

## **Recommend Update to Strategy 5: Add a Zero Waste Definition, Propose Action Steps**

The Zero Waste Working Group (ZWWG) of the Environmental Commission:

On July 7, 2007, the Ann Arbor City Council adopted the City's first Zero Waste Goal. The goal, "to produce zero waste," did not specify a definition of Zero Waste or set a timeline for achieving it. On June 2, 2020 when the Ann Arbor City Council approved A2Zero, it approved Strategy 5, which commits the City to various other actions to further our community's progress towards carbon neutrality by "changing the way we use, reuse, and dispose of materials". This broad strategy envelops the existing Zero Waste goal, and emphasizes the importance of changing consumption patterns as well as disposal practices. This strategy also entails analysis of Scope Three emissions, for which the Office of Sustainability has begun to develop metrics. While direct emissions savings for this strategy are by nature hard to pin down, we know that the materials economy (making food and stuff) has been shown to contribute more to U.S. emissions than any other activity. As A2Zero begins to estimate Scope 3 emissions and bring Scope 3 reduction under its purview, it becomes more urgent to develop Strategy 5 by articulating an operational definition of Zero Waste, and engaging partnership organizations in developing the Circular Economy. As the City develops policy and funding priorities to decarbonize, adopting an operational definition of zero waste may: provide a policy bridge between the City's Solid Waste working area and its Office of Sustainability and Innovations (OSI) and between its SWRMP and A2ZERO plans; demonstrate to Councilmembers and the public the large role that solid waste—and the production and consumption that creates that waste—plays in the City's emissions calculus; establish for Councilmembers and the public the importance of making a transition from linear to circular economy if the City is to achieve its A2Zero goals.

We propose that the City Council adopt a definition of ZW that aligns with Strategy 5. We also recommend a series of action steps to advance that goal consistent with the timeline of the A2Zero plan.

### **Recommendations**

That the Ann Arbor City Council:

1. Specify and adopt a definition of zero waste that aligns with Strategy 5
2. Recognize that Zero Waste is indispensable to Strategy 5 of the *A<sup>2</sup>ZERO Carbon Neutrality Plan*, (A<sup>2</sup>ZERO) which calls for the city to expand composting and recycling and move toward a circular economy;
3. Direct the City Administrator to instruct City Staff to design and undertake key

feasibility studies to inform deadlines and action steps for achieving Zero Waste by [??].

4. Direct the City Administrator and City Staff to allocate a share of whatever funding is allocated to or raised by Millage or other means for Climate Action to Strategy Five, because the enterprise funds are not sufficient to fund Zero Waste and Circular Economy goals.

### **Background: Ann Arbor Commission and Council Affirmations of a Zero Waste Goal**

The Ann Arbor City Council first adopted a zero waste goal on July 7, 2007 as part of the City's Environmental Action Plan Goals. The goal, "to produce zero waste," did not specify a definition. Nonetheless, its adoption led the City to create a commercial recycling ordinance and other improvements to its solid waste area.<sup>1</sup>

The 2012 Solid Waste Resources plan contains the following language about Zero Waste:

*Zero Waste is the application of an established and defined framework of waste management options that recognizes waste products as resources and facilitates the most environmentally beneficial methods of waste prevention and processing. Zero Waste ultimately seeks the highest possible environmental option for management of all resources, to prevent and reduce waste materials to air, water, and land, emphasizing a closed-loop system of production and consumption.*

Although this language falls short of specifying a definition of Zero Waste, it gestures towards the interconnectedness of Zero Waste and Circular Economy goals by emphasizing efficient waste management strategies alongside waste prevention and the importance of achieving a closed-loop system of production and consumption.

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<sup>1</sup> The goal was later referenced in the City's Sustainability Framework "Produce zero waste and optimize the use and reuse of resources in our community" and its *Waste Less: City of Ann Arbor Solid Waste Resource Plan Update 2013 – 2017* .

## **Zero Waste Definition**

While zero waste goals abound in various forms in City plans, there is notably little mention of what zero waste means. The closest we've gotten to a definition came in the *2012 Solid Waste Resources Plan*:

*Zero Waste is the application of an established and defined framework of waste management options that recognizes waste products as resources and facilitates the most environmentally beneficial methods of waste prevention and processing. Zero Waste ultimately seeks the highest possible environmental option for management of all resources, to prevent and reduce waste materials to air, water, and land, emphasizing a closed-loop system of production and consumption.*

The ZWWG recommends that the City officially adopt the following definition from the Zero Waste International Alliance:

*The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.<sup>2</sup>*

This definition, and zero waste principles more generally, aim to promote the highest and best use of materials to eliminate waste and pollution, emphasizing a closed-loop system of extraction, production and consumption, moving in logical increments toward the goal of zero waste through the core principles of:

- Pursuing 'upstream' re-design strategies to reduce the volume and toxicity of discarded products and materials, and promote low-impact or reduced consumption lifestyles;
- Fostering and supporting reuse of discarded products and materials to stimulate and drive local economic and workforce development; and
- Improving 'downstream' recycling of end-of-life products and materials to ensure their highest and best use.

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<sup>2</sup> This is the [Zero Waste International Alliance](#) definition which has been formally adopted by communities, including: Arkadelphia, AR; Austin, TX; Burbank, CA; Glendale, CA; Oakland, CA; Oceanside, CA; Palo Alto, CA; Telluride, CO. There are other definitions established by units of government, corporations, the U.S. Conference of Mayors, and others. Some other goals and definitions are included under point #6 at the end of this document.

## **Strategy Five: Zero Waste and The Circular Economy**

The importance to sustainability of reducing Scope Three emissions is well-documented. In 2009 an EPA study found that approximately 42% of U.S. GHG emissions are produced by material and food production, use, and disposal—more than any other sector studied.<sup>3</sup> In 2019, a report by the C40 notes that, “left unchecked,” consumption-based emissions from nearly 100 of the world’s big cities “will nearly double by 2050.”<sup>4</sup> Although Ann Arbor is not one of these cities, it is reasonable to expect that similar trends would hold locally.

A2Zero’s Strategy Five broaches the problem of Scope Three emissions by committing Ann Arbor to “create a model of circular economy where goods and materials are recovered, reused, and recycled.”<sup>5</sup> More than asking people to reduce their contributions to the waste stream by reusing, recycling, and composting, the circular economy envisions a wholesale change in consumption patterns at the household, municipal, and county scale. This document proposes a definition of zero waste that aligns with promotion of a circular economy by emphasizing not only end-of-life materials management but also public policy that guides producers and consumers to change their practices and lifestyles to emulate sustainable natural cycles that incorporate discarded materials as resources for others to use. Zero waste, defined as we propose above, is one key metric for progress toward the circular economy. Although achieving zero waste is not a sufficient condition for developing a circular economy, it is indispensable for progress toward a circular economy (as the following and other graphics indicate). Put differently, zero waste is one outcome of a high-performance circular economy.

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<sup>3</sup> Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practice, EPA, 2009, p2.

<sup>4</sup> The future of Urban Consumption in a 1.5° World

<sup>5</sup> “Ann Arbor’s Living Carbon Neutrality Plan,” 92.

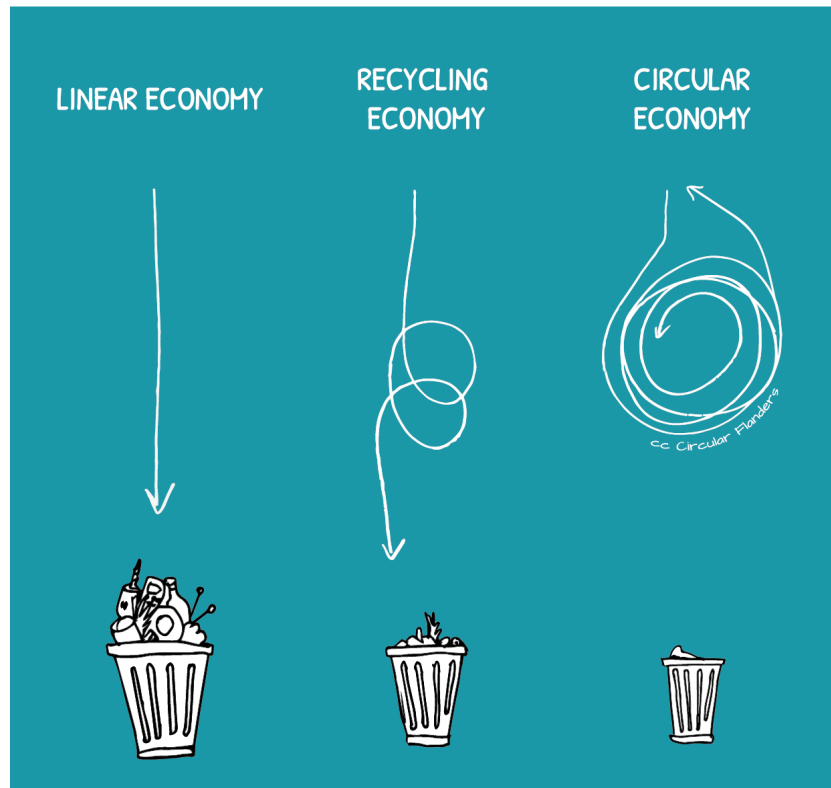


Figure 1. The relationship between zero waste and a circular economy

In addition to advancing progress toward a circular economy and significantly reducing Scope Three emissions, pursuing zero waste also plays an important role in advancing equity, a key component of A2ZERO. Nationwide, disposal (“end of life”) strategies outsource material resource management to facilities that are almost exclusively sited near lower-income populations and in counties with high proportions of people of color. Ann Arbor (population 6.8% Black), is no exception. The city currently landfills 67% of its material resources in Wayne County (population 39% Black), which is home to the sixth-largest Black population in the US (692,593 as of 2018). Strategy 5 commits Ann Arbor to expand its composting and recycling services to the commercial sector as a step toward promoting the circular economy in order to reduce the structural inequities resulting from a disproportionate use of landfilling.

## **Action Steps**

At present, Strategy 5 of A2ZERO does not have any SMART indicators of success or goals that tie to overall solid waste outcomes, be they in terms of the city's Scope 3 GHG emissions or its total diversion rate<sup>6</sup>. We propose that City Council direct the City Administrator to direct City staff to undertake feasibility studies that would make it possible to establish SMART goals with stepwise targets to help advance Strategy 5 of the A2ZERO Carbon Neutrality Plan.

At present, Strategy 5 of A<sup>2</sup>ZERO does not have any SMART indicators of success or goals that tie to overall solid waste outcomes, be they in terms of the city's (Scope 3) GHG emissions or its total diversion rate<sup>7</sup>. We recognize that for the first iteration of the A2Zero Plan, the City did not calculate the greenhouse gas savings associated with reducing the disposal of materials and products, that it committed to working on a methodology to capture upstream emissions associated with extracting and creating the goods and materials we use ("Scope 3" emissions), and that it is currently making progress toward Scope 3 metrics.

The city estimates its current recovery baseline at 33%, judging solely by recycling and composting rates (excluding other waste streams which are not currently captured locally such as construction and demolition waste), which are end-stage measures that do not capture the range of activities required to meet a zero waste target. There is significant variation across sectors, and previous waste management plans have suggested prioritizing education and expansion of services and infrastructure. Residential recycling and composting in the single-family sector are approximately 52%. By contrast, the commercial sector, where materials are more recyclable and reusable, recycles just 10% of its material resources. [Do we have an estimate for multifamily sector?]

Possible feasibility studies:

- Multi-family recycling, targeting lower-income housing developments
- Multi-family composting, targeting lower-income housing developments

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<sup>6</sup> We recognize that A2ZERO has some SMART goals, for example "By 2022, year round and commercial composting has led to over 5,000 tons of yard and food waste being diverted from our waste stream annually" for Action 1 and "By 2028, City of Ann Arbor diverts 30% of commercial sector recyclable waste from the landfill to recycling centers" for Action 2, but these are mid-term goals for individual programs and do not approach the concept / goal of zero overall waste.

<sup>7</sup> We recognize that A2ZERO has some SMART goals, for example "By 2022, year round and commercial composting has led to over 5,000 tons of yard and food waste being diverted from our waste stream annually" for Action 1 and "By 2028, City of Ann Arbor diverts 30% of commercial sector recyclable waste from the landfill to recycling centers" for Action 2, but these are mid-term goals for individual programs and do not approach the concept / goal of zero overall waste.

- Commercial composting at no cost to downtown restaurants

Possible actions not needing feasibility studies but needing funding:

- Expand R1 education project (sticker pilot project occurred a few years ago)
- Develop an education app for recycling/composting (I believe the County has done this for WRMMA members; we should be able to have access once we are fully installed in WRMMA)
- Expand reusable container program (this is underway)

## **Assessment**

1. The City will measure recovery performance based on the tons that are managed by disposal, recycling, or reuse/refurbishment/recovery service providers that the City controls directly via contract and, as metrics become available, by businesses that operate the circular economy. Those parts of the material stream not managed by service providers under contract with the City (including private waste roll-off containers, on-site cardboard baling, etc) exceed our current capacity for measurement.
2. Assessment practices will change as metrics improve both for estimating the GHG emissions reductions achieved by the circular economy and for estimating the effect of “Scope 3” emissions on the city’s carbon footprint.
3. For the time being, assessment will not include Household Hazardous Waste, which Washtenaw County is responsible for tracking and disposing.
4. Construction and demolition (C&D) has the potential to play a significant role in promoting the circular economy and achieving zero waste targets. The EPA estimates that C&D generates twice as much debris as municipal solid waste (MSW).<sup>8</sup> Some of this material may have greater potential for reuse and greater value if properly recycled than MSW. Although the SWRMP calls for C&D recovery and recycling, the City currently does not offer those services. We propose that zero waste targets and strategies be revised when the nature, scope, and logistics of C&D recovery and recycling are better understood.

## **Strategies and Actions**

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<sup>8</sup> The EPA estimates that “600 million tons of C&D debris were generated in the United States in 2018, which is more than twice the amount of generated MSW”; of that, demolition represents more than 90 percent of total C&D debris generation, while construction represents less than 10 percent.

Important steps toward successful implementation of this goal include:

1. The Environmental Commission requests that Council focus on A<sup>2</sup>ZERO Strategy 5 Actions 1 and 2--which call for expanded composting and expanded commercial recycling--by formally approving goals and a timeline to effectively achieve zero waste (per above), and re-committing Ann Arbor to a zero waste ethic, referencing the earlier 2007 Council resolution on zero waste, and previous initiatives.
2. The Zero Waste Working Group (ZWWG), staffed by volunteers, will secure a modest outside grant (e.g., Washtenaw County Waste Reduction Sponsorships), Environmental Commission and community stakeholders by June 30, 2022.
3. ZWWG, in coordination with City staff, will use this grant to develop one or more pilot programs to design and implement practical zero waste actions in the community. Models include grassroots education to increase residential use of recycling and composting services; a targeted effort to expand multi-family residential recycling and/or composting at sites that are carefully selected to deliver equitable outcomes and respect City protocols regarding: equitably engaging stakeholder groups in accordance with the equitable engagement standard practices being developed by the City's equitable engagement steering committee; generating data that make it possible to evaluate success in reducing material streams that contribute significantly to GHG emissions (eg. commercial organics, business recycling, multi-family recycling).
4. In coordination with the ZWWG, City leadership and staff will develop, deploy (including train in) and enforce policies, such as the existing Green Purchasing Policy or a checklist for bid reviews (analogous to the Responsible Contractor Policy), to facilitate elected officials and staff's adopting the City's zero waste goals and ethics as an evaluative lens across all programs. This is especially important when considering future solid waste programs, appropriations, City purchasing actions, and when planning for future residential and commercial development.
5. City Council will urge City officials and staff to secure resources and align funding, policy, and - perhaps most importantly - both broad and targeted education and outreach to provide the infrastructure and means to promote the circular economy and move the City as close as possible to the zero waste goal.
6. City Council will instruct the City Administrator to provide quantitative data documenting progress toward Strategy 5, including zero waste goals, in its annual report to City Council and the community detailing the City's actions, success, and shortfalls in reaching its de-carbonization goals.

### **Future Considerations:**



1. Work cooperatively with the University of Michigan, Washtenaw County and other surrounding communities to positively affect the larger region and account for the contribution of our intersecting systems to our city's waste footprint.
2. Add consumption-based Scope 3 emissions to A2's annual GHG inventory, as soon as possible (currently in process).
3. Look to recruit person(s) with zero waste experience/expertise for membership in the Environmental Commission.
4. Coordinate appropriate actions (including programs and policies) with Washtenaw County and the Washtenaw Resource Recovery Management Authority (WRRMA).

AS FUNDING BECOMES AVAILABLE strategy 5 needs to become a priority area of investment because the enterprise fund doesn't have the resources.

ADD JUSTIFICATION FOR DEFINITION SWITCH