ENVIRONMENTAL LAW INSTITUTE

A Toolkit for Incorporating Plant-Based Protein Measures in Municipal Climate Action Plans

Equipping municipalities to increase the availability of plant-based proteins and engage the public on their benefits

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Introduction

Urban areas have an outsized carbon footprint.[1] Cities are also on the front lines of adapting to the devastating effects of climate change. As a result, municipal governments are well positioned to both take action to reduce their climate impacts and benefit from those actions.

Rising to the challenge, many municipalities around the United States have pledged to reduce their greenhouse gas (GHG) emissions and to develop *climate action plans* (or CAPs) that outline the specific actions that can be taken to achieve targeted reductions.[2] A municipality typically conducts a GHG inventory to establish baseline emissions levels, sets targets for the municipality and the community, and then develops a plan containing various actions for achieving these targets.[3]

Efforts to reduce GHG emissions have long focused on the burning of fossil fuels for energy generation and transportation. Today, however, there is increasing recognition of the substantial role played by food-related emissions—that is, the GHG emissions attributable to food production, transport, handling, and disposal. New York City, for instance, found that food accounted for 25 percent of households' consumption-based emissions (i.e., emissions calculated based on where products are consumed rather than where products are produced)—a share that is comparable to the national average.[4] Municipalities stand to make significant progress on this front, and, indeed, research suggests that without action in the food sector the world will be unable to meet global climate targets.[5]

The discussion of food as a driver of climate change of necessity begins with protein. Protein foods are an essential part of a healthy diet. But some protein foods are more carbon-friendly than others, and *plant-based proteins* have the significant potential to reduce food-related emissions due to their low carbon footprint per gram of protein.[6] A plant-based protein is any protein that comes from a plant source—such as beans, peas, nuts, nut butters, seeds, and soy products.[7] Plant-based proteins include whole-food plant proteins (such as beans, legumes, and tofu) as well as meat analogs (such as plant-based burgers).[8] Plant-based foods can provide a healthy way to meet protein requirements[9]—particularly when a variety of these foods are consumed throughout the day.[10] And the Intergovernmental Panel on Climate Change (IPCC) has noted that "a dietary pattern that is higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds" is both health-promoting and associated with low GHG emissions and reduced environmental impacts.[11] Accordingly, plant-based proteins can be leveraged to address climate change.

Municipalities are situated to take advantage of this opportunity by adopting new actions to increase the availability of plant-based proteins and engage the public on their benefits.[12] By including these "plant-based protein actions" in a municipal CAP, a municipality can advance climate-related, public health, and other benefits while expanding the range of food choices available to municipal employees, residents, and

visitors.[13] And plant-based protein actions can complement a broader municipal strategy on the sustainability of food systems that includes reducing food waste and diverting food waste from landfills.

To advance plant-based protein actions, municipalities can leverage their existing on-the-ground expertise, local policymaking authorities, purchasing power, partnerships, and community outreach programs. Nationwide, institutional food service facilities purchase and serve about $120 billion worth of food annually, shaping the diets and health of some of America's most vulnerable.[14] Designing menus to include and even feature plant-based proteins—in municipal operations, public hospitals, school districts, correctional facilities, shelters for the unhoused, and at municipal events—provides an opportunity to reduce GHG emissions while expanding available food options within the community and increasing the quality and healthfulness of institutional food. Municipalities can also help reduce community-wide emissions by encouraging businesses, organizations, and the broader community to take steps to expand the availability of plant-based proteins.

Actions in CAPs that increase the availability of plant-based proteins and engage the public on their benefits have the potential not only to mitigate GHG emissions but to advance municipal public health, equity, resilience, and other goals—as well as expand the range of food choices available.

Though plant-based protein actions are well suited for inclusion in municipal CAPs and broader local sustainability initiatives, these actions have not, to date, been widely adopted or compiled into one publicly available resource. As a result, municipalities are left with the labor-intensive task of researching best practices used in other jurisdictions or crafting their own measures from scratch. This *Toolkit* fills the gap by serving as a resource and an informational guide.

The *Toolkit* consists of two parts. Part 1 is the Menu of Plant-Based Protein Actions. Designed to be practical and user friendly, the Menu offers over 40 examples of targeted actions relating to plant-based proteins that can strengthen municipal CAPs. Most actions are accompanied by examples from municipalities that have taken that action (or a similar action that can serve as a basis for a plant-based protein approach), as well as by resources to guide implementation, where available. These actions range from ambitious and more involved to discrete and more incremental. Municipalities that already have CAPs may consider incorporating new plant-based protein actions and implementation measures, while municipalities that are developing CAPs may consider including these actions in the first instance. Even outside of the CAP context,

municipalities may wish to consider adopting plant-based protein actions on a stand-alone basis or to support existing sustainability efforts.[15]

Part 2 of the *Toolkit* sets forth Key Considerations: Benefits and Challenges**.** This Part is intended to assist municipal sustainability experts, policymakers, and local communities by: surveying the climate benefits and many co-benefits of adopting plant-based protein actions; anticipating challenges that the municipality may encounter; and providing insights on important legal and policy considerations.

Methodology

ELI conducted wide-ranging research to identify plant-based protein actions to include in the Menu in Part 1 of this *Toolkit*. This effort included the review of existing municipal CAPs, as well as food system and sustainability plans, from 35 different US municipalities. These ranged from large cities that are leaders in climate action (such as New York, Austin, Portland, and Chicago) to midsize and smaller cities (including, e.g., Atlanta, Cincinnati, Chattanooga, Blacksburg, and Carrboro). Drawing from its existing expert networks, ELI also conducted extensive secondary research that covered municipal food procurement, food system sustainability, urban agriculture, and plant-based behavioral interventions.

The Toolkit Menu includes over 40 actions—ranging from ambitious to incremental—based on examples drawn from a review of over 30 existing municipal CAPs and over a dozen expert interviews.

Part 1: Menu of Plant-Based Protein Actions

To meet its climate goals, a municipality can include in its CAP one or more actions to increase the availability of plant-based proteins and engage the public on their benefits. These actions can be adopted individually or in combination so as to suit local priorities and needs.

As with any measure included in a CAP, plant-based protein actions should be designed with early and meaningful involvement of the full range of community members—with particular attention to respectfully engaging low-income communities and communities of color.[16] The specific form and types of meaningful involvement will vary based on factors specific to each municipality.[17] Nevertheless, certain principles have emerged as best practices including that the public involvement process should be broadly accessible to community members, including those facing physical, cultural, or technological barriers.[18] In addition, public input should be genuinely considered and decisions should be explained to the public, including the role that public input played. Furthermore, communities should be provided with information in a timely manner,

particularly with respect to the parameters of participation to ensure that communities know what aspects of a decision are open to public input and influence.[19]

Part 1 provides, by way of a Menu of options, examples of targeted actions relating to plant-based proteins that have been carried out by municipalities, as well as novel actions. Similar actions in the Menu are grouped under the following categories:

Category 1 **Emissions Targets and Tracking**

Establishing food-related GHG emissions reduction targets and measuring progress

Category 2 **Increased Availability**

Increasing the number of meals served or offered that contain plant-based proteins

Category 3 **Municipal Procurement**

Increasing the procurement of plant-based proteins by municipalities

Category 4 **Public Awareness**

Educating and engaging the public on the climate benefits as well as the many co-benefits of plant-based proteins

Category 5 **Leadership and Recognition**

Recognizing and rewarding businesses and organizations that demonstrate leadership in increasing the availability of plant-based proteins and engaging the public on their benefits

Category 6 **Incentives, Funding, and Technical Assistance**

Supporting businesses and organizations seeking to expand plant-based protein offerings and to facilitate access to plant-based proteins, especially in communities that lack adequate access

Category 7 **Cooperation and Pledges**

Endorsing international, national, and state initiatives that promote plant-based proteins

The Menu consists of five columns. The numbering of categories and individual actions (column 1) in the Menu is for identification purposes only and does not indicate an effort to prioritize actions.

For each plant-based protein action (column 2), the Menu provides links to examples (column 3) from existing municipal CAPs, sustainability plans, and other documents.

These examples either illustrate how the action is being implemented elsewhere or in the case of more novel plant-based protein actions, provide a helpful analogy (e.g., the example may focus on fruits and vegetables generally, rather than on plant-based proteins specifically). In some instances, the Menu identifies a current sustainability action or initiative that provides a good starting point for increasing the availability of plant-based proteins and engaging the public on their benefits (e.g., supporting use of community gardens for plant-based proteins and highlighting their importance).

Also included in the Menu are numerous resources (column 4) that offer background on further context for specific actions. Resources that provide hands-on materials—social media posts, recipes, menus, videos—are separately designated as outreach tools (column 5). This *Toolkit* relies on, and frequently cites to, many of the excellent sources that have already been produced on plant-based policies and relevant considerations of community engagement, policy and programmatic development, and institutional process. In particular, the *Toolkit* was informed by and draws upon comprehensive reports prepared by Friends of the Earth and the Responsible Purchasing Network,[20] and by the Guarini Center on Environmental, Energy and Land Use Law at New York University.[21]

1. EMISSIONS TARGETS AND TRACKING

Actions to establish food-related GHG emissions reduction targets and measure progress

	Action	Examples	Resources	Outreach Tools
1.A.	Develop a Consumption-Based Emissions Inventory (CBEI) to measure GHG emissions from food consumed within the municipal boundary and to better understand the carbon impact of different foods (or: estimate GHG emissions from only municipal food procurement); ensure that data are made available to the public and to policymakers to promote awareness and accountability.	Carrboro, NC (p.56) New York, NY Iowa City, IA (p.16) Multnomah County, OR (p.36) Washington, DC Flagstaff, AZ (p.22) Los Angeles, CA San Francisco, CA (p.26)	**EcoDataLab,** CBEI Methodology **Stockholm Environment Institute,** Estimating Consumption-Based Greenhouse Gas Emissions at the City Scale **Urban Sustainability Directors Network,** CBEI Basics **Katrina Wyman & Emma Dietz,** Integrating Food into Local Climate Policy **California Senate Bill 253,** Climate Corporate Data Accountability Act	
1.B.	Set targets for reducing municipal food-related GHG emissions (e.g., reduce municipal emissions from food by X% by 2030), as well as measure and report on progress; consider partnering with an outside organization to become part of initiatives such as the Cool Food Pledge for help with measuring and reporting on progress.	New York, NY Washington, DC Austin, TX (p.74)	**Take Extinction Off Your Plate,** Climate Friendly Cities **Cool Food Pledge,** Home	**NYC Mayor's Office,** Mayor Eric Adams Makes Climate and Food Announcement

1.C.	Encourage and collaborate with semi-autonomous and quasi-governmental entities that may not be fully subject to municipal authority (e.g., correctional facilities, public schools, hospitals, convention centers) to set targets for reducing their food-related emissions, as well as measure and report on their progress.	New York, NY Oakland, CA (p.3)	**Friends of the Earth,** Scaling Up Climate-Friendly School Food **Friends of the Earth,** A Pilot Analysis of Oakland Unified School District's Food Programs	
1.D.	Set targets for reducing community food-related emissions from private, institutional, non-profit, and other sectors (e.g., reduce community emissions from food by X% by 2030), as well as measure and report on progress.	Carrboro, NC New York, NY Berkeley, CA	**NYC Food Policy,** Plant-Powered Carbon Challenge **Council Member Kate Harrison,** Berkeley Plant-Powered Carbon Challenge **NYC Mayor's Office,** Mayor Adams Commits to Reducing City's Food-Based Emissions by 33 Percent by 2030 After Releasing New Greenhouse Gas Emissions Inventory Incorporating Emissions from Food	**NYC Food,** Plant-Powered Carbon Challenge *Instagram*
1.E.	Create and implement waste audit programs or tracking systems for municipal operations; encourage households, businesses, educational institutions, and semi-autonomous and quasi-governmental institutions to measure GHG emissions from food loss and waste to better understand and compare the carbon impact of different foods.	Baltimore, MD (p.27) Nashville, TN New York, NY Denver, CO	**Environmental Law Institute,** A Toolkit for Incorporating Food Waste in Municipal Climate Action Plans **Environmental Protection Agency,** Resources for Assessing Wasted Food **Natural Resources Defense Council (NRDC),** Estimating Quantities and Types of Food Waste at the City Level	**ReFED,** Calculate the Impact of Food Waste *Emissions Tracker*

2. INCREASED AVAILABILITY

Actions to increase the number of meals served or offered that contain plant-based proteins (Some of these actions implicate and can be strengthened by actions from Category 3, Municipal Procurement.)

	Action	Examples	Resources	Outreach Tools
2.A.	Institute weekly menu initiative (e.g., Veggie Tuesdays, Green Mondays, Plant Powered Fridays) for municipal operations; encourage semi-autonomous and quasi-governmental entities (e.g., correctional facilities, public schools, hospitals, convention centers) to institute their own.	Seattle, WA (p.71) Portland, OR (p.81) Escambia County, FL Pittsburgh, PA (p.67) Blacksburg, VA (p.21) Dallas, TX (p.159) Santa Ana, CA Lee County, FL	**Johns Hopkins Center for a Livable Future,** Evaluation of the Meatless Monday Campaign at New York Presbyterian **The Monday Campaigns,** Marketing Plant-Based Menu Items **The Behavioural Insights Team,** Menu for Change (p.45) **Daphene Altema-Johnson et al.,** Dietary Changes Among People Practicing Meatless Monday	**Santa Ana Unified School District,** Santa Ana Unified School District Launches Plant-Based Wednesday Menu Option *Promotional Video*
2.B.	Require municipal operations and events sponsored by the municipality to offer at least one comparable plant-based protein option, as the first step toward expanding the number and diversity of plant-based protein options; consult with a food service company that has been successful in integrating plant-based protein menu options and meals.	Philadelphia, PA New York, NY San Diego, CA Carrboro, NC (p.54)	**Imogen McNamara, The City,** Green Gambit: Plant-Based Meals Mandated at Senior Centers Once a Week **The Humane Society of the United States,** The Food Service Industry Protein Sustainability Scorecard	
2.C.	Encourage (or in limited circumstances require) certain restaurants and other businesses to offer plant-based protein options.	Los Angeles, CA Ann Arbor, MI Takoma Park, MD	**Center for Environmental & Animal Protection and New York University School of Law Guarini Center,** Towards Plant-Forward Diets: A Toolkit for Local Policymakers (p.17) **City of Takoma Park, MD,** Resolution on Shifting City Meals to a Resilient Plant-Forward Default	

2.D.	Make plant-based protein meals the default for municipal operations and events sponsored by the municipality; consult with a food service company that has been successful in integrating plant-based protein menu options and meals.	New York, NY San Francisco, CA (p.26) Takoma Park, MD Denver, CO Los Angeles, CA	**Greener by Default,** Research **University of Cambridge,** Vegnudge **The Humane Society of the United States,** The Food Service Industry Protein Sustainability Scorecard **Better Food Foundation,** Recipe for Success: How Climate-Conscious Media Should Nudge Readers Toward Plant-Based Recipes	**Better Food Foundation,** NYC First US City to Serve Plants by Default in Hospitals *Promotional Video*
2.E.	Partner with an expert non-profit or consultant to advise on and support municipal and community-wide efforts to increase the availability of plant-based proteins, design institutional menus, and train chefs on how to prepare plant-based proteins meals.	New York, NY Berkeley, CA	**Greener by Default,** Municipalities **World Resources Institute,** Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service **NYC Mayor's Office of Climate & Environmental Justice,** NYC Carbon Challenge **Council Member Kate Harrison,** Berkeley Plant-Powered Carbon Challenge	**NYC Mayor's Office of Food Policy,** Chef Training *Tweet* **Wellness in the Schools,** Recipes
2.F.	Increase access to plant-based proteins in communities that lack adequate access through vouchers, pick-up sites, community kitchens and fridges, shelters, food pantries, mobile food vendors, and other food distribution programs; and ensure that families receiving public benefits are aware of the range of opportunities.	Baltimore, MD Baltimore, MD Carrboro, NC (p.54) New York, NY Washington, DC Austin, TX (p.73) Hartford, CT (p.35)	**Office of Disease Prevention and Health Promotion,** Pushing Produce in New York City's Neighborhoods: The Green Carts Initiative **ICMA,** Community Health and Food Access: The Local Government Role **Harvard Law and Policy Review,** All (Food) Politics is Local: Increasing Food Through Local Government Action	**NYC Health,** Shop Healthy NYC Green Carts *Informational Video* **NYC Mayor's Office,** Mayor Adams Takes Action to Promote Healthy Food In NYC, Emergency Food Assistance Program *Mayoral Announcement Video*

3. MUNICIPAL PROCUREMENT

Actions to increase the procurement of plant-based proteins by municipalities
(Some of these actions can be used to strengthen the menu design and default actions in Category 2, Increased Availability, when the municipality is the purchaser.)

	Action	Examples	Resources	Outreach Tools
3.A.	Establish targets for increased plant-based protein procurement for municipal operations (e.g., increase purchasing of plant-based proteins by X% by 2030 or ensure that at least Y% of proteins procured are plant-based).	Berkeley, CA San Francisco, CA Los Angeles County, CA	**Vancouver Humane Society,** Increasing Plant-Based Purchasing at the Municipal Level **Friends of the Earth,** Meat of the Matter **Center for Biological Diversity,** Appetite for Change: A Policy Guide to Reducing Greenhouse Gas Emissions of U.S. Diets By 2030 **Empathy for All,** Procurement Ordinance	
3.B.	Adopt a broad food and climate purchasing strategy to purchase healthy and low-carbon foods, particularly plant-based proteins.	Eugene, OR (p.24)	**Friends of the Earth,** Meat of the Matter (p.5) **C40 Cities,** How Cities Can Use Procurement to Shift Towards Sustainable Food Consumption	

3.C.	Join the Good Food Purchasing Program and/or undertake the Cool Food Pledge, to increase plant-based protein procurement across municipal operations; (which requires municipal operations to report food procurement for the purpose of calculating and tracking food-related emissions).	San Francisco, CA (p.109) New York, NY Austin, TX (p.72) Washington, DC Pittsburgh, PA Cincinnati, OH	**Cool Food,** 2021 Coolfood Pledge Collective Climate Impact Report **Good Food Purchasing Program,** Program Overview **NYC Mayor's Office,** Executive Order No. 8, Commitment to Health and Nutrition: Food Standards and Good Food Purchasing	
3.D.	Update or establish municipal food standards and nutrition guidelines for municipal operations to include requirements and recommendations for increased plant-based protein procurement.	New York, NY Philadelphia, PA Washington, DC San Diego, CA Los Angeles, CA Austin, TX	**Hunter College New York City Food Policy Center,** NYC Food Standards Emphasize Reduced Sodium and Less Added Sugar **NYC Food Policy,** New York City Food Standards: 2023 Compliance Report **NYC Mayor's Office,** Executive Order No. 8, Commitment to Health and Nutrition: Food Standards and Good Food Purchasing	**NYC Mayor's Office,** Mayor Adams Takes Action to Promote Healthy Food In NYC, Executive Order *Mayoral Announcement Video* **Live Well San Diego,** Meet Well Pledge Template Instruction Sheet *Guidance for Municipal Staff* **NYC Food Policy,** NYC Food by the Numbers *Infographics*
3.E.	Update or establish procurement trainings for municipal staff to include best practices for increasing plant-based protein procurement.	New York, NY	**Department of Energy & Environment and DC Government Office of Contracting and Procurement,** Green Food Report FY2023 **Good Food Purchasing,** Resources **NYC Mayor's Office of Contract Services,** Procurement 101	**Metropolitan Area Planning Council Metro Boston,** Webinar: Values-Based Institutional Food Procurement **Local and Regional Food Systems,** Colorado State University - City Food Procurement to Meet Climate Goals *Presentation by NYC Mayor's Office of Food Policy*

4. PUBLIC AWARENESS

Actions to educate and engage the public on the climate benefits as well as the many co-benefits of plant-based proteins

	Action	Examples	Resources	Outreach Tools
4.A.	Launch a community-wide informational campaign on the personal, local, and global benefits of plant-based proteins, including easy plant-based recipes, and utilize municipal websites, social media platforms, public service announcements via radio, and posters on municipal infrastructure (e.g., billboards and bus stop shelters).	Santa Monica, CA Iowa City, IA (p.58) Davis, CA (p.93) Eugene, OR (p.24) Blacksburg, VA (p.22) Flagstaff, AZ (p.151) New York, NY Hartford, CT (p.37) Salt Lake City, UT Austin, TX Ann Arbor, MI	**The Behavioural Insights Team,** Menu for Change (p.45)	**NYCHealth,** Eat a Whole Lot More Plants *Tweet* **Universal Meals,** Recipes **The New York Times,** Climate-Friendly Cooking *Recipes* **NYC Food,** #Earthday *Instagram* **NYC Mayor's Office of Food Policy,** #Nutrition *Tweet*
4.B.	Sponsor a household-focused program on municipal social media platforms and websites, such as a plant-based protein home cooking challenge or virtual plant-based protein eating pledge, and provide recipes and other resources (e.g., webinar/panel).	Carborro, NC (p.60) Ann Arbor, MI Santa Monica, CA	**Healthy Children, American Academy of Pediatrics,** Plant-Based Diets: Are They Good for Kids?	**Universal Meals,** Recipes **The New York Times,** Climate-Friendly Cooking *Recipes* **Food Network,** 7 Plant-Based Meals the Whole Family Will be on Board With *Recipes*
4.C.	Incorporate food sampling opportunities for plant-based protein menu items across municipal food service operations to raise awareness, gauge which plant-based offerings are most popular, and garner media coverage.		**The Humane Society of the United States,** How to Successfully Sample Plant-Based Products	

4.D.	Encourage incorporation of food sampling across public schools and other educational institutions for new plant-based protein menu items to raise awareness, gauge which plant-based offerings are most popular, and garner media coverage.	New York, NY	**The Humane Society of the United States,** How to Successfully Sample Plant-Based Products **Wellness in the Schools,** Chefs in the Schools **The Lunch Box,** Tastings **Nicole Axworthy, VegNews,** Rachael Ray Brings Plant-Based Menus to NYC Schools as Head of New Chefs Council **Nydia Velázquez,** Velázquez & Bowman Introduce Legislation to Provide Plant-Based Entrées in Schools	**NYC Food Policy,** Student Taste Tests *Instagram* **Now This,** Gourmet-Looking Lunches *TikTok* **Food Forward,** Sample Plant-Based Menu **One Meal a Day for the Planet,** School Lunch Recipe Book **Wellness in the Schools,** Recipes
4.E.	Encourage and support the inclusion in school curricula of information on the benefits of plant-based proteins, tailored for different age groups, and develop training programs and/or distribute materials outlining the benefits of plant-based proteins for students and parents.	Austin, TX (p.73)	**Shape Up Us,** Plant Power! Plant-Based Nutrition for Healthy Kids! **The Institute for Family Health,** Don't Stress Eat Fresh Curriculum-for Elementary Schools **Healthy Children, American Academy of Pediatrics,** Plant-Based Diets: Are They Good for Kids? **Nydia Velázquez,** Velázquez & Bowman Introduce Legislation to Provide Plant-Based Entrées in Schools	**UC Davis,** Increasing Plant-based Foods in School Nutrition Programs *Lesson Plan* **Food Network,** 7 Plant-Based Meals the Whole Family Will be on Board With *Recipes* **Plant-Based Treaty,** Clinton Middle School Cooking Demonstration *Instagram*
4.F.	Develop targeted training programs and resource materials outlining the benefits of plant-based proteins for use by municipal staff, policymakers, businesses, and food service professionals.	Pittsburgh, PA	**Eat Forum,** EAT-Lancet Commission Brief for Policymakers **World Resources Institute,** Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service **ProVeg,** Harnessing the Power of Plant-Based as a Food-Service Professional	

4.G.	Require municipal operations and encourage restaurants and other private food establishments to include environmental messaging on menus and/or indicate climate friendly menu items (including plant-based proteins), with or without carbon footprint data, similar to disclosing calorie counts on menus.	Ann Arbor, MI Austin, TX (p.73)	**Center for Environmental & Animal Protection and New York University School of Law Guarini Center,** Towards Plant-Forward Diets: A Toolkit for Local Policymakers (p.18) **World Resources Institute,** Environmental Messaging **World Resources Institute,** Cool Food Badge **Sweetgreen,** Carbon Menu Labeling Methodology **City of Takoma Park, MD,** Resolution on Shifting City Meals to a Resilient Plant-Forward Default	
4.H.	Launch a Plant-Based Proteins Week (or Month) by mayoral proclamation, with or without an accompanying Restaurant Week/Month.	Baltimore, MD Washington, DC Austin, TX	**Anna Starostinetskaya, VegNews,** Washington, DC Gets First Veg Restaurant Week. Why Mayor Muriel Bowser Supports It **Muriel Bowser,** Proclamation in Recognition of DC Veg Restaurant Week **Vegconomist,** Veganuary 2024 Sees Major US Cities Embracing Plant-Based Living	**NYC Mayor's Office of Food Policy,** #Veganuary *Tweet*
4.I.	Establish a plant-based proteins working group within a food policy council (or work through existing groups) to promote plant-based protein-related policy (possibly with interdepartmental and community input).	Portland, OR Washington, DC Austin, TX Knoxville, TN Baltimore, MD Milwaukee, WI	**Michigan Department of Community Health,** How to Establish a Food Policy Council **Centers for Disease Control,** Food Policy Council Spotlight: Cleveland-Cuyahoga County Food Policy Coalition **Austin Travis County Food Policy Board,** Food Working Group Goals and Strategies	

5. LEADERSHIP AND RECOGNITION

Actions to recognize and reward businesses and organizations that demonstrate leadership in increasing the availability of plant-based proteins and engaging the public on their benefits

	Action	Examples	Resources	Outreach Tools
5.A.	Launch a mayor's award or adopt a city council resolution to recognize private businesses, non-profits, and other organizations that highlight plant-based proteins through their food service operations or in other ways, and recognize efforts via social media, newsletters, and other avenues.		**Planted Society,** City Partnerships **Greener by Default,** Businesses	
5.B.	Sponsor a plant-based protein food festival that features food from local restaurants and food trucks and invite attendees to vote for their favorite dishes.		**Vegan Chef Challenge**, Find a Challenge	
5.C.	Establish a voluntary challenge for businesses and non-governmental organizations to increase the availability of plant-based proteins and contribute to meeting community food-related emissions targets; consider collaborating with an outside partner, such as the Planted Society, Better Food Foundation, and/or Greener by Default.	Berkeley, CA New York, NY San Antonio, TX Montclair, NJ Austin, TX	**Planted Society,** City Partnerships **NYC Mayor's Office of Climate & Environmental Justice,** NYC Carbon Challenge **Center for Environmental & Animal Protection and New York University School of Law Guarini Center,** Towards Plant-Forward Diets: A Toolkit for Local Policymakers (p.16) **Council Member Kate Harrison,** Berkeley Plant-Powered Carbon Challenge	**NYC Food Policy,** Plant-Powered Carbon Challenge *One-pager* **Planted Society,** San Antonio, TX Community Dines Plant-Based this October *Press release* **Planted Society,** Coming this March to Montclair, NJ *Instagram* **NYC Food,** Plant-Powered Carbon Challenge *Instagram*

5.D.	Expand or establish a municipal certification program to recognize institutional and business menus that highlight plant-based protein offerings; consider partnering with already existing certification programs.	Little Rock, AR Austin, TX (p.72) City of Delray Beach, FL Culver City, CA	**Little Rock Sustainability Office and Little Rock Zoo,** Green Restaurant Certification Program Guidelines **State of Rhode Island Department of Environmental Management,** Rhode Island Green Hospitality Certification Program Self-Certification Workbook **Green Restaurant Association,** Food Certification Standards	
5.E.	Partner with a local or national celebrity (e.g., consider athletes, actors, musicians, celebrity chefs) to produce a public service announcement on efforts to increase the availability of plant-based proteins.		**Tanya Flink, VegNews,** 28 Vegan Businesses Backed by Celebrities Like Serena Williams, Leonardo DiCaprio, and Cameron Diaz **Charlotte Pointing, VegNews,** 37 Creative Chefs Crafting the Future of Vegan Food **The Monday Campaigns,** Plant-Based Instagram Influencers You NEED to Follow **The Monday Campaigns,** Billie Eilish Advocates for More Plant-Based Meals in Schools	**Vegconomist,** Veganuary USA Launches with New Streaming Ad, Billie Eilish, NYC Dining, More Brand Partnerships *Subway Advertisement*

6. INCENTIVES, FUNDING, AND TECHNICAL ASSISTANCE

Actions to support businesses and organizations seeking to expand plant-based protein offerings and to facilitate access to plant-based proteins, especially in communities that lack adequate access

	Action	Examples	Resources	Outreach Tools
6.A.	Expand or establish a local incentive program for food-insecure households to increase access to and awareness of plant-based proteins–potentially in conjunction with the federal Supplemental Nutrition Assistance Program (SNAP).	Iowa City, IA (p.58) Philadelphia, PA New York, NY Washington, DC Seattle, WA Austin, TX (p.73) Cleveland, OH (p.66) Louisville, KY (p.29) Reno, NV (p.115) Hartford, CT (p.39)	**Health Care Without Harm,** Funding Healthy Food Access Interventions	**NYCHealth,** How to Use Health Bucks at NYC Farmers Markets *Informational Video* **The Vegetarian Resource Group,** Low-Cost Vegan Menus Based on USDA Supplemental Nutrition Assistance Program (SNAP) Budget
6.B.	Apply for state or federal funding initiatives–or develop municipal funding initiatives–to improve the availability of healthy plant-based proteins in communities that lack adequate access.	Austin, TX Dallas, TX New York, NY Washington, DC	**US Department of Agriculture,** The Healthy Food Financing Initiative **Healthy Food Access,** View Policy Efforts by State	**The Good Food Institute,** Public investments and alternative proteins in state and federal policymaking
6.C.	Expand or establish municipal funding initiatives to establish a plant-based proteins "prescription program" for recipients of Medicaid and other public insurance programs.	Washington, DC	**DC Department of Health Care Finance,** Notice of Funding Availability	**Milan Urban Food Policy Pact,** Washington, DC, Food as Medicine *Informational Video*

6.D.	Provide funding or other support for community gardens, urban farms, and garden-to-cafeteria institutions that grow the food they serve with a stated goal of increasing access to plant-based proteins, with a focus on repurposing vacant municipal parcels.	Iowa City, IA (p.58) Pittsburgh, PA (p.66) Blacksburg, VA Orlando, FL (p.22) Washington, DC (p.86) New York, NY Dallas, TX (p.53) Atlanta, GA Alameda County, CA (p.68) Chattanooga, TN (p.46) Cincinnati, OH (p.99) Hartford, CT (p.35)	**Teens for Food Justice,** The New Agrarian Economy **US Department of Agriculture,** School Gardens: Using Gardens to Grow Healthy Habits in Cafeterias, Classrooms and Communities **The New York City Council Legislative Division,** Growing Food Equity in New York City: A City Council Agenda **Slow Food USA,** Garden to Cafeteria (GTC)	**Austin Independent School District,** Food & Nature *Images*
6.E.	Institute a training and technical assistance program to support convenience stores and markets in communities that lack adequate access to healthy, plant-based proteins.	Washington, DC (p.88) Los Angeles, CA	**American Heart Association,** Healthy Neighborhood Market Network	
6.F.	Expand or establish "Green Carts" permitting program to increase access to healthy plant-based proteins.	New York, NY Orlando, FL (p.23) Washington, DC (p.88)	**Office of Disease Prevention and Health Promotion,** Pushing Produce in New York City's Neighborhoods: The Green Carts Initiative	**NYC Health,** Shop Healthy NYC Green Carts *Informational Video*
6.G.	In jurisdictions where schools or educational institutions are subject to municipal authority (which is a less common arrangement), subsidize those that follow Good Food Purchasing Program guidelines or serve plant-based protein options.	Washington, DC New York, NY	**Nydia Velázquez,** Velázquez & Bowman Introduce Legislation to Provide Plant-Based Entrées in Schools **Good Food Purchasing Program,** Who We Are	**NYC Mayor's Office,** Mayor Eric Adams Makes School Food Related Announcement
6.H.	Offer economic incentives for businesses and restaurants that offer an increasing minimum percentage of plant-based protein options and/or that use social marketing techniques to nudge plant-based protein purchases.	San Francisco (p.26) Austin, TX (p.73)	**Greener by Default,** Research **Richard Thaler and Cass Sunstein,** Nudge **Jan Bauer et al.,** Nudging More Sustainable Grocery Purchases: Behavioural Innovations in a Supermarket Setting	

6.I.	Support farm and kitchen incubators and accelerators that are helping to increase the availability of plant-based proteins–especially incubators that benefit communities that lack adequate access to healthy, plant-based proteins.	New York, NY Cleveland, OH	**National League of Cities,** Municipal Action Guide Food-Based Business Incubator Programs **The New York Times,** Housing Authority Program Teaches Marketable Food Skills **The Good Food Institute,** Map of Accelerators and Incubators	**Citi,** Food Business Pathways: Making NYC More Inclusive for Small Businesses *Promotional Video*
6.J.	Expand or establish municipal programs and offer free training to health care to current and future practitioners in the principles of lifestyle medicine with a focus on plant-based nutrition education and include educational materials on the links between diet and climate.	New York, NY	**US Conference of Mayors,** A Plant-Based Approach has Promise to Address Chronic Disease, Environmental, and Fiscal Burdens Facing Cities Across the Nation	**NYC Mayor's Office,** Mayor Eric Adams Makes Health-Related Announcement **Better Food Foundation,** NYC First US City to Serve Plants by Default in Hospitals **NYC Food Policy,** Lifestyle Medicine Clinic *Instagram* **NYC Mayor's Office of Food Policy,** Lifestyle Medicine Program *Tweet*
6.K.	Subsidize or offer other support for training and technical assistance for staff and chefs in municipal operations, schools, and other institutions in preparing plant-based protein meals and conveying their benefits to diners.	New York, NY	**Wellness in the Schools,** 72 New Chefs Bring Culinary Training to NYC Public Schools **World Resources Institute,** Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service **Nydia Velázquez,** Velázquez & Bowman Introduce Legislation to Provide Plant-Based Entrées in Schools	**NYC Mayor's Office of Food Policy,** Chef Training *Tweet*
6.L.	Establish a municipal youth climate corps (applying for funding from state and federal programs, when available) or youth employment initiative to support: work on urban farms and gardens; sale and distribution of plant-based proteins; and increased awareness of the benefits of plant-based proteins.	Long Beach, CA New York, NY (p.13) Alameda County, CA Pittsburgh, PA Michigan Colorado Maine | Utah California	**Youth Life Center,** Growing a Community for Youth Through Gardening	

7. COOPERATION AND PLEDGES

Actions to endorse international, national, and state initiatives that promote plant-based proteins

	Action	Examples	Resources	Outreach Tools
7.A.	Support C40's Good Food Cities Declaration to achieve a "Planetary Health Diet" for all citizens by 2030.	Los Angeles, CA	**C40 Good Food Cities Declaration,** How Cities Are Achieving the Planetary Health Diet for All	
7.B.	Issue a statement of support for the US to integrate plant-based food purchasing in its climate policy, such as by including food-related targets in its "nationally determined contributions" or supporting the proposed Plant Based Treaty.	Boynton Beach, FL Los Angeles, CA New York, NY	**Plant Based Treaty,** Cities **UN Framework Convention on Climate Change,** The United States of America Nationally Determined Contribution **World Wildlife Fund,** Enhancing NDCs for Food Systems Recommendations for Decision-Makers	**NYC Mayor's Office of Food Policy,** COP28 *Tweet*
7.C.	Sign the Milan Urban Food Policy Pact aimed at building sustainable, local urban food systems and raise awareness about the Milan Pact Awards.	Cincinnati, OH Austin, TX Baltimore, MD Washington, DC New York, NY	**Milan Urban Food Policy Pact,** Our Cities **Milan Urban Food Policy Pact,** Milan Pact Awards	**Milan Urban Food Policy Pact,** Washington, DC, Food as Medicine *Informational Video*

Part 2: Key Considerations: Benefits and Challenges

A municipality can strengthen its climate change mitigation efforts by incorporating into its CAP—or building into other municipal sustainability efforts—one or more of the plant-based protein actions described in the Menu contained in Part I of this *Toolkit*. These actions, which can be adopted individually or on a complementary basis, are intended to increase the availability of plant-based proteins and engage the public on their benefits.

Plant-based protein actions are a relatively recent feature of the municipal CAP landscape. As such, the following discussion is offered to support municipal sustainability officials, other local policymakers, and communities considering the adoption of plant-based protein actions in making the case for these actions—and answering questions about them.

Specifically, Part 2 of the *Toolkit* identifies the climate benefits and many co-benefits that a municipality can realize from implementing plant-based protein actions;[22] anticipates expected challenges to adopting and implementing plant-based protein actions; and offers insights into several key legal and policy considerations.

Climate Benefits[23]

The evidence that food production contributes significantly to climate change is clear. Producing the average US resident's diet is estimated to generate 2.5 tons of carbon dioxide equivalent annually.[24] Livestock production, in particular, is a major source of the potent GHG methane—which, after carbon dioxide, is the second largest driver of climate change—and is responsible for over one third of total US anthropogenic methane emissions.[25]

Most plant-based proteins have a comparatively small carbon footprint, because plants require less in the way of resources and energy to grow, harvest, and distribute. Project Drawdown has concluded that "plant-rich diets" have enormous climate mitigation potential and can "be adopted incrementally with small behavioral changes that together lead to globally significant reductions in greenhouse gas emissions."[26]

Municipalities are well-positioned to take actions that can promote these climate benefits. Almost 80 percent of all globally produced food is consumed in urban areas.[27] And as of 2017, food was one of the main sources of urban GHG emissions, accounting for over 25 percent of consumption-based emissions attributable to households in US municipalities, on average.[28]

Co-Benefits

Municipal efforts to increase the availability of plant-based proteins and engage the public on their benefits can contribute to a variety of co-benefits, beyond climate mitigation. These co-benefits are in the areas of expanded consumer choice, environment, health, resilience and food security, equity, animal welfare, and cost savings.

Consumer Choice

Increasing the availability of plant-based proteins within a municipality expands overall consumer choice with respect to food. In so doing, it also provides more inclusive—and often much-needed—food options for municipal employees, residents, and visitors with specific dietary needs. For instance, 30 to 50 million Americans are lactose intolerant.[29] And many others have special dietary requirements related to their religious practices.[30] In addition, more and more people are choosing to incorporate plant-based proteins into their diets for health reasons.[31] It is more inclusive, less alienating, and more supportive of freedom of choice to ensure that the range of available food options in various municipal and community settings includes plant-based proteins.

Environment

Plant-based proteins offer numerous advantages from an environmental perspective. Their production has a relatively small water footprint, with tofu and unprocessed oats, for example, requiring just 6 and 3.8 gallons of water per gram of protein, respectively.[32] With at least 40 states anticipating water shortages, according to the US Environmental Protection Agency (EPA), water-efficient protein production is likely to become increasingly valuable.[33]

Furthermore, plant-based proteins neither present the threat to surface water and groundwater caused by manure[34] nor generate the methane and ammonia emissions associated with livestock operations.[35] Agricultural air pollution, including lung-irritating particles, can drift into municipalities from hundreds of miles away.[36]

Additionally, because plant-based proteins are less resource-intensive, food loss and waste from plants embody comparatively fewer wasted resources and therefore have a smaller overall environmental and climate impact.[37]

Health

Research shows that most Americans do not eat a healthy diet,[38] and diet is the leading cause of premature death in the United States, causing over 500,000 deaths annually.[39] Insufficient intake of fruits and vegetables contributes to high levels of national obesity, type-2 diabetes, and heart disease, as well as certain cancers.[40] According to the federal *Dietary Guidelines for Americans*, a healthy diet can be achieved by incorporating plant protein, part of the expansive “protein foods group” that comprises foods from both animal and plant sources.[41] But a majority of Americans have diets low in vegetables and fruits—and most do not satisfy the recommendation for plant-based protein intake. Specifically, more than half of Americans do not meet the recommendation for nuts, seeds, and soy products.[42] As a result, “[s]hifts are needed within the protein foods group to add variety to subgroup intakes. Selecting from … the beans, peas, and lentils subgroup more often could help meet recommendations while still ensuring adequate protein consumption.”[43] Furthermore, the Academy of Nutrition and Dietetics has previously taken the position (which it is expected to soon reaffirm)

that appropriately planned plant-based diets are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases.[44]

Municipal implementation of plant-based protein actions can help residents, employees, and visitors to meet the recommendations of the *Dietary Guidelines*. And greater adherence to dietary recommendations, especially by way of eating more whole grain and nutrient-dense plant-based foods, can help to avert some diseases and prevent deaths as well as reduce the corresponding health care costs[45] borne by individuals—and also by the municipality, in situations where it pays for healthcare.

For example, New York City, led by the Mayor's Office of Food Policy, has been at the forefront of linking plant-based meals to improved health. By making plant-based meals its default offering and enhancing patients' experiences with food, NYC Health + Hospitals was, as of mid-2023, on pace to serve 850,000 plant-based meals during the year.[46] This is part of New York City's effort to expand its lifestyle medicine programming, which centers on plant-based foods as a tool to combat chronic disease and address health disparities disproportionately impacting Black and Brown residents.[47]

Resilience and Food Security

Diversifying protein sources in the local food supply can increase resilience, a point that has been emphasized by the Good Food Institute and others.[48] Because plant-based proteins tend to result from short paths to market, consisting of relatively few links and actors, they are better insulated from unexpected changes and disruptions, such as natural disasters and extreme weather events associated with climate change.[49]

Additionally, the production of plant-based proteins in municipal, home, and community gardens can offer benefits by way of climate change adaptation, resilience, and mitigation—including through cooling effects, improved microclimate conditions, and enhanced stormwater runoff management.[50] Growing certain protein-rich plants, such as beans and peas, does not require extensive space and is well-suited to urban and suburban settings.[51] In the event of global stressors and shocks, the presence of local agriculture can serve to diversify the food supply and provide more ready access to fresh food.[52]

Equity and Inclusion

Many of the CAP actions outlined in the Menu in Part 1 can advance municipal environmental equity goals, as well as public health equity goals. As a general matter, communities of color and low-income communities are already experiencing and will continue to experience many climate change impacts "first and worst."[53] These communities also experience a range of health inequities.[54] The CAP actions address both of these overarching inequities by mitigating climate impacts and fostering greater access to healthy, affordable, and culturally appropriate low-carbon foods.

Assessment of the equity value of the plant-based protein actions can be informed by the definition of equity set forth in an Urban Sustainability Directors Network report: "Equity in sustainability incorporates procedures, the distribution of benefits and burdens, structural accountability, and generational impact."[55] Each of these components of equity potentially can be achieved through plant-based protein actions.

CAP actions to increase the availability of plant-based proteins and engage the public on their benefits should be designed with early, meaningful, and accessible public involvement that engages the full range of stakeholders—including disadvantaged communities and those facing physical, cultural, or technological barriers to access.

As a threshold matter, procedural equity can be achieved by ensuring that all communities affected by a proposed plant-based protein action are given the opportunity to be meaningfully involved in the development of the action.

In addition, certain plant-based protein actions, particularly those in Category 6, help achieve distributional equity, in part by focusing on "those of highest need,"[56] through actions such as supporting kitchen incubators and launching training and assistance programs for convenience stores in low-income communities and communities of color.

Many of the CAP actions reflect recognition of "the historical, cultural, and institutional dynamics and structures that have routinely advantaged privileged groups in society and resulted in chronic, cumulative disadvantage for subordinated groups."[57] For example, several actions attempt to address historical inequities that have resulted in low-income communities and communities of color having less access to certain types of plant-based proteins as well as fruits and vegetables more generally.[58] Specifically, CAP actions that support urban agriculture projects,[59] as well as training programs for health care practitioners and school chefs, can help increase access to plant based proteins. These types of actions also can advance food sovereignty—"the ability of marginalized communities to not only have stake in the food system, but to control what they eat and how they eat it."[60]

Furthermore, because CAP actions can help mitigate climate change—which impacts low-income communities and communities of color and their descendants disproportionately—the measures potentially can reduce unfair burdens on future generations.[61] Similarly, the public health equity co-benefits of the CAP actions can be passed down to future generations.[62]

Animal Welfare

CAP actions that increase the availability of plant-based proteins can offer municipalities a means of addressing growing concerns about the welfare of farm animals. It is estimated that between 9 and 10 billion farm animals are slaughtered in the United States each year,[63] nearly all of them raised in a system of intensive confinement.[64] Amidst documented concerns with animal treatment and overall welfare,[65] new state legislation to protect farm animals,[66] and efforts by food businesses to address animal welfare within their supply chains,[67] research indicates that consumers care about this issue and perceive a need to improve farm animal welfare.[68]

For the municipality, then, a co-benefit of including plant-based protein actions in their CAPs is that doing so may allow consumers to more effectively express animal welfare concerns through their food choices.

Cost Savings

Whole food plant-based protein meals (especially when they include proteins from sources such as rice and beans, tofu, lentils, and quinoa) tend to be inexpensive—and in fact, less expensive than comparable options.[69] Not surprisingly, then, there is evidence that municipalities, their institutional partners, and local businesses stand to save on food-related costs by increasing the availability of protein sources such as beans, legumes, and grains.[70]

Municipalities can tailor actions in their CAPs that increase the availability of plant-based proteins and public engagement to their circumstances, including with respect to stakeholder priorities and available resources.

For example, some municipalities have seen a decrease in food-related costs through increased plant-based procurement measures. New York City is projected to save $1 million annually from the NYC Health + Hospitals plant-based default program, implemented by Sodexo at 11 hospitals.[71] Similarly, by increasing procurement of fruits, vegetables, and legumes, the Oakland Unified School District achieved a one percent reduction in dollars spent per meal served, for a total savings of $42,000 over a two-year period.[72] Businesses also stand to benefit from reducing food-related costs while potentially varying their clientele.[73]

Factoring plant-based meat analogs (such as plant-based burgers) into the cost conversation can add complexity, as these alternatives tend to be more expensive. Even so, industry market research suggests that plant-based products are moving toward price parity.[74] And while roughly half of Americans view plant-based foods as more costly than other proteins, a majority agree that they would be willing to make a substitution if plant-based alternatives were cheaper.[75]

Although cost savings are a notable co-benefit of plant-based protein actions, municipalities would do well to consider both the perception and reality of cost implications in including these actions in their CAPs. To highlight opportunities for cost savings, it may be beneficial to pair accessibility actions from the *Toolkit* Menu with educational actions aimed at increasing awareness of lower-cost plant-based protein meals. Also, municipalities may want to explore how potential cost savings can be leveraged to benefit low-income communities and communities of color[76] and to design plant-based protein measures with equity a central consideration.[77]

A caveat: the preceding discussion of the cost savings co-benefit does not necessarily address a given municipality's *cost of implementation* for plant-based protein actions. When developing their CAPs, municipalities often assign cost estimates by action. Given the wide variation in available plant-based protein actions and the potentially significant differences in implementation from one municipality to the next, the *Toolkit* does not offer specific cost estimates by action.[78]

Challenges

A majority of the American public is motivated to incorporate plant-based foods into their diet.[79] This creates an opportunity for municipalities to successfully adopt and implement plant-based protein actions. Polling suggests that health is the leading motivation behind increasing plant-based eating, followed by environmental concerns, food safety, animal welfare, and peer influence.[80]

Still, and despite the rising popularity of flexitarianism,[81] municipalities may encounter challenges in incorporating plant-based protein actions into their CAPs and giving effect to these actions. Two important challenges, discussed below, arise in the areas of quantifying GHG emissions reductions and achieving behavioral change.

Quantifying GHG Emissions Reductions

Municipalities often quantify the GHG emissions associated with each CAP action, but estimating food-related emissions—that is, GHG emissions associated with food consumed within the municipal boundary—can be a challenge.

The Global Protocol for Community-Scale Greenhouse Gas Inventories is the most widely used standard for measuring GHG emissions.[82] The Protocol classifies emissions pursuant to a "scopes" framework, based on where the emissions physically occur, as well as by sectors. Most food-related emissions are classified as scope 3, which are emissions that occur outside of the municipal boundary as a result of activities taking place within the boundary.[83] The Protocol requires that a municipality report scope 3 emissions only from the waste sector, including food waste; consequently, other food-related emissions are not covered. The Protocol points out, however, that measuring "other" scope 3 emissions, such as food-related emissions, allows municipalities to "take a more holistic approach to tackling climate change by assessing the GHG impact of their supply chains … ."[84]

Today, as scope 3 emissions receive greater attention,[85] more municipalities are reporting their scope 3 emissions through what is known as *consumption-based accounting*. This approach assigns emissions attributable to goods on the basis of where the goods are *consumed* (in this case, within the municipality), rather than where they were *produced* (somewhere outside the municipality).[86] Consumption-based accounting can help to present a more complete picture of municipal emissions, including the carbon impact of different foods consumed within the municipality. This information, in turn, can inform municipal efforts to mitigate climate change.[87] New York City, for example, developed a household consumption-based emissions inventory and found that food was the leading source of emissions attributable to households, comprising 25 percent of total residential consumption-based emissions. The report also found that New York City's average household emissions from food were below the US average.[88] This suggests that most American cities have an opportunity to reduce their food-related emissions.

Municipalities are increasingly taking a consumption-based accounting approach to calculating their GHG emissions that shows the carbon footprint of foods consumed within the municipality.

A consumption-based emissions inventory is comprehensive and involves estimating the GHG emissions from food as well as other products consumed within the city boundary (and not *just* from municipal operations). As a modest initial step, for the purpose of evaluating plant-based protein actions for inclusion in a CAP, a municipality might focus more narrowly on municipal operations—and estimate only the emissions from food procured by municipal government.[89]

Ultimately, given the wide variation in plant-based protein actions introduced in this *Toolkit*, and the many potential differences in implementation from one municipality to the next, the *Toolkit* does not assign estimated GHG emissions reductions to specific actions. Municipalities seeking to quantify estimated emissions reductions for their plant-based protein actions may wish to consult existing municipal CAPs,[90] as well as online emissions calculators.[91] Another option, where resources allow, is to engage outside technical experts, including from local universities, to assist in developing estimates tailored to a municipality's needs and circumstances.

Considering Drivers of Behavior Change

In evaluating plant-based protein actions, municipalities should be aware that individual dietary choices can be difficult to sway, particularly because human behavior is complicated and can be unpredictable. Fortunately, a growing body of behavioral research in a range of disciplines—from social and cognitive psychology to behavioral

economics—offers insights that can inform the choice, design, implementation, and communication of plant-based protein actions.

Key Lessons from the Literature.

Behavioral research recognizes that people do not always make rational decisions. As the Behavioural Insights Team outlines in its report *A Menu for Change: Using behavioural science to promote sustainable diets around the world,* decisions are a function of three main drivers of behavior: individual drivers (such as personal preferences and tastes), social drivers (such as the opinions of friends and family), and material drivers (such as convenience).[92] Although a summary of all the social science literature potentially relevant to the success of plant-based protein actions is beyond the scope of this *Toolkit*, some consensus lessons have emerged based on studies of the three main behavior drivers (each independently and in combination). The Behavioural Insights Team groups the lessons into several categories, which are relevant for assessing and selecting plant-based protein actions.

Make It "Normal."

A phenomenon known as the "default effect" describes people's tendency to take the "default" route in any decision, rather than what is perceived as the "alternative."[93] Given that plant-based proteins are still thought of as an "alternative," normalizing plant-based proteins as an option and increasing their visibility may be an effective strategy.

Choice architecture and "nudge" strategies can help achieve these outcomes in a variety of ways, such as by instituting a weekly menu initiative (like Plant Powered Fridays) or making plant-based protein meals the default option for municipal-wide operations.[94] Sophisticated work is taking place in this space. For example, the Better Food Foundation[95] aims to use nudge strategies to move people and institutions to adopt new plant-centered norms, and Greener by Default works with partner institutions to make plant-based foods the default in a variety of settings.[96]

Furthermore, in efforts to normalize plant-based proteins, engagement efforts could include spokespeople from a variety of socio-economic, cultural, ethnic, and racial backgrounds. Municipalities can also consider partnering with authentic representatives from the different demographic communities they are working with to ensure that plant-based proteins are normalized and seen as appropriate for all cultural backgrounds.

Make It "Appealing."

Especially in routine decision-making—such as grocery shopping—humans tend to make quick, emotional, and intuitive decisions through a neural pathway called "System 1."[97] Behavioral research has shown that thoughtfully crafted messages can exert influence on this pathway. Marketing and outreach efforts that use appealing imagery and language to highlight certain benefits (taste, health, cost, etc.) can be effective,[98] though the strength of different messages may vary by target audience.[99]

Make It "Easy and Convenient."

Research has shown that a change in values does not always lead to behavioral change, as individuals tend to sacrifice their values when the cost is high.[100] Therefore, strategies that make it easier for individuals to eat plant-based proteins can be effective: for example, increasing the availability of plant-based options in stores or including eco-labels on food products to make it easier for consumers to make judgments.[101]

Awareness Campaign Limitations.

Research indicates that information and awareness campaigns alone may have limited effects on behavior change, although they may raise support for a given policy.[102] Accordingly, in developing or augmenting their CAPs, municipalities may want to combine public engagement actions with complementary strategies such as measures that increase the availability of plant-based proteins.

Spillover Effects.

Behavioral change does not occur in isolation—there can be ripple effects. The potential for both positive and negative spillover effects should be considered in selecting plant-based protein actions.[103] For example, a positive spillover effect was found in one study that concluded that incorporating one plant-based protein meal per week as a practice increases the likelihood of integrating more plant-based recipes at home.[104]

Legal and Policy Considerations

The Menu of plant-based protein actions in Part 1 of this *Toolkit* does not specify legal and policy mechanisms to be used in adopting and implementing each action (e.g., whether city council should enact an ordinance or the mayor should issue an executive order). CAPs vary widely with respect to whether they detail adoption and implementation tools. Furthermore, given the differences in municipal law and policy, as well as local political dynamics, and the variety of available actions, the types of plant-based protein public engagement and availability actions included in CAPs can vary greatly from one jurisdiction to the next. As a result, a detailed legal discussion is beyond the scope of this *Toolkit*.[105] However, several common issues that are likely to arise are noted below.

Voluntary Versus Mandatory Action

If the municipality intends for compliance with the plant-based protein action to be entirely voluntary—e.g., restaurants are encouraged to indicate climate friendly menu items (Menu Action 4.G)—the municipality may be able to adopt and implement the action without any formal legislative or administrative governmental action.[106]

If, instead, the municipality intends for compliance with the action to be mandatory, the most likely mechanisms for adoption are an *executive order* (which is used to direct the work of government departments)[107] or an *ordinance* (used to impose legally binding requirements on private parties).[108]

Scope of Municipal Legal Authority

The legal and institutional framework governing a municipality can be complex. This is in part because certain types of facilities may be subject to laws and institutional oversight that extend beyond the municipality's circumscribed authority. For example, food service at institutions such as schools, hospitals, and correctional facilities can implicate state and even federal law, with which a plant-based protein action may need to be harmonized. State law may, for example, provide for school nutritional standards; state law can also, in some instances, altogether pre-empt local action on a subject. And if federal funds are used for a program, consistency with federal laws and regulations is required.[109] Thus, it is important for the municipality to be aware of the broader state (and potentially federal) legal landscape in which plant-based protein actions are to be given effect.

Additionally, a municipality may have reason to advance plant-based proteins through an institution or entity that is only partially subject to municipal authority or control. *Semiautonomous entities* are local government units that have a degree of independence from a municipality or other form of central or general-purpose government. There are "numerous single-function and multiple-function districts, authorities, commissions, boards, and other entities, that have varying degrees of autonomy."[110] These entities can take a wide range of forms and are referred to by various name, such as special districts, quasi-municipal corporations, and special authorities.[111] Common examples include school districts, airport authorities, and solid waste districts. *Quasi-governmental entities* are typically defined as organizations that have both a public and a private component, such as convention centers and sports venues that are municipally owned but privately operated.[112] The extent to which a municipality can direct, influence, or encourage the actions of any of these entities must be examined on a case-by-case basis.

Compliance with Municipal Procurement Requirements

Some plant-based protein actions, as set forth in Category 3 of the Menu, implicate municipal procurement requirements (e.g., by providing that a specified quantity, dollar value, or type of plant-based protein be purchased). *Procurement* refers comprehensively to purchasing activities undertaken by municipal government.[113] A municipality's policy and rules governing procurement are usually established by ordinance and may be set forth in the municipal code.[114] On a day-to-day basis, executive agencies and departments implement local procurement law and policy as they make purchasing decisions in support of their mandates. In some municipalities, a procurement board or chief purchasing officer plays a significant role in procurement decision-making.[115]

Local governments routinely deploy their procurement authority to achieve public policy objectives.[116] Promoting the consumption of plant-based proteins has been positioned as the next frontier for values-based procurement. The Good Food Purchasing

Program, for example, has developed comprehensive values-based food purchasing policies. GFPP's recent standards provide for a plant-based entrée to be promoted and served at every meal.[117]

When a plant-based protein action implicates municipal procurement, the action must comply with municipal procurement ordinances, regulations, guidelines, and practice—or amendments to the law must be considered.[118]

Alignment of Action with Municipal Policies, Programs, and Plans

Adoption of a plant-based protein action should align with other relevant municipal policies, programs, and plans (including, of course, the content of any existing municipal CAP) that have been adopted or endorsed in areas such as climate change and sustainability, health and nutrition, and environmentally preferable purchasing. At a minimum, it is important to avoid inadvertently introducing inconsistencies into a municipality's legal and policy framework.

Endnotes

[1] *See, e.g.,* UN Env't Programme (UNEP), *Cities and Climate Change*, https://www.unep.org/explore-topics/resource-efficiency/what-we-do/cities/cities-and-climate-change (Urban areas are responsible for 75 percent of global emissions).

[2] *See, e.g.,* Mun. Rsch. & Serv. Ctr. of Wash. (MRSC), *Climate Action Plans*, https://mrsc.org/explore-topics/environment/sustainability/climate-action-plans. A climate action plan may also set forth climate adaptation strategies that the community will pursue.

Note that this *Toolkit* uses the term "municipality" throughout to encompass cities, towns, and similar units of local government. However, many of the approaches and concepts discussed here also apply to county government.

[3] *See id. See also, e.g.,* City of Burlington (Vt.), *What Is a Climate Action Plan?*, https://www.burlingtonvt.gov/Sustainability/CAP ("Climate action plans, at a minimum, include an inventory of existing emissions, reduction goals or targets, and analyzed and prioritized reduction actions. Ideally, a climate action plan also includes an implementation strategy that identifies required resources and funding mechanisms.").

[4] The majority of emissions associated with food result from the production phase. *See, e.g.,* EcoDataLab, *New York City Household Consumption-Based Emissions Inventory (2019 base year)* 4, 11, prepared Feb. 2023; UN, *Food and Climate Change: Healthy diets for a healthier planet*, https://www.un.org/en/climatechange/science/climate-issues/food. *See also* Christopher M. Jones & Daniel M. Kammen, *Quantifying Carbon Footprint Reduction Opportunities for U.S. Households and Communities*, 45 Env't Sci. & Tech. 4088 (Mar. 2011). *See also, e.g.,* Rebecca Boehm et al., *A Comprehensive Life Cycle Assessment of Greenhouse Gas Emissions from U.S. Household Food Choices*, 79 Food Pol'y 67 (Aug. 2018) (finding that 68% of average weekly household GHG emissions from food spending come from the agriculture and food manufacturing stages of the food supply chain, and that industries that produce animal proteins account for 30% of average weekly household GHG emissions, the largest share of any food industry).

[5] *Id.*; Michael A. Clark et al., *Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets*, 370 Sci. 705 (Nov. 2020).

[6] For example, a recent large-scale study in the United Kingdom found that plant-only eaters had 25% of the climate impact of high animal-based eaters. Peter Scarborough et al., *Vegans, Vegetarians, Fish-Eaters and Meat-Eaters in the UK Show Discrepant Environmental Impacts*, Nature Food 565 (June 2023). *See also, e.g.,* Isabelle Gerretsen, *What is the Lowest Carbon Protein?* BBC (2022), https://www.bbc.com/future/article/20221214-what-is-the-lowest-carbon-protein.

[7] *See, e.g.,* US Department of Agriculture (USDA), *Can vegetarians and vegans use the United States Department of Agriculture Food Patterns?* (July 17, 2019), https://ask.usda.gov/s/article/Can-vegetarians-and-vegans-use-the-United-States-Deparment-of-Agriculture-Food-Patterns; UN, *supra* note 4.

[8] Plant-based meat analogs are produced directly from plants. Like animal-based meat, plant-based meat analogs comprise protein, fat, vitamins, minerals, and water. *See* Good Food Inst., *2022 State of Global Policy Report: Public investment in alternative proteins to feed a growing world* 6 (Jan. 2023).

Plant-based meat analogs are one type of *alternative protein*, a category that also includes cultivated meat and meat produced by a fermentation process. *Id.* at 5–6. Increasingly, meat companies are becoming involved in the alternative protein industry, manufacturing their own plant-based products, partnering with or acquiring existing plant-based brands, and investing in research and development for alternative proteins. Companies have framed this portfolio diversification as a means of expanding consumer choice, providing healthier options, and (although less frequently cited) offering less climate-intensive products. *See, e.g.,* Caroline Bushnell et al., Good Food Institute, *State of the Industry Report, Plant-based meat, seafood, eggs, and dairy* 26 (Jan. 2023); Conagra Brands CDP Climate Change 2022 Report (2022).

Additionally, while plant-based dairy alternatives such as oat milk, almond milk, and soy milk are beyond the *Toolkit's* discussion of plant-based *proteins*, these alternatives can be ingredients in meals that feature plant-based proteins.

[9] *See* USDA, *USDA MyPlate: Protein Foods*, https://www.myplate.gov/eat-healthy/protein-foods; USDA, *supra* note 7.

[10] *See, e.g.,* Kendall Reagan Nutrition Ctr., Colo. State Univ., *Plant-based protein - A simple guide to getting enough,* https://www.chhs.colostate.edu/krnc/monthly-blog/plant-based-protein-a-simple-guide-to-getting-enough/.

[11] Cheikh Mbow et al., IPCC, *Food Security, in* Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems 481 (P.R. Shukla et al., eds., 2019).

[12] None of the actions identified in this *Toolkit* would mandate the consumption of plant-based foods or prohibit the consumption of animal-based foods. Whether municipal residents, employees, and visitors ultimately decide to consume more plant-based proteins remains a personal decision. But a municipality can as a matter of sound public policy make plant-based proteins more readily available, increase public awareness of plant-based proteins and their range of benefits, and engage with the public on these benefits.

Municipal efforts to make food consumption more sustainable and resilient by leveraging the benefits of plant-based proteins can be analogized to local climate initiatives that have been taken in the transportation sector. For instance, municipalities can improve walkability, add bike lanes, expand mass transit, and green the fleet—all while encouraging and incentivizing local buy in—without prohibiting the use of cars.

[13] The *Toolkit* actions do not depend for their success on municipal employees, residents, and visitors eating *only* plant-based sources of protein, much less shifting to entirely "plant-based diets." *See, e.g.,* Giulia Viroli et al., *Exploring Benefits and Barriers of Plant-Based Diets: Health, Environmental Impact, Food Accessibility and Acceptability*, 15 Nutrients 4723 (Review) (2023) (defining plant-based diets as dietary patterns that emphasize the consumption of plant-based foods while eliminating most or all animal products and noting the wide variety of plant-based diets practiced today). Targeted plant-based protein interventions (even just once a week) can have a significant impact on food-related emissions. *See, e.g.,* Amanda Schupak, *Climate-friendly diets can make a huge difference—even if you don't go all-out vegan*, The Guardian, June 4, 2022.

[14] Union of Concerned Scientists, *Purchasing Power: How Institutional "Good Food" Procurement Policies Can Shape a Food System That's Better for People and Our Planet* 1 (2017). *See also, e.g.,* Katrina Wyman & Emma Dietz, *Integrating Food into Local Climate Policy*, 24 NYU J. Legis. & Pub. Pol'y 725, 730 (2021/2022) (arguing that "local governments are well-positioned to add food policy more squarely to their climate policy toolkit and, perhaps in so doing, to broaden the agenda of climate policy to incorporate more food policy measures").

[15] Although the *Toolkit* was designed with CAPs in mind, the plant-based protein actions included here can be included in other municipal planning and strategic documents, such as food policy plans, or implemented a la carte.

[16] *See* Angela Park, Urb. Sustainability Dir. Network (USDN), *Equity in Sustainability: An Equity Scan of Local Government Sustainability Programs* (Sept. 2014). *See also* USDN, *Equity Foundations 1.0 Training,* https://www.usdn.org/equity-foundations-training.html#/.

[17] *See, e.g., Types of Engagement: Thick, Thin, and Conventional, Organizing Engagement*, https://organizingengagement.org/models/types-of-engagement-thick-thin-and-conventional/.

[18] *See* Jordan Perry & Linda Breggin, *Research Brief: An Overview of Hands-on Resources for Hosting Accessible Events*, Env't Law Inst. (May 2023). *See also* Jordan Perry & Linda Breggin, *Research Brief: An Overview of Multilingual Outreach, Translation, and Language Justice Resources*, Env't Law Inst. (June 2022).

[19] Working Group on Legal Frameworks for Public Participation, *Making Public Participation Legal,* Nat'l Civic League (Oct. 2013).

[20] Kari Hamerschlag et al., Friends of the Earth U.S. & Resp. Purchasing Network, *The Meat of the Matter: A Municipal Guide to Climate-Friendly Food Purchasing* (Dec. 2017).

[21] Adalene Minelli et al., Ctr. for Env't & Animal Prot. & Guarini Ctr. on Env't, Energy & Land Use L., NYU School of L., *Towards Plant-forward Diets: A Toolkit for Local Policymakers* (Oct. 2021).

[22] The climate benefits and co-benefits of implementing plant-based protein actions are realized only when municipal residents, employees, and visitors actually consume a greater amount of plant-based proteins relative to other sources of protein. A municipality can facilitate this by taking action to increase the availability of plant-based proteins and engage the public on their benefits. Nevertheless, as observed in *supra* note 12, none of the actions contained in the *Toolkit* would mandate individual dietary decisions.

[23] The *Toolkit* focuses primarily on plant-based protein actions as a means of reducing GHG emissions—i.e., these actions are a tool for climate *mitigation*. But implementing plant-based protein actions can also support climate *adaptation* efforts, in part by helping municipalities to achieve a more resilient food system. *See infra* notes 48–52 and accompanying text.

[24] Hadi Afrouzi et al., *A comprehensive review on carbon footprint of regular diet and ways to improving lowered emissions*, 18 Results in Eng'g 101054 (June 2023).

[25] *See* US Environmental Protection Agency (EPA), *Data Highlights—Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2021* 2 (Nov. 2023) (manure management and enteric fermentation processes responsible for nine percent and 27 percent, respectively, of US methane emissions—a greater methane contribution than that from natural gas and petroleum systems, combined).

Methane is also important in the context of food loss and waste. *See, e.g.,* J.A. Moult et al., *Greenhouse gas emissions of food waste disposal options for UK retailers*, 77 Food Pol'y 50 (May 2018) (estimating that when animal protein decomposes in a landfill, it releases three times the amount of methane as fruits and vegetables).

[26] Project Drawdown, *Plant-Rich Diets*, https://drawdown.org/solutions/plant-rich-diets. *See also, e.g.,* Eugene A. Mohareb et al., *Cities' Role in Mitigating United States Food System Greenhouse Gas Emissions*, 52 Env't Sci. & Tech. 5545, 5551 (May 2018) (estimating that 77% of production and primary processing GHG emissions in the American diet in 2010 were attributable to animal-based food consumption). *See also* sources cited at *supra* note 6.

Without addressing GHG emissions attributable to food production, it will likely be impossible to meet international climate goals. *See, e.g.,* Clark et al., *supra* note 5.

[27] *See* EAT Cities, *Cities*, https://eatforum.org/initiatives/cities/.

[28] *Id. See also* EcoDataLab, *supra* note 4. A consumption-based approach accounts for GHG emissions based on where products are consumed (i.e., within the municipal boundary) rather than where products are produced. *See infra* notes 85–91 and accompanying text.

[29] *See* Bos. Children's Hosp., *Lactose Intolerance*, https://www.childrenshospital.org/conditions/lactose-intolerance. The vast majority of African Americans, Native Americans, and Asian-Americans are lactose intolerant.

[30] *See* Greener by Default, *Inclusivity*, https://www.greenerbydefault.com/inclusivity.

[31] *See* Good Food Inst., *Consumer Insights*, https://gfi.org/resource/consumer-insights/.

[32] Dana Hunnes, UCLA Sustainability, *The Case for Plant Based*, https://www.sustain.ucla.edu/food-systems/the-case-for-plant-based/. *See also* Martin Armstrong, World Econ. Forum, "Which foods need the most water to produce?" (June 7, 2021), https://www.weforum.org/agenda/2021/06/water-footprint-food-sustainability/. *See also* Brian Machovina et al., *Biodiversity Conservation: The Key is Reducing Meat Consumption*, 536 Sci. of the Total Env't 419 (Dec. 2015); Davy Vanham et al., *The Water Footprint of the EU for Different Diets*, 32 Ecological Indicators 1 (Feb. 2013).

[33] *See* EPA, *Water Management at EPA*, https://www.epa.gov/greeningepa/water-management-epa.

[34] Soren Rundquist & Craig Cox, Env't Working Grp. (EWG), *Case Study: Iowa Cities Struggle to Keep Farm Pollution Out of Tap Water* (Jan. 2018).

[35] *See* USDA Nat'l Inst. of Food and Agric. (NIFA), https://www.nifa.usda.gov/topics/air. However, plant-based proteins can be associated with water pollution that results from agricultural runoff.

[36] *See, e.g.,* Sarah Kaplan, *Air pollution from farms leads to 17,900 U.S. deaths per year, study finds*, Wash. Post, May 10, 2021. *See also* Nina Domingo et al., *Air quality–related health damages of food,* 118 PNAS 20 (May 2021). Additionally, certain agricultural practices involving land clearing (e.g., in the Amazon) exacerbate biodiversity loss and contribute to the extinction crisis. Notwithstanding the complexities surrounding this issue, research supports the conclusion that plant-based protein consumption, overall, has a comparatively much lower biodiversity impact with respect to species extinction. *See, e.g.,* Scarborough et al., *supra* note 6, at 565, 571, & 569 table 4 (comparing biodiversity impacts along spectrum of dietary groups).

[37] Andrew Berardy et al., *Comparison of Plate Waste between Vegetarian and Meat-Containing Meals in a Hospital Setting: Environmental and Nutritional Considerations*, 14 Nutrients 1174 (March 2022); Katharina Scholz et al., *Carbon footprint of supermarket food waste*, 94 Res., Conservation, & Recycling 56 (Jan. 2015).

[38] Nat'l Ctr. for Chronic Disease Prevention and Health Promotion (NCCDPHP), *Poor Nutrition* (chronic disease fact sheet), https://www.cdc.gov/chronicdisease/resources/publications/factsheets/nutrition.htm.

[39] Ali H. Mokdad et al., *The State of US Health, 1990-2016: Burden of Diseases, Injuries, and Risk Factors Among US States,* 319 J. of the American Med. Ass'n 1444 (Apr. 10, 2018).

[40] *See* NCCDPHP, *supra* note 38.

[41] USDA & U.S. Dep't of Health and Hum. Serv. (HHS), *Dietary Guidelines for Americans 2020-2025* 30, 33 (9th ed., Dec. 2020) (hereinafter *Dietary Guidelines*). The *Dietary Guidelines* provide science-based advice on what to eat and drink to promote health, help reduce risk of chronic disease, and meet nutrient needs. The *Dietary Guidelines* also form the foundation of federal food, nutrition, and health policies and programs. It is also notable that some municipalities—including, e.g., New York City and Philadelphia—have adopted their own nutrition standards covering food purchased and served by the municipality. *See, e.g.,* NYC Food Policy, *New York City Food Standards,* https://www.nyc.gov/site/foodpolicy/governance-initiatives/nyc-food-standards.page; City of Philadelphia, City of Philadelphia Nutrition Standards, https://www.phila.gov/documents/city-of-philadelphia-nutrition-standards/. *See also* USDA My Plate, *Vegetarian Choices in the Protein Foods Group,* https://www.myplate.gov/eat-healthy/protein-foods; Brit. Heart Found., *How to get protein without the meat*, https://www.bhf.org.uk/informationsupport/heart-matters-magazine/nutrition/protein/how-to-get-protein-without-the-meat.

[42] *See Dietary Guidelines, supra* note 41, at 30, 34.

[43] *See id.* at 33. The *Dietary Guidelines* provide particularized nutritional guidance for particular life stages, *id.* at chs. 2–6, including infants and toddlers and pregnant women. *See also* François Mariotti & Christopher D. Gardner, *Dietary Protein and Amino Acids in Vegetarian Diets—A Review*, 11 Nutrients 2661 (Nov. 2019).

An in-depth discussion of nutrition is beyond the scope of this *Toolkit*. However, for additional technical resources on meeting dietary needs through plant-based proteins, including potential limitations, *see, e.g.,* Laurianne Dimina et al., *Combining Plant Proteins to Achieve Amino Acid Profiles Adapted to Various Nutritional Objectives—An Exploratory Analysis Using Linear Programming*, 8 Frontiers in Nutrition (Feb. 2022); Stefan H. M. Gorissen et al., *Protein content and amino acid composition of commercially available plant-based protein isolates*, 50 Amino Acids 1685 (Aug. 2018); Chesney K. Richter et al., *Plant Protein and Animal Proteins: Do They Differentially Affect Cardiovascular Disease Risk?* 6 Advances in Nutrition 712 (Nov. 2015). *See also, e.g.*, Sue Dibb & Ian Fitzpatrick, Eating Better, *Let's talk about meat: changing dietary behaviour for the 21st century* 7 (Dec. 2014) (noting that questions can arise about nutritional adequacy and the need to offer nutritional reassurance).

Additionally, there has of late been an increased focus on the healthfulness of what are known as ultra-processed foods (UPFs); the next iteration of the *Dietary Guidelines* may include recommendations in this regard. *See* Anahad O'Connor, *Dietary guidelines may soon warn against ultraprocessed foods*, Wash. Post, Nov. 7, 2023. While this concern could potentially implicate alternative proteins such as plant-based meat analogs, the evidence to date is that these products do not pose health risks in this regard like other UPFs. *See, e.g.,* Reynalda Cordova et al., *Consumption of ultra-processed foods and risk of multimorbidity of cancer and cardiometabolic diseases: a multinational cohort study*, The Lancet Reg'l Health—Eur. (Nov.

2023) (finding that UPF subgroups such as plant-based alternatives not associated with risk); GFI Europe, *Plant-based meat and health in Europe*: *A review of current evidence, key priorities, and frequently asked questions* 31 (Nov. 2023) ("When comparing plant-based meat against the typical definitions used for ultra-processed foods, it is clear that they do not neatly fit … . Plant-based meat is rarely mentioned in landmark studies on UPFs, but in various studies (including a meta-analysis) breaking down impacts by food group, UPFs providing a source of fibre, such as plant-based meat, were associated with reduced health risks."); Bryant Research, *The Ultra-Processed Myth* (Nov. 2023), https://bryantresearch.co.uk/insight-items/ultra-processed-myth/ (citing current research and noting that while replacing animal meat with plant-based meat analogs may mean eating more processed foods, it also means cutting down on calories, cutting down on saturated fat, and boosting intake of fiber).

[44] *See* Vesanto Melina et al., *Position of the Academy of Nutrition and Dietetics: Vegetarian Diets*, 116 J. of the American Dietetic Ass'n (Dec. 2016) (position expired, but expected update is likely to reaffirm position).

[45] Marco Springmann et al., *Analysis and valuation of the health and climate change cobenefits of dietary change*, 113 PNAS 4146 (Apr. 2016). Another study has concluded that suboptimal diet costs approximately $300 per person in the United States, or $50 billion nationally, accounting for 18 percent of all heart disease, stroke, and type-2 diabetes costs. Thiago Veiga Jardim et al., *Cardiometabolic disease costs associated with suboptimal diet in the United States: A cost analysis based on a microsimulation model*, 16 PLOS Medicine (Dec. 2019).

[46] NYC Food Pol'y, *Food Forward NYC: 2-Year Progress Report* 14 (July 2023).

[47] *See, e.g.,* City of N.Y., *Mayor Adams, NYC Health + Hospitals Expand Access to Lifestyle Medicine Services City-Wide* (Feb. 2022), https://www.nyc.gov/office-of-the-mayor/news/063-22/mayor-adams-nyc-health-hospitals-expand-access-lifestyle-medicine-services-city-wide#/0.

[48] *See, e.g.,* Climate Advisors & Good Food Inst., *Why the United States Should Champion Alternative Proteins as a Food and National Security Solution* 5 (Oct. 2022).

[49] Caitlin Welsh et al., Ctr. for Strategic & Int'l Stud., *The Future Appetite for Alternative Proteins* (2023), https://features.csis.org/the-future-appetite-for-alternative-proteins/.

[50] *See* Climate Adapt, *Climate Smart Urban Agriculture* (2017), https://climate-adapt.eea.europa.eu/en/metadata/adaptation-options/urban-farming-and-gardening; Thin Lei Win, *Urban farms 'critical' to combat hunger and adapt to climate change*, Reuters, Jan. 11, 2018, https://www.reuters.com/article/us-global-agriculture-urbanisation/urban-farms-critical-to-combat-hunger-and-adapt-to-climate-change-idUSKBN1F01A9.

[51] *See, e.g.,* Jeremy Dore, GrowVeg, *Supports for Climbing Beans and Peas* (Apr. 2011), https://www.growveg.com/guides/supports-for-climbing-beans-and-peas/; Elaina Hancock, *For Plant-based Proteins, Soy is a Smart Choice*, UConn Today, May 18, 2022, https://today.uconn.edu/2022/05/for-plant-based-proteins-soy-is-a-versatile-choice/.

[52] For more on the various dimensions of urban agriculture, *see, e.g.,* Esteve Giraud, *Urban Food Autonomy: The Flourishing of an Ethics of Care for Sustainability*, 10 Humanities 48 (Mar. 2021); Aydali Campa, *A New Push Is on in Chicago to Connect Urban Farmers with Institutional Buyers Like Schools and Hospitals*, Inside Climate News, Dec. 7, 2022, https://insideclimatenews.org/news/07122022/chicago-urban-farming/; Eric Adams, *The New Agrarian Economy: Past, Present, and Future of Urban Agriculture in New York City* (Feb. 2021); Marielle Dubbeling et al., *Urban agriculture as a climate change and disaster risk reduction strategy*, 20 Field Actions Sci. Reports 32 (Sept. 2019).

[53] The Climate Reality Project, *Frontline and Fenceline Communities*, https://www.climaterealityproject.org/frontline-fenceline-communities; Env't Defense Fund, *African American Communities and Climate Change.*

[54] Taylor Scott, *Unhealthy Inequalities: A Discussion on the Intersection of Health, Racism and Food Inequality for Black Americans and How Rights Based Laws Can Promote Health Equity and Social Justice*, Social Sci. Rsch. Network (Apr. 2023).

[55] *See* USDN, *supra* note 16.

[56] *Id*.

[57] *Id*.

[58] *See, e.g.,* Anthony Leiserowitz et al., Yale Program on Climate Change Commc'n, *Climate Change and the American Diet* 9 (2020).

[59] *See, e.g.,* USDA Climate Hubs, *Urban Agriculture,* https://www.climatehubs.usda.gov/hubs/international/topic/urban-agriculture.

[60] *See* Nina Ignaczak*, Can Detroit Become a Food-Sovereign City?* Center for Regional Food Systems: Michigan Good Food Charter (Feb. 2016), https://www.canr.msu.edu/news/can_detroit_become_a_food_sovereign_city; Brionna Colson-Fearon & H. Shellae Versey, *Urban Agriculture as a Means to Food Sovereignty? A Case Study of Baltimore City Residents*, 19 Int'l J. of Env't Rsch. & Pub. Health 12752 (Oct. 2022).

[61] *See* Michael P. Vandenbergh, *Reconceptualizing the Future of Environmental Law: The Role of Private Climate*, Pace Env't L. Rev. 385 (Sep. 2015).

[62] *See* NCCDPHP, *supra* note 38.

[63] Humane Soc'y of the US, *Improving the Lives of Farm Animals*, https://www.humanesociety.org/all-our-fights/improving-lives-farm-animals.

[64] The use of "concentrated animal feeding operations," or CAFOs, is prevalent in the United States; CAFO is a technical term defined by EPA in its federal Clean Water Act regulations. 40 C.F.R. § 122.23.

By one estimate, based on data from the USDA Census of Agriculture, 99 percent of US farmed animals are maintained in intensive confinement. *See* Jacy Reese Anthis, Sentience Inst., *US Factory Farming Estimates*, updated Apr. 11, 2019, https://www.sentienceinstitute.org/us-factory-farming-estimates.

[65] *See, e.g.,* Elizabeth A Overcash, *Overview of CAFOs and Animal Welfare Measures*, Animal Legal & Historical Center, Michigan State University College of Law (2011), https://www.animallaw.info/article/overview-cafos-and-animal-welfare-measures ("In terms of animal welfare, one of the greatest concerns is the close confinement and crowdedness of the animals. These conditions create boredom and stress in the animals, as well as physical and mental illnesses."); Pew Comm'n on Indus. Farm Animal Prod., *Putting Meat on the Table: Industrial Farm Animal Production in America* (Executive Summary) 13 (2008) ("Confinement animals are generally raised indoors and, in some cases (e.g., poultry, laying hens, hogs), the group size when raised indoors is larger than the group size when raised outdoors. In other cases (e.g., veal crates or gestation crates for sows), animals are separated and confined to spaces that provide for only minimal movement. The fundamental welfare concern is the ability of the animal to express natural behaviors: rooting and social behavior for hogs, walking or lying on natural materials, and enough floor space to move around with some freedom at the minimum. Gestation crates, the most restrictive farrowing crates, battery cages, and other intensive confinement systems fail to allow for even these minimal natural behaviors.").

The independent Pew Commission was formed by The Pew Charitable Trusts and the Johns Hopkins Bloomberg School of Public Health to examine the farm animal industry. From 2006 to 2008, the Commission conducted a comprehensive, fact-based, and balanced examination of key aspects of industrial farm animal production. Commissioners represented diverse backgrounds and perspectives and came from the fields of veterinary medicine, medicine, agriculture, public health, business, government, rural advocacy, and animal welfare. *See* Johns Hopkins Ctr. for a Livable Future (CLF), *Pew Commission on Industrial Farm Animal Production*, https://clf.jhsph.edu/projects/pew-commission-industrial-farm-animal-production. The Commission's work resulted in recommendations to solve problems in four primary areas: public health, the environment, animal welfare, and rural communities. Key recommendations included phasing out intensive confinement, as well as ultimately banning the nontherapeutic use of antibiotics in farmed animals to help avoid antibiotic resistance in humans. Executive Summary at 21–22.

[66] *See, e.g., Nat'l Pork Producers Council v. Ross*, 143 S.Ct. 1142 (2023) (upholding against constitutional challenge California's Proposition 12, which prohibits the sale of meat from pigs confined in a "cruel" manner).

[67] *See, e.g.,* ASPCA, *News: Companies Making Progress in Farm Animal Welfare* (Oct. 22, 2021), https://www.aspca.org/news/companies-making-progress-farm-animal-welfare.

[68] *See, e.g.,* Marta E. Alonso et al., *Consumers' Concerns and Perceptions of Farm Animal Welfare*, 10 Animals 385 (Feb. 2020); GQR, *National Survey on Concentrated Animal Feeding Operations (CAFOs)*, CLF (Dec. 10, 2019).

[69] *See, e.g.,* Hana Kahleova et al., *Vegan Diet and Food Costs Among Adults with Overweight: A Secondary Analysis of a Randomized Clinical Trial*, 6 JAMA Network Open (Sept. 2023) (finding that a low-fat vegan diet was associated with an approximately 16 percent decrease in total food costs); Erin Campbell et al., *Post hoc analysis of food costs associated with Dietary Approaches to Stop Hypertension diet, whole food, plant-based diet, and typical baseline diet of individuals with insulin-treated type 2 diabetes mellitus in a nonrandomized crossover trial with meals provided*, 119 Am. J. of Clinical Nutrition 769, 775 (2024) (finding that a whole-food, plant-based diet demonstrated the lowest food costs in a comparative analysis and that… "[d]espite public perception to the contrary, food cost analyses have found vegan and vegetarian diets economical when compared with other healthy diets").

Cost savings can result from substituting entire meals or ingredients, especially when plant-based proteins are purchased in their dry form.

[70] *See, e.g.,* NYC Health, *Nutrition: Plant-Based Protein*, https://www.nyc.gov/site/doh/health/health-topics/protein.page. *See also, e.g.,* Neal Barnard et al., *Universal Meals: A Novel Program to Provide Healthful Nutrition to Diverse Communities*, Am. J. of Lifestyle Med. (Feb. 17, 2022) (discussing the creation of plant-based "Universal Meals"—simple, healthful recipes that omit animal-derived ingredients and can be adapted to larger production sizes for institutional use—and documenting their relative cost effectiveness on a per-meal basis).

[71] DefaultVeg, *NYC Hospitals Flip Food Norms, Serving Plants by Default*, Medium (Oct. 4, 2022), https://defaultveg.medium.com/nyc-hospitals-flip-food-norms-serving-plants-by-default-91ba863f9f4.

[72] Kari Hamerschlag & Julian Kraus-Polk, Friends of the Earth, *Shrinking the Carbon and Water Footprint of School Food: A Recipe for Combating Climate Change* (2017).

[73] James Tapper, *Restaurants dropping meat dishes as costs rise and Veganuary grows more popular*, The Guardian, Jan. 1, 2023; Katrina Fox, *These Restaurants Removed Animal Products from Their Menus and Went Vegan—Here Are the Results*, Forbes, Apr. 4, 2018; Emma E. Garnett et al., *Impact of Increasing Vegetarian Availability on Meal Selection and Sales in Cafeterias*, 116 PNAS 20923 (Sept. 2019).

[74] *See, e.g.,* Kearney, *Plant-based protein: parity on the horizon* (Mar. 20, 2022), https://www.kearney.com/industry/consumer-retail/article/-/insights/plant-based-protein-parity-on-the-horizon.

[75] Leiserowitz, *supra* note 58, at 3.

[76] *See supra* notes 53–62 and accompanying text.

[77] *See* USDN, *supra* note 16.

[78] Where cost of implementation is a significant concern, municipalities seeking to identify new funding sources to support their CAP development and implementation plans may wish to consult government-funded grant programs. This includes examining opportunities available under the landmark Inflation Reduction Act of 2022 (IRA), which authorizes billions of dollars in funding to address climate change and could support local measures *See, e.g.,* C40 and Climate Mayors, *Climate Action and the Inflation Reduction Act: A Guide for Local Government Leaders* (Oct. 2022) (guidebook developed to help mayors and their staff understand the climate provisions included in the Act, the opportunities for local government, and the roles that they can play in maximizing the benefits of the law).

C40 is a global network of nearly 100 mayors of the world's leading cities that are taking action on climate change. *See About C40*, https://www.c40.org/about-c40/.

[79] *See, e.g.,* Karine Lacroix et al., Yale Program on Climate Change Commc'n, *Understanding Differences in Americans' Motivations for Eating Plant-Rich Foods* (2022),

https://climatecommunication.yale.edu/publications/understanding-differences-in-americans-motivations-for-eating-plant-rich-foods/ (discussing new survey tool for identifying groups willing to adopt plant-based diets).

[80] Zach Hrynowski, *What Percentage of Americans Are Vegetarian?* Gallup (Sept. 27, 2019), https://news.gallup.com/poll/267074/percentage-americans-vegetarian.aspx.

[81] Marcy Kreiter, *Veganuary 2022 Coincides with Growing Flexitarian Trend*, The Food Inst., Jan. 5, 2022, https://foodinstitute.com/focus/veganuary-2022-coincides-with-growing-flexitarian-trend/.

[82] GHG Protocol, *Global Protocol for Community-Scale Greenhouse Gas Inventories: An Accounting and Reporting Standard for Cities* (Version 1.1).

[83] *Id.* at 178. Scope 1, or territorial, emissions are emissions from sources located within the municipal boundary. Scope 2 emissions are emissions occurring as a consequence of the use of grid-supplied electricity, heat, steam, or cooling within the municipal boundary. *Id.*

[84] *See id.* at 37. *See also* EPA, *Scope 3 Inventory Guidance*, https://www.epa.gov/climateleadership/scope-3-inventory-guidance (discussing scope 3 emissions); Global Covenant of Mayors for Climate and Energy, *Guidance Note: Explanatory Note Accompanying the Global Covenant of Mayors Common Reporting Framework (v. 9)* (Apr. 2019).

[85] For example, under California's landmark Climate Corporate Data Accountability Data Act (SB 253), very large companies doing business in California will be required, beginning in 2027, to disclose their scope 3 emissions annually. Cal. Health & Safety Code § 38532.

[86] *See, e.g.,* C40 Cities Climate Leadership Group & C40 Knowledge Hub, *Climate Action Planning Guide—How to develop and manage a city-wide greenhouse gas emission inventory*, https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideRecordId=a3t1Q0000007IEWQAY&guideArticleRecordId=a3s1Q000001iai1QAA; Climate Smart Philipstown, *Store, Reduce, Offset: An Innovative GHG Inventory and its Implications for Achieving Carbon Neutrality*, Climate Smart Philipstown 35–44 (2020); C40 Cities Climate Leadership Grp., Arup, & University of Leeds, *The Future of Urban Consumption in a 1.5°C World* (2019).

[87] Although relatively few municipalities have to date performed consumption-based emissions analyses, and most will likely continue to use the Global Protocol, consumption-based accounting is "a helpful complement in demonstrating climate leadership and achieving deeper carbon reductions." Michael Burger & Amy E. Turner, *Urban Climate Law: An Earth Institute Sustainability Primer* 138–39 (Oct. 2023).

[88] EcoDataLab, *supra* note 4.

[89] *See* Wyman & Dietz, *supra* note 14, at 748–58.

[90] *See, e.g.,* Town of Carrboro, NC, *Community Climate Action Plan: Reducing Greenhouse Gas Emissions, Saving Energy, Generating Renewable Energy, and Enhancing Ecosystems* (Jan. 2017); Seattle Office of Sustainability & Environment, *Seattle Climate Action Plan* (June 2013).

[91] The Cool Food Calculator and Cool Food Pledge methodology are well-suited to measuring GHG emissions from the *municipality's own operations* and focus on the following metrics: food purchases by food type; food-related GHG emissions from agricultural supply chains (tons of carbon dioxide equivalent); food-related land use (hectares); food-related carbon opportunity costs (tons of carbon dioxide equivalent); and normalized metrics (several possible units of measure). Cool Food Calculator (World Resources Institute), https://www.wri.org/research/tracking-progress-toward-cool-food-pledge. *See also* CoolClimate Calculator (UC Berkeley), https://coolclimate.berkeley.edu/calculator (calculator that helps *households and individuals* estimate their daily emissions from food and breaks down emissions from different foods).

[92] Behavioural Insights Team, *A Menu for Change: Using behavioural science to promote sustainable diets around the world* 28 (Jan. 2020).

[93] *See id.* at 36.

[94] *See, e.g.,* Food for Climate League & Better Food Found., *Serving Up Plants By Default* (May 2023), https://betterfoodfoundation.org/what-we-do/research-on-defaults/report-serving-plants-default/ (finding that implementing plant-based dishes as the default in university dining halls reduces GHG emissions without causing major disruptions); Verena Kurz, *Nudging to reduce meat consumption: Immediate and persistent*

effects of an intervention at a university restaurant, 90 J. of Env't Econ. & Mgmt. 317 (July 2018); Johanna Meier et al., *Review: Do green defaults reduce meat consumption?* 110 Food Pol'y 102298 (July 2022); Federico J.A. Perez-Cueto, *Nudging plant-based meals through the menu*, 24 Int'l J. of Gastronomy & Food Sci. 100346 (July 2021).

Defaults can also be incorporated at the ingredient level. *See supra* note 8.

[95] *See* Better Food Foundation, https://betterfoodfoundation.org. The Foundation is an action tank that promotes plant-forward policies.

[96] *See* Greener by Default, https://www.greenerbydefault.com. Greener by Default consults with institutions to apply behavioral science to food policy, nudging diners towards sustainable plant-based food while preserving freedom of choice. Greener by Default, which started as a project of the Better Food Foundation, collaborated with New York City on the groundbreaking plant-based default initiative of NYC Health + Hospitals. *See id.*, *Healthcare*, https://www.greenerbydefault.com/healthcare.

[97] Behavioural Insights Team, *supra* note 92, at 33.

[98] *See, e.g.,* Pax Fauna, *Evolving Together, Key Recommendations* (2023), https://narrative.paxfauna.org/key-recommendations/ (providing 15 key recommendations for messaging about plant-based proteins, including framing messages around naturalness or freedom of choice); World Res. Inst., *Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service* (2020) (breaking down 23 different strategies related to plant-based proteins, including using language and presentation to increase appeal); Astrid Dannenberg & Eva Weingärtner, *The Effects of Observability and an Information Nudge on Food Choice*, 120 J. of Env't Econ. & Mgmt. 102829 (2023); Hannah E. Piester et al., *"I'll Try the Veggie Burger": Increasing Purchases of Sustainable Foods with Information about Sustainability and Taste*, 155 Appetite 104842 (2020).

[99] Pax Fauna, *A Review of Contemporary Research into Public Perceptions of the Slaughter Industry* (2022), https://paxfauna.org/reports/a-review-of-contemporary-research-into-public-perceptions-of-the-slaughter-industry/.

[100] Behavioural Insights Team, *supra* note 92, at 32. *Compare* Jacob R. Peacock, *Price-, Taste-, and Convenience-Competitive Plant-based Meat Would Not Currently Replace Meat* 1 (Aug. 2023) (presenting evidence that a majority of current consumers would continue eating primarily animal-based meat even if plant-based meat analogs were price-, taste-, and convenience-competitive).

[101] Piester et al., *supra* note 98. *See also* Valerija Gottselig et al., *Effects of Green Nudges on Consumer Valuation of Sustainable Food: A Discrete Choice Experiment*, 32 GAIA - Ecological Perspectives for Sci. and Soc'y 233 (2023) (finding that green nudges increase individuals' willingness to pay more for products that have ecology and animal welfare labels); World Res. Inst., *supra* note 98.

[102] Behavioural Insights Team, *supra* note 92. *See also* Marleen Onwezen & Hans Dagevos, *A meta-review of consumer behaviour studies on meat reduction and alternative protein acceptance*, 114 Food Quality & Pref. 105067 (2024) (finding that "information as such is not a powerful instrument to change behaviour" and noting the importance of framing and of targeting audience segments).

[103] *See* Heather Barnes Truelove et al., *Positive and Negative Spillover of Pro-Environmental Behavior: An Integrative Review and Theoretical Framework,* 29 Glob. Env't Change 127 (2014) (offering model to assess how pro-environmental behavior may lead to positive, negative, or no spillover effect); Kenneth Gillingham et al., *The Rebound Effect is Overplayed*, 493 Nature 475 (2013) (providing evidence that rebound effect—e.g., that greater energy efficiency leads to greater energy usage—is overplayed).

[104] Daphene Altema-Johnson et al., *Dietary Changes Among People Practicing Meatless Monday*, 55 J. of Nutrition Educ. & Behav. 69 (2023).

[105] Municipal policymakers should consult with municipal legal counsel or other local legal experts on a case-by-case basis.

[106] That said, a resolution may be used to express the sense of city council or to provide public recognition. Although a resolution is non-binding, it carries a certain formality.

[107] An *executive order* is typically issued by the mayor to direct and guide the actions of executive branch departments. An executive order addresses implementation of existing law and policy. An executive order neither binds nor creates new rights on behalf of third parties. Nevertheless, like an ordinance, an executive order can sometimes be used to set policy.

[108] An *ordinance* is local legislation. Enacted by a city council or similar legislative body, an ordinance is the law of the jurisdiction. An ordinance is the means of amending the municipal code to make substantive or procedural changes to the law. An ordinance can be used to bind government actors as well as third parties, including by imposition of penalties for non-compliance.

[109] *See, e.g.,* 42 USC ch. 13; 7 CFR pt. 210 (federal legislation and regulations implementing the National School Lunch Program (NSLP), a federally assisted meal program operating in public and non-profit private schools and residential child-care institutions).

[110] US Census Bureau, *Government Units Survey Methodology, Population of Interest*, https://www.census.gov/programs-surveys/gus/technical-documentation/methodology/population-of-interest1.html.

[111] *See, e.g.,* Osborne M. Reynolds, Jr. & Edward W. De Barbieri, Local Government Law 27–33. Semiautonomous entities are also referred to as "quasi-governmental" entities in some jurisdictions even though they do not have a private component. *See also* Cindy Upton et al., *Transparency and Accountability of Quasi-Governmental Entities*, Legislative Research Commission (Jan. 13, 2011).

[112] Lawrence Martin, *Public-Private Partnerships: What Local Government Managers Need to Know*, International City/County Management Association (Dec. 20, 2017).

[113] A typical legal definition of procurement is: "buying, purchasing, renting, leasing or otherwise acquiring any supplies, services or construction. It also includes all functions that pertain to the obtaining of any supply, service or construction, including description of requirements, selection and solicitation of sources, preparation and award of contract and all phases of contract administration." Code of Metro Gov't of Nashville & Davidson Cty. (TN) § 4.04.050.

[114] Procurement requirements may also be found in executive orders issued by mayors, administrative regulations, and departmental-level policy statements and guidelines.

[115] *See, e.g.,* Code of Metro Gov't of Nashville & Davidson Cty. (TN) § 4.08.020 ("standards board shall have the authority and responsibility to promulgate regulations … governing the procurement, management, control and disposal of any and all supplies, services and construction to be procured by the metropolitan government and all its departments, boards, commissions, officers and agencies …"); Salt Lake City, Utah Code of Ordinances § 3.24.040 (chief procurement officer shall … [p]ropose rules for adoption by the mayor to govern the management and operation of the city's purchasing function for all kinds of supplies and services …).

[116] These other policy aims are known in this context as "collateral policies." *See, e.g.,* Danielle M. Conway, *Ch. 3—Sustainable Procurement Policies and Practices at the State and Local Government Level in* Greening local government: legal strategies for promoting sustainability, efficiency, and fiscal savings 44–45 (K. Hirokawa & P. Salkin eds., 2012). Collateral policies may also be referred to as secondary or complementary policies, horizontal policies, or dual-use policies. In the food purchasing arena, this has recently been referred to as values-aligned or values-based food purchasing.

[117] *See* Good Food Purchasing Program, *Good Food Purchasing Program: Purchasing Standards for Food Service Institutions v3.0* (2023). *See also Institutions as Conscious Food Consumers: Leveraging Purchasing Power to Drive Systems Change* (Sapna Elizabeth Thottathil & Annelies Goger eds., 2019).

[118] Additionally, as a practical matter, changes with respect to municipal procurement may need to be reflected in changes to purchasing standards, specifications, and bid solicitation documents.

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