Transcript of EPA Tools and Resources Webinar: Excess Food Opportunities Map

[Lisa Matthews passes speaker role to Michael Slimak, National Program Director of the Sustainable and Healthy Communities Research Program]

Speaker Mike Slimak: Thank you, Lisa, and welcome to all on the webinar. I think most of you know that there is a federal interagency strategy on reducing food waste. This strategy has six priority areas: (1) is enhance interagency coordination; (2) is to increase consumer education and outreach efforts; (3) is to improve coordination and guidance on food loss and waste measurement; (4) is to clarify and communicate information on food safety, food date labels, and food donations; (5) is to collaborate with private industry to reduce food loss and waste across the supply chain; and (6) is to encourage food waste reduction by federal agencies in their respective facilities. The EPA Excess Food Opportunities Map, which is the topic of today's webinar, is a map that supports the diversion of excess food from landfills. This map identifies and displays facilities' specific information about potential generators of food waste and recipients of excess food in the industrial, commercial, and institutional sectors and also provides estimates of excess food by generator type. Today's speakers are Claudia Fabiano from the Office of Land and Emergency Management and Steve Rock of EPA's Office of Research and Development. Thank you.

Speaker Claudia Fabiano: I'm excited to share with you the new resource in a fight against food loss and waste, the Excess Food Opportunities Map. In the United States, we estimate that over 79 billion pounds of food waste were generated in 2015. Food makes up about 22% of municipal solid waste going to landfill. Producing, transporting, distributing, and discarding food that never gets eaten is a waste of national resources, labor, and money. EPA's Sustainable Management of Food efforts aim to prevent food, a valuable resource, from going to waste, to maximize its use, and to keep it out of landfills. In September 2015, EPA and the US Department of Agriculture jointly announced a national goal to cut food loss and waste in half by 2030. The EPA's role is to provide information, data, and tools, share best practices, and foster collaborative partnerships.

Through interaction with many of our key stakeholders, we learned of a general marketplace need to understanding potential sources and estimated quantities of excess food in the United States. We responded to this need by creating the Excess Food Opportunities Map, a national resource that builds upon state work and other EPA products in order to support and facilitate the connection between potential sources and potential users of excess food so we can put food to better use. Food waste is increasingly among the list of environmental issues that governments want to tackle as they look at setting zero waste or GHG emissions goals. Some states and cities have developed, or are in the process of developing, regulations that address food waste by requiring donation or banning organic materials from entering landfills. EPA's

map and underlying data can help decision makers create policy and regulations around this issue.

I'm going to provide you with an overview of what's in the map, walk you through the map interface and how to use it, and discuss the methodology we used to gather the data and develop estimates of excess food. Finally, I'll provide some examples of how you can leverage the map and how it's currently being used. First, Steve Rock of EPA's Office of Research and Development will introduce how and why the map was originally developed.

Speaker Steve Rock: The map came out of a project that had started ten years before in California to connect sources of organic material going to anaerobic digesters. Basically, half of a digester's time is spent trying to find appropriate feed stocks. The idea was that we could help them by telling them where the food waste was being produced. About five years ago, we decided that the best thing to do was to make that a national map because anaerobic digesters and composters are always looking for good sources of material and over time, people were looking for places to deal with their food waste that they were producing and didn't want to landfill it. We tried to take different equations and different Census data of categories of food waste generators and put them together to make an accurate estimate. Of course, every number that we put into the map is an average and as you know, an average is either half too high or half too low. It's never exactly accurate so take every number on this map with a grain of salt but note that the intent is about right and it will get you in the right range. Don't take all these numbers as gospel but it's a lot of very useful information for people who are getting started trying to figure out what to do with their food waste.

Speaker Claudia Fabiano: Let's begin with a brief overview. Steve has touched on where this came from and a few of the big important points and we'll dive some more into those as well. The map identifies potential generators of excess food along with estimates of how much excess food (in tons per year) may be generated at each establishment. What we mean by excess food in this context is postharvest food that is intended for human consumption but not eaten as originally intended. This would include things like prepared food that was never served, plate waste from a cafeteria, or food scraps from manufacturing and processing facilities, for example. The map also identifies potential users, or recipients, of that excess food. It can be used as a starting point to identify opportunities for better uses of excess food whether it's edible and fit for donation to people in need, as animal feed, or as a feed stock for composters or anaerobic digesters.

Potential users of the map include: (1) state and local governments who want to prevent food from being discarded to landfills or combustion facilities, and want to understand where

potential sources of excess food are or who could use them; (2) prospective project developers who are looking to build a facility and want to understand where feed stock might be available for them; (3) private sector and nonprofits working to reduce wasted food; and (4) businesses and institutions who want to find better uses of their excess food than throwing it away or who are required by law to keep food out of the waste stream.

I want to touch on some of the functionalities of the map including what it does and does not do. The map provides geographic locations, in most cases exact addresses, of potential generators and recipients; estimates of excess food generation (in tons per year) per establishment; service areas for communities that have residential organics collection programs; and contact information for generators and recipients including websites and phone numbers where available.

The map does not provide exact measurements of excess food, as Steve touched on. These are all estimates. It doesn't provide information about whether an establishment is already diverting food away from landfill, the capacity of recipients to accept excess food, or estimates of excess food on farms.

Let's discuss generators first. We map nearly 1.2 million establishments that potentially generate excess food across 76 NAICS codes and three school types. This slide gives you an idea of the industries that are included here. NAICS is the North American Industry Classification System and it is the standard use by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the US business economy. As shown in this figure, you can see that restaurants and food services sector constitutes just over half of these establishments. We used commercially and publicly available data sources to compile the data sets supporting the map. This data set includes the establishment name, location, contact details, and the annual excess food generation estimate. The entire data set can be downloaded. I'll get into more detail about how you can download that a little bit later. Finally, just to note that establishments were mapped even if we were not able to derive an estimate but we were able to derive an estimate for 98% of the establishments.

Now, let's turn to potential recipients, or users, of excess food which include food banks, anaerobic digestion, and composting facilities. Food bank data came directly from Feeding America and our map displays Feeding America food banks, including some of their additional distribution centers. Because food banks are not able to distribute all the food they receive due to spoilage, for example, food banks are potential generators as well as recipients. We included data from Feeding America about how much food they received and how much food they were

not able to distribute. Anaerobic digestion facility data was compiled from the Water Environment Federation and American Biogas Council as well as EPA's AgSTAR program and other facilities EPA is aware of through our program work. Composting facilities were compiled from state registries and cross-checked with data from BioCycle. We've included what feed stock each facility accepts, including food waste, where that information was available. We've mapped composters and digesters even if they don't necessarily accept food waste at the moment. We did that because if demand for food waste processing increases, they may begin to accept these materials or they may know of other local options. Users of the map will need to contact the facility directly to confirm whether the facility currently take food. Finally, communities with residential source separated organics programs were also mapped because data were readily available and because it provides some additional context regarding organics diversion.

I want to briefly explain the methodology that we used to estimate excess food generation and then I'll show you how the map actually works. Note that the detailed technical methodology is available on our website so if you really want to do a deeper dive into the methodology, that would be the place to go. There are a few examples on this slide of industries included as generators. As I've mentioned before, there's 76 plus three school types so this is just a snapshot to give you an idea of some of the industries. On the next slide, I'm going to provide an example of how excess food generation rates were calculated using food manufacturers as an example.

Methodologies to generate establishment-level estimates of excess food were adopted from various studies conducted by several states, the Food Waste Reduction Alliance, as well as other journal articles that are available. The methodologies are based on commonly tracked business statistics including the number of employees, annual revenue, number of students for schools, and number of hospital beds for hospitals. For all of the sectors except for schools and hospitals, we purchased the establishment-specific data from Hoover's, which is a global database of business-specific information. For schools, we downloaded information from the National Center for Education Statistics. For hospitals, we downloaded data from the Department of Homeland Security. The equation on this slide gives you an example of one of the kinds of generation methodologies. This one in particular is from the Food Waste Reduction Alliance and it shows that excess food from manufacturers and processors is estimated to equal 0.053 pounds per dollar of annual revenue. So we need to know each facility's annual revenue to calculate the annual estimate of excess food for that facility. There were several methodologies available for each sector so we calculated estimates for each establishment using multiple equations and we only included the highest and lowest estimate for each establishment in the data set. The technical methodology provides information on all the

sources and equations that we used. You can see them all there and they are organized by sector.

Just to quickly touch on a few limitations... In some cases, these methodologies available are dated and based on limited measurements. We're always looking for new literature and new methodologies that come out so we will be updating the estimates as more information becomes available as well as updating the establishments in the data set. The most recent update was in April 2019.

Excess food estimates don't distinguish between potentially edible food that could be donated to be feed people and inedible food. The map, as I've mentioned before, does not display diversion activities such as donations, composting, or digestion that a specific business may already be undertaking. These are just estimates based on these generation methodologies and actual food excess generated may be lower or higher. This map is not intended to track actual activity by the business. We also don't have information regarding each recipient's capacity to accept excess food. For example, whether a composter is at capacity for food waste or whether they can accept any more. Farms are not included in this version of the map; however, farms can use the map in order to find sources of excess food to feed their livestock or food banks to donate produce to. Just because you're not on the map doesn't mean you can't use the map. We recognize that there are many more potential recipients of excess food that are not mapped such as food pantries and soup kitchens. We're working to include expanded information on these types of food providers and hope to do so in early 2020.

Now, I'm going to briefly walk you through how to use the map. This would be the landing page which, by default, shows recipients by county. The darker the purple, the more recipients are located in that county. There are several map icons in the upper left corner that can be used to navigate the map. The Home icon resets the map view to the whole country. Below the Home icon, the Your Location icon allows you to zoom to your location on the map and you can also use the search bar to look for locations. One way to search in a specific geographic area is to use the Near Me icon and type in a location which will adjust the map view to a specific radius. In this example,10 miles. A list of potential generators located within that radius is displayed in the popup box and you can click on each type of generator to see the list of establishments located in that area. Clicking on the Layer List icon in the upper right allows you to check off layers of data you'll like to see displayed on the map. In this example, I've checked off two types of generators - Correctional Facilities and Educational Facilities. You can see the yellow and green symbols on the map and each one represents one establishment.

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You can click on any of the establishments to get specific information about it. In this example, I've clicked on a school and a box pops up displaying the name, school type, address, phone number, website, and excess food estimate (both a high and low estimate is available). To view a list of the generators, you could click on the arrow at the bottom of the screen which will open the attribute table below. It will automatically filter to show you the generators in the map view. You can click on any of the tabs to see lists of each generator type. Here, I've clicked on the Correctional Facilities and that list is displayed below. Note that a maximum of 1,000 establishments will be displayed in the attribute table when using the Near Me tool so consider reducing the radius if your count is 1,000 for any generator type.

You can also choose to view the top generators within each sector. Here, I've chosen food manufacturers and processors and I'm looking at Kansas City and the surrounding area. This feature helps you easily see where the largest potential sources of excess food within each sector are located. If you click on the Legend icon in the upper right, you can see what the size of each circle on the map represents in terms of tons per year of estimated excess food generated. The larger the circle, the larger the estimate for that establishment. Recipients, which are composting, anaerobic digestion facilities, and food banks, are mapped at the county and zip code levels. Composters and food banks are also point mapped and anaerobic digestion facilities will be point mapped in the next version.

Here, we're looking at upstate New York, Vermont, and New Hampshire, and I've chosen to view all recipients by county. The blue and the purple areas you see are counties. The darker the color, the higher the recipient densities in that county. I've also chosen to view composting facilities which are indicated by the brown apple core icons and food banks which are indicated by the purple apple icon. I've clicked through on Washington county, Vermont, and a box pops up showing the count of recipient by type. You can get detailed information about each recipient by clicking on food banks, composting facilities, or anaerobic digestion facilities listed under Related Tables in the popup box. Here, I've clicked through to get information about the food bank. You can also expand this popup box for a larger view.

Finally, you can download full data sets for all generator and recipient types and communities with source separated organics in a single ZIP file from the EJ Environmental Dataset Gateway. There is a link in the About box on the landing page of the map and the direct link is listed on the bottom of this slide as well. There is an Excel data set for each type of generator and recipient and they include addresses, contact information, and estimates of excess food generated.

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Now that you've learned what's included in the map, how we came up with the estimates, and how to use the map, let's review the impact this map can have on your work. The map and underlying data can be used, especially in combination with other publicly available tools and data, to identify strategic opportunities for management of excess food in order to make the best use of this resource and keep it from going to waste. For example, states can combine the data in the map with other data such as location of farms, community gardens, transfer stations, or anything else that might be valuable to develop plans or opportunities to divert food waste. Existing composters and anaerobic digester facilities can use the map to identify new sources of feed stock and form new partnerships. The map can also help identify potential infrastructure gaps such as areas where's plenty of potential of excess food but limited options for composting or digestion. Businesses can find available options beside disposal for their extra food and identify other businesses to potentially partner with to attract haulers. Farms can search for potential sources of animal feed for their livestock and the food rescue community can identify potential new donors. Businesses and institutions can contact their local Feeding America food bank that they find on the map to donate edible food to them or to connect with one of their 60,000 food pantries and meal programs in their network.

The data is available for anyone to download. We have the datasets in Excel format so you can play around with them and it's also helpful to have GIS or the GIS web app. For example, if you want to determine the need for a food pantry in a specific town or urban area, you could extract the data from the map and then overlay that with the socioeconomic indicator layer later. That is just one example of how you can combine the data we have in here with data that may be more relevant with what you're working on. Finally, you can user adapt the underlying methodology to calculate your own estimates for various sectors.

Now, I'll discuss two examples of states and communities who've already used the map. Rhode Island has been working on food waste reduction at the state level for a few years. In 2017, Rhode Island published *Relish Rhody: The Rhode Island Food Strategy* with one of the state goals being to minimize food waste and divert it from the waste stream. EPA Region 1 worked with the state and other stakeholders to host the October 2018 Path to 50 Percent Food Waste Reduction Rhode Island Workshop that used EPA's map to present state-specific data. Prior to the workshop, EPA and the state created maps on both Rhode Island food waste generators and organic disposal facilities. I'm going to briefly discuss two ways in which the state used EPA's map to help them implement their program.

The state's Refuse Disposal Law states that as of January 2016, businesses that produce more than two tons of organic waste per week are required to divert it from landfill if they're located within 15 miles of an authorized composting or anaerobic digestion facility. This includes

wholesalers, manufacturers, supermarkets, hotels, restaurants, schools, etc. most businesses and institutions also have the option to process organic waste on-site or divert it for agriculture use. In addition, as of January 1, 2018, educational institutions that generate only one ton of organic waste per week or more must recycle it at a composting or anaerobic digestion facility, or by another authorized method. Rhode Island, as you can from this map, only have a few composting and anaerobic digestion facilities in the state so the 15-mile rule would have left the southeast portion of the state not subject to the law. The Rhode Island Department of Environmental Management used EPA's map to look at composting and anaerobic digestion facilities in nearby Massachusetts, its neighbor ot the north and east, and saw that more of RI would be covered by the law. Rhode Island businesses could take their food scraps to facilities that are 15 or fewer miles away in Massachusetts. Looking at the neighboring state facilities also allowed Rhode Island businesses to take advantage of additional processing capacity in the Massachusetts facilities.

In July 2019, the Rhode Island Department of Environmental Management sent letters to those additional businesses and institutions in southeastern Rhode Island to let them know that they're subject to the law and to invite them to participate in the No Cost Food Waste Assistance Program provided by the Center for EcoTechnology. This free assistance includes cost analysis, designing a diversion program, and employee training. Also at the October 2018 workshop, the Rhode Island Department of Health launched the Rhode to End Hunger initiative which aims to promote food donation to businesses and institutions during routine health inspections. The Department of Health was able to use EPA's datasets to cross-check their own information about businesses who potentially have excess food like manufacturers and processors who they could educate about donation initiatives and opportunities. Over 27,000 pounds of food were rescued between Fall 2018 and August 2019.

Another example of the map's use was for the Path to 50 Percent Food Waste Reduction Workshop in Lehigh Valley, Pennsylvania. This workshop was a culmination of the work that EPA Region 3, Lehigh Valley Food Policy Council, and Easton Hunger Coalition had been doing to understand the meal gap and local sources of excess food. To prepare for this workshop, EPA Region 3 and the communities worked together to use the underlying data in EPA's map, combined with data layers including urban farms, farmer markets, and community gardens to create maps for their local areas. At the workshop, they used these maps and tables to look at several things including the largest generators and areas with clusters of generators, which sectors were estimated to generate to most excess food, and proximity of potential recipients like composters, farms, and food banks. This data and visualization allowed them to focus priorities and foster relationships between generators and recipients within the community. Some great direct results of this workshop include businesses initiating composting programs,

schools in the district implementing Sharing Tables, a community composting pilot, and the Lehigh Food Policy Council developed a plan and proposal to create a Pennsylvania Food Policy Council, building on what was learned at the workshop. As you can see, there are many ways that the Excess Food Opportunities Map and underlying data can be used by lots of different stakeholders. I hope these examples have gotten you thinking a little bit about how you could use the map as well.

I want to briefly mention our plans for the map. In early 2020, we plan to update the map to keep it as current as possible and respond to user feedback. We're currently working on a few things. First is updating the anaerobic digester data set and point mapping the sites. The anaerobic digester data set was not something was updated in April 2019 but will be in early 2020. We're also updating the data set of communities with source separated organics and we're working on expanding the food bank layer. As I've mentioned before, currently the map contains about 300 Feeding America food banks there's thousands more food banks, food pantries, soup kitchens, and other food providers in the US. We've heard directly from many of these organizations that they would like to be included in the map so we're looking to obtain a national dataset that we can add to the map. This would help make this resource one that can be more easily used to connect businesses with organizations that can use their edible excess food, helping us to utilize solutions that are higher up the food recovery hierarchy.

I hope this webinar has planted some seeds about how you could use the Excess Food Opportunities Map in your work. We obviously know of some examples but there's many, many ways that this map and the underlying data and methodology can be used. A few take home messages to remember - again, the map can be used on its own but don't hesitate to take data from here and combine it with other sources of data that are more relevant to you to help make decisions about how to manage excess food and find partners to work with to maximize the resource. The technical methodology presents equations that can be used for each sector to estimate excess food. EPA has already done the literature search so you don't have to. Please download and use the dataset - over 1.2 million establishments are contained in them and we really want them to be useful for everyone.

You can find several resources supporting the map including the technical methodology, a user guide, and frequently asked questions on our website which is listed here at the bottom of the slide: epa.gov/foodmap. We'll love to hear how you're using the map and we encourage you to reach out to us and tell us how it's been useful to you or what additions you would like to see. You can send feedback and questions to smmfood@epa.gov. You can also contact us directly.

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