
- Vendors (e.g., haulers, landfill operators, e-waste, etc.)

The result of these conversations produced several key observations:

- A strong commitment to Zero Waste exists among stakeholders.
- There are numerous technologies, policies, and action items that could help Pittsburgh (and eventually the surrounding region) achieve Zero Waste.
- There is a significant fragmentation of programs and ideas that exist among government entities and other stakeholders.
- Lack of financing is the common denominator for the stagnancy of program improvement and development.
- The City’s current waste and recycling program is the culmination of many programs introduced by many administrations over a period of decades. What remains is a fragmented and disjointed program that lacks coordination and proper community education. For example, there are still some residents that tie their newspaper together with string as was instructed when the program began decades ago (even though the recycling program is now a single-stream program).
- The low cost for the City to landfill waste is a major hurdle when attempting to financially justify recommended recycling programs.

- Some other issues facing the City are: lack of a transfer station, limited number of drop-off sites, illegal dumping, little to no policy enforcement, and a culture that knows that whatever is placed by the curb will eventually be collected by the City.

Regions 20 - Regions of Climate Action (R20) is a Non-Governmental-Organization (NGO) founded by the former Governor of California, Arnold Schwarzenegger in 2010. Its mission is to help sub-national governments around the world develop low-carbon and climate resilient economic development solutions and communicate the findings to broader audiences for study and replication. R20 is a partner of 100 Resilient Cities.

100 Resilient Cities (100RC), pioneered by the Rockefeller Foundation, is dedicated to helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century.

3. ADMINISTRATIVE INFRASTRUCTURE

3.1 Leadership Commitment

To break from the existing stagnation of the current waste and recycling program and achieve the stated goal of Zero Waste by 2030, the Mayor and the City Council will need to lead the charge through legislative action that clearly commits the City of Pittsburgh to this goal. Strategic legislation will reflect the commitment and vision of City leadership, and further position the City of Pittsburgh; along with its universities, industry partners, and major foundations as a hub for sustainable innovation. Without new legislation to move current programs forward and to create new programs, then Pittsburgh will, at best, continue with a piece-meal approach to waste management and recycling.

In addition to his leadership and vision for Pittsburgh, the Mayor has five (5) levers of power at his disposal that can be utilized to help the City succeed in achieving Zero Waste. These levers are as follows:

- Internal (staff)
- As an agent of land/building use (zoning, permitting, donating)
- Tax incentive or abatement
- Advocating (bully pulpit)
- Legislating (with the City Council)

In order to be successful, the City of Pittsburgh must lead by example and immediately commit to implementing Zero Waste at all City-owned buildings and public schools. Marketing and communication in the initial stages and throughout the process will also be critical as the community will need to be able to see the clear, unwavering commitment of City leadership towards this goal.

A critical piece of legislative commitment should include the formation of a public-private partnership (P3) to provide oversight and management of a “Zero Waste Pittsburgh™” program. By using a P3 to coordinate and manage “Zero Waste Pittsburgh™”, the Mayor and City Council will be

mitigating the risk of tackling the Zero Waste goal alone while taking advantage of the wealth of resources available to the City. The P3 will also deflect the hard decisions concerning revenue generation, the 3rd rail of politics, away from the City, while opening up greater sources of financing and investment.

Other cities that have similar goals have only achieved success when there was strong leadership, an understanding of the need for culture change, adaptability to new technologies, and a willingness to explore and work with all types of financing, all characteristics that were found to be present in the City of Pittsburgh.

3.2 Community Involvement and Education

Pittsburgh's outreach and education campaign for Zero Waste will require a focused effort as well as substantial involvement from the community. Efforts must shift from a broad recycling message to a more targeted effort that addresses waste reduction, materials reuse, hard-to-recycle materials, purchasing policies, and construction and debris (C&D). Specific groups that should be targeted to participate in these efforts through "Zero Waste Pittsburgh™" should include, but not be limited to:

- Government officials and facilities
- Environmental groups
- Not-for-profits
- K-12 schools
- Volunteers
- Universities
- Student Zero Waste Internships

Launching a Zero Waste marketing campaign will also play a major role in moving the community in the direction of a Zero Waste culture. Some of the platforms being used by other cities include:

- Social media
- Blogs
- Public Service Announcements on local TV & radio
- Community newsletters and local newspapers
- New homeowner packets

In order to keep the community engaged throughout the process, progress towards the goal must be reported on a regular basis and the achievements must be tied to benefits that residents and businesses can understand and realize. These efforts can inspire pride of ownership and grow the determination of the entire community.

3.3 Financing

With a P3 overseeing "Zero Waste Pittsburgh™", the availability of financing sources, as well as financing models, increases exponentially. Long-term contracts handling the City's waste that provide guaranteed minimum tonnage over an extended period of time become leverage to open

multiple financing opportunities with banks and other institutions. Revenues generated either by fees, taxes or the sale of recyclables can also be leveraged.

A new breed of investment funds is growing rapidly with both private sector and foundations investing in green infrastructure projects that will positively effect climate change. Some of the foundations focused in this area are: The Packard Foundation, The MacArthur Foundation, ClimateWorks Foundation, The Hewlett Foundation, The Planet Pledge Fund and many more. In addition, R20 is the organizer of the Green Investment Accelerator Facility (GIAF), which invests in waste and other renewable projects delivering market-rate, risk-adjusted investment returns and sustainable development goals.

When evaluating potential Zero Waste actions for inclusion in the ZWSP, the City should utilize a full-cost accounting method (life-cycle analysis) to assess all of the financial, social and environmental costs and benefits of each action. For example, giving financial credit to Zero Waste systems by accounting for the environmental benefits of reduced pollution and climate emissions and the social and economic benefits, such as creating new local jobs. Pay-As-You-Throw (PAYT), listed in Phase I, is an example of an effective and popular economic policy that promotes resource efficiency. Due to the low disposal fees charged by landfills in the Pittsburgh area, financially justifying potential Zero Waste actions may prove difficult without using a full-cost accounting method. It should be noted that there might even be cases where projects critical to Zero Waste achievement cannot be cost justified, but are necessary in order to meet the 2030 goal.

Some potential revenue streams or costs savings that can be used to support Zero Waste efforts may include:

- Charging a monthly service fee for trash collection or Pay as you throw (PAYT).
- Diverting more tonnage from the landfill to the Materials Recovery Center (currently a \$19.04/ton savings).
- Creating policy that shifts taxes to increase the burden on public “bads” like pollution, while decreasing the burden on public “goods” like wages.
- Adding a surcharge on top of the landfill fee. The fee would be charged to commercial haulers for waste collected inside the City limits and would be used to support Zero Waste programs.
- Adding a per-bag fee on the purchase of single-use plastic shopping bags.
- Capturing the unredeemed deposits from a beverage container fee deposit/redemption system (“Bottle Bill”).

4. GENERAL THOUGHTS & RULES OF WASTE AND RECYCLING

- Everything is recyclable, but not everything is economically recyclable.
- What is economically recyclable today may not be economically recyclable tomorrow and vice-versa.

- By definition, Zero Waste is not necessarily reaching 100% landfill diversion. The Zero Waste International Alliance (ZWIA), one of the governing organizations of Zero Waste, defines public recognition of a Zero Waste community as the following: “...determined that it has adopted a Zero Waste goal and is either working towards or diverting over 90% of its discards from landfilling or incineration according to ZWIA Global Zero Waste Community Principles.”
- The majority of costs associated with waste and recycling are almost always related to transportation and handling. The hauling of waste has become a commodity, in some sense, no different than recyclables. The decision of whether or not to recycle a specific commodity is often dependent on the added cost to sort and transport rather than the value of the commodity. A Zero Waste campus/zone would go a long way towards reducing the economic impact transportation has on waste and recycling.
- Waste volumes can “make or break” a recycling program. This means success will ultimately depend on including the waste volumes that are currently handled by commercial haulers in the city, as well as the other municipalities in Allegheny County. Combining local volumes, whenever possible, will result in providing the necessary tonnage to gain economies-of-scale for the program. The City of Pittsburgh, representing the largest volume of waste in the region, is the natural catalyst to move the county and the region towards Zero Waste.
- The common practice among most cities for decades has been to approach waste and recycling as a line-item expense within their budget process. To achieve Zero Waste, a city must shift from a line-item expense based approach to a resource management based approach. Understanding the value proposition of the resources (waste) that Pittsburgh controls is an important step towards extracting the value necessary to achieve Zero Waste.
- Mapping out the process by which waste is “touched” or managed is key in building an infrastructure for Zero Waste. The process includes generation, collection, separation, processing, reuse (3rd party), and fabrication/manufacturing vertical (the holy grail of Zero Waste).
- Contrary to what others may say, the availability of sustainable finance, especially for green infrastructure, is increasing exponentially. It requires a thorough business plan, detailing the economics, as well as an underscoring commitment from the government entity.

5. CURRENT OPERATIONAL INFRASTRUCTURE

5.1 Local Landfills

The City currently utilizes two privately owned landfills, Monroeville Landfill and Imperial Landfill, to dispose of all of the Municipal Solid Waste (MSW). Landfill pricing is very inexpensive for the City at \$25.00 per ton and both landfills have a life expectancy of 30+ years. In addition, all local landfills are equipped with methane capture systems. With the close proximity and inexpensive landfill tipping fees, no Waste-To-Energy option is necessary or financially justified for the City.

5.2 Materials Recovery Facility (MRF)

All of the single stream recyclables collected by the City are transported to the Recycle Source facility which is conveniently located inside the city limits in the Hazelwood neighborhood. Under their current contract with the City, the city-collected recyclables are processed at a cost of \$68.00 per ton with 60% of the revenues earned from the sale of the recyclables shared with the City. In 2016, the net cost per ton, including the City's share of the rebate, was \$5.96 making recycling \$19.04 per ton cheaper than disposing in the landfill.

Residing on 8.5 acres, the 130,000-square foot facility currently operates at 60% capacity. The owners are currently in the process of purchasing four additional acres and would be willing to expand the building if larger volumes were received. They are also planning to accept Construction and Demolition (C&D) debris in the future and have plans to create an educational center on the second floor.

5.3 Recycling Drop-Off Sites

The City currently has six drop-off sites for collecting recyclables. At all six locations, residents are able to dispose of "traditional" recyclables such as plastics bottles and jugs (#1-5,7), mixed paper, glass, aluminum and steel cans, books, junk mail, newspaper, cardboard, and paperboard.

Three of the locations are un-manned locations that are open 24 hours per day, seven days per week. The remaining three locations are manned with City employees and operate from 8:00 a.m. to 2:00 p.m. Monday through Friday with Saturday hours on occasion. These manned locations require proof of City residency and also accept tires (limit of two tires per day per resident), scrap metal, and yard waste at no charge.

The yard waste collected at the manned locations is taken to Wood Waste Recycling. The tires are collected by Liberty Tire and transported to their facility in Ohio. Scrap metal is collected by Castriota Metals in McKees Rocks. The remaining recyclables are taken to the Recycle Source MRF.

5.4 Wood Composting Site

All yard waste collected from the drop-off locations and from the two annually designated residential yard waste collection days is taken to Wood Waste Recycling. Wood Waste Recycling is privately owned and has locations in Bridgeville, PA and McDonald, PA. Bridgeville is 13 miles from the city center and McDonald is 19 miles away. Wood Waste Recycling accepts logs, brush, stumps, grass, leaves, wood pallets, untreated construction lumber, wood chips and discarded plant materials. Their disposal charge is \$29.40 per ton and they provide the City with 10% of their received volume back in compost to apply to City parks.

5.5 Food Composting Sites

At the current time, there are two food composting sites in the Pittsburgh area. Both AgRecycle and Steel City Soils offer services to only commercial and institutional customers at this time and neither are currently contracted with the City.

AgRecycle has been in business since 1991 and is located in Pittsburgh. Using an aerobic windrow process, they produce high quality compost and soil amendments. They provide collection (dumpster only) and drop-off services for: food scraps, yard debris, manures, untreated wood waste, corrugated cardboard and most other organic by-products. All feedstocks are collected from larger clients such as corporate cafeterias, academic institutions, museums, sports and entertainment venues, restaurants, convention centers and complexes, food processors and manufacturers, and grocery stores.

Steel City Soils is a cooperatively-managed group, located in Braddock, PA, that recycles food and yard waste to create high-quality garden compost using an aerobic static pile method. Their vision is to provide small-scale, on-farm compost systems for urban farms. Their compost and soil amendments are sold online and at farmers' markets around Pittsburgh and they accept all pre-consumer and post-consumer food scraps and unbleached paper products. Using 18-gallon totes for collection, they operate a restaurant food waste collection route. The totes are collected up to three times per week and the client is charged per tote.

5.6 Waste Water and Sewage Treatment

ALCOSAN (Allegheny County Sanitary Authority) is an independent authority that provides wastewater treatment services to all of Allegheny County. Approximately half of the bio-solids generated at the facility are combusted and half are lime stabilized and used for land application. The facility's current volume of bio-solids is low in comparison to other wastewater facilities of the same size. Therefore, it could support the addition of large volumes of collected food waste.

5.7 Construction and Demolition (C&D) Recycling Facility

The local C&D recycling facility, Penn Waste Systems, is located six miles from the city center in McKees Rocks, PA. Penn Waste Systems accepts segregated or mixed loads of wood, cement, metal, drywall, glass, brick, stone, large (non-Freon) household appliances, HVAC material, plumbing fixtures, tires and various other construction materials. All loads received are sorted into the various recyclable materials to be transported to processing facilities and the residual material is disposed in their landfill.

Penn Waste Systems is a LEED certified company and can provide monthly landfill diversion reports on loads received by listing tonnages of materials that were recycled versus tons that were landfilled. They can also be contacted early in a construction planning process to help identify deconstruction opportunities for reuse of architectural components and demolition materials.

Note: Penn Waste Systems DOES NOT accept hazardous materials such as paints, asbestos, or Freon.

5.8 Reuse/Donation Facilities

Construction Junction is a non-profit, used and surplus building material reuse store. The store's donation inventory comes from individual or small business drop-offs, free pick-ups from homes or small businesses, and pre-demolition pick-ups. The business was incubated in 1999 by Pennsylvania Resources Council (PRC) and now earns \$1.8M in annual revenue, which is almost self-sustaining. The store employs 30 people and is open seven days a week.

Pittsburgh Center for Creative Reuse (PCCR) is a non-profit, reuse store that accepts and resells items such as art and craft supplies, fabric, yarn, sewing notions, office supplies, paper, business and industrial discards and surplus, or vintage curiosities. In 2015, 82,000 pounds of donations were received from businesses and individuals and PCCR was able to divert 88% of that material from the landfill. PCCR is open seven days a week.

Free Ride is a reuse store for bicycles as well as bicycle parts, wheels, accessories, helmets, and tools. The shop is open on Saturday afternoons.

Free Stores are located in Braddock and in Wilkinsburg. Free Stores receive surplus and donated goods and redistribute them to neighbors in need.

There are also many other reuse stores in the Pittsburgh area such as Goodwill, Salvation Army, Habitat for Humanity ReStore, and Play It Again Sports.

6. ROADMAP INTRODUCTION

With the goal being to achieve Zero Waste by 2030, the City has approximately 13 years in which to formulate the program and achieve the desired result. This document, loosely based on the strategies employed by the Zero Waste Roadmap from Eco-Cycle, Inc., among others, divides the 13-year period into a one-year strategic planning and development phase followed by three (3) action phases. The initial one-year phase consists of creating a P3 and developing a Zero Waste Strategic Plan (ZWSP). The following three (3) phases consist of a menu of potential actions to be considered for the ZWSP which are based on the experience of the R20 team and their knowledge gained during the site visit. It should be noted that with the nature of ever-emerging technologies, any plan concerning Zero Waste should be a living document with built-in flexibility and adaptability.

7. PHASE 0: PREPARE (YEAR 1)

7.1 Create a Public Private Partnership

A public private partnership (P3) maximizes social and environmental goals, such as pollution prevention, resource conservation and local jobs creation, over the long term, and ensures that the community benefit from the new Zero Waste system is always as important as the private benefit of profit.

With the P3 approach, it is recommended that the private side of the partnership be a social enterprise, which is a mission-driven business (either for-profit or non-profit) whose business model is to use the power of the marketplace to achieve social and environmental goals. This is an expansion of the system used in most communities to regulate their private utility companies. Under such an arrangement, the private operator could run a Zero Waste facility at a negotiated fixed profit margin, while the community defines the services to be provided, including benefits to the community, such as youth employment opportunities, local procurement requirements, low processing residue rates, or reduced greenhouse gas emissions.

The P3 would most likely have a board of directors and an advisory council. Members would include, but not be limited to, City Staff, government agencies, Allegheny County and State officials, ALCOSAN, the Pennsylvania Resources Council (PRC), as well as other stakeholders such as haulers and recyclers. In addition, universities, not-for-profits, corporations (e.g. Alcoa, Calgon Carbon, etc.) and Foundations (e.g. Heinz, Carnegie Mellon, etc.) would play a critical role in any P3. These stakeholders, whose motivations may differ, can be united under the opportunity and vision to grow and enhance Pittsburgh's reputation as a national and global leader in sustainable innovation and to solve complex societal challenges to protect human health and the environment and doing so in an economically viable way.

The foundation of the P3 should also include the creation, management and oversight of a Global Waste Innovation Center to service as the economic development arm of the partnership. The P3's directive of coordinating and managing both "Zero Waste Pittsburgh™" and a Global Waste Innovation Center is synergetic and will also mitigate risk for the City by including an economic development aspect to the legislation. The "Global Water Center" based in Milwaukee (<http://thewatercouncil.com/>) and its international reputation, could serve as a model for Pittsburgh to emulate. In that model, Milwaukee has donated buildings and other resources to the "Global Water Center" which has attracted water entrepreneurs from around the world to their incubator site. At the Center, water conferences occur on a regular basis attracting participants from around the world, local universities are collaborating and utilizing the space, and corporations are continuously investing more time and money.

7.2 Create a Zero Waste Strategic Plan

Any "Roadmap" towards Zero Waste must be converted into a more in-depth, Zero Waste Strategic Plan (ZWSP) that serves as the long-term plan to direct the City towards its goal. In its simplest form, the ZWSP is a document that describes in detail how the City of Pittsburgh will reduce, manage and dispose of its multiple and varied waste streams and the strategies to be used to achieve Zero Waste. It is a strategic document that emphasizes the sustainable management of wastes to achieve the maximum efficiency of resources. In addition, it systematically outlines the goals and how they are to be achieved on a step-by-step basis.

The ZWSP is the City's customized version of an Integrated Solid Waste Management Plan, or ISWMP, which is the standard used by the military and many municipalities to guide them through long-term planning. Topics covered include:

- A strategic focus on actions that can be taken to achieve zero waste

- Revenue potential of recycling vs. cost to recycle vs. cost to landfill
- Which recyclable materials should be included in a recycling program and which should be excluded due to relative values?
- Which segment(s) of the solid waste stream deserve the most attention to achieve the greatest diversion potential and cost savings potential?
- What regulatory or financial instruments will best drive the desired behavior and achieve the greatest results?

The ZWSP will guide the development and implementation of an overall solid waste program by establishing specific actions to be taken and setting the criteria for decision making. The ZWSP must be a truly integrated approach, therefore ensuring that all parts of the plan and all of the goals are working in concert and not against one another. In addition to municipal solid waste (MSW), the ZWSP includes managing special industrial wastes, household hazardous wastes, electronic wastes, construction and demolition (C&D) wastes, and organic wastes.

An ZWSP includes regulatory and fiscal policies, technologies, and voluntary measures while covering all aspects of waste management, including:

- Waste generation
- Waste collection/transfer
- Waste transportation
- Waste sorting
- Waste treatment and disposal
- Data collection
- Waste characterization and quantification
- Future projections

Additionally, a ZWSP will include an evaluation of the current waste management situation for the City. It will identify problems and deficiencies with the current program, identify opportunities for improvement, set priorities for action to address current identified problems, measure progress towards achieving the stated goals, and identify the resources necessary along with budgets and timelines.

8. PHASE I: PROVIDE ACCESS TO SERVICES (YEARS 2 – 9)

8.1 Define Goals

In 2015, the mayor issued several 2030 goals for the City of Pittsburgh including the goal of 100% landfill diversion. In order to frame that goal into a usable context, a SMART goals approach is recommended. SMART stands for goals that are: Specific, Measurable, Agreed upon, Realistic, and Time-based. Based on the end goal of Zero Waste and the items included in the ZWSP, the P3 should develop SMART, interim landfill diversion goals for each phase of the approved ZWSP keeping in mind the Zero Waste definition from the Zero Waste International Alliance (ZWIA).

8.2 Create a Measurement System that Supports the Goals

Current System

The Environmental Services Department currently tracks landfill tonnage, tonnage taken to the Materials Recovery Facility, tonnage taken to the wood composting facility, and tonnage collected by the scrap metal vendor and the tire vendor from the City-managed collection system. The information is not publicly shared unless requested.

Proposed System

In order to track success towards the 2030 landfill diversion goal, data collection and reporting needs to begin as soon as possible to encourage ownership of the goal to all citizens. In addition, studies show that actively measuring and tracking recycling information increases participation. To ease administrative efforts and costs, data should be reported quarterly and the results should be provided in the City newsletter and on the City website.

Potential Action Items

1. Track the number of tons per capita going to the landfill for the City-managed residential program with the goal being to move that number closer and closer to zero.
2. Once the first measurement is in place, expand its scope to include the City's landfill tons per capita as whole (i.e. include private haulers (residential multi-units >5), institutions, and specific categories of commercial businesses).
3. Add to the measurement system by sharing the City-managed tons going to the landfill versus tons recycled via a landfill diversion percentage. Note: In 2014, the current national average for landfill diversion was 34.6%¹. The current landfill diversion rate for City-managed collections is approximately 18%, well below this average.
4. Continue to include more facilities and waste streams in the landfill diversion percentage by requiring facilities such as Construction Junction and Creative Reuse to report quarterly tonnage received and tonnage landfilled with the difference contributing to diverted tonnage.
5. Use the results of a standard waste characterization study^{2,3} to associate a tonnage and potential landfill diversion rate increase for every project proposed to the City Council.

Supporting Policies

- Require that private haulers, institutions, and specific categories of commercial businesses submit a quarterly landfill tonnage report to the City.
- Require that all commercial businesses and institutions report their recycling tonnage (specifically state waste streams to be included) to the City's Recycling Division on a quarterly basis. Note: Under PA State Act 101 and §619.06(b), all recycling tonnage must be reported to the City's Recycling Division on a quarterly or yearly basis.

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8.3 Update and Improve Website

Current System

The current website provides residents with proper reduce, reuse, and recycle information. The Materials Recovery Map details disposal options for various materials in a clear, visual format.

Proposed System

The City recycling/reuse website, when properly designed, can easily become the basis of a sound Zero Waste program. The website name could even be associated with a marketing campaign that allows people to easily remember what website to access when they want to know all of the ways to responsibly dispose of an item.

The website should be:

- Easy to read
- Easy to navigate
- All-inclusive for the entire Zero Waste system
- Accurate (updated regularly)
- Designed to provide useful feedback to the City

Potential Action Items

- Provide an alphabetical “look-up” materials listing for the Materials Recovery Map. Example: See the A-Z Recycling Guide at www.ecocycle.org/a-zguide
- Expand the network from the traditional types of facilities accessed by the Materials Recovery Map. Examples:
 - Sharps (needles) options. Most Walgreens provide free sharps containers that can be returned when full.
 - Stores which still accept TVs and the specifics of each program (e.g. Best Buy, Staples, Abt) – if any...
 - Gazelle.com for cellular phones
 - Dry cleaners for metal hangers
 - Include all suggestions currently posted at <http://www.cjreuse.org/recycling-services/other-places-to-recycle-it/> and <http://pccr.org/donate/elsewhere/>

- Create a high-level decision option (e.g. Reduce, Reuse/Donate, Drop-Off-Site, Curb) first for disposal inquiries, followed by specific locations and their respective instructions. Note: Each primary disposal option (e.g. donate) may have several specific location options. Example: <http://recycleannarbor.org/a-z-recycling-guide>
- Use bolder, larger fonts to create an easy-to-read and easy-to-navigate page(s).
- Allow users to enter their own address when searching for disposal options to determine the specific distances to suggested facilities.
- Provide users with a method to request that an item be added to the Materials Recovery Map if it is not currently listed. The City would then be responsible for regularly reviewing the suggestions and making the appropriate additions to the list.
- Provide website links for referenced donation or drop-off facilities where applicable.
- Create a large network of facilities for the Zero Waste system. Include their hours of operation, drop-off requirements, fee (especially if there isn't one), any specifics on what they will and won't accept, and how the item must be prepared. Relaying input from facilities on their requirements or preferences of will encourage a stronger facility network.
- Work with the Recycle Source MRF to identify the top contaminants seen from the City waste stream at the MRF and include all of those items in the "What is not Accepted" section for the curbside recycling program.
- Create a mobile application for the Materials Recovery Map to allow people to access disposal options on the go. Market the app using the City newsletter and website.
- Display the City residential landfill diversion rate on the website and track it towards the goal. Update quarterly to provide community ownership.
- Add a section that explains where materials go for recycling or disposal (e.g. materials recovery facility, compost facility, etc.). Provide video links where applicable.
- List an easy access link or phone number to report illegal dumping.
- Provide links to marketing PDFs available for residential and commercial customers. Examples at: www.ecocycle.org/charm
 - Recycling Guidelines
 - Dirty Dozen (biggest contaminants in the recycling stream)
 - Why Recycle?
 - Composting Guidelines
 - Composting Tips
 - Don't Bag It (don't bag grass clippings)
 - http://www.waco-texas.com/userfiles/cms-solidwaste/file/Dont%20Bag%20It_McLennanCtyExtension.pdf
 - <https://www.denvergov.org/content/denvergov/en/trash-and-recycling/composting/Grasscycling.html>
- Include a list of Frequently Asked Questions (FAQs). Include an area where residents can ask questions and update those questions along with answers on a regular basis.

- Include a community Q&A section to improve involvement, maintain a continuous conversation and provide an outlet for ideas and insights.
- Include a link to a Zero Waste Facility Network Directory file that is a summary list of all of the facilities referenced in the Materials Recovery Map system. Alphabetically list the facilities along with their phone number, website, hours, and a brief listing of materials accepted.

8.4 Build a Local Transfer Station

Transfer stations serve as the link between a community’s waste collection program and the various final waste disposal facilities. Their purpose is to consolidate waste from multiple collection vehicles into larger, high volume transfer vehicles for a more economical shipment to disposal facilities.

Current System

Without a transfer station, each of the City’s 36 trash collection vehicles must travel to one of two landfill sites (a 30 to 34-mile round trip) each time their truck is full. Residents have limited drop-off options for recyclables and especially for hard-to-recycle items and household hazardous waste. Existing options require them to make several trips to various, specialized locations.

Proposed System

A transfer station built in Pittsburgh would allow collection trucks to have a more efficient routing system and reduce greenhouse gas emissions. It could also serve as a much-needed “one-stop shop” permanent, public drop-off for all types of waste including “traditional” recyclables, household hazardous waste, and hard-to-recycle materials such as electronics, mattresses, and small appliances.

With large tracks of land available at former industrial sites, Pittsburgh has an opportunity to utilize City-owned land for a Zero Waste Campus/Zone. A campus/zone could include a transfer station, MRF, CHaRM facility (to be discussed later in this document), etc. and would provide greater efficiencies by reducing transportation costs and increasing economies-of-scale. Both recyclers and manufactures could also be enticed to build or lease space at the Zero Waste Campus/Zone because of the low (land) cost to entry as well as the guaranteed volume of recyclables.

Potential Action Items

- Perform a feasibility study to determine the financial benefit of a centrally located transfer station inside the city limits (based on hauling costs per ton, the round-trip distance to disposal and recycling facilities, and greenhouse gas emissions)¹. If the City chooses to purchase dual-compartment collection vehicles, the project will more likely be financially justified.

- Determine ownership. The transfer station ownership could be private, public, or a combination as part of the Public Private Partnership (P3) mentioned earlier. Republic Services has also mentioned an interest in building one in the past.
- Consider a Zero Waste campus scenario which would require the transfer station/primary drop-off center to be as close as possible to the existing Materials Recovery Facility (MRF). For example, the Almono site², which is less than one mile from the existing MRF, sits on 178 acres and includes the "Mill 19" building that is approximately 180,000 square feet³ in size, could be a viable location.
- Determine the technology, logistic, and facility needs of the transfer station such as:
 - Vendor partners for all materials.
 - Technology for an unattended scale house for haulers (to reduce labor)
 - Two tipping floors (one for trash, one for recyclables)
 - Unloading/sorting area for collected bulky items
 - Public access on one side of the building that has segregated drop-off areas for "traditional" recyclables, yard waste, hard-to-recycle (HTR) materials, household hazardous waste (HHW), etc.
 - Weekend hours in addition to the standard working hour to provide more accessibility for citizens.

References

1. <https://nepis.epa.gov/Exe/tiff2png.cgi/10000P3N.PNG?-r+75+-g+7+D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTIFF%5C00000421%5C10000P3N.TIF>
2. <http://almono.org/>
3. <http://www.bizjournals.com/pittsburgh/news/2016/07/26/ridc-makes-plans-for-almono-site-in-hazelwood.html>

8.5 Provide Collection Bins and Automated Collection Where Applicable

Current System

The City currently provides trash, recycling, and yard waste collection service to single-family homes and multi-unit buildings with five units or less. These residents receive weekly trash collection, recycling collection every other week, and designated yard waste collection twice per year. No food waste collection program is currently offered. No bins are provided by the City for trash or recycling; therefore, residents use a variety of containers and/or bags to transport their waste to the curb.

See the following two tables for information regarding some various examples of collection services and frequencies offered in other cities. Throughout this report, these same cities will be used to compare and contrast different strategy options.

Other Waste Management Collection Programs						
City	Trash	Recycling	Yard	Food	Bins Provided	Automated Trucks
San Francisco, CA	Weekly	Weekly	Weekly		Three	Yes
Denver, CO	Weekly	Weekly	Weekly		Three	Yes
Minneapolis, MN	Weekly	Every Other Week	Weekly (Bags)	Weekly	Three	Yes
Philadelphia, PA	Weekly	Weekly	Seasonal (only includes some areas)	No	No	No
Austin, TX	Weekly	Every Other Week	Weekly	No	Two	Yes
Seattle, WA	Weekly	Every Other Week	Weekly		Three	Yes

Proposed System

Each route or neighborhood would need to be evaluated to determine if automated cart tipping is an option, and if so, the maximum size of trash and recycling bins that are feasible. In areas where automated collection makes sense, bins would be serviced via automated collection, dual-compartment trucks.

These new trucks would automatically lift and tip the two bins into separate compartments to allow one driver to support both the trash and recycling route service at one time. If possible, the new trucks would be fueled by bio-gas since City garbage trucks, operating at three miles per gallon of fuel, are the largest pollution contributors in the City vehicle fleet. In areas of the City where automated collection trucks are not feasible (e.g. densely populated areas with street parking), residents would continue to set out bags on collection day. The current fleet of traditional rear-loading trucks could be used for routes where automated trucks are not feasible, for additional yard waste pickups, for special pickups such as Christmas trees, for collection of construction and demolition waste from various City projects, or sold.

At the same time, an increase in collection frequency for recycling to once-per-week service is recommended. If the City truly embraces a Zero Waste mindset, the frequency of recyclables collection must at least equal to that of trash collection.

Potential Benefits

Bin Distribution

- Improves aesthetics (due to uniform, lidded carts and limited bags outside of carts)

Automated Trucks

- Increases the number of households serviced per route
- Decreases the number of employees needed per route (due to one driver per vehicle, and reduced routes)
- Improves employee working conditions
- Reduces worker's compensation claims

- Reduces employee absence due to injuries
- Increases employee longevity
- Broadens potential employee pool (employees don't have to lift and bend as much)

Dual Compartment Trucks

- Requires fewer trucks and less labor
- Decreases road wear and tear on trucks
- Reduces fuel consumption and associated pollution

Potential Issues

Bin Distribution

- High cost of bins

Automated Trucks

- Cost of cart tippers
- Special routes will be needed to collect bulky waste

Dual Compartment Trucks

- Higher cost than traditional collection trucks
- Will require a local transfer station that has multiple tipping floors (one for trash and one or more for recycling)
- More frequent unload trips if one compartment fills up faster than the other.

Potential Action Items

- Compile list of “Lessons Learned” from the North Side Recycling Bin Pilot.
- Determine which routes can become automated (due to space restrictions, etc.).
- Determine the maximum size of trash and recycling bins possible for each area (e.g. route, neighborhood)
- Meet with the local Materials Recovery Facility (MRF) to determine the top contaminants found in the recycling stream.
- Provide literature with the new bins describing the reason behind the program, specifics on what can and cannot be recycled, how the bins need to be located at the curb, what to do with excess bags, etc.
- Increase the recycling collection frequency to once-per-week.
- Provide “What Goes Where” labels and attach to all distributed bins.

Supporting Policies

- Require that recyclables placed in bins not be bagged (easier to process at MRF).
- Enforce a “outside of bin, no pick-up” policy (for routes or neighborhoods provided with bins).

8.6 Provide Incentive-Based Pricing Through Pay-as-You-Throw (PAYT)

Current System

Recipients of the City-managed collection program are currently not being charged a service fee.

Other Service Fee Structures		
City	Fee Structure	PAYT?
San Francisco, CA	The monthly fee has 4 components: A base charge of \$5.16 and the cost for each of the three bins. The cost for the trash bin is much higher than the cost for the recycling and compost bins, so it encourages residents to use the smallest trash bin possible. For reference: If a resident chose 32 gallon bins for all three, the charge would be \$35.18/month (\$5.16 base charge, \$25.90 for the trash bin, \$2.06 for the recycling bin, and \$2.06 for the compost bin.). Note: The City's Zero Waste Program is funded solely from revenues earned from customers. The revenue sustains collection, processing, disposal (including Hazardous Household Waste (HHW) disposal), and all outreach and marketing. San Francisco has the highest diversion rate in the country at 80%.	Yes
Denver, CO	Several private companies (fees vary)	N/A
Minneapolis, MN	The monthly fee for all services is \$22.89. A separate container fee is \$5/month for 94 gallon containers or \$2/month for 32 gallon containers (includes three bins).	Hybrid
Philadelphia, PA	No city containers are provided for trash or recycling. Services are free.	No
Austin, TX	The monthly fee is based on trash bin size (recycle bins are free). 24 gallon - \$17.90, 32 gallon - \$19.15, 64 gallon - \$24.30, 96 gallon - \$42.85. Extra trash must be placed in bags with a sticker. Stickers cost \$4 each. Note: Austin also requires an \$8.05 monthly Clean Community Fee which includes street sweeping, litter abatement, recycling and reuse drop-off sites, outreach, Zero Waste program development, Clean Austin, dead animal collection, and boulevard sweeping.	Yes
Seattle, WA	The monthly fee is based on the size of trash and food/yard bins (recycle bins are free). The mandatory minimum charge is \$13.70. Trash: 12 gallon - \$20.60, 20 gallon - \$26.10, 32 gallon - \$32.00, 64 gallon - \$68.00, 96 gallon - \$102.00. Food/Yard: 13 gallon - \$5.65, 32 gallon - \$8.50, 96 gallon - \$10.85. Note: The food/yard bins have a much lower cost structure than the trash bins.	Yes

Proposed System

Proven to be successful in many different municipalities that encourage or support Zero Waste initiatives, it is recommended that the City move towards a pay-as-you-throw (PAYT) fee system for waste collection. Under a PAYT fee system, in general, the less trash a household produces, the less the household pays, providing a direct incentive to conserve as with other utilities. Most programs offer three to four bin sizes and charge based on the trash bin size chosen by each household with the fee being the lowest with the smallest bin size.

More than 7,000 communities in the U.S. use some form of a PAYT system, making it one of the most effective ways to improve recycling. It must be clear that PAYT is a redistribution of fees and

needs to be offset with a slight tax reduction. The reduction should be representative of what was originally allocated from the General Fund to finance collection or otherwise it will be viewed as a tax hike and won't likely be politically accepted.

In areas of the City where bins are not feasible, households will not be charged a monthly service fee but will need to purchase special trash bags or stickers which become another method of PAYT. Note: Dual compartment trucks can still be used when hand loading bags.

Potential Benefits

- Encourages waste (trash) reduction while increases recycling participation through price signals.
- Conveys a better understanding of solid waste management costs to residents and increases their awareness of the related issues.

Potential Issues

- Increase in illegal dumping.
- Perception that the program is a way to increase City revenues.

Potential Action Items

- Determine monthly pricing schedule for each size of trash bin offered.
- Provide one recycling bin (maximum size allowed) for free.
- Allow an additional recycling bin to be purchased for a small monthly rental fee (if curb space is available) to further encourage recycling
- Determine the cost of the trash bag stickers or special trash bags that will be used in areas that cannot use the bins. The pricing should be comparable to the bin pricing (by volume).
- Include the PAYT fee (where applicable) in the same bill with the water and sewer service. With a unified bill, failure to pay the bill balance would shut the water off to a residence. Garbage collection would always continue as it is a sanitation issue; therefore, combining with the water/sewer bill indirectly provides payment enforcement.
- Offer a senior or low-income citizen discount to qualified residents.
- Require no fee for vacant residences if they are registered as vacant.
- Arrange for special trash stickers or bags to be available for purchase in local stores.

Supporting Policy

- Propose a PAYT Service Fee
- Enforce a “no sticker or special bag, no pick-up” policy (for routes or neighborhoods not provided with bins).

8.7 Provide Universal Recycling for All Businesses & Multi-Family Units (>5)

In the quest towards Zero Waste, commercial businesses typically “prop up” households as higher landfill diversion rates are easier to attain. The City must encourage and support businesses in their recycling efforts through education and their commitment to the Zero Waste program.

Similar to the residential fee structure, private haulers servicing the large multi-family unit buildings and businesses should be encouraged to charge less per volume for recycling than for trash collection in order to incentivize customers to recycle more.

Supporting Policies

- Mandate that businesses have a recycling program.
- Mandate that recycling be available to all multi-unit housing residents serviced by private haulers.

8.8 Enforce Source Separation Requirements

Current System

Mandates for recycling are currently in place but are not being enforced resulting in a culture where residents and businesses may or may not take recycling seriously.

Proposed System

Enforcement of source-separation requirements must always begin with education and technical assistance, particularly for multi-family unit residents and businesses, as their participation tends to lag behind single-family efforts. High levels of participation are needed to reach recovery rates above 70%, so the City will need to enforce participation and target those that repeatedly fail to participate in recycling and composting programs. A “no sort, no pick-up” policy is an effective enforcement approach—if materials are not separated, discards are not picked up. It is essential that enforcement staffing be a part of any effective Zero Waste plan.

8.9 Re-Evaluate Drop-Off Sites

Current System

See the *Current Facility Infrastructure: Drop-Off Sites* section of this document.

Proposed System

Based on the implementation of several of the recommendations in this document, the current quantity of drop-off sites is adequate. The need for additional sites is unnecessary if the City chooses to include the following strategies in the ZWSP:

- Free curbside recycling collection for single-family and multi-family units with 5 or less units (Recycling collection would continue to be free even with a PAYT program).

- Curbside recycling collection frequency increase from bi-weekly to weekly.
- Recycling collection availability for all multi-family housing units.

With the above strategies implemented, the drop-off sites would be primarily used by the following:

- Residents with tires, excess yard waste or scrap metal to dispose.
- Residents that have an excess of “traditional” recyclables that will not fit in the recycling bin.

Recommendations to improve:

- Ensure all bins at each site are clearly labeled.
- Extend the hours of the manned sites to include weekly Saturday hours. The current operating hours of 8:00 a.m. to 2:00 p.m. do not provide enough accessibility for residents with day jobs.
- Coordinate with a textile-clothing vendor to include clothing drop-off bins at each drop-off site (Textiles represent approximately 7% of residential waste composition.). It is common for cities to charge the textile recycler a monthly fee to place a bin on City property.
- Ensure that all recyclables collected at the drop-off sites are, in fact, being recycled (e.g. cardboard collected on weekends).
- Consider adding other Hard-to-Recycle materials to the list of acceptable materials at the manned sites.
- Pilot a quasi-private drop-off site model as a method of expanding the number of manned sites.

8.10 Expand Residential Yard Waste Collection Service

Current System: Residents included in the City-managed collection program currently have three options for disposing of yard waste which consists of leaves, branches (<=4” diameter), brush, and grass. The tipping fee at the current composting site is expensive.

Options:

1. There are two designated, curb-side, yard waste collection days each year. Any yard waste collected on these days is transported to Wood Waste Recycling in McDonald, PA (12 miles from the city center) for a tipping fee of \$29.40 per ton.
2. City residents can choose to bring their yard waste to one of three manned drop-off sites. Any yard waste collected at these locations is also taken to Wood Waste Recycling. These sites also take larger branches, shrubs and Christmas trees, but the drop-off hours are limited to Monday-Friday from 8:00 a.m. to 2:00 p.m. There is no charge for cars or SUVs to use this service, but trucks and vans are charged by the load.
3. In addition, residents are allowed to set out yard waste on their designated garbage collection day. Any yard waste collected on these days is transported with the garbage to the landfill.

Issues:

- With the current system, a significant amount of the yard waste generated is being landfilled due to the limited number of collections.
- Some residents may be unaware that yard waste collected outside of the two designated collections is being landfilled.
- The tipping fee at Wood Waste Recycling is \$4.40 per ton higher than the landfill.
- Aside from the limited collections, there are only three drop-off locations for yard waste.
- If Christmas trees are not taken to one of the three manned drop-off sites, they are collected with the trash and landfilled.

Other Yard Waste Collection Programs				
City	Collection Frequency	Route	Yard Waste Prohibited in Trash?	Disposal
San Francisco, CA	Weekly	Collected in bins with Food Waste.	Yes	Composted
Denver, CO	Weekly	Collected in bins with Food Waste. Offered to approximately 25% of City. Will double in size in 2017.	No, except for stumps and large branches.	Composted if in compost program; otherwise landfilled.
Minneapolis, MN	Weekly	Collected in compostable bags.	Yes	Composted
Philadelphia, PA	Offer bagged drop-off at 23 locations on various Saturdays (two in April and from mid-November to mid-December). Can also be brought to one of the six sanitation divisions throughout the year.	Weekly leaf route from mid-November to mid-December in limited areas.	No	Composted if collected from leaf route or drop-off location; otherwise landfilled.
Austin, TX	Weekly. Large brush is collected twice per year.	Separate	No	Combined with sewage sludge to create Dillo Dirt.
Seattle, WA	Weekly. Can set out up to 10 extra bags in November.	Collected in bins with Food Waste. Yard waste bags can be purchased separately.	Yes	Composted

Proposed System

Since Pittsburgh is not located in a warm climate, it is not beneficial to provide large bins for sharing yard waste and food waste. Yard waste is only generated 7 to 8 months out of year but

would dictate a large bin that would not be efficiently used during the winter months. Therefore, it is recommended that the City continue with its separate yard waste collection process, but expand the program to include additional, dedicated pick-ups during the warmer months. Residents would still have the option of transporting yard waste to any of the manned drop-off centers.

Potential Benefits

- Provides more annual options for curbside yard waste collection that is diverted from the landfill. Note: Approximately 8–10% of residential waste is yard waste.
- Current rear-loading vehicles could be used for the collection route.

Potential Issues

- Requires additional financial, equipment, and labor resources for additional pick-ups.
- Increases tipping fee costs by \$4.40 per ton versus landfilling for any additional yard waste collected for composting.

Potential Action Items

1. Incorporate a once-per-month yard waste collection route from April through November (six additional collections per year), financed through the proposed service fee. Dispose of all collected yard waste at a compost facility.
 - Possibly set the route for a certain day of the week. Divide neighborhoods into four zones and collect the yard waste the first week in zone 1, the second week in zone 2, etc.
 - Don't impose a bag limit. With yard waste being collected only once per month instead of offering it every week, there should be no limit. In addition, every bag of yard waste collected is a bag that is not landfilled.
2. Set up two additional pick-ups each year, one in April and one in November, that can be used for additional normal yard waste, but also for larger brush (specify with weight and size limits). Since Wood Waste Recycling does have a tub grinder, this type of service could be incorporated. The April additional pick-up could be marketed as a yard clean-up day and the additional pick-up in November could be used as an additional collection primarily for relief from leaf waste.
3. Set up one designated Christmas Tree pick-up in January to provide residents with another responsible disposal option besides transporting their tree to a drop-off site.

Supporting Policies

- Require yard waste collected at the curb be placed in compostable paper bags.
- Prohibit yard waste in the landfills.
- Enforce non-compliance first with education, then warnings, then with fines.

Community Education

- Educate residents, via the City newsletter and on the City website, about final disposition of yard waste with the current system options and potential landfill diversion improvement if all yard waste is diverted from landfill.
- Encourage residents to use “Don’t Bag It” techniques by using mulching lawn mowers and less fertilizer. With only a monthly pick-up, residents will be forced to consider mulching techniques.
- Add a section to the City website that educates residents on proper yard mulching techniques.

8.11 Improve the Bulky Item Collection Process

Bulky waste consists of large waste items such as appliances, mattresses, and furniture that cannot be handled by normal MSW processing methods.

Current System: Residents serviced by the City are allowed to set out up to two bulky items per week on their trash collection day. All bulky waste is collected on the same truck as the trash and is landfilled. Based on this type of collection system, historical volumes for bulky waste cannot be measured but typically represent 4 – 6% of the residential waste stream.

Other Bulky Waste Collection Programs				
City	Collection Frequency	Cost	Item Limit per Collection	Notes
San Francisco, CA	2 appointments per year (<i>call or use online form to schedule</i>)	First two pick-ups are free. Charge for additional pick-ups.	10	States that items will be broken down for recycling by material type. Items that could be reused should be disposed elsewhere.
Denver, CO	Every 4 weeks	Free	5	Appliances are not included in every 4-week collection but are picked up for free by scheduling an appointment.
Minneapolis, MN	Weekly	Free	2	Can get up to six vouchers per year to drop off additional items at the transfer station.
Philadelphia, PA	Weekly	Free	2	Tires or oversized metal appliances will not be collected and must be taken to a drop-off site. Mattresses must be bagged.
Austin, TX	Twice per Year	Free	None	Requires residents to separate items into metal, non-metal and tire categories.
Seattle, WA	Call to request	\$30 per item	None	---

Proposed System:

- Collection Frequency: Provide two to twelve bulky item collections each year collected on a separate route from the garbage. Set a maximum item limit for each of these collections (e.g. 5).
- Cost to Residents: Scheduled collections would continue to be free (included in their monthly service fee). Provide residents an option to schedule additional pick-ups which would be charged at a flat rate of per pick-up (e.g. \$30) and could include up to 10 items.
- Item Types: Furniture, large appliances, carpet, tires
- Process: All bulky items collected would be transported to the transfer station for sorting for re-use or breaking down, if necessary, for recycling. Re-use vendors and recycling processors would remove desired items and/or materials in bulk from the transfer station. All other items would be landfilled.
- Communication and Education: The website would list the bulky item collection dates and would specifically state which items could be included in the Bulky Waste Collection.
- Alternative Disposal Options: Residents would also have the option of transporting bulky items to any drop-off site or finding a possible re-use source through the City website.

Potential Benefit

- Prevents all bulky waste from automatically being landfilled.
- Improves efficiency of the trash route.

Potential Issues

- Extra handling of items
- Additional trucks needed
- Less frequent collection service for residents

Supporting Policies

- Bulky items put out for collection on pick up days not designated for bulky item collection shall result in these items being left at the curbside.
- Information by way of stickers can be affixed to the bulky items explaining why the items were not picked up.
- Continued non-compliance should be addressed first with warnings, then with fines.

8.12 Facilitate the Development of a Food Waste Treatment System

In order to achieve maximum diversion from landfill and decrease the generation of the harmful greenhouse gas methane in landfills, it is recommended that regulations be imposed to eventually prohibit food waste from landfill from large volume commercial and industrial generators of food waste within the City. Prior to enacting any such ordinance, the city must work with the state and

the county to foster and promote growth in the infrastructure of facilities that can handle this type of material. The lack of infrastructure is often the biggest hurdle in diverting food waste from the landfill.

Current System

The two local compost options for organics waste processing and treatment are not likely to be sufficient to manage the influx of volume if organics waste diversion were to become a priority. The city needs additional outlets to handle the anticipated volume of food waste from local businesses and food waste generators.

Potential Options

Appropriate options for food waste treatment systems for the City of Pittsburgh are:

- Construct a City-owned or P3-owned compost facility for food waste and landscaping green waste.
- Enhance the County POTW treatment system (ALCOSAN) to include an anaerobic digester to accept large volumes of food waste as a feedstock.
- Work with the private sector to encourage investment in newer and larger compost systems. Incentives could include buy-back incentives by the City of the finished compost.
- Work with the private sector to encourage investment in anaerobic digesters using food waste as a primary feedstock. Incentives could include purchasing of the biogas and/or electricity produced by the digester by the City.
- Work with local farmers with existing manure digesters to upgrade systems to include food waste as a supplemental feedstock.

Long-Term Phase-In

It is imperative that a food waste ordinance be part of a systematic, long-term plan. A good model would be Massachusetts Commercial Organic Materials Ban, which was a decade in the making. Engagement with local business will be key in communicating the goals and the plan. The first order of business would be to identify all of the large-scale organic waste generators within the City and what volumes are being generated, including identifying current food waste management practices.

After the relevant information as outlined above is gathered and the type of treatment system is chosen, a long-term diversion goal can be implemented. Providing incentives to help support an increase in organics treatment options, as outlined above, is critical in ensuring the necessary infrastructure is in place before any organics ban takes place. Once that infrastructure has been enhanced and can handle the increased volumes, implementing the ban on commercial and institutional large-scale organics waste generators (Massachusetts uses the cutoff of one ton per week) can be implemented.

Supporting Policies

- Commercial businesses that generate more than set amount of waste per week (e.g. four cubic yards or one ton per week) will be required to recycle organics.

8.13 Add Universal Composting Programs for Residential & Small Businesses

Current System

There is currently no food waste collection option for residents in the City of Pittsburgh.

Potential Options

Once the food waste diversion program is fully operational for commercial businesses and large-scale generators, the focus can shift to the capture of this material from single-family households, multi-family housing units and smaller businesses. Again, the strategies for accomplishing this diversion from landfill are varied and a multi-solution approach is encouraged.

Some solutions may include:

- Private door-to-door collection of food waste for a fee to homeowners.
 - Participants are provided with a lidded container (e.g. 5 gallon).
 - Weekly collection
 - Example: <http://www.bennettcompost.com/>
- Offering a weekly municipal door-to-door collection of food waste
- Using sink disposers in households diverting food waste to the sewer system and ultimately the POTW anaerobic digester
- Promoting backyard or in-home composting systems
- Using commercial aerobic digesters for businesses to discharge to the sewer system

For this stage of the program, the City's role would be to promote the various options, educate the citizens, homeowners and business owners of their options and perhaps offer subsidies for select systems to encourage participation.

Some options to incentivize residents to segregate food waste could include the following:

- Offer door-to-door food waste collection as a cheaper per-unit disposal option than trash (subsidize if necessary).
- Offer residents who sign up for a door-to-door collection service a rebate on their monthly garbage bill (e.g. \$8/month) to help cover the additional cost of the service.
- Offer an opt-out of any future mandate if proof of back yard composting is provided.

Note: An approximate residential volume estimate could be obtained by determining the number of households, the average number of pounds per collection for comparable programs, and average participation rates for one, three, and five years after program inception.

Supporting Policies

- Require all new residential construction be equipped with a kitchen sink disposal. Various studies have revealed a 35% decrease in food waste in homes with disposals.
- Prohibit food waste in the landfill a set number of years after universal food waste disposal options are available.
- Require that new or renovated multi-family housing buildings have adequate handling systems for trash, recyclable and compostable materials collection.

8.14 Institute a Fee or Ban on Plastic Shopping Bags

Disposable packaging (e.g. polystyrene (Styrofoam) and single-use plastic shopping bags) are an infamous symbol of unsustainable consumption. Implementing fees or bans on these types of products will reduce waste and raise awareness about the negative impacts of our throwaway society.

Current System

There is no ban, tax or fee on plastic shopping bags in the City of Pittsburgh. The bags clog storm drains, clog the MRF equipment, add to the litter problem, are a landfill nuisance (blow around), and are difficult to recycle (only 5% are recycled nationwide).

Proposed System

Option 1

Ban plastic bags and charge per-bag for purchase of recycled paper bags (state of California)

- Alameda County, CA - Experienced an 85% reduction in plastic bag purchases since their ordinance inception in 2013. The number of shoppers bringing a reusable bag has more than doubled. The ban was recently expanded to include more types of retailers.

Option 2

Keep plastic bags but charge a per-bag fee for use. Encourage shoppers to bring their own reusable bags. Use revenues generated to support Zero Waste projects.

- Washington D.C. - Implemented in 2010, they charge a \$0.05 fee per bag. The program generates an annual revenue of over \$2M.
- San Jose, CA – Implemented in 2012, they charge a \$0.10 fee per bag. Customers on government assistance programs such as WIC or food stamps are exempt from the fee.
- San Francisco, CA – Implemented in 2012, they charge a \$0.10 fee per bag. All bags must be made of compostable plastic or recyclable paper or be reusable.

Potential Opponents

- Legal challenge by the plastics industry
- Retailers – Could cause sales to decline if customers choose to shop at stores outside of the ban or fee area.

Resource: http://www.bagitmovie.com/downloads/bagittown_toolkit.pdf

- Describes pros and cons of each option
- Lists cities that have implemented each option
- Provide tips on engaging citizens and working with City Council
- Provides sample ordinance language

Supporting Policies

- Begin with primary retail users and expand over time. Don't require participation from restaurants, dry cleaners, charitable organizations, or for protective bags used for produce, meat, prepared foods or prescription medicine.
- Require retailers to offer an alternative bag option (recyclable paper bag or reusable bag).
- Charge a fee to the customer on disposable bags needed to encourage the use of re-usable bags. \$0.05 minimum per bag in year 1. \$0.15 in year 2, and \$0.25 thereafter. The additional revenue provides a marketing budget for retailers to promote re-usable bags.
- Exempt shoppers who use food stamps or WIC from the program.

8.15 Incorporate a Purchase Deposit on Beverage Bottles

“Bottle Bills” are currently in place in eleven (11) states in the U.S. The bill requires a refundable deposit be included when beverage containers are purchased that is refunded to the consumer if the empty bottles are returned for recycling.

Current System

The state of Pennsylvania does not currently have a “Bottle Bill” in place. Used beverage bottles are disposed along with other “traditional” recyclables (hopefully into a single-stream recycling container).

Bottle Bill Details for Three Participating States			
	Michigan	Connecticut	Oregon
Deposit (Rebate) per Container	\$0.10	\$0.05	\$0.05, but increasing to \$0.10 in 2017
Redemption Rate	94.2% (2014)	56.5% (2014)	64.5% (2015)
Handling Fee <i>(charged back to the Distributor)</i>	None	Beer: \$0.015, Other: \$0.02	None
Unredeemed Deposits	75% to state for environmental programs, 25% to retailers	Returned to the State	Retained by distributor/ bottlers
Reclamation System	Retail stores	Retail stores and redemption centers	Retail stores and redemption centers

Bottle Bill Details for Three Participating States			
	Michigan	Connecticut	Oregon
Beverages Covered	Beer, soft drinks, carbonated & mineral water, wine coolers, canned cocktails	Beer, malt, carbonated soft drinks, and bottled water	Beer, malt, carbonated soft drinks, & bottled water (will cover all beverages except wine, liquor, milk, and milk substitutes by 2018)
Containers Covered	Any airtight metal, glass, paper, or plastic container, or a combination, under 1 gallon	Any individual, separate, sealed glass, metal or plastic bottle, can, jar or carton containing a beverage. [b]Excluded are containers over 3L containing noncarbonated beverages, and HDPE containers.	Any individual, separate, sealed glass, metal or plastic bottle, can, jar containing a covered beverage in a quantity less than 3 fluid liters
Notes	Requires a machine-readable state-specific mark to be printed on most beverage containers indicating whether the container is redeemable; increases penalties for fraudulent redemption.		Increasing deposit to \$0.10 due to a decline in redemption rates over the last few years.

Proposed System

Based on historical data from other states, instituting a \$0.10 per-container deposit is low enough to be accepted by consumers while providing an extremely high redemption rate.

Program Benefits

- Insures a higher recycling rate
- Creates revenue from unredeemed bottles (if included in the model)
- Provides net job gains
- Aids in reducing the City's litter problem (especially at events)
- Produces a cleaner recycling stream for processing
- Provides a financial incentive to recycle

Potential Opponents and Myth/Fact Sheet

<http://www.bottlebill.org/about/mythfact.htm>

8.16 Expand Electronic Waste Disposal Options

Current System

Since 2010, televisions, computers or computer peripherals have been banned from the landfill by the Department of Environmental Protection of the State of Pennsylvania. Therefore, the City is not permitted to collect these items at the curb or at City drop-offs sites.

For computers and peripherals, there are several no-cost drop-off options including Best Buy, Goodwill and a few electronic waste recyclers. Free options for the disposal of televisions and monitors have basically been eliminated due to the processing costs involved. Since residents have no option for free disposal, many of them resort to placing these items on the curb leaving the City to collect them and absorb the cost of responsible disposal. With televisions making up over 60% of electronic waste pounds collected, the difficulty and cost to recycle is a massive issue. Local e-waste recyclers no longer hold collection events due to the large influx of televisions collected at past events. Evolution Recycling, for example, now charges \$0.90 per pound to accept televisions for disposal. With the average television weighing 31 pounds, most residents are not willing to pay \$25 to \$30 to dispose of them properly.

Other Electronic Waste Collection Programs				
City	Description	Frequency	Cost	Permanent Drop-Off Locations
San Francisco, CA	Electronics can be included in the free bulky waste service (Residents get 2 scheduled free pick-ups per year) or they can be taken to the transfer station for free.	Pick-Ups: 2 per year Drop-Off: Monthly	Free as part of the two bulky pick-ups. Free at the transfer station if monthly disposal is <30 items. Items above 30 are charged at \$1.50/item.	One. The transfer station.
Denver, CO	Has a public private partnership with an e-waste recycler that provides residents with an e-waste coupon allowing them to dispose of electronic waste at a significantly discounted rate. Coupons are mailed.	Pick-Ups: None Drop-Off: 1 coupon per calendar year	Monitors and TVs are \$10/unit for the 1 st and 2 nd unit and \$40-\$75/unit for 3 rd unit +. All other e-waste is free for first 2 items and \$5/lot for more.	One. Drop-Off is at the recycler's facility.
Minneapolis, MN	Up to two items can be placed curbside on recycling pick-up day (every other week). Noted and picked up by a separate truck the following day.	Pick-Ups: Every other week. Drop-Offs: Unlimited	Free curbside collection every other week. At drop-offs, TVs, monitors and lap-tops are \$10 each. All other items are free.	Two
Philadelphia, PA	No collection service is available, but residents can drop-off at any of the six Sanitation Convenience Centers.	Pick-Up: None Drop-Off: Unlimited	Free with proof of residency.	Six

Other Electronic Waste Collection Programs				
City	Description	Frequency	Cost	Permanent Drop-Off Locations
Austin, TX	There is no collection route, but residents can drop off all items at the Resource Recovery Center.	Pick-Up: None Drop-Off: Unlimited	Free to residents.	One. The Resource Recovery Center.
Seattle, WA	Residents can recycle televisions, monitors, and computers for free through businesses listed on the Take It Back Network. Some locations may charge a fee for other electronics or peripherals. Free through a program called "E-Cycle Washington"	Pick-Up: 2 companies offer Drop-Off: 10 companies offer	Free if in "Take It Back" Network.	There are 12 locations in the "Take It Back" network. Two are pick-up services only.

Proposed System:

- Subsidize an e-waste recycler to allow them to accept televisions from City residents for free (Eliminates the City having to collect and transport when left at the curb.).
- Provide an additional permanent drop-off location at the new local transfer station.

Supporting Policies

- Require manufacturers selling electronic products to recycle or refurbish a certain weight of what is sold. (e.g. The 2008 Electronic Products Recycling and Reuse Act, Illinois)
- Require that stores selling televisions allow customers to bring in one old television for every television purchased (with no size limit on the television brought in for recycling).
- Require any drop-off to accept all types of electronics, including televisions and monitors. (Prevents "cherry-picking" events that have occurred in the past).

8.17 Expand Hazardous Waste (HHW) Drop-Off Options

The EPA considers some leftover household products that can catch fire, react, or explode under certain circumstances, or that are corrosive or toxic as household hazardous waste. Products, such as paints, cleaners, oils, batteries, and pesticides can contain hazardous ingredients and require special care when disposed. While exempt from Federal Hazardous Waste regulations, as a matter of safety and in the interest of pollution prevention, it is always beneficial to collect and treat these materials separately from the municipal waste stream.

Current System

- Automotive batteries and motor oil can be taken to one of three Advance Auto Parts locations.
- Pennsylvania Resources Council (PRC) provides special HHW collection events. In 2016, three events were held in Allegheny County.
- Pennsylvania Resources Council (PRC) provides special Drug Take Back events. In 2016, one event was held in Allegheny County.
- The Drug Enforcement Administration (DEA) website lists two Pittsburgh locations as authorized collector locations for unused medications and one of the Pittsburgh Police Stations has a MedReturn box.

Potential Action Items

- Add MedReturn medication drop boxes at all six police stations instead of just one.
- Include HHW drop-off service in the new transfer station to allow residents at least one location to be able to dispose of HHW year-round.
- Provide more frequent Household Hazardous Waste Collection Events

8.18 Require Recycling Participation in Schools

Educating today's children on how our waste and resources are managed is a great investment in the future and provides a way to educate families through their children at school.

Current System

There are approximately 80 schools in the Pittsburgh Public School District. The trash hauling from the schools is provided by private haulers and the recyclables are collected by the City. Recycling program participation is left up to the principal of each school resulting in a wide variety of results.

Potential Action Items

- Issue a "Green Star School" certification to schools who meet certain recycling minimum requirements.
 - Incentivize schools by creating a healthy, competitive environment between schools.
 - Require schools to submit recycling and trash tonnage and student population data each quarter.
 - Issue different levels of certification based on landfill diversion rate and pounds of trash per student.
 - Provide an elite-level certification to schools that choose to incorporate a food waste program prior to the required date (if part of the ZWSP).
- Provide education

- Provide classroom presentations on recycling, composting, and waste reduction through the P3.
- Prepare a Recycling Toolkit for schools that provides:
 - Details on how to perform their own waste audit
 - Sample posters
 - What should and should not go into the recycling bin
- Special Projects
 - Conduct a Waste-Free Lunch Contest between schools where schools compete to see which school can have the least amount of lunch-time trash per student.
 - Conduct a Locker Leftovers Project by donating remaining end-of-year school supplies to charities such as Pittsburgh Center for Creative Reuse.

Supporting Policies

- Require that all Pittsburgh schools establish a recycling program that requires at least a minimum number of interior recycling bins based on student population and the completion of an education program for students and administration.
- Require schools to submit trash and recycling tonnage to the City each quarter.

8.19 Lead by Example

City agencies should lead by example to implement all of the Zero Waste actions asked or required of residents and businesses.

- Require that new or renovated city buildings have drinking fountains that include bottle filling stations.
- Prohibit City departments from using public funds to purchase bottled water.
- Set recycled content and other guidelines for commodities regularly purchased by City departments.
- Establish a reuse and recycling hierarchy for redistributing excess city equipment and supplies.
- Appoint a Zero Waste Coordinator to lead these efforts in all City buildings.

9. PHASE II: BUILD PARTICIPATION (YEARS 10 – 11)

Changing public behavior is one of the toughest challenges in the Zero Waste journey because no one likes to be told that they have to do something. But the role of government is to provide for the general welfare of the public, and to do rules must be created that require individuals and businesses to behave in a certain way that is necessary for the well-being of the community.

9.1 Improve Recycling Practices at Special Events

Current System

Special event organizers are required to submit an adequate recycling plan as part of their application for a special event permit if expected attendance is greater than 200. Tailgating before concerts, sporting events is a problem. Many parking lots are co-owned; therefore no one is held accountable.

Potential Action Items

- Require that a recycling deposit (e.g. \$500) be charged and refunded when the event organizers provide a recycling report at the end of the event. Report should list:
 - type of event
 - estimated attendance
 - duration of event
 - quantity and size of trash containers provided
 - quantity and size of recycling containers provided
 - frequency of service of containers
 - tons landfilled
 - tons recycled
 - litter clean-up man hours
- Develop sample recycling plans for small, medium, and large special events.
 - Plan should provide event organizers with an estimated number and size of trash and recycling containers recommended based on the type of event, estimated attendance, and length of event.
- Enact a “bottle bill”.
- Require that concert promoters provide trash and recycling bags to tailgaters upon entry to the parking lot.
- Encourage venues and special events to adopt Zero Waste goals as part of a larger “green events” policy and use incentives and technical assistance to help them implement goals.

Supporting Policies

- See Potential Action Items

9.2 Issue Various Landfill Bans

Landfill bans reinforce source-separation requirements and spur the development of facilities, businesses and markets to recover recyclable and compostable materials. Both local and state governments can implement disposal bans for materials such as all traditional recyclables, yard debris, universal waste, inert C&D materials, electronics, appliances and commercial food waste.

Current System

There are currently no landfill bans on “traditional” recyclables or food waste in Pennsylvania’s landfills. A ban does exist for trucks containing more than 50% leaves and the Covered Device Recycling Act of 2010 prohibits landfill disposal of televisions, computers, and peripherals. There are also bans on friable asbestos, whole tires, lead acid batteries, and untreated infectious waste.

Proposed System

In Phase Two, all residents and businesses should now be required to separate their discards for recycling and composting. Mandatory recycling programs maximize the diversion of traditional recyclables and underscore that everyone plays a part in a Zero Waste community. Enforcement should be introduced slowly, so that everyone understands and feels that it is fair. The first enforcement push should focus on education and providing technical assistance to make recycling more convenient and accessible, particularly at businesses and MFUs.

Supporting Policies

- Issue a landfill ban for each category (“traditional” recyclables, yard waste, food waste) a set number of years (e.g. 5) after residents and businesses have full access to the program services as planned in the ZWSP.
- Prohibit food service businesses from using non-recyclable or non-compostable food service ware.

9.3 Expand Waste Reduction and Reuse Initiatives

Setting up convenient community-wide systems to recycle and compost is the first focus of any Zero Waste community plan, but reducing overall waste generation and using resources more efficiently is the ultimate goal. The focus should now shift toward waste reduction by promoting reuse and repair facilities, purchasing durable instead of disposable goods, and supporting collaborative consumption through sharing rather than owning.

Pittsburgh, like most communities, has a fragmented network of independent reuse and resale outlets such as thrift stores, antique shops, building material resale stores, pawn shops and online exchanges. There are also repair businesses for products like computers and appliances. These facilities are a critical, but often undervalued, asset to both building a Zero Waste community and supporting a thriving local economy. Public support for these private businesses is in the City’s best interest because of the environmental, social and economic benefits they bring to the local community.

Current System

See the *Current Facility Infrastructure: Reuse/Donation Facilities* section of this document.

Proposed System

Acknowledging and promoting the City's existing reuse and repair infrastructure should begin by utilizing the Materials Recovery Map on the City's website to create an all-inclusive network of existing reuse facilities categorized by the materials they accept. A great way to begin this process is to include the reuse networks already shared on the websites of Construction Junction¹ and Pittsburgh Center for Creative Use².

Another means of expanding the documentation of a reuse/repair network is to inquire at the City's various reuse shops as their employees are generally aware of other local reuse opportunities. Internet research of reuse listings from other cities can also help to identify possibilities. Once the listing has been vetted and compiled, it should be evaluated to determine where gaps exist and updated as new businesses develop.

References

1. <http://www.cjreuse.org/recycling-services/other-places-to-recycle-it/>
2. <http://pccr.org/donate/elsewhere/>

9.4 Build a Center for Hard-to-Recycle Materials

Hard-to-Recycle materials are items that cannot be easily recycled through curbside collection. Some examples of Hard-to-Recycle materials are electronics, tires, paint, Freon-containing appliances, fluorescent tubes, bulbs, batteries, and mattresses. Hard-to-recycle materials can comprise 15% or more of a community's waste stream and often contain toxic materials that need to be safely managed to protect public health and the environment.

Current System

Since 2003, PRC has held Hard to Recycle collection events in the Pittsburgh area several times each year with the goal of providing responsible and convenient recycling for items that cannot be recycled at the curb.

Proposed System

A center for hard-to-recycle materials, or CHaRM, is a facility where residents can dispose of a variety of materials and can also serve as a collection point for universal or household hazardous waste (HHW). In addition, a CHaRM creates local reuse opportunities and small-scale entrepreneur opportunities in the form of appliance repair, etc.

In order to minimize transportation costs, the CHaRM should be a part of the Zero Waste Campus / Zone by being included as part of the new transfer station or directly adjacent. The typical fee structure for a CHaRM is to charge a flat fee (e.g. \$3.00) per vehicle with additional fees for some specific items. Additional financing could come in the form of a subsidy from the City, the P3, or various recycling processors. Currently, there are CHaRM facilities in Boulder, CO, Atlanta, GA, and Athens, GA.

References

- Boulder, CO: www.ecocycle.org/charm
- Atlanta, GA: livethrive.org/charm/
- Athens, GA: <https://athensclarkecounty.com/5894/CHaRM>

9.5 Require Producer Responsibility for Hard-to-Recycle (HTR) Materials

Extended producer responsibility (EPR) programs recover hard-to-recycle or toxic materials and lessen the financial burden on municipalities for handling these materials. Early priority EPR materials include electronics, paint, and mercury-containing products. Programs for carpet, mattresses, pharmaceuticals and batteries are evolving rapidly, as well, and should be considered. There are currently 89 EPR laws now on the books across 33 U.S. states. California and Maine are national leaders.¹

The theory behind EPR legislation is the “Polluter Pays” principle: Those who manufacture disposable, single-use products and packaging (i.e. toxic, non-recyclable, non-compostable) should be held responsible for the negative environmental and economic impacts of their choices. The City government should lobby for state-level EPR laws that shift the management of discarded products and packaging from general taxpayers to the manufacturers and consumers responsible for generating this waste.

Supporting Policy

- Create a General Producer Responsibility Resolution that supports statewide efforts to hold producers responsible for product waste and agencies to include producer responsibility language in city purchasing contracts.

Reference

1. http://www.productstewardship.us/?State_EPR_Laws_Map

9.6 Recover Materials from Mixed Construction/Demolition Loads

Current System

See the *Current Facility Infrastructure: Construction & Demolition (C&D) Recycling Facility* section of this document. The City is also fortunate to have an established building materials reuse store in Construction Junction.

Proposed System

In order to reach high levels of Construction and Demolition (C&D) recovery, the City will need defined recycling targets and a strong partnership with Penn Waste Systems (or a similar facility). With Penn Waste Systems having the current capability to accept and sort mixed loads and being in close proximity to the City center, make it a very attractive Zero Waste partner for the City. Since

urban work sites typically have limited space for sorting recyclable materials onsite, it is crucial that the primary C&D processor have that capability.

While C&D materials are not included in the EPA's definition of municipal solid waste (MSW), this high-volume, high-visibility waste stream must be considered as recovering these materials saves energy and greenhouse gas emissions, reduces pollution and creates jobs.

Supporting Policies

- Require that all haulers transporting C&D materials deliver them to certified C&D processing facilities that meet minimum recycling requirements.
- Require C&D project companies use only city-registered transporters and processing facilities to increase debris recovery.
- Consider policy that incentivizes deconstruction vs. demolition.
- Incentivize recycling of construction materials through adjustments to permitting fees (or by requiring deposits refunded) when waste diversion goals for a project are met.

10. PHASE III: RECOVER WHATEVER'S LEFT (YEARS 12 – 13)

By the time the City enters Phase III, the fundamental infrastructure, policies and programs to recycle and compost 75% or more of the waste stream will be present with households, businesses, schools, and government participating. Now the focus shifts toward whatever's left in the waste stream by reducing resource consumption through larger cultural and economic systems, redesigning products that currently cannot be recovered, and implementing advanced sorting technologies to recover the remaining recyclable and compostable materials. At the point in the process, the City should:

- Conduct another Waste Characterization Study to reassess the residual waste stream (what is still being landfilled) to identify areas for opportunity.
- Evaluate technologies that have recently emerged that could be suitable in attacking the residual waste stream.

11. CONCLUSION

Pittsburgh has made a global statement with its transformation from an industrial based economy to a center of innovation. At the same time, applying and being chosen as one of the "100 Resilient Cities" around the world, shines an even brighter light on its leadership, vision and commitment to become a more resilient city.

Zero Waste is an ambitious but important endeavor. No single strategy will result in success and each community must carve its own path, cognizant of and willing to work within its existing political environment, financial boundaries, and legislative systems. By utilizing various strategies

identified in this plan, developing supportive partnerships, and remaining dedicated to the long-term goal of Zero Waste, Pittsburgh will be on the way to becoming among the most sustainable cities in the nation.

12. STRATEGY SUMMARY LIST

Strategy	Cost to Implement	Implementation Difficulty	Risk	Landfill Diversion Potential
Phase I – Provide Access to Services				
Define Goals	Low	Low	Low	N/A
Create a Measurement System that Supports Goals	Low	Low	Low	N/A
Update and Improve Website	Low	Low	Low	N/A
Build a Local Transfer Station	Medium	Medium	Low	Low
Provide Collection Bins and Automated Collected Where Applicable	Medium	Medium	Low	High
Provide Incentive-Based Pricing Through PAYT	Low	Medium	Medium	N/A
Provide Universal Recycling for all Businesses and Multi-Family Units >5	Medium	Medium	Low	High
Enforce Source Separation Requirements	Medium	Medium	Medium	Medium
Re-Evaluate Drop-Off Centers	Low	Low	Low	Medium
Expand Residential Yard Waste Collection Service	Medium	Medium	Medium	Medium
Improve the Bulky Item Collection Process	Low	Medium	Medium	Medium
Facilitate the Development of a Food Waste Treatment System	Medium	Medium	Medium	High
Add Universal Composting Programs for Residential and Small Business	Medium	Medium	Medium	Medium
Institute a Fee or Ban on Plastic Shopping Bags	Low	Medium	Low	Low
Incorporate a Purchase Deposit on Beverage Bottles	Medium	Medium	Medium	Medium
Expand Electronic Waste Disposal Options	Low	Low	Low	Low
Expand Household Hazardous Waste Drop-Off Options	Medium	Medium	Medium	Medium
Require Recycling Participation in Schools	Low	Medium	Medium	Medium
Lead by Example	Low	Medium	Medium	Medium
Phase II – Build Participation				
Improve Recycling Practices at Special Events	Low	Medium	Low	Medium
Issue Landfill Ban for all “Traditional” Recyclables, Yard Waste, & Food Waste	Low	Medium	Medium	High
Expand Waste Reduction & Reuse Initiatives	Low	Medium	Low	Medium
Build a Center for Hard-to-Recycle (HTR) Materials	Medium	Medium	Medium	Medium
Require Producer Responsibility for HTR Materials	Low	Medium	Medium	Medium
Recover Materials for Mixed Construction/Demolition Loads	High	High	High	High
Phase III – Recover Whatever’s Left				