Zero Waste Community Planning Toolkit Manual

Created by

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Overview of Tool Use

The Zero Waste USA tools are used for Zero Waste planning. The tools were developed to solidify the Zero Waste community planning process that began in the early 2000s. Since then, there has been a need for Zero Waste community planning to help municipalities sustainably manage materials.

Zero Waste USA board members and staff designed most of these tools. Also included are two tools developed by the U.S. Environmental Protection Agency (EPA).[1] Zero Waste USA teaches the basic principles behind the EPA tools because they are valuable in Zero Waste community planning.

This manual outlines the tools used in Zero Waste community planning. The goal of this manual is to aid the student's understanding of the tools. Tools #1 – 6 and the EPA Managing and Transforming Waste Streams Tool are taught during Zero Waste USA's Zero Waste Associates Course. Zero Waste USA also offers a class called Advanced Zero Waste Planning. All the tools are taught during that class, including the advanced tools. Please contact Amanda Waddle, Zero Waste USA Education Program Manager, with questions. amanda@zerowasteusa.org

Zero Waste USA Tools

Zero Waste USA tools are designed for use during Zero Waste community planning and are available to anyone. Zero Waste USA instructors teach students how to use the tools during the Zero Waste Associate Course and the Advanced Zero Waste Planning Class. The tools are listed in order of use and complexity. The information gleaned from these tools helps the user understand the current situation in the community and planning level outcome and implementation estimates. In addition, these tools further allow the user to analyze the initiatives using the advanced Zero Waste tools.

1. Zero Waste Community Planning Checklist

The **Checklist** inventories the current policies, programs, and infrastructure related to Zero Waste for the community being analyzed. It can also serve as a "wish list" for the community (i.e., highlight the initiatives desired to be included in the Zero Waste plan).

- **File Version** –Word document and Excel file
- **Purpose** - Identify what policies, programs, and infrastructure a community (city, county) has. The client can also use this tool as a "wish list" of initiatives desired in the plan.
- **Goal** - To gain knowledge of the current policies, programs, and infrastructure for the community being analyzed and understand the desired initiatives.
- **User** - Client, Student, Consultant
- **Outcome** - The student and consultant will know the current policies, programs, and infrastructure available to the community. They will also learn about the initiatives desired by the community to achieve Zero Waste

2. Service Analysis

The **Service Analysis Tool** identifies if a service in the community is currently diverting materials from destructive disposal[2] (landfill or incineration). This tool identifies the type of service (e.g., curbside, drop-off) available by material type and sector (e.g., single-family, multifamily, ICI[3]). It also identifies the

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[1] US EPA

[2] Destructive disposal means materials going to an end-of-life facility such as a landfill or incineration.

[3] Institutional, Commercial, Industrial (ICI)

capacity available for the community analyzed. It is considered a **void** if no service diverts the material from disposal.

- **File Version** – Word document and Excel file
- **Purpose** - The service analysis is an opportunity to identify if a service is available to divert materials from destructive disposal and identify the service available by material type for the analyzed community. It is a **void** if no service diverts the material from destructive disposal.
- **Goal** - To gain knowledge of the service voids by material type related to diversion opportunities in the analyzed community. The goal is also to understand the kind of service by material type and determine if there is enough capacity to divert all the materials from destructive disposal. This tool and the checklist help the consultant/student understand the current community situation they are working with.
- **User** - Student, Consultant
- **Outcome** - The student and consultant will know the current situation in the community. This includes knowing all the diversion opportunities for each material type by sector. Also identified by using this tool is the service void by material type.

3. Generation and Diversion Tool

The **Generation and Diversion Tool** shows a community's generation of materials for the base year, the per capita material use, and the diversion by type and total. These baseline measurements are needed when beginning the Zero Waste planning process. Future initiatives will be compared against these baseline data.

- **File Version** – Excel file
- **Purpose** - Organize the community's generation and diversion data. It also calculates the per capita material generation.
- **Goal** - Understand the community's baseline generation and diversion data during the beginning of the Zero Waste planning process. This tool allows the student and consultant to identify the **total amount of materials going to destructive disposal** (tons). The Zero Waste plan will focus on reducing and diverting the tons of material going to destructive disposal through the initiatives chosen by stakeholders and using these tools.
- **User** - Student, Consultant
- **Outcome** - The diversion rate, destructive disposal (tons), and total generation (tons).

4. Destructive Disposal Stream Composition Analysis Tool

The **Destructive Disposal Composition Analysis Tool** lets users understand the materials going to destructive disposal. This tool and the following two tools analyze the destructive disposal stream. The goal is to understand the materials that can be reduced or diverted through Zero Waste initiatives. The composition data represents average composition data taken from several actual characterization studies.

- **File Version** – Excel file
- **Purpose** – This tool shows the material composition of the community's destructive disposal stream.
- **Goal** – Understand the composition of materials going to destructive disposal for the community being analyzed. This allows the student or consultant to begin to evaluate what Zero Waste policies, programs, and infrastructure initiatives are needed to reduce and divert materials from destructive disposal.

- **User** – Student, Consultants
- **Outcome** – An understanding of the destructive disposal composition in the community.

4a. Destructive Disposal Composition US EPA Landfill

Table 4a shows the composition of landfilled materials in the United States based on US EPA landfill composition data.[4]

4b. Destructive Disposal Composition US EPA Incineration

Table 4b shows the composition of materials going to incineration in the United States based on US EPA landfill composition data.[5]

5. Twelve Market Analysis Tool

The **Twelve Market Analysis Tool** shows the estimated tons of materials going to destructive disposal in each of the 12 market categories based on local, regional, or national material characterization data. The 12 market categories are based on Urban Ore's research in the 1980s and show that all discarded materials fit into the 12 market categories and are recoverable.[6]

- **File Version** – Excel file
- **Purpose** – shows the material composition of materials going to destructive disposal for the community being analyzed.
- **Goal** – Gain an understanding of the materials going to destructive disposal. This allows the student or consultant to strategize what initiatives are needed to achieve Zero Waste.
- **User** - Student, Consultants
- **Outcome** – The students and consultants will gain an understanding that most materials going to destructive disposal will fit into the twelve market categories.

6. Destructive Disposal Stream Composition and Market Analysis Tool

The **Composition and Market Analysis Tool** continues the Disposal Composition Analysis Tool #4. This tool applies data from Tool #3 (Total Disposed (tons)) and uses the same material characterization study from Tool #4. This tool shows the types and composition of materials in the destructive disposal stream, the value of materials going to destructive disposal, and the material markets for the community being analyzed. For this tool, Reusable Goods are a material category and represent a percentage of materials going to destructive disposal. This is important because Reusable Goods are valuable materials that should be evaluated for policies, programs, and infrastructure needs. The value of several commodities (e.g., corrugated cardboard, PET #1, aluminum cans) is provided based on the national average price per ton. These prices can be substituted for local prices for commodities if that is known. If actual characterization data are available for the analyzed municipality, those data should be used and can be substituted in this tool.

- **File Version** – Excel file
- **Purpose** – This tool shows the material composition of the community's destructive disposal stream, including **Reusable Goods**. This tool also illustrates the value of materials sent to destructive disposal.
- **Goal** – Understand the composition and value of materials going to destructive disposal for the analyzed community. This provides the student and consultant with the information needed for the Zero Waste planning process.

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[4] US EPA Advancing Sustainable Material Management, 2018 Fact Sheet; page 9
[5] US EPA Advancing Sustainable Material Management, 2018 Fact Sheet; page 9
[6] *Zero Waste Science* – *Twelve market commodities comprise the entire discard supply anywhere in the world.*

- **User** - Student, Consultants
- **Outcome** – A detailed understanding of the destructive disposal composition in the community and the estimated value of that stream

6a. Market Material Value

This table shows the estimated value of several materials going to destructive disposal. These data were taken directly from Table 6. This is another way of looking at the tons going to Destructive Disposal and a valuable way to show that these materials have value.

U.S. Environmental Protection Agency Tools

1. Managing and Transforming Waste Stream: A Tool for Communities

The Managing and Transforming Waste Streams Tool includes 100 policies, programs, and infrastructure initiatives that communities can implement to reduce the number of materials going to destructive disposal. It also promotes material reduction and reuse across sectors. There is an interactive spreadsheet, a list of 100 initiatives, and over 300 case studies and examples.

2. Waste Reduction Model (WARM)

The Waste Reduction Model (WARM) estimates potential greenhouse gas (GHG) emissions reductions, energy savings, and economic impacts from several waste management practices. WARM estimates these impacts from baseline and alternative waste management practices—source reduction, recycling, anaerobic digestion, incineration, composting, and landfilling.

Advanced Zero Waste USA Tools

1. Zero Waste Analysis Tool - Diversion Potential and Greenhouse Gas Reduction Tool

The **Zero Waste Analysis Tool** or the **Diversion Potential and GHG Emissions Reduction Tool** analyzes the proposed initiatives for the reduction or diversion of materials and potential greenhouse gas emission reduction for the community being analyzed. The initiatives are analyzed based on sector (i.e., single-family residents, multi-family residents, ICI - Industrial, Commercial, and Institutional) and material type. The analysis estimates the number of tons reduced or diverted annually from destructive disposal once all initiatives are implemented. This tool also calculates the greenhouse gasses (metric ton carbon dioxide equivalent - MTCO2E) reduced annually once all initiatives are implemented.

- **File Version** – Excel file
- **Purpose** – Show planning level estimates of materials and GHG emissions that can be reduced or diverted once all Zero Waste initiatives are implemented.
- **Goal** – Understand the impacts of the proposed Zero Waste initiatives.
- **User** - Student, Consultants
- **Outcome** – New estimated Diversion Rate and estimated total amount of GHG emissions reduced.

2. Estimating New Diversion Tool

After completing the diversion potential analysis, the **Estimating New Diversion Tool** estimates the new total diversion for a community. There are three ways to use this tool depending on where the materials were being disposed of, i.e., landfill, incineration, or landfill and incineration.

- **File Version** – Excel file

- **Purpose** – This tool shows the new estimated Diversion Rate once all Zero Waste initiatives are implemented. This tool used the outcome of the Zero Waste Analysis Tool to calculate the new Diversion Rate.
- **Goal** – Show the new estimated Diversion Rate once all Zero Waste Initiatives are implemented.
- **User** - Student, Consultants
- **Outcome** – New estimated Diversion Rate with Pie Chart.

3. Cost Estimate Tool

Cost Estimate Tool is an advanced planning tool, and it is used at the end of the planning analysis process to estimate the cost to the municipality to implement all the initiatives in the Zero Waste plan. The Cost Estimate Tool helps the municipal government plan to implement the Zero Waste initiatives (policies, programs, and infrastructure) by understanding the estimated cost of each initiative. These costs are estimates, and actual costs may differ due to unknown factors during implementation.

- **File Version** – Excel file
- **Purpose** – Show planning level estimates of the costs of implementing the Zero Waste initiatives. This tool also estimates the FTEs needed for implementation. Some FTEs will be staff and some consultants.
- **Goal** – To understand the estimated costs and personnel needed to implement the Zero Waste Initiatives.
- **User** - Student, Consultants
- **Outcome** – Total estimated cost to implement all the Zero Waste initiatives, estimated FTEs needed, and estimated costs for each initiative.

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Appendix A – Annotated Description of Initiatives in Checklist

Entire Community - Policies

- **Zero Waste - Goal: By 20___, Plan, 20____** - Establish a Zero Waste Goal and Plan by a specific date (enter the date in the fields in the Excel file). Examples and Resources
- **Goal Integration Across Plans – Climate Action Plan, Sustainability Plan, General Plan** – Include Zero Waste goals in other municipal plans. Examples and Resources
- **Precautionary Principle - Adoption, Integration** - Encourage green purchasing practices; pursue regional purchasing cooperatives to buy recycled products; adopt the precautionary principle for purchases and services and support regionally. Examples and Resources
- **Performance Metrics - Reduce Generation, Increase Diversion, and Reduce Destructive Disposal** – Establish goals to follow other performance measures other than diversion rate. These can include reducing total generation, per capita generation, and the amount of materials going to destructive disposal.
- **Environmentally Preferable or Sustainable Procurement** – municipal operations must incorporate environmentally or sustainable procurement. This should include minimum recycled content requirements, requirements for duplex printing, a ban on purchasing single-use plastics, and a requirement to use durable foodware. This procurement policy is across all city or county government facilities and departments. It also includes procurement for internal events and events open to the public. Examples and Resources
- **Product Policies - Bans (Sale, Collection, Disposal)** – bans on the sale, collection, and disposal of single-use products such as bags, utensils, and certain types of plastic (e.g., expanded polystyrene). Examples and Resources
- **Product Policies - Fees (Product Deposit, Disposal Fee - Voluntary, Mandatory)** – fees on single-use products such as bags or to-go disposable foodware. Examples and Resources
- **Product Policies - Reusable Take-Out Packaging** – a requirement that take-out containers are reusable.
- **Produced Policies - Minimum Content** – a requirement that materials containing a certain level of post-consumer recycled content are procured. Examples and Resources
- **Product Policies - Take Backs (Voluntary, Mandatory)** –
  - Voluntary - Encourage businesses to take back products and associated packaging, especially toxic items in their manufacture, use, or disposal that are not currently reusable, recyclable, or compostable locally. Examples and Resources.
  - Mandatory - Require businesses that sell items that must be collected as HHW or are not currently reusable, recyclable, or compostable locally to take those items back for proper reuse, recycling, or disposal. Examples and Resources
- **Product Policies - Reusable, Recyclable, or Compostable Product Requirement** – a requirement that restaurants use recyclable, compostable, or reusable foodware for dine-in and to-go. Example and Resources
- **Collaborate on Statewide Packaging Policy Initiatives** – work with state agencies on packaging policies such as bans, regulations, minimum content requirements, or other packaging-related regulations.
- **Product Stewardship - Paint, Batteries, Mattresses, Electronics, etc.** – a take-back or recycling requirement around hard-to-recycle items such as paint, batteries, and mattresses. This initiative can also include disposal bans for similar materials (i.e., electronics are not allowed in landfills or incineration facilities). Examples and Resources

Entire Community – Programs

- **Grants - Collection, Processing, Market Development, Research & Development** –grant programs that benefit Zero Waste programs relating to the collection, processing, market development, and research and development.
- **Revolving Loan Fund - Collection, Process, Market Development, Research & Development** – A revolving loan fund is a financing measure primarily used to develop and expand small businesses. It is a self-replenishing pool of money, utilizing interest and principal payments on old loans to issue new ones. Example
- **Market Development - Local, Regional, State, National, and International** – Assess the state of existing local and regional markets for materials across the waste stream; study service voids for missed opportunities to recover commodities. Shape strategic action plans around the findings. Examples and Resources. Launch/participate in a regional initiative to encourage businesses to use recycled materials in their manufacturing processes for new products; collaborate with local economic development staff to provide financial, siting, permit, feedstock, and marketing assistance and incentives to businesses. Examples and Resources
- **Rental, Reuse, Repair, Share & Recycling Business Directory, Promotions, Incentives** – a directory of community rental, reuse, repair, and recycling businesses. The directory is available to the community, and an incentive program is made to encourage the use of these businesses. This directory can include information on sharing opportunities such as meetup events and where sharing facilities are located (i.e., tool lending library or rental facility). The reuse directory should include online "sharing" communities such as buy-nothing groups. All local reuse and repair businesses should be included in the directory, including thrift stores, creative reuse stores, and all repair stores. Examples and Resources
- **Green Product and Services - Directory, Promotions** – a directory of products and services related to Zero Waste. The directory is available to the community and communicated through various channels. Examples and Resources
- **Lead By Example - Public Receptacles, Consistent & Simple Signage** – municipal buildings throughout the community should have consistent and simple signage for all public trash, recycling, and composting receptacles.
- **Lead by Example - Employee Training, Interdepartmental Green team** – Zero Waste training program for all employees. New employees watch during onboarding, and existing employees watch once. This training will include anything related to Zero Waste at the municipal level. In addition, establish inter-departmental green teams to meet the Zero Waste programs and set benchmarks.
- **Lead by Example - Zero Waste Events - Public, Private** – Establish standards for public and private municipal events throughout the community. This might include using durable foodware. Compostable or recyclable foodware requirements should also be established for events when it's not practical to use durable foodware. Establish the requirement that recycling and composting bins should be with all trash bins and that a system is in place to divert the materials from destructive disposal. Examples and Resources
- **Lead by Example - Government Facilities, Bus Stops, Rail Stations, Airports, and Parks** – establish a three-bin system (trash, recycling, and composting) at all facilities with simple and consistent signage in appropriate languages for the community. Examples and Resources
- **Lead by Example - Reusable Dishware and Reusable To-Go Foodware** – a program for using reusable dishware at all municipal buildings and a program for reusable to-go foodware if applicable.

- **Lead by Example - Carbon Farming for Public Lands and Parks** – programs on public lands and parks that [carbon farm](), including using locally produced compost to sequester carbon.

Entire Community – Infrastructure

- **Tool Lending Library** – a facility where tools are checked out to community members to borrow, use, and return. [Example]()
- **Water Bottle Filling Stations - Retail, Schools, and Parks** – water bottle filling stations and water fountains strategically placed throughout the community using filtered municipal water.
- **Retail Refilling Stations - Hardware, Grocery Store** – retail stores that sell items (e.g., food, hardware, cleaners, etc.) using a bulk system with reusable containers. This minimizes the packaging used and encourages the use of reusable packaging. [Example]()
- **Zero Packaging Store** – stores that sell items in as little packaging as possible with Zero Waste in mind. Reusable containers, such as glass jars, cloth bags, and other reusable containers, are encouraged. [Example]()
- **Museum Of Bad Design - Short Term, Permanent** – a museum that showcases products or packaging that fall under the "bad design" category. The bad design includes single-use, non-recyclable, or non-compostable products or packaging. It may also include items with multiple types of materials that make it difficult to fit into a Zero Waste system.
- **Resource Recovery Center** – a facility that accepts items from the community to divert them from destructive disposal. Items received through self-haul can include reusable goods, recyclable items, compostable items, or items related to scrap metal. Other items accepted can be hard to recycle items, such as batteries, mattresses, or electronics. [Examples and Resources]()
- **Resource Recovery Park - General, Utilizing 12 Market Categories** – a facility designed to accept items from the community through self-haul related to the [twelve market categories]() as defined by Urban Ore in the 1980s. The goal is to divert materials from destructive disposal based on material type**.** [Examples and Resources]()
- **Research & Development Institute** – a facility that includes research on Zero Waste related topics   [Example]()
- **Reuse Warehouse - Household Goods, Building Materials** – a facility that accepts donations of reusable goods such as household goods and building materials. This facility can store, process, and sell donated materials. [Examples and Resources]()

Residential - Single and Multi-Family - Policies

- **Universal Service - Recycling, Composting** – a requirement that all residential units (single and multifamily) have recycling and composting along with trash service. [Examples and Resources]()
- **Rate Structure Incentives (Save/Pay as You Throw - PAYT)** – a system that encourages residents to recycle and compost more based on their curbside trash collection system and payments. This system is based on a variable cart system or a bag system. The cart system uses different size curbside trash carts with different prices (i.e., the smallest cart costs the least amount per month, and the price increases with the size of the cart). Other systems use a bag system with a cost per bag (i.e., the more bags of trash at the curb, the higher the price). This is generally a single-family residential policy/program and should be rolled out with curbside recycling and composting services. [Examples and Resources]()
- **Mandatory Participation & Enforcement - Recycling, Composting** – Require by ordinance compliance of households or businesses with recycling / properly separating recyclables from refuse. [Examples and Resources](). Require by ordinance that owners of businesses, institutions, or multi-family complexes recycle a specific percentage of solid waste generated.

Examples and Resources. Require by ordinance compliance of households or businesses with composting and properly separating organics from refuse. Examples and Resources

- **Mandatory Source Separation - Recycling, Composting** –residents must place locally accepted recyclable and compostable materials in the appropriate bin. Examples and Resources
- **Service Provider Payment Incentives** – Take actions to compensate haulers for recycling or composting, e.g., recycling rebates or worker rewards. Examples and Resources
- **Service Provider Minimum Requirements & Performance Targets** – Amend the Service Provider contract or agreement to achieve high diversion by providing incentives or setting requirements, e.g., contract extensions, lower franchise fees, bonuses or liquidated damages, limited or no disposal payments, required productive use of organics. Examples and Resources
- **Ban Recyclable materials from landfill, incineration, or trash carts** – a ban on placing locally accepted recyclable material in the trash cart/bag. Examples and Resources
- **Ban Compostable materials from landfill, incineration, or trash carts** – a ban on placing locally acceptable compostable materials in the trash cart/bag. Examples and Resources

Residential - Single and Multi-Family – Programs

- **Education and Outreach - including Community Based Social Marketing** – a program that includes educational materials for each new Zero Waste policy or program implemented by the community and a corresponding outreach program. The education will consist of everything the residents need to successfully be part of the Zero Waste systems, including information, instruction, and materials about the new Zero Waste policies or programs. Examples and Resources
  - o **Community-Based Social Marketing (CBSM)** – CBSM is a behavior change education process that uses social psychology to create more sustainable behaviors. CBSM should be included in the community's education and outreach program.
  - o **Website, Social Media, Presentations, Door-To-Door, Ambassadors** – the education and outreach plan should include a website devoted to Zero Waste policies and programs and a social media plan during the implementation of Zero Waste policies and programs. In addition, presentations, door-to-door education, and Zero Waste ambassadors are all outreach strategies that should be used when implementing Zero Waste policies and programs. Examples and Resources
- **Technical Assistance - Phone, Email, Events, and Onsite help** – direct assistance to residents about the new Zero Waste policies and programs. This allows them to understand how to comply with new Zero Waste policies and programs. Technical assistance can be done via phone, emails, events, or site visits. Technical assistance should be done in collaboration with the education and outreach program. Site visits are incredibly effective but also more labor intensive and thus costly. Examples and Resources
- **Bin and Cart Audits - Voluntary, Mandatory** – a program inspects residents' bins and carts for the appropriate materials. The goal is to reduce contamination (e.g., recyclable materials in the trash cart or unrecyclable materials in the trash cart). Example and Resources
- **Reuse Collection - Sorting, Sales** – a program establishing a procedure to collect, store, sort, and sell used and durable goods from the community. This program needs a corresponding infrastructure and education program. The goal is to collect durable goods from residents that can be sold to other residents for reuse.
- **Share, Reuse, Repair Events** – a program that holds events in the community related to reuse, share, and repair, such as Fixit clinics. These events can be municipal-led or led by community groups. They can include events like how to sew reusable bags or use power tools. A directory

can highlight these events, and information should be shared via various avenues. Examples and Resources

- **Recycling Collection -** programs that collect locally approved recyclable materials (i.e., materials published by local officials as having a recycling market) from single-family residences and multi-family buildings. For single-family residents, this includes curbside collection of recyclable materials in a rolling cart or bin taken to the curb weekly for collection. This consists of placing recyclable materials in a recycling dumpster for multifamily residents.
- **Organics Collection - Yard Debris, Food Scraps** – programs that collect locally approved compostable materials (i.e., materials published by local officials accepted in the compost bin - yard debris and food scraps) from single-family residents and multi-family buildings. For single-family residents, this includes curbside collection of compostable materials in a rolling cart, bucket, or bin taken to the curb weekly for collection. The routine collection of organic materials for multifamily residents generally involves food scraps, including the drop off of food scraps in a shared dumpster or bin system.
- **Bulky Durable Goods Collection - Reusable, Recyclable** – a program where bulky goods (i.e., durable goods are defined as items meant to last over three years, such as household furniture, appliances, and cabinets)[7] are collected for reuse or recycling. This could be a curbside collection on certain days of the year, drop-off centers, or both. Example
- **Non-Durable Goods Collection - Reuse, Recycling** – a program where non-durable goods (i.e., non-durable goods are defined as items meant to last less than three years. This includes household items such as clothing).[8] These non-durable goods are collected for reuse or recycling through a curbside system, drop-off, or both. Example
- **Food Waste Prevention** – a program to prevent food waste for residents. This can include education programs, website resources, workshops, and more that contain dedicated resources and information for residents to help avoid wasting food. Examples and Resources
- **Edible Food Donations - Gleaning, Food Bank, Soup Kitchen** - a program that connects excess edible food to organizations that manage food donations for the food insecure. This food can originate from farms (i.e., gleaning programs) and then go to food banks or soup kitchens in the community. Examples and Resources
- **Backyard Composting** – a program encouraging residents to compost in their backyard. This program will include information for the resident on how to begin composting (i.e., what types of food scraps to include and the proper ratio of food scraps to yard debris) and consists of free or subsidized supplies for backyard composting. The goal is to divert food scraps from destructive disposal and use them to create a soil amendment through composting.
- **Every Other Week Collection - Trash, Recyclables** – a program establishing trash and recycling collection every other week. This program works best when organics (food scrap and yard debris) are collected weekly. Examples and Resources
- **Program for Diaper (Compostable, Reusable, or Disposable) & Animal Waste Collection** – this program targets diapers and animal waste as a separate service, keeping it out of the destructive disposal stream. It includes reusable and compostable diapers or animal waste collection as a separate service. Examples and Resources

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[7] US EPA defines durable goods as goods with a lifetime of three years or more.
[8] US EPA defines nondurable goods as goods items with a lifetime of less than three years.

Residential – Single and Multi-Family - Infrastructure

- **Reuse Warehouse - Household Goods, Building Materials** – a facility where household goods and building materials are collected from the community and sold back to the community. This infrastructure is designed to divert durable goods from destructive disposal and can be operated by municipalities or the private sector. It can also be a public-private partnership. [Examples and Resources](#)
- **Drop-Off Centers (Reuse, Recycling, Composting)** – facilities that allow the community to drop off items for reuse, recycling, and composting to divert those materials from destructive disposal. [Examples and Resources](#) - Reuse [Examples and Resources](#) - Recycling [Examples and Resources](#) - Composting
- **Center For Hard to Recycle Materials (CHaRM)** – a facility that collects hard-to-recycle materials such as electronics, paint, pesticides, certain types of plastics, scrap metal, and mattresses from residents. This facility finds organizations that will take these materials for recycling. [Examples and Resources](#)
- **Recycling Processing** – a facility that accepts the community's recyclable materials (e.g., paper, plastic, metal, and glass). This material recovery facility, or MRF, separates the materials into material types, bales the materials (except glass), and sells the recycling materials.
- **Yard Trimmings Processing** – a facility that collects and processes yard debris such as grass clippings, small tree limbs, and other yard debris to prepare it for the composting process, which requires the yard debris to be in small pieces. [Examples and Resources](#)
- **Food Scraps - Composting, Digestion** – a facility that accepts food scraps for composting. The food scraps are processed appropriately for the type of facility and then are turned into a soil amendment that can be used on the land. [Examples and Resources](#) [Examples and Resources](#) - AD
- **Wood Recycling Facility - Pallets, Dimensional Lumber, Logs** – a facility that accepts wood for recycling. This wood taken at this facility is not treated with chemicals or painted and can be chipped, added to a compost mixture, and turned into a soil amendment. [Examples and Resources](#)

Industrial, Commercial, and Institutional (ICI) – Policies

- **Universal Service - Recycling, Composting** - a requirement that all ICI businesses have recycling and composting along with trash service. [Examples and Resources](#)
- **Fee-Based Source Separation Incentives** – Require discounted rates for proper source separation of recycling and composting materials. [Examples and Resources](#)
- **Mandatory Participation & Enforcement - Recycling, Composting** – Require by ordinance compliance of households or businesses with recycling / properly separating recyclables from refuse. [Examples and Resources](#). Require by ordinance that owners of businesses, institutions, or multi-family complexes recycle a specific percentage of solid waste generated. [Examples and Resources](#). Require by ordinance compliance of households or businesses with composting and properly separating organics from refuse. [Examples and Resources](#)
- **Mandatory Source Separation - Recycling, Composting** – a requirement that ICI businesses separate their recycling and composting materials for recycling and composting collection. [Examples and Resources](#)
- **Rate Structure Incentives - Right-Sizing - Recycling, Composting** - provide the correct size bins based on service needs through technical assistance. [Examples and Resources](#)
- **Service Provider Payment Incentives** -Take actions to compensate haulers for recycling or composting, e.g., recycling rebates or worker rewards. [Examples and Resources](#)
- **Service Provider Minimum Requirements** - include incentives for achieving high diversion in the contract by providing incentives or setting requirements, e.g., contract extensions, lower

franchise fees, bonuses, or liquidated damages, limited or no disposal payments, and required productive use of organics. Examples and Resources

Industrial, Commercial, and Institutional (ICI) – Programs

- **Education and Outreach - including Community Based Social Marketing** - a program that includes educational materials for each new Zero Waste policy or program implemented by the community and a corresponding outreach program. The education will consist of everything the ICI sector needs to successfully be part of the Zero Waste systems, including information, instruction, and materials about the new Zero Waste policies or programs. Examples and Resources
  - o **Community-Based Social Marketing (CBSM)** – CBSM is a behavior change education process that uses social psychology to create more sustainable behaviors. CBSM should be included in the community's education and outreach program.
  - o **Website, Social Media, Presentations, Door-To-Door, Ambassadors** – the education and outreach plan should include a website devoted to Zero Waste policies and programs and a social media plan during the implementation of Zero Waste policies and programs. In addition, presentations, door-to-door education, and Zero Waste ambassadors are all outreach strategies that should be used when implementing Zero Waste policies and programs. Examples and Resources
- **Technical Assistance - onsite help implementing new policies or programs** - direct onsite assistance to the ICI sector about implementing the new Zero Waste policies and programs. This allows them to understand how to comply with new Zero Waste policies and programs and can be carried out through the phone, emails, at events, or with site visits. Technical assistance should be done in collaboration with the education and outreach program. Technical assistance onsite programs for the ICI sector should focus on **Food Waste Prevention, Foodware, Reuse, Recycling, and Composting.** Examples and Resources
- **Business Green Teams - Initiatives, Support, Volunteers** – a program that creates green teams within departments in the ICI sector to support the new Zero Waste initiatives. The goal is to increase participation and success of Zero Waste in the ICI sector.
- **Environmentally Preferable Procurement Cooperative** - Encourage green purchasing practices; pursue regional purchasing cooperatives to buy recycled products; adopt the precautionary principle for purchases and services; and support regionally. Examples and Resources
- **Bin and Cart Audits** – a program to routinely inspect and collect data on the bins and carts in the ICI sector.
- **Integrated Environmental Audits** – Conduct training, e.g., site visits, walk-through audits, and distribution of displays and signs to increase recycling and composting rates at facilities. Examples and Resources
- **Reuse Exchange** – a business program where reusable goods are exchanged instead of discarded. These can include exchanging office furniture, office supplies, or anything related to the business. These can be internal programs or programs created among businesses throughout the region or nation. Examples and Resources
- **Reuse Collection - Sorting, Processing, Sales** – a program where a business has a reuse collection. They collect, sort, process, and sell used items. These items can be anything that can be sold.
- **Bulky Goods Collection - Reusable, Recyclable** – a program where a business has a bulky goods collection system for reuse or recycling. They collect, sort, process, and sell bulky goods

(e.g., furniture, cabinets, building materials, appliances, etc.) into the local reuse economy. The items may also be dismantled and salvaged as material for the recycling sector.

- **Recycling Collection** - programs that collect locally approved recyclable materials (i.e., materials published by local officials as having a recycling market) from the ICI sector.
- **Food Waste Prevention Program** – a program designed explicitly for food-generating businesses to prevent wasted food. This includes education, onsite technical assistance, and ongoing outreach to the food-generating businesses. Examples and Resources
- **Edible Food Donations - Gleaning, Food Bank, Soup Kitchen** - a program that connects excess edible food to organizations that manage food donations to the food insecure. This food can originate from farms (i.e., gleaning programs) and then go to food banks or soup kitchens in the community working towards Zero Waste. Examples and Resources
- **Onsite Composting** – a program to divert food scraps and yard debris to a composting pile onsite in the ICI sector. The composting system is managed onsite, producing a soil amendment from the diverted food scraps and yard debris.
- **Organics Collection - Yard Debris, Food Scraps** – a program to collect organic material such as food scraps and yard debris and divert those materials to a composting system instead of destructive disposal. Examples and Resources Examples and Resources
- **Every Other Week Trash Collection** – a program stipulating trash pickup every other week. Examples and Resources
- **Program for Diaper (Compostable, Reusable, or Disposable) & Animal Waste Collection** - this program targets diapers and animal waste as a separate service, keeping it out of the destructive disposal stream. It includes reusable and compostable diapers or animal waste collection as a separate service. Examples and Resources
- **Zero Waste Events and Venues** – a program that includes Zero Waste regulations for events and venues. This may consist of essential services (i.e., excess edible food donation, food scrap collection for composting, and recycling collection), durable foodware, disposable foodware requirements, or a target percentage diversion. The goal is to align events and venues with the community goals for Zero Waste. Examples and Resources
- **Business Recognition or Certification - Green, Zero Waste** – a program that recognizes the ICI sector for sustainability achievement and Zero Waste programs. Examples and Resources

Industrial, Commercial, and Institutional (ICI) Infrastructure

- **Reuse Warehouse - Material Exchange, Building Materials Reuse Center** - a facility organized and operated as a business in the ICI sector where household goods and building materials are collected from the community and sold back to the community. This can also include a material exchange program, an online facilitated program for individuals to find and remove materials. This infrastructure is designed to aid in diverting durable goods for reuse and can be operated by municipalities or the private sector. It can also be a public-private partnership. Examples and Resources
- **Center For Hard to Recycle Materials (CHaRM)** - a facility organized and operated as a business in the ICI sector that collects hard-to-recycle materials such as electronics, paint, pesticides, certain types of plastics, scrap metal, and mattresses from residents. This facility finds organizations that will take these materials for recycling. It can also be a public-private partnership. Examples and Resources
- **Recycling Processing** - a facility that accepts the community's recyclable materials (e.g., paper, plastic, metal, and glass). This material recovery facility, or MRF, separates the materials into material types, bales the materials (except glass), and sells the bales.

- **Yard Trimmings Processing** - a facility that collects and processes yard debris such as grass clippings, small tree limbs, and other yard debris to prepare it for the composting process, which requires the yard debris to be in small pieces. Examples and Resources
- **Food Scraps - Composting, Digestion** – a facility that accepts food scraps for composting. The food scraps are processed appropriately for the type of facility and then are turned into a soil amendment that can be used on the land. Examples and Resources Examples and Resources - AD
- **Wood Recycling Facility - Pallets, Dimensional Lumber, Logs** – a facility that accepts wood for recycling. This wood is not treated with chemicals or painted and can be chipped, added to a compost mixture, and turned into a soil amendment. Examples and Resources

Self-Haul - Policies
- **Fee-Based Source Separation Incentives - Recycling, Composting** – a requirement that self-haul loads at the transfer station are charged a different fee (lower cost) for source separated loads. This is useful where the transfer station has diversion opportunities, such as scrap metal, yard debris, durable goods, food scrap, or recyclables collection. The self-haul community is encouraged to source separate divertible materials by paying a lower price to drop off those items.
- **Mandatory Source Separation – Reuse, Recycling, Composting** – a requirement that the self-haul community separates reusable, recyclable, or compostable materials from destructive disposal based on the community's available diversion opportunities.

Self-Haul - Programs
- **Education and Outreach - C&D Reuse, Recycling, & Composting Information** – a program to deliver educational material to the self-haul community about opportunities to divert materials from destructive disposal. Construction and demolition materials are a common material category hauled to the transfer station from the self-haul community. This program will target the diversion of these materials. Examples and Resources
- **Technical Assistance - Onsite** – a program that assists the self-haul community at the transfer station. They are guided on how to divert materials to reuse, recycle, and compost.
- **Reuse Exchange** – a program where durable goods are collected by the self-haul for reuse and then available for the self-haul to take. This can be located at a transfer station or regional collection centers.
- **Disposal/Diversion Site Load Checking** – a program where self-haul loads are checked for diversion opportunities. The goal is to divert materials from destructive disposal.

Self-Haul - Infrastructure
- **Reuse Warehouse - Household Goods, Building Materials** - A facility where household goods and building materials are collected from the self-haul sector and sold back to the community. This infrastructure is designed to aid in diverting durable goods to reuse and can be operated by municipalities or the private sector. It can also be a public-private partnership. Examples and Resources
- **Resource Recovery Center** - a facility designed to accept items from the community to divert them from destructive disposal (landfill or incineration). Items received through self-haul can include reusable goods, recyclable items, compostable items, or items related to scrap metal. Other items accepted can be hard to recycle items, such as batteries, mattresses, or electronics. Examples and Resources
- **Resource Recovery Park Utilizing 12 Market Categories** - a facility designed to accept items from the community through self-haul related to the twelve market categories defined by Urban

Ore in the 1980s. The goal is to divert materials from destructive disposal based on material type. <u>Examples and Resources</u>

- **Wood Recycling Facility - Pallets, Dimensional Lumber, Logs** - a facility that accepts wood for recycling. This wood is not treated with chemicals or painted and can be chipped, added to a compost mixture, and turned into a soil amendment. <u>Examples and Resources</u>
- **Center For Hard to Recycle Materials (CHaRM)** - a facility that collects hard-to-recycle materials such as electronics, paint, pesticides, certain types of plastics, scrap metal, and mattresses from residents. This facility finds organizations that will take these materials for recycling. <u>Examples and Resources</u>
- **C&D Processing, Specifically for Self-Haul** – a facility designed to process self-haul construction and demolition materials for reuse, recycling, or composting.

Construction and Demolition (C&D) - Policies

- **Construction, Demolition, & Deconstruction High Diversion Requirements - Plan, Deposit, C&D Facility** – a requirement that new construction, demolition, and deconstruction create a plan, submit a deposit, and divert materials from destructive disposal. The policy includes a high diversion rate (i.e., 80%) and the requirement to use a local C&D facility. <u>Examples and Resources</u>
- **Mandatory Source Separation for Reuse, Recycling, Compost** - Require contractors to separate recyclable C&D debris from non-recyclable materials and sort the recyclables on-site by staff or service. Alternatively, the recycled materials must be hauled to a facility that sorts C&D materials. <u>Examples and Resources</u>
- **New Development Compost Use Requirements** – a requirement that new development projects use locally produced compost from local food scraps and yard debris.
- **All C&D Loads Must Be Processed** – a requirement that all C&D loads are processed to maximize the diversion of materials for reuse, recycling, and composting.
- **Public Notice of Pending Demolition to Facilitate Deconstruction** – a requirement that public notice is created when demolition is planned to generate a deconstruction plan instead. <u>Examples and Resources</u>
- **Deconstruction Required Before Demolition** – a requirement that deconstruction occurs at a building before demolition. The goal is to divert reusable, recyclable, and compostable materials from destructive disposal and keep them in the local community.

Construction and Demolition (C&D) - Programs

- **Education and Outreach - flyers, policy guidance** – a program that creates education and outreach to the C&D sector outlining policy and programs for maximum diversion of materials. This can be communicated via flyers or other avenues. In addition, this program should share requirements with the C&D sector so they can comply with policies and programs related to Zero Waste. <u>Examples and Resources</u> <u>Examples and Resources</u>
- **Technical Assistance - Onsite** – a program to provide technical assistance at construction, deconstruction, and demolition sites to assist with material diversion.
- **Source Separation - Wood, Pallets, Dimensional, Logs** – programs to assist the C&D sector with source separation of valuable materials such as wood, pallets, logs, and other wood items.
- **Source Separation - Carpet, Curtains, Furniture** – programs to assist the C&D sector with source separation of carpet, curtains, furniture, and other items from destructive disposal.
- **Residential Small Quantity Collection - Free, Low $** - a program that allows small quantity C&D loads to the transfer station for free or at a low cost. This works when there are diversion

opportunities that the resident has maximized, and therefore, there is less residential to go to destructive disposal.

- **Green Building Credits - Reuse, Recycling, Compost, Recycled Products** – a program that allows for credits when construction projects reuse, recycle, and compost, and use recycled content in construction. Examples and Resources
- **Reuse Exchange** - a program where durable goods are collected for reuse and then available for the C&D sector. This can be located at a transfer station or regional collection centers.
- **Disposal/Diversion Site Load Checking -** a program where C&D loads are checked for diversion opportunities. The goal is to divert materials from destructive disposal.

Construction and Demolition (C&D) – Infrastructure

- **Building Materials Reuse Center** - A facility where building materials are collected from the C&D sector and sold to the community. This infrastructure is designed to aid in diverting building materials and can be operated by municipalities or the private sector. It can also be a public-private partnership. Examples and Resources
- **Wood Recycling Facility - Pallets, Dimensional Lumber, Logs** - a facility that accepts wood for recycling. This wood is not treated with chemicals or painted and can be chipped, added to a compost mixture, and turned into a soil amendment. Examples and Resources
- **Inert Materials Facility - Rocks, Asphalt, Concrete** – a facility designed to accept rocks, asphalt, and concrete for reuse and recycling. Examples and Resources
- **C&D Processing** – a facility specifically designed to accept materials from the C&D sector that are not source-separated. This facility separates the materials for diversion for reuse, recycling, and composting. Examples and Resources

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