



Climate Council Meeting – Waste Strategies
Tuesday, November 10, 2020 – 1-3 PM

1) Welcome (Mayor Indya Kincannon)

a) Attendees

- i. Mayor Indya Kincannon, City of Knoxville
- ii. Amy Hathaway, Forest Heights Neighborhood Association
- iii. Alicia Hemmings, Sunrise Knoxville
- iv. Chris Battle, Battlefield Farms
- v. Chad Hellwinckel, UT Agriculture
- vi. Kat McDearis, Green Heron Composting
- vii. Nancy Nabors, Knoxville Chamber of Commerce
- viii. Stephen Smith, SACE
- ix. George Wallace, Coldwell Banker Wallace & Wallace
- x. Brian Hann, Dewhirst Properties
- xi. Cortney Piper, TN Advanced Energy Council
- xii. JD Jackson, SEED
- xiii. Rebecca Tolene, TVA
- xiv. Patience Melnik, City of Knoxville
- xv. Erin Gill, City of Knoxville
- xvi. Brian Blackmon, City of Knoxville
- xvii. Luke Gebhard, Milepost Consulting
- xviii. Erin Rose, Three³

2) Equity Working Group Update (Erin Rose, Three³)

- a) For equity to be meaningfully integrated into climate planning, there are some key action elements including monitoring & evaluation, both measureable and subjective planned outcomes, and designing solutions. We are hopeful we will be able to contribute to some of the proposed solutions. Still focused on engagement of frontline communities, also trying to make sure there is enough feedback on the strategies and anticipated impacts to share with the larger council and TWGs.
- b) Survey feedback was gathered specifically on transportation issues of interest to the community – such as walkability, bikeability, and transit. An insight gained was that caretakers of middle-school children reported that they would feel more comfortable with children biking or walking if there were safer routes.
- c) 20 surveys were completed and sent back. There are more surveys that are being distributed – with the end goal being ~75-100 surveys being completed.

3) Setting the Table/Energy Working Group Report Out (Brian Blackmon, City of Knoxville)

- a) Energy/buildings technical working group met October 13, with around 15 participants. Topics discussed were high level strategies, definitions of impact, and a follow-up survey asking for further ranking of strategies based on those definitions.
- b) Transportation technical working group met on 10/23 for the second time. Ideas with more than one endorsement were rolled up for review, i.e., if folks had support for certain ideas, they were aggregated to look deeper into. We also asked for feedback on preliminary representations of strategies, ranking criteria, etc. These

visuals and the committee's feedback will be shared with the Equity working group for another round of feedback.

- i) Survey results were taken from the TWG – collecting feedback on timelines and level of investment that they estimate for various strategies. They also weighed in on who the expected leaders would be.
- ii) The next step will be attempting to quantify the mitigation impact of each strategy based on research and conversations with the TWG.
- c) The Waste rankings simply reflect the current, baseline ranking of strategies. The rankings are listed below:
 - i) Implement food waste reduction and collection programs that capture ~80%+ of organic waste from all high-volume locations (e.g. restaurants).
 - ii) Implement programs to encourage recycling of a significant percentage of construction and demolition waste.
 - iii) Promote consumption-reduction approaches such as sharing and re-use.
 - iv) Develop pathways to offer organics (food/yard waste) collection for single-family and multi-family residential properties.
 - v) Expanding capture of methane at local landfills and wastewater treatment plants to generate energy.
 - vi) Require significant municipal and community events to achieve ~zero waste.
 - vii) Require that structures that meet certain requirements (e.g. older than 50 years, designated historic structures, etc.) be deconstructed rather than demolished.
- d) Ranking insights: Composting of high volume locations, while overwhelmingly considered important, was questioned due to impacts to natural gas generation. Concerns over historic preservation aspects led to a generally moderate/low ranking of our lowest strategy.

4) Q&A

- a) Stephen Smith: Was there any look at generating biochar, or doing some form of organic sequestration?
 - i) Brian Blackmon: Biochar was mentioned in the initial survey.
- b) Mayor Kincannon: The graphic reporting the goals seems busy or difficult to understand.
 - i) Brian Blackmon: We were trying to present some degree of uncertainty while communicating the group's relative consensus. The audience for this is the general public.
 - ii) Mayor Kincannon: I do like the idea of showing variability/uncertainty around duration or impacts.
- c) Alicia Hemmings: Was there a ranking of the identified actions in the graphic?
 - i) Brian Blackmon: No, those were just listed at this point, in no particular order.
- d) Amy Hathaway: I don't understand the meaning behind duration or funding, it seems vague. I also think the identified actions should be ranked.
 - i) BB: We didn't want to put any hard numbers on the ranges, so it's necessarily high level/general. The expected leaders listed on the graphic is taken from survey results on who should be at the table to implement these goals – and these are ranked in order. At this point, ranking identified actions might not be holistic since equity hasn't been weighed in yet. This is something the group can provide feedback on.
 - ii) Erin Gill: There will be feedback that the EWG will likely have input on to prioritize these actions, but also potentially add to them.
- e) Stephen Smith: For the private/public on either side of the funding scale – I don't understand what that's supposed to mean.
 - i) Brian Blackmon: We were trying to represent expectations (generally) on where the funding would come from, i.e., would the City take a stronger role/provide significant investment, or would it be from another entity.
 - ii) Mayor Kincannon: I don't think we necessarily need to put expected leaders on this. There might be a need to separate the overall funding level from the public vs. private level of investment to understand the total level of cost.

- iii) Brian Hann (chat): I think it may be helpful to show why they would pay as well, i.e. what is the incentive for KUB or TVA to be a part of this program.

5) Technical Panels

- a) Residential Waste - Patience Melnik, Waste & Resources Manager, City of Knoxville
 - i) There are several sources and destinations of waste from Knoxville. Sources include: curbside trash, municipal solid waste, construction & demolition, curbside recycling, sorted recycling, and leaf & brush pickup. Destinations listed below:
 - (1) Meadow Branch Landfill - captures landfill gases, which are scrubbed and piped into a natural gas pipeline.
 - (2) Poplar View Landfill - landfills all of the waste stream.
 - (3) Westrock Recycling Facility - sorts, bales, and sells materials that they recycle from our waste stream.
 - (4) Living Earth – processes leaf & brush into mulch which is sold. They have 3 Knoxville locations.
 - ii) Our materials are landlocked, so the recyclables are sold locally. The furthest they go is to Atlanta, GA (as opposed to being shipped overseas on container freight ships).
 - iii) Our recycling program accounts for 9% of our waste stream, which is well below the 25% national average. Our Leaf and Brush stream accounts for 37%, well above the national average. Food & Waste accounts for 20% of our waste stream, and represents likely our biggest opportunity for improvement.
 - iv) Stephen Smith: It looks like yard waste is going to Living Earth? In Lebanon, TN – I heard there was a biochar program? Have you done a BCA (benefit-cost analysis) on going toward biochar?
 - (1) Patience Melnik: We have a contract with Living Earth – certainly several more years on the contract.
 - (2) Erin Gill: We made the RFP very broad, however we only got proposals for traditional mulching like Living Earth does. It's a chicken and egg problem, where businesses don't want to commit to providing a service that would need a bigger facility investment. We are willing to share as much data as we have on prices/quantities on what we are providing/paying for now. Have not done any formal analysis.
 - v) Mayor Kincannon: The program we do for leaf/brush pickup reduces emissions. But if people leave the leaves in their yard, is that lower impact than pickup?
 - (1) Patience Melnik: I would assume so, since there is less transport.
 - (2) BB: Decomposition always leads to emissions, even composting does – so even leaving it in your backyard would still have an emission impact.
 - (3) Nancy Nabors (chat): Mulching mower would be best for leaves, but not everyone has one.
 - (4) Amy Hathaway (chat): Yard waste collection (tree limbs, brush) is a different story from leaf collection.
 - (5) Chad Hellwinckel: Community scale composting helps with some of these concerns – the scale of community composting works best for actually producing the end product. If the program is all community run, there could be a danger of things being inconsistent. At that point, having small levels of paid staff/AmeriCorps would help keep it running.
- b) Food Waste & Composting - Chad Hellwinckel, UT Institute of Agriculture
 - i) The national average of food waste is 22%, the largest component of landfill waste. Residential and restaurant food waste make up the biggest portions within that. 1 ton of wet food waste is equivalent to around 0.17 tons of CO₂eq emissions after factoring in transport and landfill methane. If you calculate ~3.5 lbs./person/week by the population of Knoxville, this would equal around 2,634 annual tons of CO₂eq.
 - ii) Different cities are trying different scales of composting: Large scale facilities, community level, and backyard level. There are benefits and drawbacks to each approach. The community scale allows for a small startup, with little transportation needed, is low-tech, and can be managed by a trained team (volunteers). The amount of compostable material at this scale also generates enough heat to effectively kill microbes and speed the process.
 - iii) The NRDC has launched a regional food matters project, to reduce food waste in several southeastern cities. We (UT) have submitted an NSF proposal to design and establish a pilot community compost location in cooperation with several local organizations.

- c) Composting - Kat McDearis, Green Heron Compost
 - i) Green Heron business overview: Launched in September 2019. Customers can sign up online, and schedule their own pickups. Customers use a 5-gallon bucket, which is replaced after each pickup. The organic waste/compostable material is transported to local farmer partners, who complete the composting process and use it as a sustainable and organic fertilizer for land at no cost to them.
 - ii) Since launching, have diverted over 25 tons of organic waste. Currently have about 75 active customers. On average, a new customer signs up once a month. This year, farmer partners have doubled their average amount of finished compost to use as fertilizer using the service.
 - iii) Limitations & Ideas for progress
 - (1) Goals: Find a piece of land to scale operations, provide a public drop-off point, and space to eventually have an education center.
 - (a) Want to grow the customer base and offer additional services like soil testing, and home/business/farm compost consulting.
 - (b) Educate public/private entities.
 - (2) Challenges: Finding land that is convenient for customers to drop off waste.
 - (a) Finding land in the correct zoning in order to comply with permitting/restrictions.
 - (b) Developing incentives for residents/businesses to compost and push for zero waste initiatives.
 - iv) Next steps/Moving Forward
 - (1) Zero Waste tax breaks or other incentives for businesses/residents.
 - (2) Provide public compost drop off locations
 - (3) Clarify and reduce residential composting restrictions so individuals can freely compost on their property.

6) Facilitated Discussion

- a) Luke Gebhard: Transitioning to discuss GHG emission reduction strategies related to waste, other topics will be parking lotted. [Baseline rankings presented again]. Are there initial reactions on these?
- b) Alicia Hemmings: So far we've talked a lot about composting, are there any thoughts on food waste recovery programs and how to encourage or implement these?
 - i) Patience Melnik: We're fortunate to have Second Harvest in the community, who do excellent work on food waste recovery.
 - ii) BB: This might be something good to discuss further in the technical group meeting as well.
- c) Mayor Kincannon: What have other cities done on recycling of C&D waste? What is the impact of that?
 - i) Patience Melnik: We aren't supposed to have C&D waste curbside. About 2/3 of the waste at the transfer station is C&D waste. There was a company that was looking at recycling the material, but they were not able to make the financials work. Scrap metal is collected at the transfer station.
 - ii) Brian Hann: For the deconstruction vs. demolition, deconstructing could be a difficult proposition. There would be an exception for old brick structures, that's something that would be viable to save/reuse. I've seen the C&D landfill however – and there's a lot of waste in there that could be captured and reused. Big developers largely go to Riverside (where materials aren't recovered), dumpsters from big city development projects are mostly taken there.
- d) Erin Gill: I'm interested in understanding the relative ranking of the strategies – would we maybe want to elevate the “develop pathways to offer organic collection.”?
 - i) Amy Hathaway: After seeing the presentation, I probably would reorder the rankings.
 - ii) Patience Melnik: Our services are largely there for the residents. What we are counting and paying for is primarily residential. In our program, we have control over that vs. the commercial.
 - iii) Kat McDearis: For our business, being able to grow and offer services to more businesses and residents, however that can happen. Getting to the point where the majority of the restaurants in the city are composting would be amazing. An obstacle to that is training workers in the industry, as well as frequency of pickups.

- (1) BB: On a regular day, how many 5-gallon buckets are you picking up?
- (a) Kat: anywhere from 5-25. Pickups only happen 2-3 times per week.
- (b) BB: Beardsley in the past did collection of compostables from some restaurants. On any given day, restaurants with salad bars could turn out a significant amount of organic waste.
- e) Luke Gebhard: Some other questions to consider: What are challenges/barriers we need to consider? Where does the investment need to come from? Who are the critical stakeholders?
 - i) Alicia Hemmings: We might not know the specific areas to target for addressing food waste? Possibly address that through food waste audits?
 - (1) Patience Melnik: From the City side, a waste audit we conduct would only be looking at residential waste from the community.
 - (2) BB: Waste audits in the past have been from a typical building. Other communities do assessments of the waste on a typical truck (more costly). We currently rely on EPA estimates to project what the makeup of our waste is.
- f) Amy Hathaway: Looking at the baseline rankings – how do we know which will have the most impact?
 - i) BB: This was formed as an initial understanding of the group's priorities and to start a discussion. When it comes to mitigation – a critical part of the process was trying to understand the community's priorities at different timescales (i.e., what do we want to see happen immediately, what do we want to guide our long-term vision).
- g) Brian Hann: At the bottom of the strategies, changing wording from require to encourage would feel more comfortable.
- h) Erin Rose (chat): I've heard barriers and limitations discussed, but not so many unintended consequences/adverse impacts associated with some of these strategies? For example, are there observed or anticipated adverse impacts from community composting that should be discussed? Also, are there any existing or potential environmental justice issues related to the landfills that need to be discussed? Conversely, are some of these strategies likely to immediately improve local environmental conditions?
 - i) Alicia Hemmings (chat): This is a great point Erin. I think the biggest thing that comes to my mind equity wise is placement and accessibility especially with targeting residential waste or composting. I'm wondering if community composting locations could be coordinated with community garden areas to encourage participation with both?
- i) Alicia Hemmings: Making composting facilities/services available to everyone is something important to consider, as well as somehow pairing community gardens with composting services.
 - i) BB: Proximity to the smell of the compost might be something that would turn a community away, need to keep that in mind.
 - ii) Kat McDearis: Pairing community gardens with composting is a great idea – making it as much of an educational opportunity as possible is crucial. Combatting methane and pests is also crucial. However if we can handle and manage community piles in the right way, those should not be an issue. It is important to create ways to handle pests that might live in the compost piles.
 - iii) Erin Rose (chat): Thanks everyone for those responses. I do think it will be helpful for the EWG to be able to assess these strategies for equity if they are framed in terms of environmental justice risk/protection. I also believe, as I do with communities hosting any kind of waste, that they should volunteer as hosts (based on proximity) after receiving education on benefits/potential impacts.
 - iv) Alicia Hemmings (chat): I agree with Erin.
 - v) Amy Hathaway (chat): Thanks Erin. I agree it would be very helpful for EWG to weigh in.
 - vi) George Wallace (chat): Interesting discussion. Seems the impact of composting would help COK achieve measureable results.
- j) Luke Gebhard: At a high level, what opportunities do we see to leverage existing infrastructure or organizations?
 - i) Erin Gill: It'll be interesting to see the outcomes of the NSF grant that Chad Hellwinckel applied to.
 - ii) Chad Hellwinckel (chat): Here's a 'best management' guide to community composting:
<https://ilsr.org/composting-bmp-guide/>

- k) Stephen Smith: Biochar that can be sold as a soil amendment is a great opportunity to create a virtuous cycle where some level of emissions can be bound into the soil. Having a facility that could process a feedstock and create a supply of biochar could be a good opportunity.
- l) BB: There might be an opportunity for Riverside to capture some scrap metal from their landfill stream.
- m) Kat McDearis: I would love to have all residents of Knoxville have access to compost pickup/drop-off service.
- n) Amy Hathaway: We've heard a lot about composting, but from the landfill/recycling side, there seems for a lot of room for education and improvement.
 - i) BB: In the next working group, there will be more representation from those industries and room for discussion on those issues. Any of these concerns should be brought to the December meeting to have deeper conversations and a better understanding of the full scope of community emissions from outside of the residential sector.
- o) Mayor Kincannon: The community engagement/education piece of any of these programs is totally in the wheelhouse of the City, and something we can lead on. Engaging the community and helping to make sure what we move forward with as a city is what the residents want, need and support.
 - i) Amy Hathaway (chat): Wholeheartedly agree! I think community engagement is missing from the list of priorities.

7) **Wrap-up & Next Steps**

- a) Next meeting is the Waste Technical Working group on December 8, from 1-3PM.