NEW JERSEY PLASTICS ADVISORY COUNCIL

Second-Year Report

December 13, 2024

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Dear Governor Murphy, Commissioner LaTourette, Legislative Leaders, and Fellow New Jerseyans:

With each passing month, a new alarming study is released regarding the threats of plastic to public health and the environment, as well as to the economy. From the macro scale as seen in mounds of trash in landfills, along roadways, and in waterways and the ocean, to nano scale where plastic is now found in brain tissue and transferred to the unborn, there is not a nook or cranny on Earth that has not been impacted by plastics. The continuing dangers of plastic pollution demands a global call to action.

Measures to reduce plastics entering our environment have been slow to date but are now picking up speed due to broad public concern, the global crisis of plastic waste production, and the United States' outsized role as the world's number one producer of plastic waste. Ahead of the curve nationally, New Jersey enacted P.L. 2020, c. 117 (the "Get Past Plastic Law") on November 4, 2020, prohibiting establishments from dispensing single-use plastic bags and polystyrene foam food service products, and limiting single-use plastic straws. In passing the law, the Legislature highlighted the significant environmental and public health threats posed by continued reliance on single-use plastics. The Legislature ultimately determined that, *"it is no longer conscionable to permit the unfettered use and disposal of single-use plastics in the State."*

There is significant and impressive evidence of how quickly positive changes can be made with supportive laws and public support. According to data from Clean Ocean Action's 2022 and 2023 statewide Beach Sweeps litter cleanups, the number of single-use plastic bags, foam containers, and straws removed was reduced by over 35 percent each. The New Jersey Food Council estimated that in the first eight months of the plastic bag ban, 16 billion plastic bags were removed from the waste stream from just grocery stores. The statewide *Get Past Plastic* campaign, launched by the New Jersey Department of Environmental Protection (DEP) in 2021, will continue to build on these successes.

While an impressive start, the law also required further study to identify actions to reduce and recycle plastic waste as well as identify public and environmental health issues of concern through the establishment of the New Jersey Plastics Advisory Council (PAC). The PAC represents a cross section of business, environmental, academia and agency representatives who are uniquely qualified to address the complex, vexing, and important questions about plastic waste including assessing environmental and public health concerns and identifying possible solutions through waste reduction and recycling.

To that end, the law required the PAC to prepare and release two reports over its first two years. The *New Jersey Plastics Advisory Council First-Year Report,* was released on May 4, 2023, and focused on evaluating the implementation of the law and making recommendations for legislative or administrative actions to improve the implementation and effectiveness. At the same time, the PAC also outlined Opportunities for Action to get a jumpstart on fulfilling the legislative requirements for the PAC's next report. These focused on evaluating environmental and public

health impacts of single-use plastics and microplastics, as well as identifying strategies and policies requiring further study toward increasing the recyclability of plastics and reducing the amount of plastic waste generated and entering the environment.

It is our honor to share the *New Jersey Plastics Advisory Council Second-Year Report*, prepared by the PAC with outstanding dedication and support from the DEP Division of Sustainable Waste Management. It highlights the successful implementation of the Get Past Plastic Law at reducing litter and waste production. It also completes the assessment and makes recommendations regarding our initial 20 Opportunities for Action, and beyond. Over the past year, the dedicated, collegial, and collaborative PAC members and DEP staff spoke with subject matter experts, and held broad stakeholder focus groups and education forums to ensure this report provides the best and brightest recommendations and state of current science.

The impressive dedication and commitment of the PAC members and the DEP staff cannot be overstated, and each has our deepest gratitude. Their hard work and consistent willingness to collaborate is a hallmark of the group's success, whose exchange of views and experiences has resulted in a consensus-rich document highlighting key recommendations and actions to meet the challenges of reducing plastic waste. We are confident that a platform to effect positive change has been established and look forward to important contributions from the PAC in the years ahead.

Ever onward,

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New Jersey Plastics Advisory Council
Executive Director - Clean Ocean Action

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Cindy Zipf, Chair	Executive Director, Clean Ocean Action, Chair
Gary Sondermeyer, Vice Chair	VP of Operations, Bayshore Family of Companies
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Special thanks to advisors, contributors, and researchers, especially those from the New Jersey Department of Environmental Protection (DEP), and in particular **Julia Rossi**, Secretary of the PAC, as well as those who provided invaluable programmatic support: from the DEP Division of Sustainable Waste Management, **Christina Page, Katie Greer, Seth Hackman, Nell Henry, Erin Jensen, Lauren Nazario, and Kyle McHenry;** from the DEP Division of Waste and UST Compliance and Enforcement, **Sonya Silcox and Morgan Lojek;** from the DEP Office of Communications and Outreach, **Mandy Futey, Gladys Giron, Emily Nanneman, and Harley Zaraza.** Experienced and knowledgeable individuals from allied organizations and agencies participated including **Alan Talarsky,** New Jersey Department of Health, **JoAnn Gemenden**, New Jersey Clean Community Council, **Kari Martin**, M.S., **Swarna Muthukrishnan**, Ph D., and **Kira Cruz,** Clean Ocean Action, and **Brooke Helmick,** New Jersey Environmental Justice Alliance.

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Special Contributors and Subject Matter Experts: Numerous individuals provided valuable expertise and time, enriching the PAC's deliberations and essential to the success of the report.

Introduction and Executive Summary

On November 4, 2020, Governor Phil Murphy signed into law P.L. 2020, c117, herein called the "Get Past Plastic Law", which prohibits the use of single-use plastic carryout bags in all stores and food service businesses statewide and single-use paper carryout bags in larger grocery stores. The law also prohibits the dispensing of polystyrene foam food service products and single-use straws. All provisions of the law became effective on May 4, 2022.

The *New Jersey Plastics Advisory Council First-Year Report, May 4, 2023*, herein called the "first-year report" and available here, The First-Year Report found the implementation of the law to be highly effective. The PAC determined that approximately 16.5 billion single-use plastic bags and 110 million single-use paper bags were eliminated from entering the waste stream and environment by the supermarket sector alone. Compliance inspections conducted by DEP, County Environmental Health Act agencies and municipalities showed relatively few violations and those cited were quickly addressed. Clean Ocean Action's 2022 Beach Sweeps report showed a significant decrease in litter collected from items targeted under the law with 37.31% fewer single-use plastic bags, 39.04% fewer plastic straws, and 37.84% less foam waste found along the Jersey Shore. Finally, the education campaigns implemented by DEP, the Clean Communities Program and New Jersey Business Action Center, as well as private sector associations such as the New Jersey Food Council and New Jersey Restaurant and Hospitality Association, clearly reached NJ consumers and businesses. Over 3.2 million hits were recorded on the websites of these three agencies for only portions of the year. Section 1 also identified four overarching themes:

- Waste reduction must be our future focus;
- Effective plastics recycling must be improved and made easier;
- We must achieve a reduction of microplastics in the environment; and
- Additional legislation, now pending, will guide the future of waste reduction, recycling, and sustainable materials management in New Jersey.

Section 2 of the first-year report framed 20 "Opportunities for Action" (OFA) with specific actions recommended to be taken to advance the mandate of the Get Past Plastic Law. Two distinct sets of actions were articulated, recommendations to improve the effectiveness of the law (OFA 1 through 7) and recommendations regarding environmental and public health considerations, plastics waste reduction and recycling (OFA 8 through 20).

Section 3 framed a second-year workplan and identified specific tasks for the PAC to evaluate in the second year as well as other tasks recommended for the DEP/DOH to consider.

Finally, Section 4 represented appendices and background information regarding resources reviewed and subject matter experts consulted in the preparation of the first-year report.

Organization of this Report:

After release of the first-year report, the PAC began its second-year work that would be the basis for fulfilling its legislative mandate and requirement to publish a second-year report. The PAC began by revising its committee structure and assigning first-year report OFA tasks to each. The following committees were created, membership assigned, and tasks identified:

- Education, Assessment and Compliance
- Legislative
- Public Policy

The general scope of review in the second year aligns directly to the mandate established in the Get Past Plastic Law as follows:

- Evaluate the implementation and effectiveness of the law and make any recommendations for legislative or administrative action to improve the implementation or effectiveness;
- Study environmental and public health impacts of single-use plastics and microplastics; alternatives to single-use plastics; strategies and policies to increase the recyclability of plastics and reduce the amount of plastic entering the environment;
- Enhance the development and expansion of markets of post-consumer recycled plastic, including State and local purchasing and procurement practices;
- Summarize the analysis conducted and recommend ways to reduce the use of plastics and the amount of plastic entering the environment and increase the rate of recycling of plastics.

To address this scope of work, the second-year report is presented in the following outline, cross-referencing the OFA numbers from the first-year report for context:

Section 1: Evaluation of the Implementation and the Effectiveness of the Get Past Plastic Law

- Overview of the New Jersey Food Council Reusable Bag Collection and Sanitation Pilot Project (OFA#1);
- Presentation of the DEP Single-Use Plastic Waste Reduction/Reusable Bag Committee Discussion (OFA#2, OFA#3);
- Review of Clean Ocean Action 2023 Beach Sweep Annual Report highlighting metrics from statewide coastal clean-ups;
- Updates from the DOH and DEP regarding compliance with the straw provisions of the Get Past Plastic Law;
- Summary of the Waste Reduction and Recycling Education and Promotional Campaign initiated by the PAC (OFA#6, OFA#7).

Section 2: Environmental and Public Health Impact Assessment

- Introductory assessment of microplastics in our environment (OFA#10);
- Studying and developing policy recommendations regarding microplastics related legislation pending in the New Jersey Assembly as A1482/S1048 (OFA #9);

- Evaluating the need for new microfiber related legislation in the context of washing machine manufacturing standards (OFA #10);
- Summary of actions taken to advance wastewater treatment plant optimization studies (OFA#8).

Section 3: Plastic Waste Reduction and Increased Recycling Strategies

- Evaluating a New Jersey bottle redemption program for possible recommendation to the Legislature (PAC second-year workplan task);
- Evaluating chemical recycling technology and forming a policy position for consideration by the DEP (PAC second-year workplan task);
- Framing recommendations for state agency action (OFA#13);
- Developing a plastic waste reduction and recycling strategy for schools (OFA#14);
- Framing recommendations for how best to foster a reuse and refill green business economy (OFA#17);
- Evaluating and need for a single, uniform list of designated curbside materials required for recycling under the New Jersey Mandatory Source Separation and Recycling Act (OFA#18);
- Developing policy recommendations on the pending "Product Packaging Stewardship Act" (A2094/S208) which would establish an Extended Producer Responsibility (EPR) framework for New Jersey (OFA#15); and
- Developing policy recommendations on "Truth in Labeling" legislation now pending in the New Jersey Legislature as A2775/S224 (OFA #16)

Appendices

Appendix A: DEP Science Advisory Board Microplastics Report Summary and References

Appendix B: Additional References

Appendix C: PAC Reuse and Refill Stakeholder Process Discussion Questions and Notes

Appendix D: EPR State Comparison Table

Appendix E: PAC Education Steering Committee Meeting Summaries

Appendix F: Full Copy of P.L. 2020, the "Get Past Plastic" Law

Disclaimer: This report reflects the viewpoint of the Plastics Advisory Council and does not represent the administration's commitments to legislation or funding.

Major Findings and Recommendations in the PAC Second-Year Report

The first-year report to the Governor and Legislature (The First-Year Report) listed 20 recommendations or opportunities for action (OFA). Policy positions on pending legislation were also offered and a second-year workplan developed.

The second-year work of the PAC has focused on implementing the 20 recommendations identified in the first-year report. Major focus areas and work tasks underway which are addressed in detail within the report, many of which contain specific recommendations, include the following:

- **Reusable Bag Collection:** A reusable bag collection program is underway to address an unintended consequence of the law where bags are being accumulated by residents using at-home food delivery services. A pilot project launched by the New Jersey Food Council is now active in four New Jersey counties, with additional counties coming on board. Under the program, existing municipal recycling drop-off centers and private collection sites are being used to collect reusable bags which are then sent for sanitation and donated to New Jersey food banks. A QR Code was developed and is now available on grocery store receipts at participating supermarkets and identifies drop off locations for reusable bags and other useful information. The PAC recommends that this program continue and, where possible, is expanded across the state to provide convenient locations for home delivery customers to drop-off reusable bags. The PAC also supports further research on using certain clothing drop-off bins to expand collection opportunities.

- **Litter Surveys:** In the spring and fall of 2023, Clean Ocean Action (COA) conducted the 38th bi-annual Beach Sweeps during which volunteers removed litter from 80 beach/shoreline locations on New Jersey's coastline, then collected and compiled the related data. The data, comprised of plastic bags, polystyrene takeout containers and straws, is combined into a publicly available statewide report to assess litter accumulation along the coast. The data collected and reported from the COA Beach Sweeps demonstrates that while the results of collected materials vary from year to year, the collection of materials as a whole and items collected per person typically declined or plateaued over the selected timeframe, indicating less litter and material to collect in the target areas.

- **Straws Provision Compliance:** Data collection during the PAC's second year, while limited, reveals that the "upon request" provision of the straws section of the Get Past Plastic Law is not functioning as intended. Straws continue to be routinely distributed*, i.e.*, without a customer request, in restaurants and other food service establishments. Fully effectuating the straws provision requires that the Department of Health (DOH) advance rulemaking to modify its existing regulations, found in NJ Administrative Code, Title 8, Chapter 24 *Sanitation in Retail Food Establishments and Food and Beverage Vending Machines* (Chapter 24), to enable local health officials to enforce the straws provision in the

law. Further, additional compliance monitoring is recommended during the third year of program implementation. Should enforcement measures prove ineffective, modifications to the Get Past Plastic Law may be necessary to strengthen its "upon request" provisions, along with funding for enforcement. Any consideration of amendments to the law should be vetted with medical professionals to address the needs of disabled persons.

- **Public Education:** In its second year, the PAC created an Education Steering Committee tasked with considering the effectiveness of existing plastic waste reduction and recycling platforms and to identify how best to educate New Jersey regarding public health and environmental impacts of plastics, including microplastics and nanoplastics. Another core focus is making recycling guidance more uniform and simpler for the public to address existing confusion. The Committee is also studying funding mechanisms to develop an ongoing statewide public education and outreach program. Possible options include modifications to the Recycling Enhancement Act, Section 5 of P.L.1981, c.278 (C.13:1E-96) which currently provides that: *"5% of the estimated annual balance of the fund shall be used by the department to provide grants to institutions of higher education to conduct research in recycling."* Notably, this would reassign a portion of funds the DEP grants to universities for research. Alternatively, independent of the Act, the legislature could directly support a statewide public education and outreach campaign consistent with the Education Steering Committee recommendations.

- **Focus on Plastic Waste Reduction:** One of the major initiatives of the PAC in its second year of work was to identify real-world and scalable opportunities to advance plastic waste reduction. The PAC conducted a four-session stakeholder process with subject matter experts to identify programs and strategies to reduce plastic waste toward developing a reuse and refill green business economy in the Garden State. Sessions were dedicated to advancing disposal free dining, conducting zero waste events, and identifying opportunities to reduce plastics in New Jersey schools as well as the business and government sectors. The primary recommendation of the PAC is to expand its focus on waste reduction in its third year by creating a Waste Reduction Steering Committee (WRSC) led by the PAC or a PAC committee, and with internal and external experts as members. From stakeholder discussions, a menu of both short-term and long-term focus areas were identified for this new WRSC and the PAC to consider in its ongoing work. Short-term areas to consider include:

    - Development of a waste reduction and reuse education platform to help educate local officials;
    - Creation of a Reuse Business Registry to publicize reuse stores, clothing and reusable bag drop-off locations, repair café's, book swap locations and other opportunities that promote reuse. The goal of developing the registry is to use it to promote and grow reuse as a scalable waste management strategy;

- Developing a model municipal ordinance for conducting zero waste events and disposal free dining;
- Working with the DOH to create plain English guidance on public health requirements associated with reuse opportunities in the food service industry;
- Ensuring strong reuse provisions in product packaging stewardship or extended producer responsibility (EPR) laws, regulations, and policies;
- Exploring leadership by example opportunities such as executive and/or administrative actions to prioritize waste reduction and material reuse by governmental entities. A model action was developed following stakeholder discussion and the main principles are included in the body of this report;
- Identifying sources of funding to advance waste reduction, including through the Climate Pollution Reduction Grant (CPRG) program administered by USEPA and where reuse is pending as an eligible category toward funding reuse and refill projects at the municipal level;
- Formation of a reuse collaborative to bring together public and private sector experts to work collaboratively to identify practical and scalable opportunities toward implementing reuse platforms. The existing model in France is recommended for study and consideration Reuse Collaborative Model - France.

The menu of longer-term considerations identified through the stakeholder process include the following:

- Consideration of developing a draft New Jersey Waste Reduction Act which would amend the Solid Waste Management Act like what was done to advance recycling at N.J.S.A. 13:1E-99;
- Through legislation or policy, establishing aspirational goalsetting targets to drive reuse like what has been done through the New Jersey Food Waste Reduction Act. This legislation, passed in 2017, established a goal of reducing food waste by 50% by 2030. Another example is New Jersey's statutory goal of recycling 60% of the total solid waste stream and 50% of the municipal waste stream which was established in 1993;
- Launching a new chapter of reuse planning through the DEP and 21 counties under the existing statewide planning system and DEP regulations at N.J.A.C 7:26-6.

- **Microplastics Filtration:** It is estimated that some 35% of microplastics discharged to our environment come from washing clothes manufactured with polyester and other plastics. The PAC evaluated national and international efforts to install microfiber filtration systems on new washing machines at the homeowner or micro level, as well as at large wastewater treatment plants (WWTPs) at the macro level. Legislation was proposed, but not adopted in 2022 which would have required DEP to establish and implement a program to provide a one-time rebate to residents to encourage the purchase of microfiber washing machine filters and replacement filters and to reduce the amount of microfiber pollution in the State. The PAC determined that more research is needed regarding the installation of microfiber

filtration systems on new washing machines. Regarding macro scale filtration through wastewater treatment, it was determined that the DEP Division of Science and Research (DSR) and the DEP Division of Water Quality (DWQ) are conducting a pilot study with four WWTPs. The main objective of this study is to understand microplastic loading into New Jersey WWTPs by assessing the occurrence, mass flow, and removal/generation rates of microplastics. The study also aims to determine how microplastics emitted by WWTP effluents impact rivers.

The DSR/DWQ study is evaluating the types of fibers, concentrations, shape, and other qualities of the influent and effluent. The WWTPs being studied are no larger than 15 million gallons per day (MGD) in effluent capacity, have tertiary treatment, and advanced solid treatment. These facilities have fewer variables to control for, fewer industrial inputs and stormwater influences, and already achieve effluent concentrations below five parts per million (ppm) total suspended solids (TSS), which is well below the New Jersey Pollution Discharge Elimination System (NJPDES) standard of 30 ppm. The DEP DSR and DWQ recommended future studies, including the PAC's original recommendation to conduct optimization studies, could include increased collaboration with universities to increase potential cooperation with WWTPs.

The PAC supports the DEP pilot project underway and, thereafter, moving forward with larger WWTP optimization studies identified in the first-year report recommendations, potentially through New Jersey universities, after the results of this study are available for review, to determine if they are relevant.

- **Chemical Recycling:** The PAC considered the regulatory implications of chemical recycling technologies, *i.e.*, processes such as gasification, pyrolysis, and dissolution that can change the physical or chemical structure of plastics, which can then be used in other chemical or manufacturing processes. After considerable review by DEP's Division of Sustainable Waste Management and Division of Science and Research, the DEP released a Frequently Asked Questions document (FAQ) that addresses relevant public policy questions about chemical recycling (which is also referred to colloquially as "advanced recycling"). The PAC concurs with DEP's determination stated in the FAQ, which is presented here in its entirety:

  "6. Q: Are products/outputs from "advanced recycling" considered "postconsumer recycled content" to meet the recycled content mandates in the Law?

  Common forms of "advanced recycling" include processes such as pyrolysis and gasification. Pursuant to New Jersey's solid waste regulations, facilities that use pyrolysis or gasification processes to break down plastics are considered "thermal destruction facilities" which are regulated as solid waste and not recycling facilities. [N.J.A.C. 7:26-1.1] As such, NJDEP does not consider the outputs from pyrolysis and gasification processes to be "postconsumer recycled content." Therefore, plastic beverage containers and rigid plastic containers that are sold or offered for sale in the state cannot include

feedstock from pyrolysis or gasification processes towards the recycled content mandates as of January 18, 2024.

Feedstock generated from other forms of "advanced recycling" such as solvolysis and dissolution are also not considered "postconsumer recycled content" at this time. However, any such technologies that convert plastics to plastics (excluding plastics-to-fuel which is not considered "recycling") may be documented and provided to the NJDEP for review and consideration."

- **Bottle Redemption:** New Jersey passed legislation to implement a mandatory recycling program and statewide litter abatement program (Clean Communities) in the late 1980s. Ten other states have enacted bottle deposit legislation to support collection and recycling of containers. The PAC conducted a day-long public meeting on March 26, 2024, evaluate bottle redemption programs. While the public meeting and PAC deliberations did not result in a clear consensus with respect to a bottle redemption program in New Jersey, several important points were identified, which are highlighted below and detailed in Section 3.

- **Uniform List of Mandatory Curbside Recycling:** To address contamination and make recycling simpler for residents and businesses, the PAC collaborated with the Association of New Jersey Recyclers (ANJR) to evaluate and recommend development of a uniform list of curbside recyclables for statewide use. Currently each of New Jersey's 21 counties designate what materials are recycled. While the 21 county lists are similar, separate lists contribute to public confusion over what is and is not recycled curbside. ANJR, with PAC participation, reviewed existing programs in California, Oregon, Connecticut, Massachusetts, and Colorado. Such a uniform list could be based on the resin types that are most readily recyclable and have a developed market, such as #1, #2 and #5.

  The PAC supports the approach recommended by ANJR to take the next logical steps toward developing a uniform list of materials required for recycling in New Jersey. This step involves beginning a Needs Assessment using the model programs developed in Oregon and Colorado. More specifically:

  - A survey of the 21 County Recycling Coordinators to summarize what materials are currently accepted for curbside recycling through either single stream or dual stream programs or for drop-off in towns which do not have curbside collection;
  - A second survey of the 23 Intermediate Processing Facilities (or Materials Recovery Facilities - MRFs) currently operating in New Jersey to do a cross check of what materials these facilities currently accept for processing;
  - Officials from Recycle Coach, who participated in the stakeholder discussions, also agreed to provide a summary of materials accepted for recycling at the municipal level for those subscribing to their mobile app as another tool for cross-reference;

- Analysis will be performed of the results toward developing one proposed statewide list of minimum materials required for recycling and a second list of additional discretionary materials;
- Once the baseline analysis is completed, ANJR will finalize its position on which implementation strategy is most appropriate. The two basic options are to codify the statewide list(s) through amendments to the New Jersey Recycling Enhancement Act (Colorado and Oregon models) or through a voluntary approach (Connecticut and Massachusetts models). The PAC will evaluate ANJR's findings and make its determination as to future recommendations on this matter.

- **Truth in Labeling Legislation:** The PAC legislative committee studied the Truth in Labeling issue and legislation pending in New Jersey. The PAC also participated in stakeholder discussions convened by ANJR. From these discussions, ANJR devised an interim policy position regarding Truth in Labeling legislation and has opted for a measured approach. The State is in the earliest phases of implementing landmark Recycled Content legislation. The Product Packaging Stewardship Act (EPR legislation pending as A2094/S208) is also still in the discussion and debate phase of the legislative process. ANJR has observed that Truth in Labeling legislation has been adopted or is under discussion in States where EPR legislation has already been enacted and a uniform list of materials required for recycling adopted or proposed. This is most notably the case in California and Oregon and is evolving in Colorado following the recent publication of its EPR Needs Assessment.

  ANJR believes an important first step toward Truth in Labeling is to move forward to ask the Legislature to repeal the requirement to use/display the chasing arrows symbol. Currently, the New Jersey Solid Waste Management Act provides:

  13:1E-99.41. Material code labels on bottles, containers; required

  a. On or after January 1, 1991, no person shall sell, offer for sale, or distribute any plastic bottle or plastic container in this State unless the bottle or container is labeled with a material code indicating the plastic resin used to produce the bottle or container.

  Repeal of this section would represent a beginning toward Truth in Labeling reforms. At the same time, such a step would not prohibit the use of the chasing arrows symbol. The action would send an important signal to manufacturers, but not force widescale change in labeling requirements until New Jersey further implements its Recycled Content legislation and adopts EPR legislation.

Plastics Advisory Council Membership

Chair: Cindy Zipf, Executive Director, Clean Ocean Action

Vice-Chair: Gary Sondermeyer, Vice President of Operations, Bayshore Family of Companies

Commissioner of Environmental Protection Designee: Janine MacGregor, Director, Division of Sustainable Waste Management

Commissioner of Health Designee: Loel Muetter, Director, Consumer, Environmental, and Occupational Health Service

Secretary of Agriculture Designee: Tim Fekete, Soil Erosion and Sediment Control Specialist

Two Members of the Academic Community:

- Judith Enck, Bennington College, Professor
- Beth Ravit, Rutgers University, Retired

Four Members Representing the Environmental Community:

- Nandini Checko, Association of New Jersey Environmental Commissions, Project Director
- Melissa Miles, New Jersey Environmental Justice Alliance, Law, and Policy Manager
- Amanda Nesheiwat, Hudson County Improvement Authority, Deputy Director of Sustainability and Community Outreach
- Cindy Zipf, Clean Ocean Action, Executive Director

Four Members Representing Stores and Food Service Businesses in the State:

- Lauren Craig, Coca-Cola, Director, Public Affairs, Communications and Sustainability
- Jeanne Cretella, Landmark Hospitality, President
- Charles Malaniak, LKQ Corporation, Director Environmental Compliance
- Mary Ellen Peppard, New Jersey Food Council, Vice President

One Member Representing the Polystyrene Foam Industry: Christine Cassidy, Dart Container Services, Recycling Manager

One Member Representing the Recycling Industry: Gary Sondermeyer, Bayshore Recycling, Vice President of Operations

One Member Representing Local Government: John Weber, Councilman, Borough of Bradley Beach

Section 1: Evaluation of the Implementation and the Effectiveness of the Get Past Plastic Law

Introduction: The first-year report presented public outreach and implementation metrics from a variety of sources. In its first year of study, the PAC determined implementation of the Get Past Plastic Law to be highly effective. From the effective date of May 4, 2022, through December 2022 an estimated 16.5 billion plastic bags were eliminated in the state from grocery stores alone. Since then, billions more bags have been avoided. This number does not include all the other types of stores in New Jersey subject to the law, thus the positive impact is unquestionably higher. A significant decrease in litter was also documented with about 37% fewer single-use plastic bags, 39% fewer plastic straws, and 37% less foam waste found along the Jersey Shore.

While the first-year report did indicate the law was indeed effective, the PAC took on additional work where issues in compliance were identified. That work, conducted in the second year, included: to address compliance with the straws provisions of the law, the DEP and DOH worked together to assess current status and propose solutions; the NJ Food Council developed and launched a Reusable Bag Collection and Sanitation Pilot Project to address the unanticipated build-up of reusable bags by customers using home food delivery services; the DEP convened a Single-Use Plastic Waste Reduction/Reusable Bag Committee to study options for further reducing single-use plastics in the food sector; Clean Ocean Action collected and summarized Beach Sweeps data for 2023; and initial steps to launch a Waste Reduction and Recycling Public Education and Outreach Campaign were taken through the convening of an Education Steering Committee. This work is summarized below.

New Jersey Food Council Reusable Bag Collection and Sanitation Pilot Project

First-Year Report Reference: OFA #1 of the first-year report addressed the sizable growth in home and curbside delivery of groceries since passage of the Get Past Plastic Law and the unanticipated consequence of the accumulation of reusable carryout bags by residents over time. The PAC supported the deployment of a pilot project advanced by the New Jersey Food Council (NJFC) which primarily involves working with the municipal recycling coordinators in several participating municipalities to assess the feasibility of utilizing their existing recycling drop-off center to allow residents to drop off reusable bags. Following drop off, transportation services must be secured to get collected bags from municipal drop-off locations to vendors who can provide sanitation and reentry into the marketplace for reuse. The PAC also suggested, and the DEP convened, a committee to explore other food delivery reusable bag collection solutions, including analysis of the root cause and scope of the problem.

The first-year report went on to specifically state the following: "*The PAC will assess progress made in the New Jersey Food Council Pilot program and through the DEP committee within the first six months of 2023 and provide its findings to the DEP and Legislative leaders for consideration. The PAC feels strongly that the grocery stores, third-party delivery services, government and the public must all recognize their responsibility in implementing this law and making it as impactful and successful as possible. An important aspect under consideration by the DEP committee is overall reduction in bag use. It should be noted that grocery stores in other countries, as well as some in the United States are offering "bagless" options for all or some grocery pick-up services. The PAC believes that these options should be more prominent at grocery stores and for curbside pickup or delivery services in New Jersey."*

Background: In New Jersey, supermarket curbside pickup or delivery services, as well as third party shopper organizations, such as Instacart and DoorDash and supermarket chain services, have followed the requirements of the law to deliver groceries in reusable bags. However, no return program was developed to recover and sanitize reusable bags delivered to consumers. This issue took on significant public discussion during 2022 resulting in the introduction of S3114, which if passed would have once again allowed paper bags for use in supermarkets/grocery stores for three years. Testimony regarding this proposal was held during 2022 in the Senate Environment and Energy Committee. The bill's primary sponsor, Senator Bob Smith, coordinated with the DEP in late 2022 and decided to hold the measure temporarily to explore other possible solutions before amending the Get Past Plastic Law.

In January 2023, the NJFC convened the first of seven meetings to date of a Reusable Bag Redistribution Pilot Program Planning Group. The group initially had broad participation from the following organizations, and has grown over time:

- New Jersey Food Council (organizer and lead)
- New Jersey Clean Communities Council
- DEP
- New Jersey Business Action Center
- The PAC
- Association of New Jersey Recyclers (ANJR)
- Sustainable Jersey
- County Governments (Atlantic, Morris and Union)
- Municipalities (Secaucus, Woodbridge, Long Beach Township and Westfield)
- On-Line Food Delivery Companies (Instacart and DoorDash)
- Bag Collection and Sanitation Companies (GOATOTE)
- The Community Food Bank of New Jersey (Carols and Adele)
- Solid Waste and Recycling Companies (Republic Services and Bayshore Recycling)

NJFC and the Clean Communities Council created this new program for shoppers to donate their gently used reusable bags that are then sanitized and donated to local food banks, pantries, and

those in need. This innovative Bag Redistribution Pilot Program has expanded beyond the above list to include additional public, private and nonprofit partners, including other food banks and pantries, environmental organizations, local recycling coordinators, and community-based groups such as the Girl Scouts of Mercer County. Each partner chooses if they have a specific pantry or organization that they would like the bags redistributed to or if they prefer to donate them to the Community Foodbank of NJ. After sanitation, GOATOTE redistributes the bags to the specified organization.

Results of the Pilot Program: A significant deliverable from the Pilot Program effort was the creation of a QR Code to help consumers properly manage reusable bags. As of October 2023, NJFC member supermarkets and convenience stores have begun to provide the program's link tree or QR Code on customer receipts so they can access a map of drop-off locations, donation tips, and details about the plastics law. Stakeholders can access a community toolkit with information on creating, maintaining, and funding reusable bag programs. The program has grown considerably since its inception last year and is expanding into additional locations. The program participants are also looking ahead at additional partnerships to address reusable bags at the end of their life cycles. Information contained in the QR Code includes:

- An informative YouTube video that describes the success of the Get Past Plastic Law in reducing single-use plastic and paper bags entering the New Jersey environment;
- A locator map of approximately 320 drop-off locations in 135 New Jersey towns and 19 counties;
- Instructions on how customers can clean/sanitize their reusable shopping bags by specific bag material and tips when donating bags;
- Opportunities for towns, companies and non-profit organizations to register and advertise bag collection events;
- Helpful links for shoppers to obtain additional information through such sources as Litter Free NJ, DEP Get Past Plastic, the New Jersey Business Action Center and Recycle Coach.

A summary of the current status of drop-off locations and anticipated expansion in 2024 is as follows:

- In Atlantic County and Hudson County, collection programs are held in conjunction with mobile one day events (household hazardous waste/paper shredding days, etc.) at different dates and locations throughout their counties.
- Union County currently hosts two drop off locations (Elizabeth welfare agency and Westfield recycling center) but are expanding to up to 14 locations in the near future. These will include locations in Linden, Kenilworth, two locations in New Providence, Plainfield, Hillside, Summit and five additional collection sites at HACE in Elizabeth.
- Mercer County has ten drop off locations and plans on consolidating their efforts with those of the Girl Scouts before pickup for sanitation by GOATOTE.
- Morris County has two sponsored locations; their food pantry cleans bags in house for reuse.

- Other specific municipalities active in bag collection include Woodbridge and Monroe Townships in Middlesex County, the Town of Secaucus in Hudson County, and the food bank in Sparta, Sussex County.

Bag Collection, Sanitation and Redistribution Metrics: The NJFC and partner organizations consider the first year of the pilot (January 2022 – January 2023) to have been a success. Reported metrics include the following:

- A total of 65,080 bags were collected since operations began in February 2023 from within three municipalities and four counties.
- GOATOTE was the primary recipient and processor of these bags. They have reported that 90% of collected bags were qualified to be redistributed for use after sanitation. Ten percent were determined to be unusable. (None of these have been sent to recycling facilities at this point due to cost).
- Of all reclaimed bags suitable for redistribution, 31% were sent to six food banks and pantries. (Most of the bags are redistributed to food banks. Then the food banks distribute the bags to the local food pantries they serve).

Next Steps: At the January 2024 meeting of the Reusable Bag Collection and Sanitation Pilot Project Committee, the Helpsy organization was represented. Helpsy is a non-profit organization the collects textiles from drop-off bins across New Jersey, including clothes, shoes, sneakers, bags, accessories, bedding and towels. Users often deposit their donations in reusable bags. The potential exists for Helpsy to partner with GOATOTE (a bag sanitation and redeployment company) to greatly expand the availability of drop-off locations across the State. Presently, Helpsy operates some 420 collection points in New Jersey with 710 bins stretching from Sussex to Cape May Counties. Ninety-two collection points are at shopping centers and 73 are at thrift stores. The rest are a mix of municipal property, single stores, churches, schools, etc. Helpsy is also the official textile recycling partner of a small (but growing) number of municipalities including Toms River, Brick, Island Heights, Monroe Township and for Union County.

PAC Recommendations: The PAC recognizes the extensive effort put forth by the NJFC and government, private sector and non-profit partners to date and program expansion plans underway. The PAC recommends continuation of this program and, where possible, expansion across the state to provide convenient locations for home delivery customers to drop-off reusable bags. The PAC also supports further research on using clothing drop-off bins, like those operated by Helpsy, to expand collection opportunities and encourages the NJFC to work with more supermarkets and chains to further deploy their QR Code on customer receipts. Finally, the PAC encourages more active support for the bag redistribution system from home food delivery service providers like Instacart and DoorDash. It should be noted that no dedicated funding source has been identified for the current pilot program or for the enhancements discussed above.

DEP Single-Use Plastic Waste Reduction/Reusable Bag Committee

The first-year report recommended that the DEP's Division of Sustainable Waste Management convene a committee to explore food delivery bag collection, including analysis of the root cause and the scope of the problem. The result is the Single-Use Plastics Waste Reduction/Reuseable Bag Committee. The committee evaluated strategies to reduce the reusable bag proliferation in New Jersey which occurred largely due to grocery delivery and pickup services. In contrast to in-store shoppers who may bring in their own bags or choose to purchase new bags at the register, delivery and curbside pickup customers are often required to purchase new bags with each order without the option to opt out. Additionally, most grocery stores will not accept bags back.

After researching the issue, interviewing stakeholders, and facilitating a temporary external workgroup, the team developed recommendations for DEP management. Stakeholders consulted in this process included grocery stores, third-party grocery delivery services, government and community representatives, reusable bag manufacturers, and recyclers. Their input provided a wide range of perspectives to help determine the feasibility of proposed solutions. Through these discussions, the team determined that a multi-tiered approach should be considered to address this problem, including reduction of bags distributed, redistribution of bags already in circulation, and stewardship of existing bags through recycling. Their recommendations are not finalized, but the major findings are as follows:

Reduction: Through the research process, the team observed an international grocery store trend toward bagless delivery. Bagless delivery simply means that the delivery driver transfers the purchased products from a carrying vessel to a customer's container at their door. To learn more about how this works, the team invited a representative from Waitrose Partners from the United Kingdom (UK), where bagless delivery is commonplace, to present to DEP staff and external partners. Waitrose Partners shared that their decision to switch to a completely bagless delivery policy was made company-wide and was initiated without a government mandate. Bagless delivery has been a successful program for Waitrose Partners, and they claim to have saved over 30 million reusable bags since September 2021.

While bagless delivery is the norm in places like the UK, it is a new practice for most grocery stores in New Jersey and there are hurdles to overcome. As of 2023, only two New Jersey retailers provide a bagless option for their delivery customers. One issue raised by New Jersey's food industry is that bagless delivery may be inconsistent with New Jersey's food safety regulations regarding time and temperature controls and food handling. In consultation with the New Jersey DOH, the DEP confirmed that bagless delivery can be performed safely in accordance with N.J.A.C. 8:24, Sanitation in Retail Food Establishments and Food and Beverage Vending Machines. Other concerns included worry that customers may forget to leave a container at their door. The retailers who provide bagless delivery in New Jersey currently do so by providing the option for customers to request no bags in writing during the online checkout process. Customers who specifically request this option are more likely to be prepared to receive the order at their door.

The DEP can utilize social media and the DEP website to raise consumer awareness of this issue and to increase the demand for bagless delivery and pickup options. This promotional content should include providing a list of stores in the state that offer bagless options and offering guidance on implementation issues. The DEP can also promote bagless delivery options through the Sustainable Business Registry, a partnership between the Rutgers' New Jersey Small Business Development Center and the DEP's Bureau of Sustainability that recognizes sustainable business practices by businesses, nonprofits, and institutions. The Bureau of Sustainability recently added an option to include bagless pickup and delivery as a sustainable business practice for stores to earn credit toward inclusion on the Registry.

Redistribution: While reducing the overdistribution of reusable bags is the most impactful solution to this problem, once a bag is already in circulation, it should be used to its full potential before disposal to achieve greater environmental benefit than a single-use plastic bag. The United Nations Environmental Programme found that non-woven polypropylene bags, commonly used as reusable grocery bags, need to be used 10 to 20 times to account for the carbon footprint from the production of the bag. However, early disposal of reusable bags is inevitable as households accumulate more carryout bags than they need, particularly those of low quality.

When this accumulation happens, bag donation to food banks is a way to increase a bag's continued use. Under the Get Past Plastic Law, New Jersey's food banks, including soup kitchens and food pantries, may only use paper or reusable bags when distributing food to people in need. Donating used reusable bags to food banks will extend their usefulness and save food banks from having to purchase single-use paper bags.

The New Jersey Food Council pilot reusable bag collection and donation program discussed above is run through municipal and county recycling programs and funded through public funds designated for recycling and litter collection. Donated bags need to be sanitized, which increases the costs of running a long-term, statewide reusable bag donation program. Strategies to reduce those costs should be explored to expand the reusable bag collection pilot beyond public funds, including promotion of partnerships for private sponsorship in exchange for advertisement and integration with statewide textile recycling infrastructure.

In addition to donation programs, there are consumer strategies to increase reuse. Deposit and return programs facilitate continued use of reusable bags. Trials of third-party in-store bag rental kiosks ran in a handful of locations in 2023. If bag rental programs are extended to online portals, it could enable delivery and curbside pickup customers to receive bagged orders and then return the bags later to a store kiosk for a refund. Additionally, higher quality bags are more likely to be reused than lower quality bags, a strategy employed by California. Grocery stores should consider the quality of the bags they sell to ensure the bags will last through continued reuse.

Stewardship: After reusable bags are reused many times and reach the end of their useful lifespan, recycling is necessary to further decrease their environmental effect. Unfortunately, recycling reusable bags is currently a challenge in New Jersey. Non-woven polypropylene and other commonly used reusable bag materials are not easy to recycle. These bags need to be collected separately from traditional curbside collection and processed into pellets at a recycling facility to

make new plastic items. However, public recycling facilities in New Jersey do not currently accept these types of bags for recycling. Other options for recycling reusable bags are available in the state, but the costs associated with these options are currently an impediment. At a range of $0.38-0.76 estimated per bag, these costs are prohibitive for most municipalities.

Another concern is that reusable bags are still often labeled as recyclable, which causes confusion for the public and contaminates the municipal recycling stream. Producers should participate in the extended stewardship of their products, such as designing bags to increase their recyclability, properly labeling bags, and supporting recycling programs that are accessible to New Jersey residents. Increased public education is also needed to combat this confusion and misinformation. A holistic view of the issue of reusable bag proliferation shows that there are many ways to tackle the issue from reducing distribution of unwanted bags, encouraging reuse, and designing bags for recyclability. However, it will require changes in practice from the single-use paradigm to implement.

Clean Ocean Action 2023 Litter Survey Results

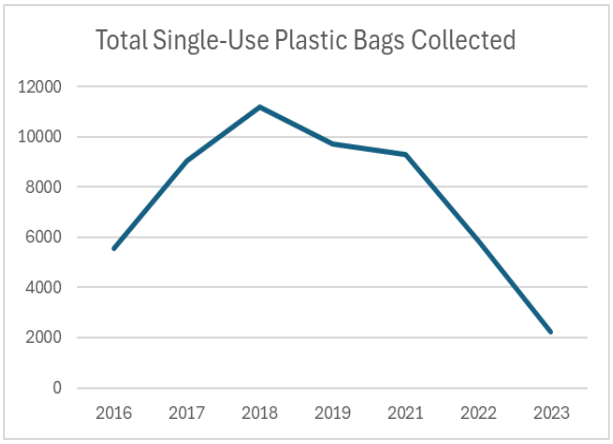
COA is a non-profit organization founded in 1984 whose mission is to improve the water quality of the marine waters surrounding New York and New Jersey. COA has organized a biannual "Beach Sweeps" program across New Jersey's beaches in the spring and fall every year since 1985. COA's program is one of the longest running cleanups of its kind in the world.

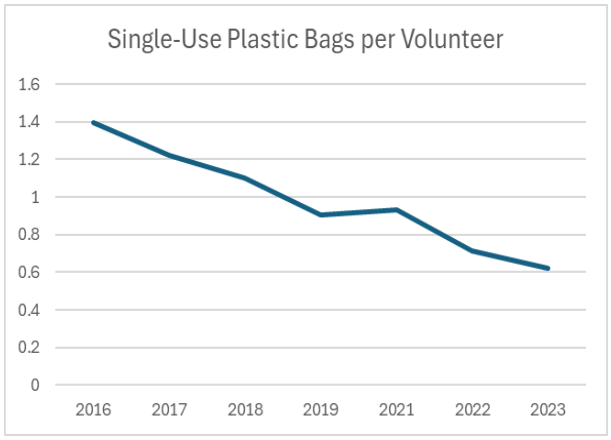
Participants collect debris from cleanup sites and record the data, which is then compiled and published annually. Additionally, COA hosts smaller more frequent beach cleanups in a program called Corporate Beach Sweeps, which runs from June-September. Volunteers at Beach Sweeps collect, sort, and identify dozens of different items and materials.

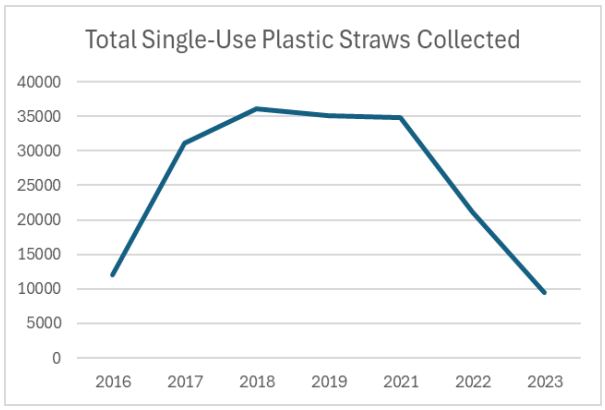
There is much work that is done to ensure that the data reflecting the debris collected during each cleanup is accurately recorded and that the materials are collected responsibly and safely. While this information is very useful to the DEP and cleanups are beneficial to the environment, these activities understate the amount of litter that accumulates on New Jersey's shorelines. It is also important to note that the shoreline litter may have been generated in other states but washed into New Jersey. While the data does not represent or describe litter generation across the State's 564 municipalities, it does provide a good snapshot over time of the types of litter found along the Jersey Shore that pose a threat to the waters of New Jersey.

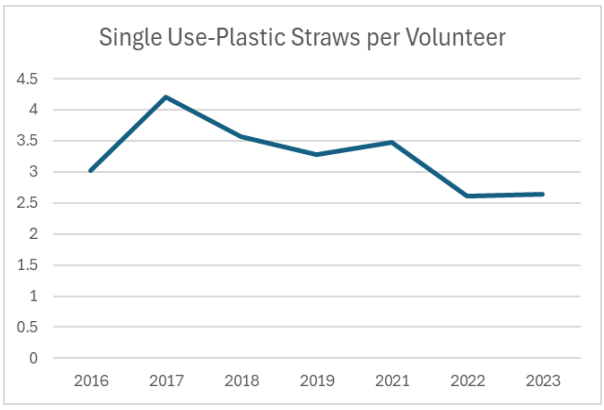
COA calculates materials collected per volunteer based on the data reported. The DEP analyzed the collection of plastic bags per volunteer, plastic straws per volunteer, and foam per volunteer, with foam consisting of restaurant takeout containers, plates, and cups, and likely other items not covered under the law. Additionally, the DEP chose to analyze data reported from the years 2016 through 2023 omitting the year 2020 due to data collection complications from the COVID-19 pandemic. The purpose of using this data set dating back to 2016 was to exemplify how much litter was collected during Beach Sweeps of New Jersey's coastline in the five years prior to the implementation of the Get Past Plastic Law.

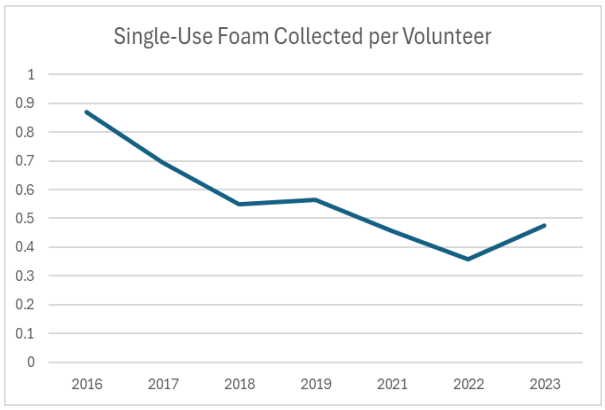
The data collected and reported from the COA Beach Sweeps and Corporate Beach Sweeps demonstrates that while the results of collected materials vary from year to year, the collection of materials as a whole and items collected per person typically declined or plateaued over the selected timeframe.

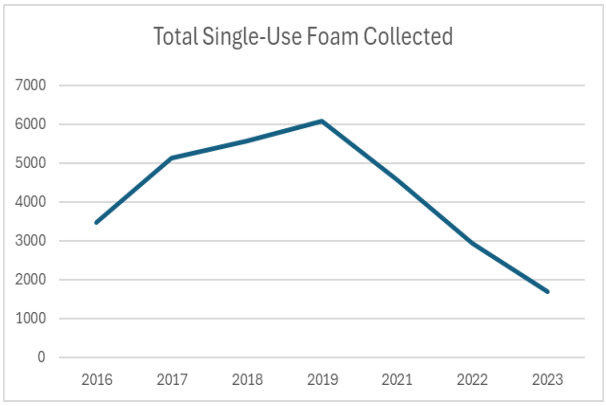












Assessment Regarding Compliance with the Straws Provisions

First-Year Report Reference: While the first-year report primarily considered compliance with the single-use plastic bag components of the law, the public outreach and media programs administered by the DEP (Get Past Plastic Campaign), New Jersey Clean Communities (Bag Up NJ) and Department of State Business Action Center campaign included a focus on straws. "Skip the Straw" was a common theme in these public outreach programs. Recycle Coach also supported the DEP's Get Past Plastic and the Bag Up NJ campaigns with a four-month educational campaign on their mobile app in partnership with NJCC and the DEP. Survey work associated with this campaign showed that most (69%) New Jersians understood that straws were only available upon request after November 4, 2021. Finally, Clean Ocean Action's 2022 Beach Sweeps report compared data from 2021 to 2022 and showed an impressive 39.04% reduction in straw litter collected.

Background: Section 5 of the Get Past Plastic Law addresses the dispensing of single-use plastic straws. After November 4, 2021 "a food service business shall only provide a single-use plastic straw to a customer upon request." The "upon request" provision was included primarily to accommodate persons with disabilities who need access to straws at restaurants and other food service establishments. It differs from an outright prohibition, and may complicate compliance, assessment, and enforcement of the provision. Under Section 5, the DOH is clearly empowered to enforce the straw provisions of the law. However, a formal report on compliance was not required by statute from the DOH until four years after the effective date of the law or by November 4, 2024. Due to anecdotal evidence of single-use straws being provided without being requested, the PAC and DOH determined that additional attention to this provision was needed.

DOH Straws Compliance Efforts to Date: On May 3, 2022, DOH issued notification to all local health department officials via the New Jersey Local Information Network and Communications System's Health Alert Network explaining the new law and its enforcement parameters. Subsequently, DOH conducted two webinar-based training sessions for local health departments and industry, on September 14, 2022, and June 29, 2023, respectively. These webinars explained the provisions of the Get Past Plastic Law and roles and obligations of state and local health department agencies, as well as industry's obligations to comply with the law. The webinars are posted on the DOH's Public Health and Food Protection Program's webpage, DOH Webinar, and the New Jersey Business Action Center's webpage, NJAC Webinar.

Upon inception of the law, DOH established an email connection for the general public and local health officials to report complaints about alleged straw violations and to request clarifications (SingleUsePlasticStraws@doh.nj.gov). DOH monitors this account daily and rapidly responds to each email. Between May 2023 and January 2024, DOH received 59 emails (52 from the public and seven from local health department officials). Twenty-eight complaints were about the provision of plastic straws without a foodservice consumer request; 26 were requests for

interpretation of the law; and five were complaints about not being provided plastic straws upon request. Additionally, recent survey conducted by DEP enforcement, and completed over a three-week period, showed 42 of 61 respondents were provided straws without a request from the customer. Considering this new data and the nature of the complaints received by DOH, there remains a general lack of compliance by the retail food establishment industry and the public.

To address these issues (see survey and log results above), the DOH secured the assistance of local health authorities who perform inspections of restaurants and other food service businesses and bring considerable additional resources to address compliance. DOH is planning to propose a revision to add the requirements of the Get Past Plastic Law into its food establishment regulations, including the straws provisions, into the NJ Administrative Code, Title 8, Chapter 24 *Sanitation in Retail Food Establishments and Food and Beverage Vending Machines* (Chapter 24).

The inclusion of the straw's provisions into Chapter 24 may be the most effective means of enforcing the law's provisions. Under law, local health departments are charged with licensing and enforcing Chapter 24 in all retail food establishments within their jurisdictions, along with conducting annual inspections and investigations as needed. Amending Chapter 24 will allow local health inspectors to: determine whether the establishment only provides plastic straws upon request of the consumer; maintains an adequate supply of plastic straws at all times of operation; is not providing self-service of plastic straws; and is reporting compliance statistics to DOH at the end of each calendar year. These main provisions would then be incorporated into the current Retail Food Establishment Inspection Checklist for local health officials to enforce. As of the date of this report, the proposal to readopt Chapter 24 with amendments is currently under consideration by the DOH and moving forward in the rule revision process.

PAC Analysis and Recommendations: While limited verified data exists regarding compliance with the straw's provisions of the Get Past Plastic Law, the PAC has concerns that the "upon request" provisions are not operating as intended to reduce straw use. To begin, the universe defined in the law is very large and includes: "any restaurant, café, delicatessen, coffee shop, convenience store, grocery store, vending truck or cart, food truck, movie theater, or business, government or institutional cafeteria." Food related research being conducted by Rutgers and Stockton Universities suggests that as many as 20,000 restaurants and 6,000 grocery stores exist in New Jersey. Beyond scope and scale, compliance is a function of the actions and behavior many thousands of front-line restaurant servers, grocery store checkers and store clerks who may lack any background or training in the law. Practical considerations, such as basic customer satisfaction, simply make it easier to leave a straw rather than ask questions to enforce the "upon request" provisions.

With these considerations in mind, the initial objective in the administration of the Get Past Plastic law was general public, store owner and employee education. This mission continues. However, it appears necessary to expand existing rules and regulations to allow for enforcement as provided for under Section 6 of the law. The PAC has the following recommendations moving forward:

- DOH should, as currently planned, propose and adopt amendments to Chapter 24 of their regulations to empower local health officials to enforce the straws provisions of the law. This should be done as expeditiously as possible;
- Once adopted, and as planned, DOH should amend its Retail Food Establishment Inspection Checklist to incorporate the straws provisions of the law for local health officials to enforce, leveraging the presence of health officials conducting routine inspections of retail food establishments. Effective compliance and enforcement can be greatly assisted by local health officials, in cooperation with the DOH and DEP, in recognition of the scope of the issue;
- DEP should consider working with County Environmental Health Act agencies to perform similar inspections with use of portions of the DOH compliance checklists to expand the scope of food service establishments visited;
- DOH and DEP should compile compliance metrics to give a more informed understanding of the effectiveness of the "upon request" provisions and work with the PAC in analyzing the data collected. Compiling true and meaningful metrics for DOH would be possible with the revisions to Chap 24 as discussed above.

Waste Reduction and Recycling Education and Promotional Campaign

First-Year Report Reference: OFAs #6 and #7 highlighted the need for a Statewide and ongoing education and promotional campaign targeted at plastics waste reduction and recycling to be developed in collaboration and consultation with academia and other nonprofit organizations to highlight:

- Opportunities to reduce plastics through consumer purchasing choices;
- How to find out what products, containers and packaging are recyclable in each community;
- Guidance to assist consumer evaluation of claims that products or packaging are recyclable, compostable and/or biodegradable;
- The distinction between macroplastic litter versus hard to see or invisible microplastic and nanoplastic particles and fibers;
- The current state of knowledge regarding environmental and public health impacts of plastics in plain English terms.

The PAC recommended the formation of a 12- to 15-member Education Steering Committee to suggest components of an overall statewide public education campaign. The PAC views the education campaign to be inextricably linked to a promotional campaign, but different in terms of focus and marketing expertise. The PAC proposed that a subcommittee of the Steering Committee be convened to simultaneously develop a public relations and marketing campaign. The campaign should develop effective advertising messaging and identify the most widespread use of social media outlets including Facebook, Instagram, Twitter, Recycle Coach and other available and appropriate apps, billboards, television, and radio.

Education Steering Committee Formation: The PAC Education Committee launched a three-step tiered approach to address recycling public education:

- Step 1: Formation of an Education Steering Committee with broad participation from sister nonprofit organizations, academia, private sector and government officials;
- Step 2: Formation of a Private Sector Advisory Body to evaluate the efficacy of the work products produced by the Steering Committee from a transactional perspective to address the question "will the recommended approach be effective in the real world?" This body would be temporary and dissolved once their review is complete;
- Step 3: OFA #7 of the first-year report called for a Get Past Plastic Promotional Campaign. The PAC viewed the education campaign to be inextricably linked to a promotional campaign, but different in terms of focus and marketing expertise. In a third step, an additional body would be convened with advertising and marketing expertise to design a targeted outreach approach and materials. The initial focus would be plastics waste reduction and recycling.

In December 2023, Education Steering Committee leadership completed Step 1 above by securing the participation of a 22-member Steering Committee from sister non-profit organizations, academia, private sector and government officials. A Google Forms survey was sent to each later in December which asked for input on four basic questions:

1. How would you rate plastic waste as an environmental issue in New Jersey?
2. What are we collectively doing well now to communicate with the general public about plastic waste?
3. Where are we falling short with education and outreach programs about plastic waste?
4. Recommend solutions and steps needed to overcome existing limitations to educate the public about plastic waste.

Survey responses were used to craft a kick-off meeting of the Education Steering Committee (ESC) which was held on February 1, 2024. Four topics were discussed during the first ESC meeting:

1. Are alternatives to plastic containers readily available in NJ? What approaches could be employed to increase alternatives?
2. Are recycling systems currently effective in all NJ Counties/communities? What challenges exist?
3. Can alternative materials that biodegrade be effective in reducing plastic waste?
4. How should microplastic pollution be addressed?

The second meeting of the ESC was held on March 14, 2024. This meeting focused on the topic of how to communicate the current state of knowledge regarding environmental and public health impacts of plastics in plain talk terms. Two specific questions were considered:

1. What are the various audiences for a statewide educational campaign? How best to reach the largest numbers of these different audiences?
2. How important is it to engage K-12 students in efforts to reduce plastic waste? What approaches should be considered?

Significant points raised during these meeting discussions include:

- The importance of positive empathic messaging to consumers:
    a. Consumer decisions can make a difference in reducing plastic waste generation;
    b. Consumer behavior doesn't have to be *perfect*;
    c. Develop a ***NJ Buyer's Guide to Sustainable Purchasing*** to support proactive actions.

- Alternative plastic carriers/containers applicable under suburban conditions where residents own cars are not appropriate in urban communities where car ownership tends to be lower, and transportation of food and grocery items differs. Language differences are also an important consideration in communicating with urban residents.

- There is significant confusion related to plastic recycling:
    a. Definitions used now are chemical names, numbers, or chasing arrows that have low meaning for the average resident disposing of plastic waste – there is general confusion about what is, or is not, recyclable;
    b. Each of the 21 NJ counties has its own list of recyclable items – no statewide standard for plastic waste recycling;
    c. Funding is needed to support plastic reduction and recycling efforts;
    d. Data (rates, percentages) describing plastic recycling are at best estimates, based on different information and data sources. Various assumptions make it difficult, if not impossible, to agree on the accurate recycling rates. This lack of accurate and easily understood data create conditions where data can be manipulated to conform to specific viewpoints and supports general distrust of various recycling estimates.
    e. There is skepticism related to what percentage of curbside recycled plastic is actually recycled (versus unrecyclable items that are then thrown away or lost during the recycling process);

- Professionals (County Recycling Coordinators and their staffs, Recycling Coach) are present in New Jersey's 21 counties. This structure offers a significant opportunity to communicate statewide messages, materials, and potentially funding that support recycling and plastic reduction action at the local level.

The Education Steering Committee will meet once a month through 2024 and develop specific recommendations to improve plastic waste management in New Jersey through improved recycling and plastic reduction efforts and influencing consumer decisions.

Section 2: Environmental and Public Health Impact Assessment

Opportunities for Action #8 through #12 of the first-year report focused on environmental and public health issues associated with plastics and, primarily, microplastics and nanoplastics. Since the first-year report, the DEP Science Advisory Board completed its "Microplastics in the Aquatic Environment: Sources, Occurrences, and Currently Known Risks," a summary of which is provided in Appendix A as a background primer to this critically important issue. The PAC also reviewed pending legislation related to microplastics and studied developments in France, Canada, and California related to requirements for microplastics filtration devices on new washing machines. Finally, DEP also reviewed opportunities for microplastic filtration at the macro scale through equipment modifications at New Jersey wastewater treatment plants. This work is summarized in Section 2.

The full Science Advisory Board report can be found here: https://bit.ly/3X9Xpba.

Policy Recommendations Regarding Microplastics Related Legislation

First-Year Report Reference: The microplastics issue was addressed in the first-year report as OFA #9 and OFA #10, which discuss the support for pending and new microplastics related legislation in New Jersey.

Background:

Three bills related to microplastics in the environment were introduced in the New Jersey Assembly in October 2022. One of the bills, A4822/S3281**,** which required DEP to establish and implement a program to provide a one-time rebate to State residents to encourage the purchase of microfiber washing machine filters and replacement filters and to reduce the amount of microfiber pollution in the state, did not progress further than a hearing. This bill was reintroduced as A1482/S1048 on January 9, 2024. The remaining two bills were combined into one bill, NJ A4821, which directs DEP in collaboration with the PAC to identify and test microplastics in drinking water. This bill was conditionally vetoed by the Governor on January 8, 2024, passed on the same day, and enacted into law on January 16, 2024.

Issue Analysis and Recommendation:

The states of Illinois, Oregon, and California and the provincial government of Ontario, Canada all proposed similar legislation requiring microfiber filtration on washing machines. The Illinois bill,

HB1284 is in Committee and Ontario's Bill 81 has passed through its first reading. The Oregon bill, SB 405 SB 405 failed to pass in the legislature on June 25, 2023 and California's Assembly Bill 1628 was vetoed on October 8, 2023. France was the first country in the European Union to introduce and pass legislation requiring microfiber filters in washing machines by January 2025. However, research into the implementation of the legislation has revealed that as of September 2023, the French law was not being implemented and has been withdrawn for reasons that are unclear.

At this time, the PAC does not support the bill A1482/S1048**,** related to the implementation of a microfiber filtration rebate program until additional research into microfiber filtration on washing machines is conducted.

With respect to bill A4821, the PAC has been notified that the DEP Division of Science and Research has begun work on this task, and that the DEP Division of Sustainable Waste Management will be on a team to identify next steps about the provisions of this law. The PAC recommends that DEP representatives on the PAC update the PAC at future meetings or committee meetings so that the PAC may have input on, and where needed, collaborate, and assist DEP in the provisions of the law.

Actions Taken on Wastewater Treatment Plant Optimization Studies

First-Year Report Reference: OFA #8 of the first-year report highlighted the need to reduce microplastic release to the environment and suggested the DEP convene discussions with representatives of the major Wastewater Treatment Plants (WWTPs) to discuss and study improving removal of particles from their effluent. It was further recommended that the New Jersey Infrastructure Bank participate in these discussions to evaluate economical ways to fund such work.

Background: Microplastics and microfibers, a common form of microplastic, are often found in aquatic environments and organism. Point sources for this pollutant are linked to wastewater treatment plants effluent and sewage sludge disposal. Even with high removal efficiencies of 90%, a 10% discharge into receiving waterbodies results in large quantities of microplastics. Retained microplastics are concentrated in sewage sludge, which can also result in a release to the environment. With 10 WWTPs managing an estimated 80% of the wastewater from the State's 9.3 million residents, focusing on these WWTPs could be an efficient way of reducing microplastic release.

Issue Analysis and Recommendation: DEP took the lead on this project, as OFA #8 involved coordination of various groups within the DEP. It was determined that the DEP Division of Science and Research (DSR) and the Division of Water Quality (DWQ) were conducting a pilot study with 4 WWTPs. The main objective of this study is to understand microplastic loading into New Jersey WWTPs by assessing the occurrence, mass flow, and removal/generation rates of microplastics. The study also aims to determine how microplastics emitted by WWTP effluents impact rivers.

The DSR/DWQ study is evaluating the types of fibers, concentrations, shape, and other qualities of the influent and effluent. The WWTPs being studied are no larger than 15 MGD in effluent capacity, have tertiary treatment, and advanced solids treatment. These facilities have fewer variables to control for, fewer industrial inputs and stormwater influences, and already achieve effluent concentrations below five parts per million (ppm) total suspended solids (TSS), which is well below the NJPDES standard of 30 ppm.

The DEP DSR and DWQ recommended future studies, including the PAC's original recommendation to conduct optimization studies, could include increased collaboration with universities to increase potential cooperation with WWTPs.

The PAC supports the DEP pilot project underway and, thereafter, moving forward with larger WWTP optimization studies identified in the first-year report recommendations in the future, potentially through New Jersey universities, after the results of this study are available for review, to determine if they are relevant.

Section 3: Plastic Waste Reduction and Increased Recycling Strategies

Introduction: The most targeted focus of the second-year report was on aspects of plastics waste reduction and recycling. Within this section the PAC:

- Evaluates the feasibility of a New Jersey bottle redemption program;
- Evaluates chemical or advanced recycling technologies, their technological feasibility and environmental impacts, and the potential resulting regulatory requirements for such facilities;
- Frames an approach for considering the action by executive agencies regarding plastics waste reduction and recycling;
- Reports on developments in advancing plastic waste reduction and recycling strategies for New Jersey schools;
- Frames recommendations for how best to foster a reuse and refill green business economy following an extensive experts' stakeholder discussion convened in January and February 2024;
- Evaluates and need for a single, uniform list of designated curbside materials required for recycling under the New Jersey Mandatory Source Separation and Recycling Act through work done cooperatively with the Association of New Jersey Recyclers.
- Outlines its policy position on the pending "Product Packaging Stewardship Act" (A2094/S208) for New Jersey;
- Frames policy recommendations on "Truth in Labeling" legislation now pending in the New Jersey Senate as S2145 following collaborative stakeholder work with the Association of New Jersey Recyclers.

Policy Recommendations Regarding a New Jersey Bottle Redemption Program

First-Year Report Reference: This section discusses beverage container deposit laws, also known as "bottle bills," and referred to as such in the first-year report. The first-year report did not reflect a specific Opportunity for Action related to a bottle redemption program or bottle deposit legislation. However, in the latter months of the first year of PAC engagement, the topic was discussed as an important consideration in the context of a second-year workplan task to evaluate. The existing New Jersey recycling and litter abatement system was enacted as one of the first in the United States nearly four-decades ago. As such, the PAC felt it both timely and important to evaluate whether a bottle redemption program would be beneficial to New Jersey litter abatement and recycling in the future. The PAC recommended studying these issues to assess other state frameworks and associated cost impacts for consumers, and to consider whether a consistent and workable framework is possible in New Jersey. Upon completion of the study, the PAC would consider making recommendations to the DEP and Legislature.

Background: The New Jersey Legislature took-up the debate on potential bottle deposit legislation in the mid-1980s. After some years of discussion, the Legislature decided not to pursue bottle deposit legislation. In place of this, litter abatement was addressed through the passage of the Clean Communities Act in 1986. A year later, New Jersey became the first state in the country to adopt mandatory recycling through passage of the Mandatory Source Separation and Recycling Act of 1987. This was followed by the Recycling Enhancement Act of 2008. While modified extensively over the ensuing years, these basic statutes still guide litter abatement and recycling activities in New Jersey.

The Clean Communities Act created a litter tax while the Recycling Enhancement Act established a tax on solid waste, and both provide much needed funding to counties, municipalities and other parties for litter abatement, running solid waste and recycling programs, education research, etc. Additional background on New Jersey's program can be found in the first-year report.

States with Bottle Redemption Programs: Bottle redemption programs carried out through bottle deposit legislation has been enacted in 10 states: California, Connecticut, Hawaii, Iowa, Maine, Michigan, Massachusetts, New York, Oregon, and Vermont. Bottle deposit legislation has two core purposes: to reduce litter and to increase beverage container recycling, both of which are achieved by placing a deposit value on the container. The Container Recycling Institute posts on their website that: "*states with bottle bills have a beverage container recycling rate of around 60%, while non-deposit states only reach about 24%."* Even higher redemption rates have been reported in some states. Under these programs, a deposit is placed on containers and paid by the consumer as a regressive form of taxation (meaning everyone pays the same despite their income level). As a general statement, eight of the 10 states with bottle deposit legislation have a 5-cent deposit on covered products, while Oregon and Michigan have a 10-cent deposit.

With a deposit system, consumers pay more for covered beverages but can get the surcharge money back if they redeem the deposit by bringing containers to designated locations for recycling. In most cases these locations are reverse vending machines placed at supermarkets or designated

recycling redemption centers. In practice, substantial deposit funds are not redeemed. As just one example, in the State of New York an estimated $120 million is generated each year in unclaimed deposit monies. These funds can be used for various purposes at the discretion of the sitting State administration and legislature. There are many other options for these funds.

Some bottle deposit legislation proponents, including many environmental organizations, also see important potential linkages between bottle deposit legislation and Extended Producer Responsibility (EPR) legislation for packaging, however the extent to which these may be legislatively linked will need to be evaluated. EPR legislation for packaging has already been enacted in California, Maine and Oregon, which already have bottle deposit legislation. New Jersey is considering EPR legislation for packaging as proposed by Senator Bob Smith as A2094/S208.

The PAC recommended further study into the feasibility of a bottle redemption program, to understand the costs and benefits of such a program in New Jersey including how it could complement, enhance, and/or improve beverage container recycling.

Bottle Redemption Public Meeting: As noted, considerable discussion has taken place regarding the evaluation of proposing a New Jersey Redemption Program through bottle deposit legislation. Most notably, Senator Bob Smith, who chairs the Senate Environment and Energy Committee has heard testimony regarding the need for bottle deposit legislation during committee hearings held on his proposed Packaging Product Stewardship Act related to extended producer responsibility earlier in the 2023 legislative session. In a stakeholder discussion with representatives of the environmental community in mid-2023, Senator Smith specifically asked the PAC to convene a public meeting on the topic.

As a specific bill was not discussed at the public meeting, the PAC and DEP have referred to the meeting as a "bottle redemption public meeting." The format of the public meeting decided upon by the PAC was the following:

- A single, full day virtual public meeting was conducted from 9:15 a.m.– 4:00 p.m.;
- A panel format was selected as being most informative with five specific topics of discussion:

  Panel #1: Baseline metrics, status of container recycling rates in New Jersey and states with bottle deposit legislation;
  Panel #2: Economic implications of a potential bottle deposit legislation, pro and con;
  Panel #3: Environmental considerations;
  Panel #4: Business perspectives on the bottle deposit legislation question;
  Panel #5: Government perspectives on the bottle deposit legislation question.

- Expert witnesses were invited to give short, five-minute opening statements to offer their perspective on the bottle redemption question. The PAC went to great lengths to ensure a balanced discussion seeking equal representation of pro and con perspectives from panelists. A 30-minute facilitated panel discussion followed the opening statements with questions

forwarded to panelists ahead of time to ensure sufficient time to offer thoughtful responses toward meaningful discussion. For each panel, 10-minutes were left for questions and answers from PAC members only;

- At the conclusion of the five panel discussions, open public comment was taken for two hours and facilitated by a designated representative of the DEP. The meeting ended prior to the anticipated 5:00 p.m. scheduled time as no additional comment was offered after 4:00 p.m.;
- The proceedings were recorded, and the agenda, panelist Power Point presentations, as well as the recording are available to the public on the DEP PAC website at NJDEP| New Jersey Department of Environmental Protection | Plastics Advisory Council.

The seven hours of discussion were provocative as divergent perspectives were offered by the 15 participating panelists, as well as the public. As a general statement, policy positions were sharply divided between pro and con bottle deposit legislation.

PAC Analysis and Recommendations: The following are the recommendations regarding the question of potential New Jersey bottle deposit legislation. The PAC discussed findings from the bottle redemption public meeting for consideration of inclusion into the second-year report, however no consensus was reached.

Bottle Redemption: As mentioned above, the PAC conducted a day-long public meeting on March 26, 2024, evaluate bottle redemption programs. While the public meeting and PAC deliberations did not result in a clear consensus with respect to a bottle redemption program in New Jersey, several important points were identified, are highlighted below and detailed in Section 3 below.

The PAC learned that any future consideration of a bottle deposit legislation in New Jersey would need to address several points:

- The Clean Communities program is funded by an existing tax on various litter-producing items including beverage cans and bottles. The money collected from this tax goes primarily to municipalities and counties and is used for litter abatement activities, education, and enforcement. Any bottle deposit legislation would need to account for and address this loss of revenue and the impact on related activities.
- Similarly, the State Municipal Tonnage Grants Program is funded through a tax on disposal, and generated funds are used to support recycling activities. Sixty percent of the funds are sent back to municipalities in the form of tonnage grants based on the amount of documented recycling reported to the State by towns and including information from recycling processing facilities. With bottle deposit legislation, the origin of the recycled bottles and cans will be lost, which will affect the amount of revenue municipalities receive to administer their recycling programs. Any bottle deposit legislation would need to account for this loss of revenue and the impact on related activities.
- Bottle deposit legislation would take away certain high-value items from curbside recycling programs, likely most aluminum cans and PET plastic bottles. Since potentially a large portion of bottles and cans would no longer be going to local recycling processors, there could be a significant loss of revenue which would need to be accounted for so New Jersey's recycling infrastructure of processing facilities would remain viable.

- Environmental Justice (EJ) communities must be considered in the establishment of bottle deposit legislation. Redemption centers would need to be located in urban areas and population centers to ensure that residents have viable and sufficient opportunities to redeem deposits. The needs of the EJ communities should be considered in any discussion of potential bottle deposit legislation. Additionally, such a program could impact waste workers, both in formal and informal sectors, and these impacts also should be considered.
- Based on data from states with bottle deposit legislation, unclaimed deposits could potentially be near $100 million in New Jersey and could be used to address the issues above. But ultimately, if bottle deposit legislation were enacted, the Legislature would decide the fate of unclaimed deposits in NJ.

Instead of presenting a recommendation for or against establishment of a bottle redemption program in New Jersey, the PAC identified several short-term tasks to help inform this and future discussions related to the existing statewide recycling system:

- Data reporting should be enhanced from intermediate processing facilities (IPFs or MRFs) to capture out-bound (after processing) tonnages sent to market, by commodity, along with process residue (contamination) sent to disposal. This information is critical toward understanding how much inbound material is sent to market. Ideally this information should be obtained through voluntary coordination between DEP, ANJR and the existing MRFs, and independently verified if possible. If necessary, legislation or regulatory changes should be considered to obtain this information. It should be noted that outbound tonnage information is the goal, not the specific market destinations which is considered confidential;
- The commodity percentage breakdown assumptions used by the DEP to estimate single stream recycling metrics should be re-evaluated based on most current USEPA or other data sources of recycling composition and characterization;
- Attention should be refocused on recycling enforcement, especially in traditionally challenging locations like urban areas, high-rise housing and commercial/institutional establishments;
- The PAC Education Steering Committee should identify key messaging to make recycling simpler for the public and a funding mechanism identified toward establishing and maintaining an annual outreach campaign.
- The New Jersey legislature should consider a bill directing a public university to research existing bottle deposit legislation, study fiscal implications, environmental and community impacts, and evaluate societal responses to and participation in a bottle redemption program and its impact on curbside recycling, to provide data that could inform the bottle deposit legislation discussion.

The meeting panel and participants discussed and supported Extended Producer Responsibility (EPR) for packaging as an important legislative issue that could modify the existing recycling platform. Due to the complexity of such legislation, the PAC is not ready to support or not support an EPR bill until details are understood and considered (EPR is addressed below). While EPR goes beyond bottles and the potential scope of bottle deposit legislation, the PAC

may also obtain useful information to inform the question of bottle deposit legislation once a needs assessment, normally the first step in an EPR approach, is completed.

Policy Recommendations Regarding Chemical Recycling Technology

First-Year Report Reference: Issues surrounding chemical or advanced recycling were not included within any of the 20 OFAs identified by the PAC and were not discussed extensively in the first year of deliberations. However, reference was made within Section 3: Second-Year Workplan on page 63. More specifically it was determined that*: In light of the current nature of debate surrounding this technology, the PAC agreed to study Chemical Recycling as part of its second-year workplan toward developing recommendations to the DEP for consideration, particularly the technological feasibility and environmental impacts of plastic-to-plastic recycling.*

Background: As noted in the first-year report, *"New Jersey does not currently have any operating Chemical Recycling facilities, but the potential for using this technology has elicited strong and divergent views. Chemical Recycling facilities accept plastics for processing through technologies such as pyrolysis, hydrolysis or gasification to create energy or products such as lower grade fuels, Naphtha (used in chemical solvents) and other products. Some organizations, such as the American Chemistry Council and other business organizations, have asserted that these technologies are a form of recycling and needed to satisfy the feedstock requirements outlined in the Recycled Content Law S2515/A4676. It is particularly challenging for food and beverage companies to procure an adequate supply of recycled material that is appropriate for food contact use. Others, primarily in the environmental community, have great concern that Chemical Recycling is an unproven technology for which a net benefit in terms of carbon footprint is not yet able to be determined, and that this technology represents a true environmental threat, particularly to environmental justice communities, will further plastic pollution and does not represent any form of recycling."*

Chemical or advanced recycling, sometimes also known as molecular or tertiary recycling, is the use of heat or chemicals (or both) to break down the polymer chains (depolymerization) of post-consumer plastic waste into energy, fuel, or petrochemicals or in few cases, polymers. The degradation of polymers and plastic resins into basic monomers and oligomers can be done through thermochemical, solvolysis, or biochemical reactions. Chemical recycling may provide a use for plastic waste that is otherwise unfit for mechanical (secondary) recycling. Pyrolysis and gasification are the most mature chemical recycling processes being implemented at larger scales. Solvent driven methods (solvolysis) such as glycolysis, hydrolysis, and methanolysis remain in development with potentially greater environmental impact and less promising financial feasibility. Currently, the only scaled thermochemical plastic waste facilities in the United States utilize pyrolysis. Two domestic plastic waste operators utilize non-thermochemical processes including methanolysis and dissolution.

Public Policy Considerations: The debate surrounding chemical recycling publicly began in New Jersey with proposed legislation introduced June 1, 2021, as A5803, which was reintroduced as

A2772 in the 2024/25 legislative session. In summary, the bill proposed to: *"Exempt certain plastic materials processed at advanced plastic processing facilities from State laws regulating solid waste disposal and recycling."* More specifically, the proposed legislation provided that: *"an advanced plastic processing facility shall not be subject to the provisions of any State law regulating recycling or the disposal of solid waste, including, but not limited to, the "Solid Waste Management Act," P.L.1970, c.39 (C.13:1E-1 et seq.) and the "New Jersey Statewide Mandatory Source Separation and Recycling Act," P.L.1987, c.102 (C.13:1E-99.11 et al.), or any rules or regulations adopted pursuant thereto. However, an advanced plastic processing facility shall be subject to all other applicable State and federal laws, including, but not limited to, those regulating land use, air pollution, and water pollution."*

A1759 was referred to the Assembly Environment and Solid Waste Committee on January 11, 2022. However, the measure was not posted for discussion in the 2022/23 session and no Senate counterpart has been introduced at this time. Despite not advancing in the legislature, the bill resulted in a number of public policy questions which the PAC and DEP reviewed as part of its second-year workplan. Since no chemical recycling facility has been permitted or constructed in New Jersey, the threshold questions are:

- Under current law, how will the DEP regulate any applications toward permitting a chemical recycling facility?
- Can the process of chemical recycling (most notably pyrolysis or gasification technology) be considered a recycling activity, as opposed to a solid waste activity?
- Would a proposed chemical recycling process be considered a manufacturing activity where a manufacturer's exemption from solid waste permitting and recycling regulation may be applicable?
- Can outputs from pyrolysis and gasification processes be considered postconsumer recycled content within the context of the New Jersey Recycled Content Law N.J.S.A. 13:1E-99.135-157 which became effective on January 18, 2024.

To review these public policy questions, the DEP Division of Sustainable Waste Management researched chemical recycling and engaged the services of the DEP Division of Science and Research to assist with technical review. The PAC also heard a presentation regarding an October 2023 report written by the International Pollutants Elimination Network and Beyond Plastics/Bennington College entitled *"Chemical Recycling: A Dangerous Deception – Why Chemical Recycling Won't Solve the Plastic Pollution Problem."* This report was also made available to the DEP: Chemical Recycling: A Dangerous Deception – Why Chemical Recycling Won't Solve The Plastic Pollution Problem.

DEP Determination: After considerable review, DEP released a "Frequently Asked Question" (FAQ) on its website in December 2023 which answers the above noted public policy questions related to implementation of the New Jersey Recycled Content Law. The FAQ is presented here in its entirety:

"6. Q: Are products/outputs from "advanced recycling" considered "postconsumer recycled content" to meet the recycled content mandates in the Law? *NEW FAQ*

Common forms of "advanced recycling" include processes such as pyrolysis and gasification. Pursuant to New Jersey's solid waste regulations, facilities that use pyrolysis or gasification processes to break down plastics are considered "thermal destruction facilities" which are regulated as solid waste and not recycling facilities. [N.J.A.C. 7:26-1.1] As such, NJDEP does not consider the outputs from pyrolysis and gasification processes to be "postconsumer recycled content." Therefore, plastic beverage containers and rigid plastic containers that are sold or offered for sale in the state cannot include feedstock from pyrolysis or gasification processes towards the recycled content mandates as of January 18, 2024.

Feedstock generated from other forms of "advanced recycling" such as solvolysis and dissolution are also not considered "postconsumer recycled content" at this time. However, any such technologies that convert plastics to plastics (excluding plastics-to-fuel which is not considered "recycling") may be documented and provided to the NJDEP for review and consideration."

The language in this FAQ does not allow plastic recycled via pyrolysis or gasification to count toward postconsumer recycled content. It does, however, allow further consideration of plastics-to-plastics processes, with additional information and analysis. The PAC concurs with the DEP's determination and FAQ. This and other questions regarding how plastics made via advanced or chemical recycling in other states comply with the law will be addressed by DEP through implementation of the law.

Recommendations for Executive Action to Promote Waste Reduction at Public Facilities

First-Year Report Reference: OFA #13 of the first-year report called for "promoting waste reduction at all public facilities and consideration of a new Executive Action." Government can be a key player in driving the success of waste reduction and recycling through leadership by example, by implementing aggressive state agency policies and programs and through procurement of products. The first-year report identified a number of specific actions to be considered though a new Executive Order or other action with the following elements to consider:

- State agency plastic waste reduction procurement strategies to limit the purchase of materials and supplies made from single-use plastics;
- The provision of water refilling stations at all State facilities to coincide with reductions in the sale of beverages sold in single-use plastic containers. This would include all State parks, forests, recreation areas, historic sites, marinas, sports venues, State colleges and universities and State office buildings. Single-use container reductions would be phased-in through the use of procurement specifications once existing contracts with vendors have expired;

- Steps needed to implement disposable-free dining of all food consumed within or sold from State-operated facilities through use of reusable, durable tableware;
- Requirements for zero waste events held at or by State agencies and other instrumentalities of the State including all State authorities and institutions, such as hospitals, prisons, colleges and universities. This would include meetings, conferences, celebrations and other public and recreational events.

Background: In its second year of work, the PAC sought to further identify creative waste reduction strategies applied in other states and jurisdictions and to begin framing a new opportunity for executive action.

Second-Year PAC Approach: Exploring leadership by example opportunities such as executive and/or administrative actions to prioritize waste reduction and material reuse by governmental entities was discussed further by the PAC Public Policy Committee, which coordinated an external workgroup and stakeholder discussion to gain input on this topic. Some 35 state and national experts were invited to participate in a four-session stakeholder process as follows:

- January 9, 2024 – 10:00 a.m.– Noon: Disposal free dining, take-out dining and zero waste events;
- January 17, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in schools;
- February 8, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in businesses;
- February 21, 2024 – 10:00 a.m. – Noon: Plastics waste reduction in government facilities/municipalities

From these stakeholder discussions the PAC Public Policy Committee developed the principles provided below for the Governor's consideration.

Principle on Waste Reduction and Material Reuse for Consideration:

Each State agency and instrumentality shall:

1. Appoint a coordinator from the agency to work with the Division of Purchase and Property in the Department of Treasury (hereinafter "Division of Purchase and Property") and the Division of Sustainable Waste Management in the Department of Environmental Protection (hereinafter "Division of Sustainable Waste Management") to study and implement waste reduction, reuse and refill opportunities within the agency or instrumentality.

2. Cease the purchase of any single-use plastic container, including water, juice, soft drink or alcoholic beverage container by a date certain, provided the alternative product packaging can be obtained by procurement of reasonably priced alternatives.

3. Cease the purchase of any single-use plastic utensils, cups, plates and straws used in any food service operation, including those used at State-owned public facilities, such as

hospitals, prisons, stadiums, sports arenas, parks, marinas and racetracks by a date certain, provided the reusable and refillable products can be obtained by procurement of reasonably priced alternatives.

Except as otherwise provided by law, the Division of Purchase and Property, in consultation with the Division of Solid Waste Management, could have discretion and authority to modify the procurement rate guidelines established pursuant to 2. and 3. above in consideration of price preferences for alternatives to single-use materials and in the best interest of the State.

4. Conduct zero waste events following the development and issuance of guidance from the Division of Sustainable Waste Management and Division of Purchase and Property.

5. Administer disposal free dining services following the development and issuance of guidance from the Division of Sustainable Waste Management and Division of Purchase and Property.

6. Review and modify all bid and product specifications under the State agency or instrumentality's authority to ensure that such specifications comply with these principles.

7. Require government contractors and grantees, where permissible by law, to conform to these same principles. To monitor conformance to these requirements, State agencies instrumentalities could further require contractors and grantees to submit compliance reports to the State agency or instrumentality.

The Division of Sustainable Waste Management and the Division of Purchase and Property shall collaborate to:

a. Develop detailed guidance on conducting zero waste events pursuant to Section 4. above;

b. Develop detailed guidance on administering disposal free dining services pursuant to Section 5. above;

c. Prepare an inventory of all State-owned buildings, including those housing any and all authorities and other instrumentalities of the State;

d. Estimate the costs of installing refillable water stations in all State-owned buildings;

e. Propose a five-year implementation schedule to retrofit all State-owned buildings with water refilling stations;

f. Evaluate opportunities and issue guidance regarding environmentally preferred purchasing to advance toxicity reduction, recycling and waste reduction in the areas of: Green cleaning

and personal products; Motorized equipment used for cleaning and maintenance inside buildings; and Green maintenance, fuels and materials, including: propane maintenance, bio-diesel fuels, emergency exit lighting, oils and lubricants, paints, paper products (toilet and towels), rechargeable batteries, recycled plastic and rubber products, trash bags and toner/printer cartridges;

g. Provide technical assistance to State agency coordinators to develop and implement the principles described herein, in consultation with the Division of Purchase and Property in the Department of the Treasury.

h. Assist other agencies and instrumentalities in the development and implementation of educational programs for the procurement of recycled products in consultation with the Division of Purchase and Property.

Developing a Plastic Waste Reduction and Recycling Strategy for Schools

First-Year Report Reference: Schools are ideal for advancing public policy objectives either on an individual school or school district level. OFA #14 of the first-year report called for developing a plastic waste reduction and recycling strategy for schools on pages 50 and 51. The existing platform of the Sustainable Jersey for Schools (SJS) Program was identified as the primary vehicle to advance such strategies. Focus areas identified were:

- Plastic waste reduction procurement strategies to limit the purchase of materials and supplies made from single-use plastics;
- The provision of water refilling stations to reduce dependence on single-use water bottles and other plastic beverage containers;
- Installation of dispensing stations for cold beverages in school cafeterias;
- Steps needed to implement disposable-free dining through use of reusable, durable tableware and installation of dishwashing equipment in school cafeterias;
- Developing guidance on how to conduct zero waste events held at schools;
- Low-cost procedures for conducting waste audits toward understanding plastic waste generation and recycling in schools; and
- Methods of funding the above-referenced actions to reduce and recycle plastics.

Background: As part of its second-year workplan, the PAC recommended collaboration with Sustainable Jersey, the Association of New Jersey Recyclers, New Jersey Schools Boards Association, the New Jersey Education Association and other partners to review existing actions and help develop new actions to advance plastics waste reduction and recycling in schools. New Jersey has approximately 2,500 K-12 public schools and nearly 600 school districts. This universe is substantially larger when private and charter schools are added in. New Jersey also has nearly 70 institutions of higher learning including public colleges and universities (11), private colleges and universities (14), community colleges (18), for-profit institutions (9) and religious institutions (15). New Jersey has a robust voluntary platform in place to advance sustainability through the

Sustainable Jersey for Schools (SJS) program. As of January 2024, 390 school districts and 1,169 individual schools are registered and participating in this certification program. This represents 67% of the public-school districts in the state. SJS currently has 22 action areas or activity categories where schools can earn points toward certification. Several provide a platform to advance plastics waste reduction and recycling including Green Cleaning Equipment, Green Purchasing Policy, Access to Healthy Water in Schools, Waste Audit, Materials Reuse, and Recycling Non-Mandated Materials.

Second-Year PAC Approach – New SJS Actions: The SJS Program has 22 action areas, one of which has a targeted focus on "Waste Reduction and Recycling" in schools. Since the publication of the first-year report, SJS adopted three new actions to advance food waste reduction in New Jersey schools:

- Campaign To Reduce School Food Waste
- Food Service Training and Best Practices to Reduce Food Waste:
- Food Recovery - Share Tables and Donation

Campaign To Reduce School Food Waste Action: This action, made available to all participating schools in September 2023, requires schools to undertake a school-wide campaign to encourage students and staff to reduce the amount of waste (food, packaging, single-use utensils) generated during school lunch and/or breakfast. One element of the campaign is to plan for food and packaging waste reduction and increased recycling. Campaign options addressing waste reduction include:

- Reduce trash collected in the cafeteria. Record and compare amounts of trash collected in the cafeteria during the dates of the campaign. Display the results as the campaign progresses. Challenge the school to meet a goal or make it a competition between classes.
- Pack a Waste-Free Lunch: challenges are a great way to get the students who bring lunch from home more involved in waste-reduction campaigns. Students are encouraged to pack lunch with reusable containers and utensils. Other food scraps or single-use containers should be recyclable or compostable with the goal of nothing going to the landfill.
- Trayless Tuesdays, where paper bags or paper plates replace Styrofoam trays, can be implemented for students who buy lunch, if reusable trays or compostable trays are not feasible changes for the school.
- Prepare for the campaign by ensuring that the cafeteria has sufficient recycling bins that are visible, accessible, and well-labeled. Collection bins for composting, share tables, or food donation should also be visible and labeled. Determine how progress will be tracked: e.g. number of bags of trash marked on a wall chart at the end of each lunch period.
- Promote the campaign throughout the school and to families to explain the goals and how it will be run and to encourage participation. Use the school website, social media, school announcements, emails, posters in the school building, and articles in local media to get the word out.

Evaluation of Other New Potential Actions: Most Sustainable Jersey Action Areas are led by a Task Force made up of volunteers from government agencies, business and industry, nonprofit organizations, towns, counties, and schools. The Sustainable Jersey Waste Management Task Force created a Waste Reduction Subcommittee in cooperation with the PAC. This subcommittee began meeting in January 2024 and has evaluated opportunities for additional new actions in the Municipal and Schools programs. Members of the Task Force were also invited to sit-in and participate in the reuse and refill green business economy stakeholder discussions, one of which was dedicated to advancing waste reduction in schools. This stakeholder session was held on January 17, 2024. After its deliberations, the Task Force identified the following initial areas for consideration of new Municipal and Schools actions:

- **Banning the release of balloons** inflated with helium or other gases that are lighter than air, sky lanterns or other similar airborne devices. Balloons and other airborne devices result in plastic-based (latex) litter that is also harmful to wildlife;
- **Disposable-Free dining ordinance** ban where food consumed on-site must be served in reusable, durable tableware, businesses may charge for requested disposable take-away foodware, and disposable foodware must be free of certain toxic compounds used in manufacturing;
- **Zero Waste Events** Ordinance which requires the reuse of food service containers and utensils, waste prevention, and recycling at public events or large venues;

These initiatives are being combined into an SJS-initiated single-use plastics ban action as of April 2024. The goal of the Waste Reduction Subcommittee of the Task Force is to have actions made available to municipalities before the end of 2024, with refinements made to address waste reduction in schools thereafter.

Recommendations to Advance a Reuse and Refill Green Business Economy

First-Year Report Reference: OFA #17 of the first-year report addressed the topic of advancing a reuse and refill green business economy in New Jersey. At both the national and state level, Americans continually generate more waste, and although waste reduction is the highest objective in the waste management hierarchy, most efforts are focused predominately on recycling. Transitioning to a reuse and refill green business model is clearly the direction needed, especially with respect to reducing dependence on plastics. To support NJ's reuse and refill economy, and truly advance waste reduction, the PAC determined that comprehensive policies are needed with proper financial and regulatory incentives.

Background: Upstream Solutions is the national leader in supporting the concept of a Reuse Economy. In 2021, Upstream Solutions released a roadmap to build a Reuse Economy. Upstream Economy's assessment of the alarming nature of the current situation includes:

- Much of institutional and fast casual dining – and virtually all takeout and delivery – happens using disposable food-serviceware;

- Nearly 1 trillion disposable food service products are used each year in the U.S.;
- Nearly 9 million tons equals the total weight of all the disposables used – equivalent to the weight of 25 Empire State Buildings;
- $6 billion is spent annually by businesses and city governments on solid waste management costs attributable to disposable food packaging;
- Roughly 20 billion pieces of litter are from disposable food-service packaging;
- The use of disposables creates significant climate pollution, energy use, water consumption, resource extraction, waste generation, litter generation and plastic pollution.

The DEP and County Recycling Coordinators have long supported source reduction or waste reduction strategies. One of the many examples of such programs are Pay-As-You-Throw (PAYT) collection programs, intended to make homeowners more aware of their disposal practices and to incentivize both waste reduction and increased recycling. However, at present, the DEP reports that only eight New Jersey municipalities in four counties currently have PAYT programs operating. Green procurement has also been advocated, most notably through Executive Order No. 91 signed by Governor Jim Florio in 1993, but such programs have not been sustainable. The DEP does offer a source reduction link on the Division of Sustainable Waste Management website listing other reduction strategies which can be found here: Source Reduction.

The first-year report included several options that were considered in the second-year workplan, which were carried out through a series of stakeholder meetings and are presented below.

Reuse and Refill Stakeholder Process and Objectives: The Public Policy Committee of the PAC coordinated the creation and engagement of stakeholder discussions to gain valuable input toward developing future PAC opportunities for action. Some 35 State and national experts were invited to initially participate in a four-session stakeholder process as follows:

- January 9, 2024 – 10:00 a.m.– Noon: Disposal free dining, take-out dining and zero waste events;
- January 17, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in schools;
- February 8, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in businesses;
- February 21, 2024 – 10:00 a.m. – Noon: Plastics waste reduction in government facilities/municipalities

A Google Forms survey was sent to all participants to get input on the above topics. This input served to inform each session agenda.

- Briefly describe the issues in need of being addressed in this Focus Area from your experience.
- List the barriers that inhibit the deployment of needed strategies or programs? Please highlight public health concerns.
- Recommend a solution(s) and steps needed to overcome existing barriers?

The format of the stakeholder meetings was consistent as follows:

- 2-hour morning sessions were held from 10:00 a.m. – 12:00 a.m.;
- A short Power Point was used to introduce the discussion and to frame the input received from participating experts through the Google Forms survey;
- Experts then provided input during facilitated discussion;
- The proceedings were recorded, and all introductory Power Point presentations and other pertinent information related to the sessions, including the agendas and listings of speakers can be access here: NJDEP PAC Website

PAC Analysis and Recommendations: Each of the four stakeholder discussions were enormously informative. It was clear that a big-picture framework is necessary to seriously prioritize waste reduction, reuse, and refill concepts. As one participant noted, "we need to move beyond the perpetual pilot scale mentality and develop meaningful platforms at scale." After the stakeholder sessions the PAC Public Policy Committee drafted a series of recommendations which were presented to the full PAC for consideration. It should also be noted that the focus of stakeholder discussion was the reduction or elimination of single-use plastics. However, many of the following recommendations must go well beyond plastics toward establishment of a societal shift to reduction and reuse. It is also recognized that these recommendations represent both short and long-term strategies which can only be accomplished over a number of years. A critical beginning can be accomplished in 2024 with the creation of the recommended PAC Waste Reduction Steering Committee. The following are the recommendations regarding specific steps needed to advance a reuse and refill green business economy in New Jersey:

- **PAC Waste Reduction Steering Committee:** The PAC has operated in its first two years under a committee structure. The PAC recommends that a Plastic Waste Reduction Steering Committee (WRSC) be formed in 2024 as an important structural step moving forward. The committee should have 15 – 20 members and operate in similar fashion to the PAC Education Steering Committee formed in late 2023. Membership should include:
  - PAC members who will chair the committee;
  - Expert non-profit representatives working in the waste reduction, reuse, refill space within New Jersey and nationally. Candidate organizations offered for consideration include Upstream Solutions, Reloop, Re:Dish, TerraCycle, GOATOTE, Helpsy and Zero Waste USA;
  - Association representatives from organizations such as: the Association of New Jersey Recyclers, the Sustainable Packaging Coalition, Sustainable Jersey and the Sustainable Business Council.
  - Government representative from the DEP, Department of the Treasury (for focus on green procurement), county and municipal government.

  The charge of the committee and meeting logistics should be developed by the Steering Committee in cooperation with the DEP.

- **Short-Term Focus Areas:** Many substantive recommendations were offered by participants in the above noted stakeholder sessions. After consideration, the following represents a first tier of focus areas for the PAC WRSC to consider addressing at their discretion:

  - **Education Platforms:** General awareness of the benefits and practical applications of reuse and refill strategies were identified as a major barrier. Development of a Reuse and Refill Toolkit should be considered.

  - **Reuse Business Registry:** It would be helpful to establish a registry or inventory of existing New Jersey businesses operating in the reuse space. Examples for inclusion are reuse stores like those managed by Goodwill Industries, companies that collect textiles, such as the Salvation Army and Helpsy, counties/towns/schools which host reusable bag drop-off and Repair Café programs, specialty companies like TerraCycle and Second Chance Toys. The Department of State Business Action Center (BAC) was very helpful with the implementation of the Get Past Plastic Law by providing a dedicated website to assist businesses in complying with the law: NJBAC Assistance. A similar link could be used to bolster the growth of reuse stores in New Jersey.

  - **Model Reuse Municipal Ordinance:** Decades ago, the DEP adopted and widely distributed model ordinances for municipal recycling and for managing construction waste through Construction, Renovation and Demolition Debris Recovery Plans tied to the issuance of building permits: NJDEP Municipal Ordinance Model. A similar reuse and refill ordinance for consideration by municipal governments should be considered.

  - **Clarifying Public Health and Safety Requirements:** In each reuse and refill stakeholder discussion, public health considerations were brought up as a barrier to reuse. DOH participated in these discussions and was very helpful in providing baseline information on what can and cannot be done to foster reuse and refill platforms. Current regulations at N.J.A.C. 8:24-3.3(p) provide for the refilling of returnable containers – (please refer to these regulations for the specific legal language). In general:

    - A take-home food container cannot be refilled with a potentially hazardous food;
    - Must be cleaned in line with very rigorous standards;
    - Personal beverage containers can be refilled provided specific conditions are met;
    - Consumer-owned containers that are not food-specific may be filled at a water dispenser.

    As a first step to advance evolving reuse and refill platforms, it is recommended that the PAC WRSC work with the DOH to develop plain language guidance, in both English and Spanish, to explain what can and cannot be done under existing health laws. Existing regulatory language is understandably legal in nature and very difficult to understand, particularly the cleaning standards under N.J.A.C. 8:24-4.6. Before effective

consideration can be given to changes in law to advance reuse and refill, it is critical for those not familiar with the health code to understand the rules.

- **Product Packaging Stewardship Act and Reuse:** The State legislature is currently considering product packaging stewardship or extended producer responsibility legislation. In the current draft, requirements placed on manufacturers in their Packaging Product Stewardship Plans under A2094/S208 include the following:
  - Increase the post-consumer content in packaging products and reduce the amount of waste generated from discarded packaging products;
  - Prioritize and promote the reuse and recycling of discarded packaging products;
  - Reduce, through product design modifications and program innovation, the amount of material that is used for each packaging product and the amount of waste resulting from use of each packaging product;
  - Facilitate the reuse of discarded packaging products for alternate second-life purposes.

As currently written, the reuse language included within A2094/S208 is very general and should be strengthened and should include the conduct of a Needs Assessment.

- **Longer Term Considerations:** The following concepts emerged from stakeholder discussion which are more structural and logistically/politically complex for consideration in the longer term:

  - **Reuse Collaborative:** The PAC recommends study by the steering committee of the potential and benefit of creating a New Jersey Reuse Collaborative which would have a more targeted implementation focus. Upstream Solutions is a nonprofit operating across the United States and Canada which currently offers various collaborative forums for consideration: https://upstreamsolutions.org/join. An excellent international model for consideration exists in France and should be studied for potential replication. Background on the existing French collaborative can be found here: Reuse Collaborative Model - France. In addition to government and NGO participation, membership in the collaborative should consider more of a sector representation format including manufacturing/national brands, the food industry, the clothing industry, healthcare, the pharmaceutical industry, large retail stores, and sports and entertainment.

  - **New Jersey Waste Reduction Act:** In the longer term, consideration could be given to developing the basic framework of a New Jersey Waste Reduction Act. This legislation could amend the New Jersey Solid Waste Management Act and directionally represent a long overdue new chapter in Statewide sustainable waste management planning toward institutionalizing a circular economy. The initial focus in the late 1970s was municipal solid waste planning, followed in subsequent years, directionally by litter abatement (Clean Communities Program), mandatory recycling, consumer electronics, and, most

recently a focus on food recovery. Extended producer responsibility legislation, taxing linear products, right to repair legislation, and continuing to support recycled content are ways to support a circular economy in New Jersey. Research into other states' and countries' laws and policies could inform the framework for potential policies and regulations in New Jersey.

- **Targeted Reduction Goalsetting:** A related focus could be the development of aspirational numeric reduction targets to be embodied within the New Jersey Waste Reduction Act. Historically, the Statewide Solid Waste Management Plan Update of 1993 established recycling goals of 60% of the total waste stream and 50% of the municipal waste stream. More recently in 2017, P.L. 2017 c.136, commonly referred to as the New Jersey Food Waste Reduction Act, established a goal of reducing food waste by 50% by 2030. In like fashion, waste reduction targets could be established as aspirational goals to track waste generation numbers with monitoring through the existing data management system administered by the DEP.

- **A New Chapter of State and County Planning**: Once the framework of a statewide waste reduction and reuse platform is established legislatively or through DEP policy direction, a new chapter of county planning could be undertaken. An earlier consideration framed the development of a New Jersey Waste Reduction Act with formal mandates from the legislature. An alternative approach would be an update to the Statewide Solid Waste Management Plan concepts, launched through guidance from the DEP. Said guidance would be used to integrate the 21 county planning agencies and authorities to plan for waste reduction, reuse, and refill. Amendments to county plans can be accomplished through either formal county plan amendments or administrative actions outlined at N.J.A.C. 7:26-6.11. An excellent model for consideration was recently adopted as the "New York State Solid Waste Management Plan: Building the Circular Economy Through Sustainable Materials Management (2023 - 2032)." A link to this plan can be found here: NY State Solid Waste Management Plan.

- **Reuse Funding**: Currently, the Climate Pollution Reduction Grant (CPRG) program is being administered under a nationwide, two-phase EPA grant funded initiative via the Inflation Reduction Act. Phase One involves $250 Million in noncompetitive planning grants to states, local governments, tribes, and territories to develop and implement climate action plans for reducing greenhouse gas emissions and other harmful air pollution. New Jersey received a $3 million CPRG planning grant. Phase Two, nationally, represents a $4.6 billion competitive implementation grant opportunity to carry out the greenhouse gas reduction measures proposed in the climate action plans.

The PAC recommends that the DEP recognize reuse toward advancement of a circular economy as an eligible category in their request to EPA for Phase Two competitive grant funding. It is further recommended that pilot reuse projects be developed in cooperation with municipal governments working in close cooperation with the private sector. Targeted consideration should be given to projects that build-out dishwashing infrastructure in the

food sector (restaurants, schools, business cafeterias) as well as the purchase of reusable plates, cups and flatware to demonstrate the benefits and feasibility of single-use plastics reduction.

Simplifying Recycling: Uniform List of Mandatory Curbside Recycling

First-Year Report Reference: OFA #18 of the first-year report on pages 55 and 56 addressed the topic of standardizing a uniform list of curbside materials required for recycling. Of note, since passage of the Mandatory Recycling Act in 1987, each county has been empowered to designate what specific materials are required for recycling by every resident, business, institution, and industrial facility located in the county (no generator is exempt under the law).While there is significant similarity in the county lists of required materials for recycling, it is accurate to state that there are 21 different lists effective in New Jersey. In addition, each municipality may add other items to their required list of recyclables. This has led to confusion, elevated levels of wishful recycling and unprecedented contamination in the recycling stream.

The PAC proposed working with the DEP, the Association of New Jersey Recyclers (ANJR), counties, municipalities and the private sector as part of its second-year workplan to evaluate how other states and localities have addressed uniformity in mandatory recycling programs and which materials have been included/excluded.

Background: New Jersey has had mandatory recycling since 1987. However, the list of items to be recycled curbside varies by county and municipality. Material lists by county are all similar and, in nearly all cases, 12 standard materials are required to be recycled. These include:

- Office Paper
- Aluminum Cans
- Steel Containers
- Corrugated Cardboard
- Glass Containers
- Leaves
- Newsprint
- Magazines
- Mixed Paper
- #1 Plastic (PET)
- #2 Plastic (HDPE)
- #5 Plastic (PP)

From a plastics standpoint, contamination of the recycling stream is associated with #3 through #7 plastic, and most notably #5, polypropylene, which at the homeowner level includes such items as bottles, jars, yogurt containers, hot beverage cups, and food packaging. The standardization question is not, however, limited to just plastics, but all curbside collected materials.

Existing laws in other States: The Oregon model, embodied in OR Senate Bill 582, required the Oregon Environmental Quality Commission (OEQC) to identify three lists of materials via a rulemaking process. The requirement is a small portion of the Extended Producer Responsibility bill. The first list is a statewide collection recycling list, which are materials that local governments are required to provide an opportunity to recycle. This can include curbside and drop-off programs. The second list is the uniform statewide collection list, which are the items that are allowed to be collected commingled by each government. Governments are not allowed to accept other items in the commingled bins that are not on the uniform statewide list. The third list includes covered products of which a producer responsibility organization must provide for the collection through recycling depot or mobile collection events.

As part of their process, the OEQC created a technical workgroup which met over a six-month period to initially establish criteria for the inclusion of materials on the various lists and then to select candidate materials. The ODEQ also commissioned a study on the cost implications and environmental impacts of the various materials under consideration. The criteria for list inclusion and the list ultimately selected for municipality responsibility for curbside collection are available for review and may be helpful for New Jersey to consider.

Beyond the Oregon program, the California Statewide Commission on Recycling Markets and Curbside Recycling recommended the State create a CA Statewide Recyclable list in their report here - https://www2.calrecycle.ca.gov/Docs/Web/121911

In 2017, the Connecticut Department of Energy and Environmental Protection (DEEP) adopted recycling rules that standardized the materials list across the entire state. A What's In, What's Out outreach campaign is used to get the word out. This model was essentially voluntary across the state as part of an education campaign. The list does not represent a legislative or regulatory mandate.

Uniform List of Statewide Curbside Materials Required for Recycling Stakeholder Process:
On December 4, 2023, and February 15, 2024, ANJR hosted stakeholder discussions to gain input and perspectives on the standardization question from ANJR and PAC members. A fillable PDF survey was used to get input prior to the stakeholder discussion. An introductory Power Point presentation was used to begin discussion and provide relevant background. Survey results were also summarized. In open discussion, the following core questions were discussed were debated:

- Do the positives of a uniform Statewide list of required curbside materials outweigh the negatives --- should we have a statewide list?

- If so, how should the list of materials be developed?
    - What process? (Law, regulation, guidance)
    - What stakeholders?
    - How often should that material list be re-evaluated?
    - Consequences for not following the list?

During stakeholder discussion, it was determined that additional baseline information was essential to help inform any public policy recommendation or decision regarding a uniform statewide list. Discussion centered on a Colorado Needs Assessment report issued very recently in January 2024 (an Executive Summary of this report can be found here: https://oitco.hylandcloud.com/cdphermpop/docpop/docpop.aspx). As background, in June 2022, Colorado's Governor signed an extended producer responsibility (EPR) law (House Bill 22-1355) that requires producers of packaging and paper products to fund and implement a program for statewide recycling. Under this law, the Colorado Department of Public Health and Environment was named as the Producer Responsibility Organization (PRO) responsible for administering and implementing an EPR program. Independent third-party organizations, HDR and Eunomia, were selected to carry out the Needs Assessment.

ANJR stakeholders found that the step-wise approach undertaken in the Colorado Needs Assessment was both logical and attractive. Element 8 of that report identifies two statewide lists for recycling. The minimum recyclables list includes materials that must be collected in a manner that is as convenient as the collection of solid waste. The additional materials list includes materials that may be collected in different geographic areas (urban, suburban and/or rural) through curbside services, drop-off centers, or other means. This may translate in New Jersey to the minimum recyclables list serving as a uniform Statewide list of materials required for recycling under the New Jersey Mandatory Source Separation and Recycling Act. Or this uniform list could be based on resin types that are most readily recyclable and have a developed market, such as #1, #2 and #5.

The additional materials list would be left to the discretion of the 21 County Solid Waste Management Districts as designated in their County Recycling Plans [Please reference pages 24 through 26 of the Colorado Needs Assessment Executive Summary through the link provided above to view the 27 specific materials contained in their minimum recyclables list (Table 11) and 14 materials included on the additional materials list (Table 12)].

Approach Toward Future Recommendations: The PAC supports the approach recommended by ANJR to take the following short-term approach to gain necessary baseline information prior to making policy recommendations, which the PAC would consider in the future, and which could inform a Needs Assessment required under the proposed Product Packaging Stewardship Act (A2094/S208).

- A survey will be prepared and distributed to the 21 County Recycling Coordinators to summarize what materials are currently accepted for curbside recycling through either single stream or dual stream programs or for drop-off in towns that have no curbside collection;
- The survey will utilize the minimum recyclables list developed by Colorado from their Needs Assessment noted above, similar work done in Oregon or a combination thereof;
- A second survey will be prepared and distributed to the 23 Intermediate Processing Facilities (or Materials Recovery Facilities - MRFs) currently operating in New Jersey to do a cross check of what materials these facilities currently accept for processing;

- Officials from Recycling Coach, who participated in the stakeholder discussions, also agreed to provide a summary of materials accepted for recycling at the municipal level for those subscribing to their mobile app as another tool for cross-reference;
- Analysis will be performed of the results toward developing one proposed Statewide list of minimum materials required for recycling and a second list of additional discretionary materials;
- Once the baseline analysis is completed, ANJR will finalize its position on which implementation strategy is most appropriate. The two basic options are to codify the statewide list(s) through amendments to the New Jersey Recycling Enhancement Act (Colorado and Oregon models) or through a voluntary approach (Connecticut and Massachusetts models). The strong initial view from ANJR is to pursue a voluntary approach coupled with an ongoing statewide public education focus. This is preferred from a timing and flexibility standpoint when compared a legislative or regulatory approach.
- ANJR has agreed to include PAC members in their discussions toward arriving at consensus recommendations moving forward;
- The timeframe anticipated to perform the above analysis is during calendar year 2024.

Policy recommendations on the "Product Packaging Stewardship Act" (A2094/S208)

First-Year Report Opportunity for Action: Extended Producer Responsibility (EPR) for packaging was addressed in the first-year report as OFA #15 (pages 51 and 52). Some of the background from the first-year report is repeated below as background for context and has been updated following review over the past year.

Background: The next frontier in materials management public policy is "extended producer responsibility" (EPR) where producers (manufacturers) take responsibility for the packaging they produce once the packaging enters the waste stream. EPR shifts the economic burden of the cost of materials management from the government to the producer of the product. Introduction of EPR for hard to recycle plastic throughout New Jersey can increase the effectiveness of existing recycling programs. EPR is expected to support the plastics recycling market and increase the amount of money generated for recycling which could then, in turn, be available to partially substitute and support equipment upgrades at processing facilities. New technologies including robotics and optical sorters increase the amount and variety of material that recycling facilities can take in and improve separation efficiency and marketability. The proposed EPR legislation in New Jersey, Bill A2094/S208 which had been introduced in the previous legislative session as A1444/S426, requires producers of packaging products sold in New Jersey to adopt and implement packaging product stewardship plans.

Existing EPR Laws in Other States:

The states of Maine, Minnesota, Oregon, California, and Colorado have adopted EPR for packaging laws, none of which have yet reached the full implementation phase. As of January 29, 2024, the state of Colorado published their draft needs assessment results.

2024 Pending EPR Laws in Other States:

The states of Washington, New York, Rhode Island, and New Hampshire currently have proposed EPR legislation. Both the Washington bill WA HB 2049 and the New York bills S.4246A - NY S4246A and NY A5322A are in Committee. The bills in the states of Minnesota MN SF4518, Tennessee TN HB0550, Massachusetts MA S471, Rhode Island RI H7023, and New Hampshire NH HB 130 have been introduced.

For a table comparing components of the EPR laws in different states as of the date of this report, see Appendix D.

Needs Assessment in Other States

A needs assessment is used to determine the resources, infrastructure and other elements required to successfully implement an EPR program. It is important for a needs assessment to be completed before an EPR program is fully implemented, as it will provide insight into recycling, waste management, and end-of-life processes, and inform and assist in meeting agency goals. The assessment will also be able to provide estimated costs for the implementation of the program. It is imperative to understand the gaps in New Jersey's system to have a reduction in and a more circular economy for the State's packaging waste.

Maryland passed SB 222 the Statewide Recycling Needs Assessment and Producer Responsibility for Packaging Materials. The assessment will include costs, benefits, and the environmental impact of implementing an EPR program. The needs assessment must be completed, and the results reported to legislatures by July 30, 2024. The needs assessment will inform how the waste management and recycling systems operate in the state. New York State began a needs assessment to collect information on the current operation of the recycling, composting, refill, and reuse systems across New York. The needs assessment will identify gaps and will make recommendations for how to reach the State's waste reduction goals. The initial needs assessment report is anticipated to be released by the end of 2024. This is not a law but is being funded by the state. In Colorado, the needs assessment recommends three scenarios by statute. There is a low, medium, and high scenario. The needs assessment evaluates collection services, materials collected, and investment in technology. Each scenario increases the recycling rate and recycling tonnage compared to 2022. The Colorado Department of Public Health and the Environment will recommend one of three scenarios to the legislature. The results of the needs assessment will determine goals and implementation of the EPR program.

PAC Analysis and Recommendations:

Provided below are topics to be considered in an EPR law for packaging, followed by specific comments on the current EPR bill, A2094/S208. Note that one PAC member was not in favor of recommending EPR legislation, and their dissenting opinion is recorded at the end of this section.

Needs Assessment: DEP should hire a third party to conduct a Needs Assessment. The Needs Assessment should determine New Jersey specific requirements, identify gaps between existing and ideal infrastructure and processes, outline the waste reduction and recycling, waste management, and end-of-life processes, and provide estimated costs for the implementation of the program.

The requirement for a Needs Assessment should be included in comprehensive EPR legislation. Full implementation of an EPR program, as outlined in the legislation, would incorporate the findings of the Needs Assessment. In order to expedite implementation of the EPR program, provisions within the EPR legislation that are independent from the Needs Assessment may move forward, as applicable, while the Needs Assessment is being completed.

Producer: A producer, to be defined by regulation and in consideration of different tiers of responsibility, should develop the stewardship plan either individually or as part of a group.

Producer Responsibility Organization (PRO): A nonprofit PRO should be allowed and authorized to manage a stewardship program, keeping all members in compliance, and fulfilling reporting obligations through all steps and participants in the life cycle of the packaging. Multiple PROs could be permitted, but a PRO coordinating body should be established to submit a coordination plan to the DEP. The PRO should be transparent regarding system costs, revenues, and fees, and ensure equitable treatment of all members.

Stewardship Plan: The Stewardship Plan should:

1. Outline how producers will provide and manage disposition of discarded packaging in an environmentally sound manner, using existing infrastructure to the greatest extent, and providing for associated costs.
2. Require establishment of measurable reduction and waste management targets through the PRO based on the needs assessment with DEP approval.
3. Include education and outreach to consumers to ensure high levels of participation in the program and inform the public about packaging reduction, recyclability, compostability, litter abatement, and contamination reduction.
4. Provide a fee structure that incentivizes design choices that reduce packaging, are recyclable, and increase use of recyclable content over choices that pose adverse environmental or public health impacts. This analysis should consider the entire life cycle of the packaging and environmental justice concerns.
5. Ensure producer fees set by the PRO are based on the cost to collect, transport, sort and process packaging materials as well as PRO management costs including government oversight and operational costs.

Annual Report: Reporting should exhibit transparency regarding money and material flows, how fees are structured to consider environmental benefit, and how the products' end-of-life costs are covered.

Financial and Material Best Practices: Best practices should be adhered to so that fees, budget, and material flow information is transparent and made available to the oversight agency.

Measurable Targets for Collection: The need for targets to address source reduction of recyclable and unrecyclable materials, recycling rates and dates, recycled content goals, should be stated in the legislation, and specific targets developed with input from producers and other stakeholders. These should be included in reporting obligations of all actors of the packaging life cycle.

Toxins: An EPR bill should address, with input from producers and other stakeholders, reduction and eventual phase out of certain toxic chemicals of concern.

Consumer Education: Information to and education of consumers should be funded through the producer or PRO. A uniform statewide collection list should be considered, to avoid confusion with the public on what can and cannot be recycled and to ensure focused effort by service providers to collect, sort and recycle highly recyclable materials. The covered material must be collected in a manner that is as convenient as the collection of solid waste.

Enforcement: Monitoring and enforcement of the program by government and other authorities should be at the expense of the producer/PRO. An EPR bill would represent a major change in a formerly unregulated arena. It is recommended that adequate new staff to carry out the program are assigned to the DEP.

Advisory Council: Consider development of a multi-stakeholder advisory council to provide recommendations to the PRO and the DEP on the stewardship plan with a third-party facilitator to convene and provide administrative support to the council.

A2094/S208 Specific Considerations

1. Recommend a needs assessment be completed prior to full implementation of the law.
2. Compostable should meet the ASTM standard specification for at-home compostability.
3. The performance goals for post-consumer recycled content should be consistent with the Recycled Content Law (P.L. 2021, c. 391) to limit confusion for producers. Environmental Justice Law should be part of the stewardship plan.
4. Automatic approval for plans within the timeframe should be removed or changed to conditionally approved.
5. Should include basic requirement for the fee structure implemented by the PRO on its members and require the PRO to report the fee structure to the DEP for review.
6. The requirement for the DEP to develop the financing system between participating producers and the counties and municipalities should be removed. The development of the financing system should be the responsibility of the PRO using a third-party auditor with DEP approval.

Dissenting Opinion regarding Extended Producer Responsibility Legislation

Charles Malaniak, a member of the New Jersey Plastics Advisory Council representing stores and food service businesses in the State, is not in agreement with the position of the PAC on the need for an EPR bill and was provided an opportunity to explain his position. It is presented here:

I am not in agreement with my colleagues regarding the need for EPR legislation. My concern is two-fold, first, consumers will bear all the financial responsibility of the EPR program because producers will pass along costs of the EPR program to consumers. Lastly, New Jersey will end up with a situation where a poorly planned and executed bill results in unintended consequences, such as the recycled content requirements which producers are struggling to implement. Changing packaging is a lengthy and complicated process that requires consideration of protecting the integrity and safety of the product and the environment simultaneously. Instead, I believe industry and government stakeholders should continue collaborating and come to consensus on developing measures to improve the current recycling framework in New Jersey.

Truth in Labeling

First-Year Report Opportunity for Action: The Truth in Labeling issue was addressed in the first-year report as OFA #16 (please see pages 52 and 53). Some of the background from the first-year report is repeated below as background for context and has been updated following review over the past year.

Background: Related to public education in recycling is the issue of claims made by manufacturers regarding the recyclability of products or packaging which remain an obstacle toward the achievement of statewide and county recycling goals. Confusion over what is and isn't recyclable is a critical issue that hampers curbside, drop-off, and multi-family recycling programs across every municipality in the state. Misleading use of the chasing arrows symbol on products also adds to this confusion. In this regard, Senator Fred Madden originally sponsored S2145, which was introduced in March of 2022. This type of legislation is commonly referred to as Truth in Labeling. Thereafter, Senator Bob Smith agreed to sponsor the bill. Senator Smith's sponsorship is now indicated on the legislature's website along with an identical version sponsored by Assemblyman Paul Moriarty in the Assembly as A1554. The language of the Senate bill has not changed since Senator Madden proposed the bill, which is pending as A2775/S224 in the current legislative session. Briefly, the bill would prohibit the sale, distribution, and import of certain products marketed as recyclable through display of the chasing arrows symbol surrounding a plastic resin identification code, unless DEP determines that products are widely recycled.

Existing and Proposed Truth in Labeling Laws in Other States: Legislation was enacted in the state of California in 2021 as Senate Bill 343 to address misleading or confusing claims made on products and packaging. This law does not become effective until 2026, thus providing for approximately a 5-year lead time to implementation. Other states, namely New York and Maryland,

have legislative proposals under currently consideration. The state of Oregon took a different approach and first created a Truth in Labeling Task Force to study the concept within the context of Oregon's existing solid waste and recycling system prior to advancing legislation. The Oregon Task Force report, generating specific recommendations, was released in June of 2022 and can be found here: Truth in Labeling. Available information from the state of Oregon Department of Environmental Quality website provides an update on Truth in Labeling legislative efforts nationally. As of 2021, 36 states require the resin identification code (RIC) and chasing arrows on plastic bottles, rigid plastic containers or both. In 2021, the number of states requiring the chasing arrows on rigid plastic containers saw its most dramatic changes in years. The state of Washington passed legislation to remove the requirement to have the chasing arrows symbol on plastic containers: Chapter 70A.455 RCW. Similarly, Oregon repealed provisions requiring the chasing arrows and Resin Identification Codes on plastic containers (OR SB 0582). In California (SB 343), unless a container meets statewide recyclability requirements, the use of the chasing arrows mark is prohibited as of 2025 (see SB343 Fact Sheet). Maine joined Oregon in passing an extended producer responsibility bill for packaging in 2021. While the Maine law does not have labeling changes or requirements, it allows for lower producer fees if "labeling of packaging material to reduce consumer confusion" is included on packaging.

Other notable labeling laws include:

- North Carolina (NC HB 315) and Alabama (AL SB 284) require "not recyclable, do not recycle" labels on biodegradable and compostable plastic products.
- New laws surrounding labeling non-flushable wipes are becoming more common as well. New Jersey recently passed legislation requiring labeling of non-flushable wipes (A-1948/S-3632). Additionally, Oregon (OR HB 2344), California (CA AB 818), and Washington (WA 2565-S) have recently passed flushable wipes labeling laws, as well.
- California has strict laws regulating the marketing and labeling of degradable plastic products, including those claimed to be "compostable" or "biodegradable." The law requires environmental marketing claims, whether explicit or implied, to be substantiated by competent and reliable clear scientific evidence for environmental claims (PRC Sections 42355-42358.5).

PAC Analysis and Recommendations

The PAC Legislative Committee was assigned responsibility for reviewing New Jersey's draft legislation formerly known as S2145/A1554, as well as the enacted California legislation and the other labeling laws referenced above. The PAC also agreed to collaborate on the study of Truth in Labeling laws with the Association of New Jersey Recyclers (ANJR).

ANJR started an initiative in November 2023 to implement recommendations made by the New Jersey Recycling Market Development Council in their final report dated April 2022 (Recycling Market Development Council Report) since the work of the Council has been completed and they have disbanded. ANJR began convening stakeholder meetings to evaluate, among other things, Truth in Labeling programs developed in other states. The focus is on legislative programs to

regulate recycling labeling, improve consistency among recycling markets, and reduce contamination and waste in recycling streams. PAC members participated in these discussions in collaboration with ANJR.

From its February 21, 2024, stakeholder meeting, ANJR devised an interim policy position regarding Truth in Labeling legislation and has opted for a measured approach. The State is in the earliest phases of implementing landmark Recycled Content legislation. The Product Packaging Stewardship Act (EPR legislation pending as A2094/S208) is also still in the discussion and debate phase of the legislative process. ANJR has observed that Truth in Labeling legislation has been adopted or is under discussion in states where EPR legislation has already been enacted and a uniform list of materials required for recycling adopted or proposed. This is most notably the case in California and Oregon and is evolving in Colorado following the recent publication of its EPR Needs Assessment.

ANJR believes an important first step toward Truth in Labeling is to move forward to ask the Legislature to repeal the requirement to use/display the chasing arrows symbol. Currently, the New Jersey Solid Waste Management Act provides:

13:1E-99.41. Material code labels on bottles, containers; required

a. On or after January 1, 1991, no person shall sell, offer for sale, or distribute any plastic bottle or plastic container in this State unless the bottle or container is labeled with a material code indicating the plastic resin used to produce the bottle or container.

Repeal of this section would represent a beginning toward Truth in Labeling reforms. At the same time, such a step would not prohibit the use of the chasing arrows symbol. The action would send an important signal to manufacturers, but not force widescale change in labeling requirements until New Jersey further implements its Recycled Content legislation and adopts EPR legislation. ANJR believes this would represent sound and measured public policy.

A second element identified by ANJR, which could be part of this legislative proposal, would involve providing a stable funding source to advance Statewide waste reduction and recycling public education, consistent with the PAC Education Steering Committee recommendations. This could involve an allocation from the State Recycling Fund established by the Recycling Enhancement Act, Section 5 of P.L.1981, c.278 (C.13:1E-96). In this regard, the Recycling Market Development Council recommended an annual sum of $250,000 to support a statewide public education campaign.

The PAC agrees with ANJR's recommendation that the Legislature consider removal of the statutory mandate requiring use of the chasing arrows symbols as a first step toward Truth in Labeling reforms. This would not prohibit the use of the chasing arrows symbol and would send an important signal to manufacturers without forcing widescale change in labeling requirements until other related legislative initiatives, such as EPR, are developed. Manufacturers should also be encouraged to adhere to the FTC Green Guides for claims regarding the recyclability of products.

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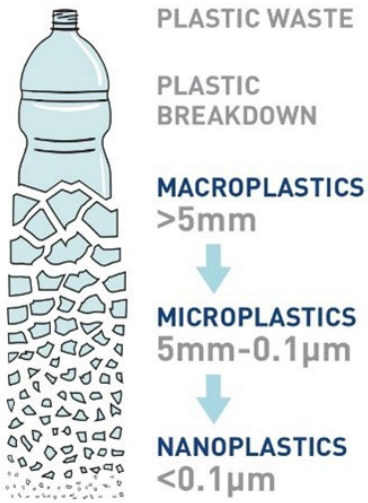
Appendix A

New Jersey Department of Environmental Protection
Science Advisory Board Summary of Final Report, April 2023
"Microplastics in the Aquatic Environment:
Sources, Occurrences, and Currently Known Risks"
And References Cited

***INTRODUCTION**



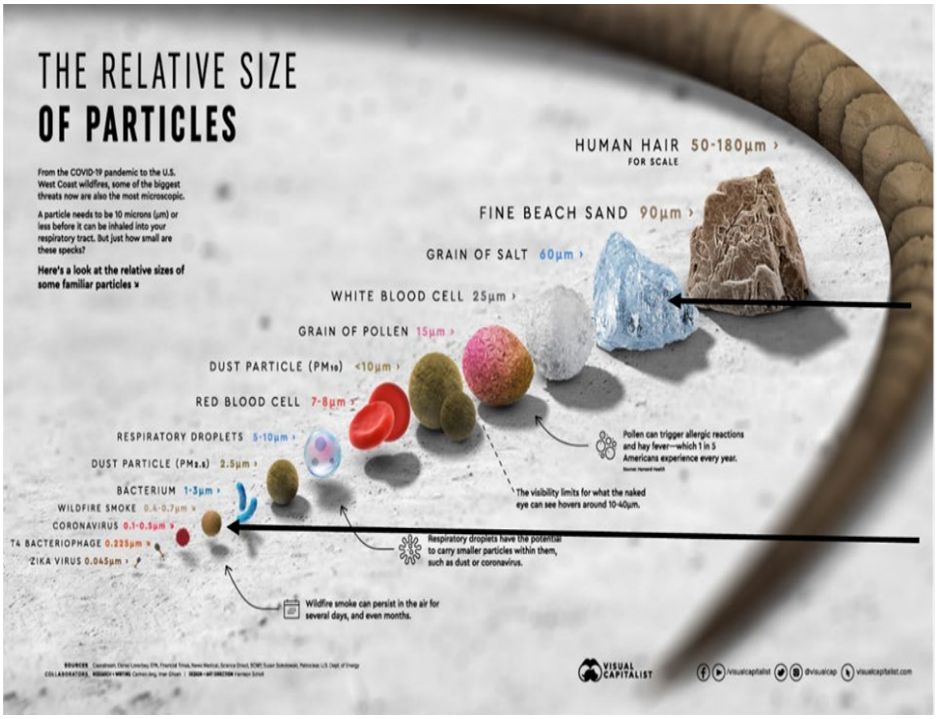
Macroplastics (single-use bags, Styrofoam containers, straws) are the focus of current New Jersey legislation. However, because plastic is relatively inert and does not easily degrade, when released into the environment, large and visible plastic items fragment, producing ever smaller particles that eventually reach millimeter and nanometer sizes. Microplastics and nanoplastics are now pervasive in the environment worldwide, and concentrations are escalating as the use and production of plastic products continues to increase. Microplastics have been found in human food and water sources, predominately seafood and bottled water. Evidence of these particles in human subjects has been demonstrated in recent small studies.

These microplastic and nanoplastic particles are the largest cause for concern with respect to human, animal/plant, and ecosystem health because their small size allows movement across cell membranes into living tissues. Addressing the production and disposal of both macroplastics and microplastics to prevent unintentional release into the environment is a critical step needed to stop the buildup of this invisible and potentially dangerous contamination.

SCIENTIFIC LITERATURE REVIEW

Link to the full NJDEP Science Advisory Board Report.

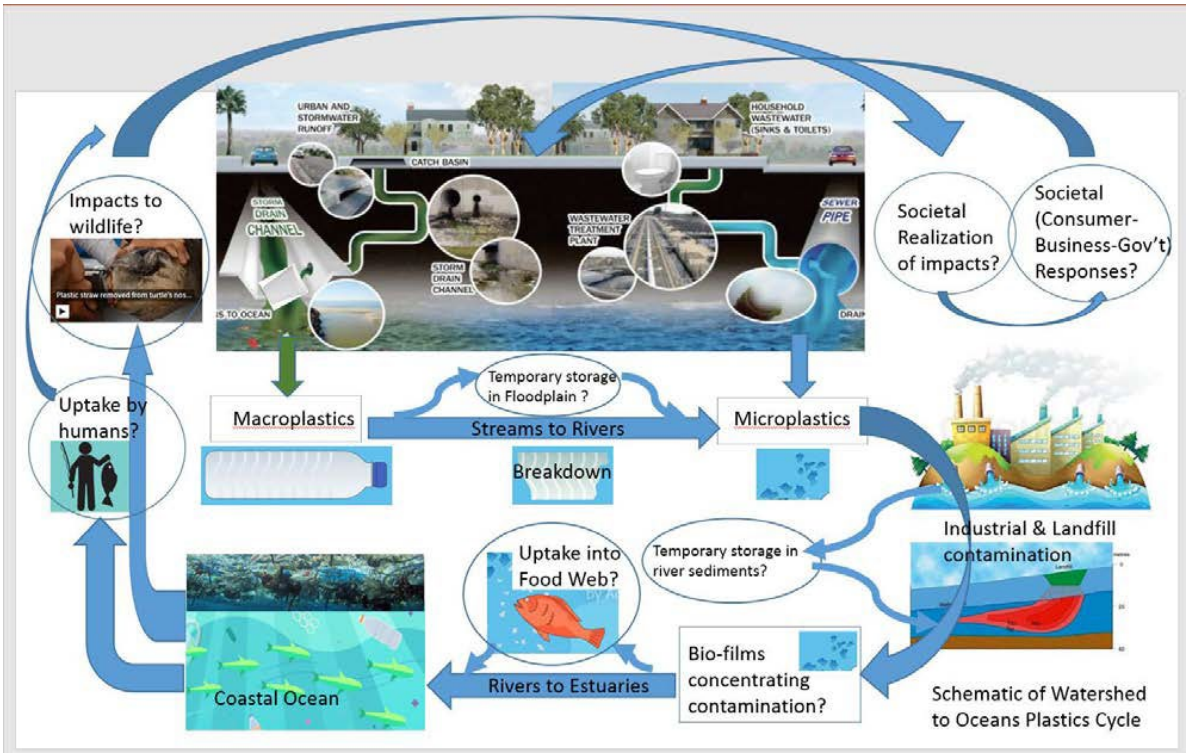
Plastics are composed of different chemical structures that affect their environmental effects and lifespans (Koelmans et al., 2022), which can range from 58 years (bottles) to 1,200 years (pipes). Particle size, shape, chemical composition and environmental concentrations determine plastic toxicity. Toxicity may also come from compounds that leach from plastics, including phthalates, dyes, or metals. As macroplastics weather in the environment, it fragments into smaller particles,



forming micro and nano sized particles. As more plastic debris enters waterways, the concentration of smaller particles increases over time. These smallest microplastics and nanoplastics (MNPs) can potentially cross biological barriers and enter living tissues. **Environment transport of plastic debris and theoretical exposures in human and non-human food webs.** *Credit: Rick Lathrop Rutgers School of Environmental and Biological Sciences.*

Evaluating the results of laboratory MNP research is challenging because there are often significant differences between laboratory conditions versus environmental circumstances. Differences (Bucci et al., 2020) include:

- Shape - fibers are often not captured in aquatic samples, but are most common in the environment; lab experiments often use spheres;
- Concentrations - environmental MNP concentrations used in less than 20% of lab studies;
- Size - 80% of experimental sizes are smaller than sizes from environmental samples;
- MNP condition - environmental MNPs are weathered and aged with attached biofilm and/or contaminants: lab studies commonly use virgin plastic.



Current estimates of environmental microplastic (MP) concentrations range from 1 ng/L water to 1 mg/L water (Lenz et al., 2016), although most lab studies use two to seven orders-of-magnitude higher concentrations. There is currently no scientific consensus regarding nanoplastic environmental concentrations. MP concentrations are higher in waters adjacent to large population

centers. Microfibers (MFs) are thought to predominately come from washing synthetic fabrics and roadway tire wear, moving in the environment via wastewater treatment processes and atmospheric deposition (Napper et al., 2023).

Plastic particle toxicity is dependent on chemical composition, size, shape, and concentrations (Kögel et al., 2020). Analytic capabilities are not currently adequate to address NPs in the beginning stages of formation, as larger plastic particles fragment in the environment. NPs more readily pass-through biological barriers and accumulate in organs, due to passive and active cell transport mechanisms dependent on particle size. The severity of toxic effects is due to a variety of factors, including polymer type and compounds associated with the plastic. Although NP environmental abundance, fate, and transport are not yet known, organic contaminant affinity for NPs can be much higher than that of MPs (Koelmans et al., 2022). All these factors are important in determining MNP environmental effects.

A large number of experimental studies show adverse MP effects on aquatic life. ***However, it is important to emphasize that there is a significant mismatch between types and concentrations of MPs in the majority of laboratory studies compared to those thought to be most abundant in the environment.*** Although currently a large number of studies deal with environmental effects of MPs on living organisms, there are serious concerns about the relevance of these studies to real world scenarios. Cunningham and Sigwart's (2019) review points to three issues: use of extremely high dosages, incompatible units of measurement, and the lack of experimental controls. They found 82% of exposures used "dramatically elevated" concentrations - extreme levels with no environmental relevance - and 5% did not use any control. Only 23 studies tested effects of environmentally realistic concentrations. Very few studies are able to measure the smallest MNPs. Based on current toxicity literature it appears that irregular plastic fragments produce the most activity followed by fibers.

EXAMPLES OF ENVIRONMENTAL NANOPLASTIC AND MICROPLASTIC EFFECTS

Aquatic species are diverse, and each type of organisms may respond differently to MNPs, based on their organs, physiology, and biology. Species eaten by humans (mollusks, crustaceans, fish) provide a direct pathway for aquatic microplastics or nanoplastics to enter human food chains.

Phytoplankton (plants) and Zooplankton (animals)

Plankton (microscopic algae, larval stages of crustacean and fish species) form the base of aquatic food chains. If the smallest MNPs affect the smallest organisms (phyto- and zoo-plankton), critical aquatic food webs could be disrupted, MNP pollution could be transferred to other species, or bioaccumulate MNPs in species that consume plankton. Microalgae biofouling can "camouflage" MPs in a potential food source and biofilm colonizers (cyanobacteria and dinoflagellates) create "hotspots" of these potentially toxic species.

At high concentrations, smaller sized MPs can impair photosynthesis, reduce growth and chlorophyl, and produce reactive oxygen species. Algal response to high MP exposures include reduced photosynthesis, oxidative stress, distorted and thickened cell walls (Mao et al., 2018); however, these cells returned to normal, photosynthesis and growth increased with no irreversible negative effects. Conversely, other studies have found no effects from MP exposure (Nava and

Leoni 2021). A review of 16 microalgae population studies concluded that current environmental MP concentrations produce limited or no toxic effects on growth, chlorophyll content, photosynthesis activity, or reactive oxygen species (Prata et al., 2019).

Inhibition of water flea (*Daphnia)* feeding and growth depend on size and shape of MP fragments (An et al., 2021), with irregular fragments decreasing mobility (Frydkjaer et al., 2017). In a multi-generational zooplankton study, chronic exposure to larger beads (6 µm) reduced fecundity but did not cause mortality; small beads (0.5 µm) caused mortality and a significant decrease in survival of later generations, suggesting nano and small micro sizes were more toxic (Lee et al., 2013). In two generation chronic exposure tests, nanobead concentrations 10^6 higher than freshwater concentrations and 10^2 higher than marine concentrations, reduced growth and chlorophyll concentrations in green algae (*Scenedesmus obliquus)*, and reduced body size and increased neonate malformations 68% in *Daphnia* (Besseling et al., 2014).

A few studies of MP exposure effects in natural zooplankton populations suggest MP bioaccumulation varies by species, with omnivore bioaccumulation greater than herbivore (Botterell et al., 2019). In copepods, chaetognaths, jellyfish, shrimp, and fish larvae fibers were the largest proportion (70%) of MPs, and 54 - 79% of total MPs were found in copepods (Sun et al., 2017). A subsequent study found 80% of ingested MPs were smaller than 330 µm (Sun et al., 2018). Conversely, Steer et al. (2017) found only ten fish larvae (2.9% of the 347 sampled) contained MPs.

MP ingestion by filter feeders differs in the number of plastic particles, ingested particle sizes and percent fibers (Desforges et al., 2015). Concentrations were inversely related to MP size, suggesting smaller sizes are more easily ingested. MPs in the 10-27 µm range reduced larvae size, growth, body length, head capsule size and emerging rate of adult freshwater midge larvae *(Chironomus tepperi)* exposed to environmentally relevant concentrations (Ziajahromi et al., 2018). Conversely, larval midges (*Chironomus riparius*) exposed to MFs in sediment exhibited no negative effects (Setyorini et al., 2021).

Polychaetes

If MP density is higher than waterbody density the MP sinks, concentrating MPs and exposing benthic organisms. Polychaetes have been shown to ingest MPs in muscle and other tissues, exhibiting alterations in amino acids, energy storage and osmoregulation (Missawi et al., 2022). ***This important finding demonstrated that under environmentally relevant sediment concentrations, alterations related to MPs can impact polychaete survival***. MP concentrations in sediment tube-dwelling polychaetes were orders of magnitude higher than MPs in surrounding sediments, and the MP composition differed; MPs were 6- to 11-fold higher in polychaete-produced tubes than in the animal's soft tissues (Knutsen et al., 2020). A review found sediment concentrations of 105-215 MPs/L (sized 250 µm to 4 mm); studies of smaller sizes (1.6 µm – 5mm) found 20 to 3320 MPs/L (van Cauwenberghe et al., 2015). Reduced feeding was the only effect observed when lugworms (*A. marina*) were exposed to MPs in sediment (Besseling et al., 2012). The concentration of MPs in spiked sediment directly affected the uptake of MPs and weight loss; reduced feeding was seen at a dose of 7.4% dry weight (Besseling et al., 2017).

Human Food Chain: Mollusks and Crustaceans and Fish

Clams exposed to MPs showed no effect on survival or burrowing behavior (Bour et al., 2018). Protein decreased after exposure to the largest MPS, as well as total energy related to MP dose. Asian clams (*Corbicula fluminea*) took up more fibers when exposed to higher concentrations and were more likely to take up smaller sized fibers (Li et al., 2019).

Mussels (*Mytilus galloprovincialis)* exposed to high concentrations of MFs exhibited reduced clearance rate, gill and digestive gland abnormalities, and increased DNA damage (Alnajar et al., 2021). Mussels *(Mytilus edulis*) fed plankton mixed with MFs had reduced filtration rates (Choi et al., 2021). Mussels (*Mytilus galloprovincialis*) exposed to MFs exhibited necrosis, DNA damage, and the reactive oxygen species, nitric oxide and acetylcholinesterase (AChE) (Woods et al., 2018). However, other studies saw no effects in mussels or *Ostrea edulis* oysters exposed to MPs (Green 2016; Goncalves et al., 2019).

Mole crabs (*Emerita analoga*) were exposed over two reproductive cycles with environmental concentrations of MFs based on local beach concentrations. Ingested MFs showed deleterious effects, including increased mortality and impaired embryo development (Horn et al., 2020). No effects on abundance, biomass, species richness, or community diversity were observed. Hermit crabs (*Pagurus bernhardus*) exposed to MPs took longer to find and enter an optimal shell than control crabs (Crump et al., 2020). MPs impaired information-gathering and processing, which are essential survival behaviors.

Only the highest MF concentrations decreased lobster (*Homarus americanus*) larval survival (Woods et al., 2020). Larvae and post-larvae accumulated MFs under the carapace, where trapped materials can change buoyancy and swimming ability. Oxygen consumption rates were reduced in later larval stages exposed to high MF concentrations.

Sea cucumbers (*Apostichopus japonicus)* were exposed to food mixed with MFs at environmentally relevant concentrations (Mohsen et al., 2021). Exposures did not affect growth or fecal production. However, acid and alkaline phosphatase activity were altered, and total antioxidant capacity was reduced in juveniles and adults.

Fish

Japanese medaka (*Oryzias latipes*) juveniles and reproductive adults were fed diets of microspheres (10 μm); no changes in mortality, behavior, or growth were seen and MPs were excreted after 3–4 days (Zhu et al., 2019). However, females had dose-dependent decreases in the number of eggs; tissue analysis showed spleen and kidney changes although no MPs were found in any organs. After very high exposure concentrations abnormalities were found, including pathologies in the gills (Hu et al., 2020). Adult medaka (*O. latipes*) exposed to MPs exhibited changes in estrogen receptor-mediated gene expression and testis histopathology, suggesting altered endocrine function (Rochman et al., 2014). Marine medaka exposed to smaller (2 and 10 μm) MPs had fibrosis and inflammation of the liver, while fish exposed to large (200 μm) PS (10 mg/L) had significantly increased body weight, fat cell size, and liver lipids (Zhang et al., 2021). Accelerated heart rate and

inhibited hatching were seen in zebrafish (*Danio rerio*) embryos after exposure to MPs and MFs (Cheng et al., 2021).

MPs may increase the risk of exposure to plastic-associated toxic compounds. Marine medaka *(O. melanostigma)* embryos were exposed to MPs spiked with toxic organic contaminants (Le Bihanic et al., 2020). MPs attached onto the egg outer membrane but did not penetrate it. Embryos exposed to virgin MPs showed no effects, but MPs with PFOS decreased fish survival and eggs did not hatch. MPs spiked with BaP or BP3 produced developmental anomalies, reduced growth, and abnormal behavior. Compared with similar water concentrations, BaP and PFOS spiked on MPs were more toxic; smaller particles produced more severe effects. Weathered MPs caused more drastic changes in larval fathead minnows than virgin MPs, including almost six times more deformities (Bucci et al., 2021). Gilt head sea bream *(Sparus aurata)* juveniles exposed to virgin and weathered MPs were analyzed for enzyme biomarkers and behavior, specifically social interactions and feeding (Rios-Fuster et al., 2021). Fish exposed to weathered MPs indicated greater stress, and both MP exposed groups were significantly bolder than controls during social interactions. Herring (*Clupea harengus*) larvae fed up to 200 MP spheres spiked with PCB-153. All or almost all were excreted within 24 hours, and there was no significant transfer of PCBs into larvae (Norland et al., 2021).

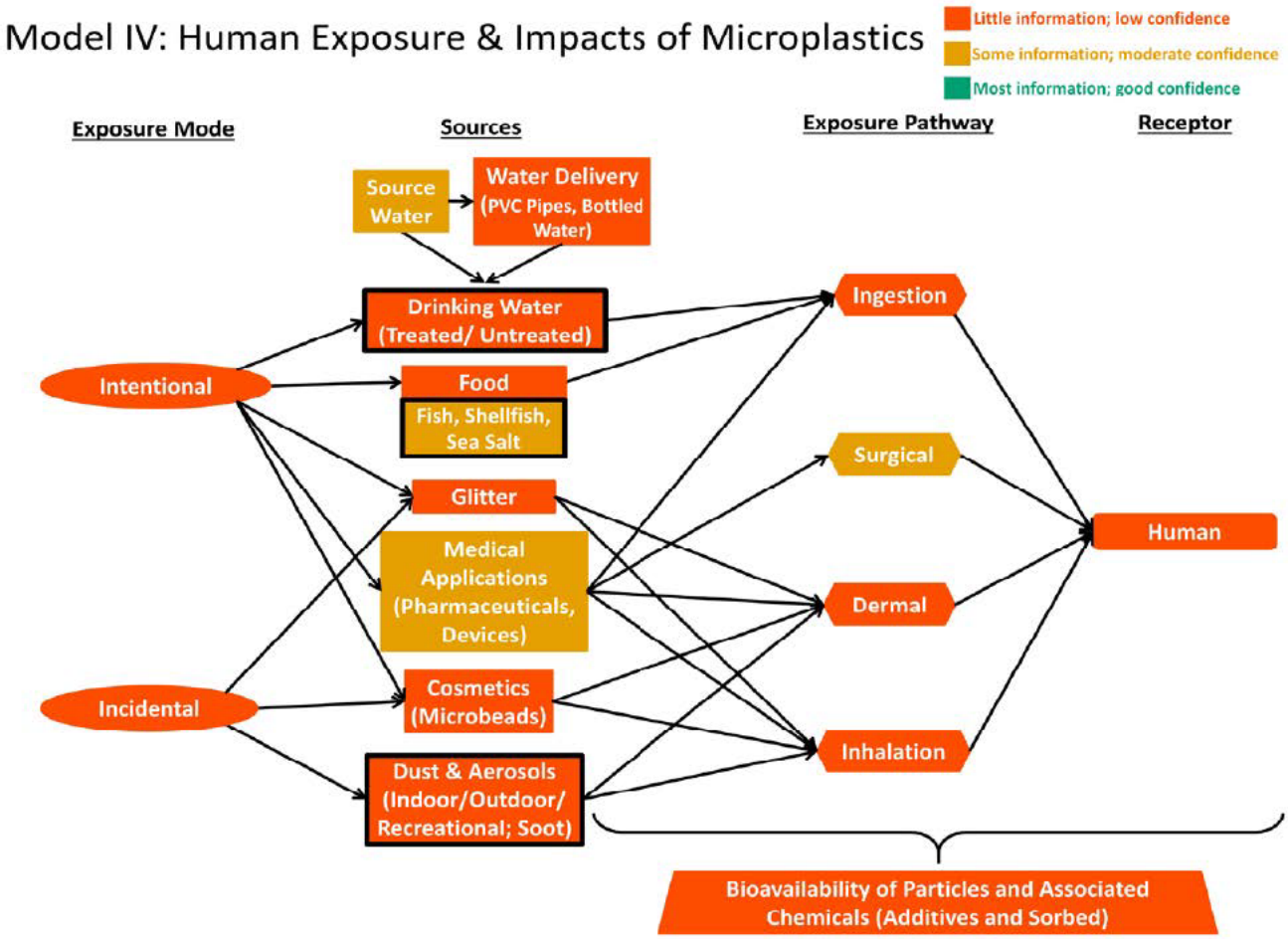
Goldfish (*Carassius auratus*) exposed to 0.25 and 8 μm (environmental concentrations) of ST MPs had enzyme changes and tissue lesions more severe than when exposed to smaller MPs (Aborghouei et al., 2021).

MICROPLASTIC AND NANOPLASTIC POTENTIAL HUMAN HEALTH EFFECTS

Research on human MNP exposures and toxicological risk is at a very early stage (WHO 2022), compared to research on environmental effects. A review by Allen et al. (2022) found only 12% of studies over the last ten years were related to nanoplastics. The majority of environmental NPs are only beginning to form when larger MPs break down in the environment. The ability of NPs to cross cell membranes is presumed to be very relevant to human exposure and toxicity, but lack of analytic methods continues to present research challenges Koelmans et al., 2022).

Prior to 2017, food chain and human ingestion was theorized; since 2017 the number of studies has been growing, with a focus on MNP transport and effects in gastrointestinal, lung, circulatory, placental, liver, spleen, placenta, and fetal animal and human tissues (Allen et al, 2022). Four potential routes of human MNP exposure have been identified (USEPA 2017):

- Ingestion via human food sources
- Inhalation of airborne micro and nano sized particles
- Medical procedures – devices, pharmaceutical delivery
- Dermal (skin) contact



Sources and Routes of Human Microplastic Exposure. *Credit: USEPA 2017 Exposure Model.*

Current research shows evidence of human exposure to MNPs (Udovicki et al., 2022), but is still relatively weak in demonstrating negative human health impacts from cumulative human exposures (USEPA 2017), and so the actual risks to human health are not yet clear. There is currently no standard methodology to determine human MNP exposures, but ingestion and inhalation are thought to be the predominant pathways for human exposure to the physical and chemical effects associated with MNPs (Wright and Kelly 2017; Campanale et al., 2020; Cho and Choi 2021).

Examples of Nanoplastics and Microplastics Related to Human Health

The majority of research about human nanoparticle transport and response are related to drug delivery systems (Bouwmeester et al., 2015). Nanoparticles are able to penetrate gut epithelium,

and whole-body distribution of metallic NPs has been observed; NPs have also been shown to interact with proteins, lipids carbohydrates, nucleic acids, ions, and water – substances found in the human GI tract (Bouwmeester et al., 2015). However, uptake or distribution of ***plastic*** MNPs in human tissues is not understood, and rodent studies using very high doses of plastic MP exposures have produced conflicting results (van Raamsdonk et al., 2019 and references therein). Plastic MNP movement is inversely related to size, and particle behavior depends on their properties and the chemistry of their surrounding environment, including pH, amount of organic matter, ionic strength, and particle surface charge (Dietz and Herth 2011; Bouwmeester et al., 2015 and references therein; Stock et al., 2019).

Human MPN studies have tended to use very small sample sizes, and controlling for background ambient MP contamination remains problematic (Sorci and Loiseau 2022). However, *in vivo* research (inside a living organism) has demonstrated the presence of MNPs in the human body. Schwabi et al. (2019) sampled one stool specimen from each of 8 volunteers aged 33 -65 from 8 countries. All samples contained MPs (50 to 500 µm in size), in concentrations that ranged from 18 – 172 per 10g of stool. Leslie et al. (2022) sampled human blood from 22 volunteers. They found 17 donors (77%) had a quantifiable mass of plastic polymers in the 700 to 500,000 nanometer size range in their circulatory system.

Research focusing on reproductive implications indicates infants could be exposed to MNPs from their mothers (Fournier et al., 2020; Braun et al., 2021; Stapleton 2021). Using plastic-free protocols in a pre-clinical study, Ragusa et al. (2021) found 4 of 6 human placentas contained MPs, and a study of breastmilk from 34 women (Ragusa et al., 2022) found 76% (26 of 34) of samples had detectible MPs 2 to 12 µm in size. A study of 102 patients found 702 MPs in samples of body fluids (Guan et al., 2023). MPs have been observed in livers of 6 patients with liver cirrhosis (Horvatits et al., 2022) and in malignant lung tissue (Pauly et al., 1998).

The majority of current MNP studies have been *in vitro* (outside the human body), using cells taken from humans or other research animals, predominately mice and rats. Zauner et al. (2001) demonstrated differences in particle uptake by various cell types and preferential uptake of the smallest particles tested (20 – 220 nm). High concentrations of sub-micrometer NPs caused toxic effects in intestinal and liver cells, but under non-toxic concentrations membrane impairments were not seen, suggesting it is unlikely that current environmental concentrations do not yet represent significant risk (Paul et al., 2022). Plastic NPs did not reduce cerebral or epithelial cell viability (Schirinzi et al. (2017), and although Stock et al. (2019) observed minor particle uptake by cells, there were no detectable lesions or inflammatory responses. However, researchers simulating gastrointestinal digestion after MP exposure observed changes in the human microbiome community from 2 volunteers (Tamargo et al., 2022).

Ingestion

An outgrowth of environmental MP marine research has been the focus on MPs in seafood (Barboza et al., 2018 and references therein). Microplastics in human food sources were first reported when van Cauwenberghe and Janssen (2014) sampled farmed mussels and oysters purchased in a supermarket. Common food items investigated since then include seafood, bottled and tap waters, and a few fruits and vegetables (Cox et al., 2019 and references therein). A study

(Baechler et al., 2019) of 320 clams and oysters collected from 15 Pacific coastline sites found samples from all locations contained a total of 3,053 suspected microplastics, of which 99% were fibers. Canned fish, finfish and shellfish (van Raamsdonk et al., 2020) have been found to retain MPs in tissues and organs, especially in the case of shellfish (Bouwmeester et al., 2015) that humans may consume whole (and often raw).

There is now growing evidence that suggests MPs ingested by animals, contamination in plastic packaging (Ong et al., 2022), and MP contamination introduced during food production or processing are entering the human food chain (Cox et al. 2019). However, relatively little is currently known regarding this area of food safety. Atmospheric deposition, compost or fertilizer applications can introduce MPs on plant leaves and into the soil, where the smallest MPs and nanoparticles can enter human foods via uptake by plant roots or leaves (Dietz and Herth 2011; van Raamsdonk et al., 2020). MPs are present throughout the soil structure; soils are estimated to contain 4 to 23 times the quantity of MNPs as the oceans (Allen et al., 2022). There is not yet experimental data available about uptake and translocation of NPs in vegetal tissues, but a survey of 36 fruit and vegetable samples purchased from local markets in Italy were found to contain MPs (Conti et al., 2020). There was wide variability in the amount of contamination by species, with apples and carrots having the highest amount of MPs and lettuce the lowest: there was also a wide variability between species in the size of MPs taken up.

A literature review of 26 studies using 3,600 sampled products found seafood and bottled water contained the highest number of measurable MPs (Cox et al., 2019). While MPs have also been found in tap water, concentrations observed in bottled water have been 10-fold higher, and a survey of 259 samples found 93% had measurable MP concentrations (Mason et al., 2018).
Modeling data from these limited studies, researchers have estimated daily human ingestion of MPs could total in the hundreds to thousands of particles, depending on a person's diet and lifestyle.

Inhalation
The USEPA air quality standard is 12 $PM_{2.5}$ μg particles/m^3 (Giannadaki et al., 2016). Deposition rates of atmospheric MPs averaged 132 particles/m^2/day in remote portions of the western U.S., suggesting the long-range transport of MPs (Brahney et al., 2020), potentially moving microscopic particles and fibers around the globe.

Recent studies of lung tissue samples found MPs (33 particles; 4 fibers) in 13 of 20 urban individuals (65%), verifying inhalation as a potential exposure route (Amato-Lourenco et al., 2021). Recent studies suggest there is potentially higher human exposure from inhalation than from ingestion (Campanale et al., 2020). Two air studies found 3- to 4-fold higher MP atmospheric exposure concentrations compared to food sources (Cox et al., 2019). A study comparing MF transport via wastewater effluent versus atmospheric deposition found orders of magnitude greater MF concentrations in the atmospheric pathway (Napper et al., 2023).

Atmospheric deposition is estimated to be 3,100 MNP/m^2/day outdoors (Allen et al., 2022 and references therein) and up to 11,000 MNP/m^2/day indoors (Stapleton 2021 and references therein). It is thought that clothing and home furnishings generate the high concentrations of MFs found in indoor environments (Abbasi 2021).

To determine the effects on humans of chronic MNP exposure, collaborative research is critical in order to characterize environmental MNP concentrations, fate, and transport, human exposure routes, and cellular toxic responses to the smallest MNPs.

SAB Recommendations:

1. We recommend that the DEP form a working group to coordinate with other States that are currently working on plastic pollution, microparticles and nanoparticles to share research and coordinate efforts at the State level.
2. We recommend NJ should identify and map statewide primary sources based on sewage dischargers, manufactures, high density population centers, plastic incineration sources, traffic/road density as it relates to surface water sources including potential atmospheric deposition and microplastic content in precipitation.
3. We recommend that studies be carried out to determine the distribution of nanoparticles and MPs throughout the water column and receiving water sediments. Studies should include groundwater.
4. We recommend developing new or incorporating sampling methods which better reflect the total nano and MPs present in different media (i.e. not sample with nets).
5. Sorting methods should be followed by analytical techniques for appropriate characterization: Raman or Infrared spectroscopy, which can also identify the chemical polymer and help determine sources. We do not recommend the use of net-based nano or MP based sampling methods.
6. We recommend the incorporation of specific species to represent Classes of organisms to examine effects of nanoparticles and MPs on life-stages at greatest exposure and risk. These organisms could be currently required organisms used in water quality assessments. This would allow comparison with traditional endpoints and plastic impacts. This could be both in field and laboratory based.
7. We recommend examining the rate and percentage of MPs (of different shapes and sizes) that pass through the gut/gills/epidermis at sublethal levels.
8. We recommend examining what fraction of the contaminants can be desorbed from the gut of different animals during the time the MPs are passing through.
9. Experimental laboratory studies on effects of MPs should focus on microfibers, which are the predominant shapes in the environment, and not use spheres. Since microfibers from textiles contain a unique set of chemicals such as dyes and finishers, studies are needed on these kinds of chemicals, which are quite toxic and greatly understudied.

The full SAB report can be found here for reference: https://dep.nj.gov/wp-content/uploads/sab/sab-microplastics.pdf)

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Appendix B

Other References

Bruce Windass (Partner and Senior Operations Development Manager, Waitrose Partners), in virtual discussion with the authors, September 15, 2023.

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Name withheld, in an email to Katie Greer (DEP Plastics Reduction Team lead), June 6, 2023.

Appendix C

Reuse and Refill Stakeholder Session Summaries
Discussion Questions and Meeting Notes

Introduction: OFA #17 of the first-year report addressed the topic of advancing a reuse and refill green business economy in New Jersey. The Public Policy Committee of the PAC coordinated the creation and engagement of an external workgroup in stakeholder discussion to gain valuable input toward developing second-year opportunities for action. Some 35 State and national experts were invited to initially participate in a four-session stakeholder process as follows:

- January 9, 2024 – 10:00 a.m.– Noon: Disposal free dining, take-out dining and zero waste events;
- January 17, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in schools;
- February 8, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in businesses;
- February 21, 2024 – 10:00 a.m.– Noon: Plastics waste reduction in government facilities/municipalities.

On average, 22 experts participated in these discussions from a wide range of backgrounds, including:

- New Jersey and National environmental nonprofit organizations;
- State, County and local government officials;
- Members of the academic community;
- Private business and association representatives in both the waste reduction and recycling space;
- Members of the PAC.

Below is a comprehensive list of attendees:

1. Gary Sondermeyer, Bayshore VP of Operations, PAC Vice Chair, Co-Facilitator
2. Nandini Checko, Project Director, ANEC, Co-Facilitator
3. Owen Baim, Re-Dish
4. Elizabeth Balkan, Reloop Platform North America
5. Dylan O'Brien, DEP, Environmental Specialist, Division of Sustainable Waste Management
6. Christine Cassidy, DART Corporation
7. Erin Chon, DEP, Environmental Specialist, Division of Sustainable Waste Management
8. Lauren Craig, Director, Public Affairs, Communications and Sustainability
9. Kira Cruz, Coordinator, Clean Ocean Action
10. Caroline Ehrlich, Chief of Staff, Woodbridge Township
11. Tom Flynn, Environmental Specialist, Woodbridge Township
12. Ali Golden, Terracycle
13. Amy Goldsmith, State Director, Clean Water Action
14. Katie Greer, DEP, Environmental Specialist
15. Seth Hackman, DEP Bureau Chief, Division of Sustainable Waste Management
16. Jordan Howell, Associate Prof of Sustainable Business, Rowan University
17. Brooke Helmick, NJEJA Law and Policy Manager
18. Renee Lundahl, Co-Founder, Goatote
19. Chad Lundahl, Co-Founder, Goatote

20. Richard Lawton, Executive Director, NJ Sustainable Business Council
21. Lois Kraus, Westfield Green Team
22. Samantha McGraw, Senior Department Administrator, Sustainable Jersey
23. Janine McGregor, DEP, Director, Division of Sustainable Waste Management
24. Loel Muetter, Director, NJDOH
25. Amanda Nesheiwat, Deputy Director of Sustainability, Hudson County Improvement Authority
26. Christina Page, DEP, Division of Sustainable Waste Management, Executive Assistant
27. James Pellegrini, DEP, Environmental Specialist, Division of Sustainable Waste Management
28. Beth Ravit, PhD, Retired Rutgers Professor
29. Steven Rinaldi DEP, Research Scientist, Division of Climate, Energy and Radiation Protection
30. Julia Rossi, DEP, Environmental Specialist, Division of Sustainable Waste Management
31. Neil Seldman, Cornucopia Program Manager, ZeroWaste USA
32. Evan Shreffler, DEP, Environmental Specialist, Division of Sustainable Waste Management
33. Janette Spiezio, Owner, Sustainable Haus Mercentile
34. Lauren Sweeny, Co-Founder and CEO, Deliver Zero
35. Jessica Swift, NJDOH, Environmental Scientist, Retail Food Project Coordinator
36. Caroline Vanderlip, Founder and CEO, Re-Dish
37. John Weber, Councilman, Borough of Bradley Beach
38. Marta Young, NJ Zero Waste Specialist, Clean Water Action/Clean Water Fund
39. Macy Zander, Reuse Communities Policy and Engagement Officer, Upstream

To begin the stakeholder process, a Google Forms survey was sent to all participants to get input on the above topics. The input from these surveys helped inform discussion questions distributed to all stakeholders prior to each session. The sessions were not recorded, and all participants were told that there would be no attribution to their remarks toward stimulating free-flowing discussion. Transcription was arranged by the DEP to capture the discussion and allow for accurate notetaking.

What follows are the discussion questions sent out by session with meeting notes provided below each entry. From these informative discussions, a series of recommendations were generated which are outlined in Section 3: Plastic Waste Reduction and Increased Recycling Strategies under the heading Recommendations to Advance a Reuse and Refill Green Business Economy.

New Jersey Plastics Advisory Council
Reuse and Refill Stakeholder Discussion #1
Disposal Free Dining and Zero Waste Events
Discussion Agenda
January 9, 2024

Disposal Free On-Site Dining Questions:

1. What organizations/vendors are the experts in this space who we can further collaborate with and provide case study success stories, particularly on long-term environmental and economic benefits?

    - Waste reduction not just a plastic issue but a single-use issue – mantra must be to never landfill
    - Reuse businesses should be declared essential businesses and ideally receive benefits such as tax relief
    - Partial list of NJ's Zero Waste Stores: https://www.litterless.com/bulk-food-guide/new-jersey
    - Consumer Backend: https://deliverzero.com
    - Industrial dishwashing: https://www.redish.com
    - Plastic Free Restaurants: https://www.plasticfreerestaurants.org
    - Reuse Business: https://upstreamsolutions.org/biz-directory
    - Living Landscape of Reuse Solutions database: https://www.reuselandscape.org/
    - Rethink Disposable: https://cleanwater.org/campaign/rethink-disposable

2. Pilot projects were referenced as a great place to develop New Jersey model(s) of disposal free dining. Who should we target to do this?

    - Chain restaurants?
    - Smaller, local restaurants with open-minded ownership?
    - Restaurant and Hospitality Association recommendation?
    - Progressive towns (Woodbridge, Westfield, Lambertville)?
    - Schools?
    - Closed systems like sports venues?
    - Businesses with cafeterias (Merck, Nestle, PSEG)
    - Closed vs Open – easier to educate and communicate within a closed system. Can influence more- Re:Dish surveys show it transfers to other areas of life such as clothing, etc.
    - Focus on money saved for businesses – Rethink Disposal – soup kitchen case study where a switch from fruit cups to actual fruit saved about $73K/annually
    - Incentivize smaller restaurants – get input from staff and mgmt. – boots on ground makes a real difference
    - Upstream recommends focusing on venues and schools/school districts

- Green Sports Alliance
- Westfield – pilot program where they purchased 1000 containers but return rate was only 5%. In another pilot, rented mugs for a Turkey Trot and return rate was 100% because it was a closed loop.
- Deliver Zero – open system can work – "can't throw out into the wild" –need technology to drive strong returns – examples Uber Eats/Grubhub/Wegmans
- Surfriders – Ocean Friendly Restaurants Program
- Asbury Park - See Hear Now Music Festival – deposit system for reusable cups - https://rworldreuse.com/
- Woodbridge Twp - Summer Concert Series – promotes bring your own reusables

3. From a public policy perspective, should we try to link disposal free dining with sustainable food management? Huge focus on food recovery and significant funding availability.

    - Alameda County, CA - Stop Waste program provides tax incentives to support waste reduction (food and reuse/refill) - https://www.stopwaste.org
    - Centralized funding location is needed specific to NJ – model - SMM Funding Database - Environmental Finance Center – Syracuse University

4. Dishwashing infrastructure noted as a significant barrier. Can we target success stories here (cost benefit)? How about third-party washing services – who is doing this?

    - Conversation is really about standards! Scale, quality, packaging, chemicals, costs important to figure out – Re:Dish is an industry leader

5. Education mentioned frequently as a critical element. Who are we educating, what model templates exist, who else can help the cause?
    - Restaurant owners?
    - Chain management?
    - General public/customers (signage, reuse/recycling receptacles)
    - Rutgers Cooperative Extension Short Course Model
    - Health Inspector training module
    - PAC Education Steering Committee
    - Targeted education needed for each demographic
    - Restaurant owners – what are the real costs/savings for going reusable?
    - Consumers – biggest challenge – social media very powerful – need to make single-use "uncool" – need for it to go viral by using funny and educational messaging
    - Important to engage students when young
    - Professor David Baylis, Michigan State University teaches a course on humor and the environment
    - Need case studies and real data – for example how much to restaurant owners pay for straws/stirrers and how often do plumbing problems arise because of straws clogging drains?

- Need clear guidelines from state and local health departments

6. Should we pursue "command and control" regulatory strategies or incentive programs?

   - Model ordinances (do they exist, Bergen County, Oakland)?
   - Governor's Executive Order – institutional buy-in?

Take-out Dining Questions:

1. Way too much single-use packaging given out with take-out orders. How do we approach "on request only" with the food service industry?
   - Education? Who to educate? Models of success?
   - Municipal ordinances or other mandates? Can this work? Straws example in New Jersey
   - Certification programs (Woodbridge survey model)
   - Need legislation that mandates OPT IN – Skip the Stuff and On- Site Reuse
   - **21% of disposables are used on site**
   - Mistakes happen even when choose NO disposables especially with 3rd party delivery apps such as Door Dash/Uber Eats
   - Critical to train delivery company/restaurant staff -Ask – Are you eating this at home?

2. Can we develop a "take-out best practices" toolkit and staff training? Do best practices already exist? Are there food service products out there that are legitimate (compostable)? Do we have any great place-based models to emulate?

3. Can reusable/returnable food service packaging work with take-out from both an economic and public feasibility standpoint? Do incentive programs work, deposit return surcharges on take-out that don't have negative, regressive taxation impacts to consumers?

   - Case studies show values. For example, use reuse with Meals on Wheels https://www.beyondplastics.org/meals-on-wheels
   - Services such as Go Box and https://planetozzi.com/ work especially in closed environments
   - Need to integrate with delivery apps – make it possible without being a drain on POS systems - return levers – box count attribution, visibility, maximum holding period (need due date), unreturned box fee
   - Return reminders, in person and at door (need different pathways) making it convenient such as adding stickers "return me"
4. Can a BYO cup or plate strategy work from a public health standpoint? Who should we engage to build this out – State Health Department, local health department, State Legislature?

- Key to match reusable cup inventory with business drink offerings (ex. Cup for lattes vs expresso)
- Starbucks allows for BYO cup nationwide – no consistency with franchises – some provide BYO cup discount and cleanout cup, others don't clean
- People eat with their eyes – presentation of food important – innovation required to make reusables more appealing
- Consumers mentioned that it is a health issue and a yuck issue with straws. They do not want to put their lips on a cup that was used by someone else without knowing how clean it is – for example – getting cups with lip stick still on it

- Need clear instructions, communications materials in multiple languages from NJDOH. NJDOH Chapter 24 code does allow for refilling take out beverage containers in no spill coffee cups as long as there is a contamination free protocol established (example – Wawa Coffee)

- Example from Durham, NC and this example from Alameda County, CA of how a health department can guide foodservice establishments to handle reusables in accordance with state food code

Zero Waste Events Questions:

1. Has anyone figured this out – who is doing this now? Zero waste locations (Berkeley, Oceanside, Bergen County)? Do we have model ordinances that are effective? Who needs to be involved?

    - Event Planner Associations
    - NJPAC Dodge Poetry Festival working with Clean Water Action – utilizes baskets and other actions
    - Asbury Park – stainless cup for beer – receive a refill discount
    - PNC Art Center – offers reusable cups
    - Upstream - Zero waste event laws in San Francisco/LA - Zero Waste at City Facilities and Events (lacitysan.org)
    - Checklist for Events - https://swancc.org/resources/educational-resources/toolkits/392-zero-waste-event-guide, https://upstreamsolutions.org/reuse-at-venues-and-events

2. Do we have a suitable event vendor community that offer zero waste event services? Who are these vendors in New Jersey? Do we need a clearinghouse? (OneCompostCan.com example)

    - Rethink Disposable: https://cleanwater.org/campaign/rethink-disposable
    - Clearinghouse needed

3. Should we encourage pilots? If so, where, small towns, larger towns, through Sustainable Jersey Green Teams? Colleges and Universities (Rutgers Food Service)? Large food service organizations like Aramark?

    - Re:Dish already has contracts with large food service companies such as Compass

4. What is the potential role of government to change the culture toward zero waste events?

    - Governor's Executive Order – a mandate?
    - Developing Model Ordinances?
    - Funding (potentially part of food waste reduction/recovery programs)?
    - Education: Toolkits, websites, campaigns?

5. Who do we approach for funding and what is the "ask:"

    - Federal Government (EPA, DOE, Ag, Health)?
    - State Government?
    - Big Business (Coke/Pepsi, etc.)
    - Foundations (Dodge, Gardinier, Tepper, Robert Wood Johnson, Taub, other)?

New Jersey Plastics Advisory Council
Reuse and Refill Stakeholder Discussion #2
Plastics Waste Reduction in Schools
Background and Discussion Questions
January 17, 2024

Background: New Jersey has approximately 2,500 K-12 public schools and nearly 600 school districts. This universe is substantially larger when private and charter schools are added in. New Jersey also has nearly 70 institutions of higher learning including public colleges and universities (11), private colleges and universities (14), community colleges (18), for-profit institutions (9) and religious institutions (15). New Jersey has a robust voluntary platform in place to advance sustainability through Sustainable Jersey for Schools (SJS) program. Currently, 390 school districts and 1,169 individual schools are registered and participating in this certification program. This represents 67% of the public-school districts in the state. Since its inception in 2014, SJS has had alignment and significant support from the New Jersey School Boards Association and New Jersey Education Association (NJEA). A small grants assistance program is also in place and is funded by the PSEG Foundation, Gardinier Environmental Fund and NJEA. Since the start of the municipal program in 2009, SJ has awarded over $7.6 million in grants to participating municipalities and school districts. Each year about 35 schools receive grants of $2,000 or $10,000. SJS currently has 22 action areas or activity categories where schools can earn points toward certification. Several provide a platform to advance plastics waste reduction and recycling including: Green Cleaning Equipment, Green Purchasing Policy, Access to Healthy Water in Schools, Waste Audit, Materials Reuse, and Recycling Non-Mandated Materials. To advance regional planning, collaboration, education and technical assistance, SJ also has 10 Regional Hubs at the county/multi-county level, as follows:

Hub Locations

Regional Hubs have formed across New Jersey and are comprised of municipal and school green team and environmental commission members, municipal and county representatives, business/community/nonprofit leaders, and sustainability-minded individuals.

Active Sustainable Jersey Regional Hubs

- **Atlantic-Cape May Counties Hub**
  - Email
  - Facebook
  - Website
- **Sustainable Bergen County Hub**
  - Email
- **Sustainability Essex Alliance**
  - Facebook
- **Sustainable Hunterdon Hub**
  - Email
  - Webpage
- **Mercer County Sustainability Coalition**
  - Facebook
  - Website
- **Monmouth County Hub**
- **Ocean County Sustainability Hub**
  - Facebook
- **Somerset Green Leadership Hub**
  - Email
- **Tri-County Sustainability (Camden, Burlington, Gloucester)**
  - Email
  - Facebook
  - Twitter
  - Website
- **Union County Hub**
  - Email

Discussion Questions:

1. One very large source of single-use plastic is water bottles. How can we best advance the installation of water refill stations in schools? Experience in other states? Funding platforms used? Have individual or school district bans on bringing single-use plastics into the school worked – examples?

   Funding Sources
   - Sustainable Jersey for Schools small grants
   - PTOs/PTAs fundraisers
   - Connect with local plumbing companies. For example, Westfield partnered with FW Webb to pay for water hydration stations
   - Use crowd fundraising platforms such as Go Fund Me or IOBY.org
   - Partner with Innovative companies: https://www.fillitforward.com, https://www.kadeya.com/

- If entire school systems/state bans water bottles – manufactures will innovate and offer solutions
- Westfield - Zero Waste Challenge offered to sports teams – a lot of students want Gatorade- possible solution offer Gatorade powder mixes
- Important to start education very young (elementary school) – older students distrust information and harder to connect with
- Important to have networking campaign with influential/popular students/teachers to get acceptance of using hydration stations especially with high school and middle school students and staff

2. Beyond water bottles, how can we advance reusable foodware (cutlery, plates, bowls and trays) and milk and beverage dispensers use with reusable cups? Examples in New Jersey and in other States? What vendors exist in New Jersey or regionally to provide these services?

- Re:Dish – brings reusable dishware – Case study - 5 NYC schools – lessons learned can be applied in NJ (enviro impact, critical mass (population density))
- Re:Dish opened 2nd facility in Port Richmond, NY – capable of working with schools in NJ near facility
- Podcast on reusable lunch programs in Brookline MA - The ABCs of reuse in K-12 schools — Upstream (upstreamsolutions.org)
- Plastic Free Restaurants - Get A Subsidy — Plastic Free Restaurants
- Rutgers Food Waste Audit
- Clean Water Action started working with school in Montclair
- Goatote – Minnesota program with young students who are eligible for breakfast in class. Students pick up food from cafeteria in their small, reusable bags and take back to classroom to eat. Very inspiring program that's been beneficial to adults as well. Can be replicated in NJ
- There are health concerns about using plastic for hot food
- Re:Dish uses plastic for hot food - Plates are made in the USA of NSF-certified, BPA-free polypropylene and calcium carbonate. Microwave-safe up to 2 minutes.
- retailfood@doh.nj.gov for questions related to reusables and Chap 24 regulations at school cafeterias – public health of what can/cannot be done – Jessica Swift, DOH, Retail Food Project Coordinator - https://www.nj.gov/health/ceohs/phfpp/retailfood/index.shtml

3. Beyond food and beverage service, what models do we have for uniform reuse/exchange programs: locker room clean-out, book swaps, repair cafés in collaboration with local communities? Other exchange examples?

- SJ for Schools – customized reusable utensils
- Westfield- collected plastic bottles during locker clean-out – then made art display to showcase how much waste generated

4. What New Jersey (or other) case study success stories do we currently have, particularly on long-term environmental and economic benefits of reuse in schools? (like ReThink Disposables and the Center for EcoTechology out of Mass?) In particular, who is doing this now in New Jersey? (Sustainable Jersey experience)

    - CA school working on a consumption based carbon emissions inventory

5. Funding is always a barrier to new and innovative programs. Beyond Sustainable Jersey small grants assistance, where can we find funds to help subsidize the transition to reuse and refill programs in schools? Any good examples in other states?

    - Infrastructure funding from EPA – available to public schools - SWIFR grants can be used for municipalities
    - County of Hawaii SWIFR (epa.gov): this was a recent SWIFR grant awardee that was explicitly about reuse and refill systems at the city level
    - Work in progress, but Upstream/Resource Recycling has an open source grant and incentive tracker Incentives + Grants for Reuse - Google Sheets
    - EPA Region 2 – Camden City School: https://www.epa.gov/newsreleases/epa-selects-camden-nj-and-new-york-city-projects-receive-recycling-education-and
    - By connecting food mgmt. with reusables- opens up access to large foundation money such as the Robert Wood Foundation, Taub Foundation, possible NJ Economic Development Authority
    - Local Chambers of Commerce
    - Local sports organizations (e..g, minor league baseball)
    - NFL/NBA Teams

6. Survey responses noted school and school district culture and administration as a hurdle to obtain "buy-in" toward reuse platforms. Is there a best "touch point" within schools to introduce and advocate reuse? Logical candidates:

    - School Boards Association/New Jersey Education Association
    - Senior Administration
    - Gadfly Champion Teachers (science, STEM)
    - Science, Ecology, Environmental Clubs (student advocacy)
    - PTA/PTO = Parents
    - Cafeteria/Custodial Staff
    - All the Above?
    - Westfield - Board of Health and Nurses – Barrier
    - Turnover of program champion – personnel change can make it very difficult to keep the program going

- Hopewell Valley – case study – life cycle evaluation – tonnage of garbage waste and reduction of hauling fees?
- CleanWater Action – Soup Kitchen saving $72,000/annually with a minor change of switching from fruit cups to real fruit
- RE:Dish provides metric tracking through DishTrack – monthly water usage/carbon emission/waste reduction -overall metric – Example – 1000 employees used a compostable container – after one month – over 1200 pounds of waste diverted, over 32000 water bottles saved

7. A barrier noted in the survey responses was public health considerations, including the potential for allergen contamination. How significant are these barriers and how do we address them effectively?

    - NJDOH -regulations **DO** allow for the use of reusables but it depends on sanitation standards.
    - Time and Control for Safety (TCS) -potentially hazardous food if not prepared/stored properly – NJDOH approves for food safety only
    - Schools are responsible for safety of ALL vendors – have to vet third party vendors
    - Standards already exist IF school uses own reusables with dishwasher
    - DEP and DOH can work together to drive donation requirements
    - Barriers such as cleanliness of areas (share tables) should come from state superintendents to allow for uniformity
    - Possible to reframe and rewrite the Good Samaritan law to allow for reusables?

8. Government/School procurement is a powerful link to advancing reduction and recycling. Do we have any effective models used in New Jersey and other states that we can showcase? Are there procurement best practices for schools we can consider advancing, perhaps including in a Governor's Executive Order?

    - CA Zero waste purchasing for Government – every state has procurement specifications
    - https://www.nj.gov/comptroller/about/work/procurement/
    - Possible to have a list of third party approved vendors – vendors **pay** for certification – approved vendor list (registry) – makes process less daunting for schools
    - NJDOH - state can provide guidance document – NJDOH doesn't have authority/staffing to oversee third party certification

9. Technology also offers significant opportunities, particularly in the realm of paperless schools. What other opportunities do we have to drive waste reduction and reuse through emerging technology platforms?

    - Re:Dish – propriety system with barcoding on every product called DishTrack

10. Education and outreach stressed as needed with local health departments. Any good models of success here (New Jersey or other states?) A fine example is the Rutgers Cooperative

Extension Service “Health Inspectors and Food Donation” training module: https://sites.rutgers.edu/food-waste/food-donation/

- Re:Dish – provides education – unique barcode on each container that students can scan themselves to understand impacts (e.g., how many times container was used)
- Point to the local health department to put out information for the general public. See this example from Durham, NC and example from Alameda County, CA of how a local health department can guide foodservice operators to handle reusable foodware in accordance with state food code
- Center for Environmental Health's "Ditch Disposables toolkit for k-12 schools" Ditching Disposables: A Toolkit for Healthier Foodware in K-12 Schools - Center for Environmental Health (ceh.org)
- Make education/outreach fun and find ways to gamify
- Hudson County High Tech School in Secaucus has plates and silverware that they clean and reuse. They even capture their food waste and compost it. And it's a huge school!

11. Dishwashing infrastructure noted as a significant barrier. Can we target success stories here (cost benefit)? How about third-party washing services – who is doing this in New Jersey schools now?

- NJDOH have regulation/certification of wholesale food vendor – have authority for **food** operations but not vendors who just provide dishwashing
- Re:Dish prefers to work directly with schools vs third party vendor like Aramark or Compass
- SJ For Schools – Maschio Food Services (third party) offering food to schools in reusables

12. Some specific questions from survey input:

- Zero waste kits were mentioned, please explain?
- One noted barrier was “procurement regulations” please elaborate.
- Cafeteria Culture.org – working with NYC school on a program called “Conscious Choice” – reduction in food waste and SUPS
- CT passed law mandating all public schools to compost

New Jersey Plastics Advisory Council
Reuse and Refill Stakeholder Discussion #3
Plastics Waste Reduction in Businesses
Background and Discussion Questions
February 8, 2024

Background: There are several existing programs in New Jersey which highlight sustainable business practices, including waste reduction programs. Here are links to these programs and resources:

- **NJ Department of Environmental Protection WasteWise Program:** DEP has run a WasteWise Program under the USEPA model since 2011. Since COVID, DEP has held biannual remote sessions highlighting progressive waste reduction and recycling programs developed by businesses. The Association of New Jersey Recyclers (ANJR) hosts the WasteWise website. All prior presentations since 2018 can be found here: https://anjr.com/new-jersey-wastewise/ . (Please note at the bottom of this page you will find a link to the WasteWise archives with biannual presentations dating back to 2011.) The DEP point of contact is Steve Rinaldi: Steven.Rinaldi@dep.nj.gov

- **NJ Sustainable Business Registry:** The NJ Sustainable Business Registry was launched in the fall of 2014. http://registry.njsbdc.com/ It is a partnership between the Rutgers' New Jersey Small Business Development Centers (NJSBDC) and DEP, with support and assistance from other business and environmentally concerned partners and stakeholders. Initial funding for the registry was provided by the U.S. Environmental Protection Agency.
  The goals of the NJ Sustainable Business Registry include:
  - Recognizing and promoting NJ sustainable businesses
  - Helping NJ businesses implement sustainable practices through no cost NJSBDC Sustainability Consultants
  - Sharing resources on sustainability to educate and encourage all NJ businesses to adopt green practices
  - Increasing transparency for NJ Consumers

  The DEP point of contact is Gina Gambacorto: Gina.Gambacorto@dep.nj.gov

- **Small Business Assistance Program:** For decades the DEP has administered a Small Business Assistance Program and offers many useful resources by sector which can be found here: https://dep.nj.gov/sustainability/sbap/#small-business-ombudsman . DEP develops and distributes resources to encourage New Jersey businesses, municipalities, and residents to adopt sustainable practices and reduce their environmental impact. DEP has also developed short one- or two-page guides with sustainability tips and references to case studies. Sector sustainability guides can be found here Sustainability Guides and Case Studies webpage
  The DEP point of contact is Edward Bakos, Supervisor, Edward.Bakos@dep.nj.gov.

- **New Jersey Business Action Center:** The Department of State operates a Business Action Center which provides resources such as financial assistance, grant opportunities, publications, podcasts and webinars to assist New Jersey businesses. https://www.nj.gov/state/bac/. The NJBAC was an instrumental partner in the administration and roll-out of the Get Past Plastic Law: https://www.nj.gov/state/bac/. The Department of State point of contact is Executive Director Melanie Willoughby melanie.willoughby@sos.nj.gov.

- **Sustainable Business Council:** The association representing the business community is the Sustainable Business Council which maintains a website and blog with case studies and other resources. https://njsbcouncil.org/ The NJSBC seeks to bring together like-minded businesses toward creating a new and dynamic 21st century economy based on the triple bottom line of people, profit and planet. The NJSBC point of contact is Executive Director Richard Lawton: rlawton@njsbcouncil.org

Discussion Questions:

1. Do we have good models with corporate platforms from individual companies we can/should showcase of reuse/refill/reduction of plastics in businesses? (In New Jersey we have Merck, Nestle Health Systems and L'Oréal – others in Jersey or nationally?)

    - ECOS- Earth Friendly Products
    - PSEG
    - NJ Natural Gas
    - Barclays Bank Campus in Whippany NJ: https://www.cib.barclays/news-and-events/our-journey-to-net-zero.html
    - Walmart in Canada – using bagless deliveries
    - Firmenich (Perfumery)
    - https://reusables.com/en-us/pages/for-businesses
    - Important to highlight the business reasons for supporting reuse such as driving innovation and reducing operational costs

2. Is there any particular business sector that has led the way in reduce/reuse/refill? Are there particularly progressive business associations we should target? Candidates:
    - Pharmaceutical (Merck)
    - Healthcare, Blue Plastics in hospitals (RWJ Barnabas, Hackensack Meridian)
    - Food (Wakefern, Whole Foods, Wegmans)
    - Sports and Entertainment (Aramark, NJ Sports and Exposition Authority)
    - Small Business
    - National Chains (Starbucks, McDonalds, Walmart)
    - Multinational businesses with offices in NJ are much more open (EU, Asian, Canadian), for example, Barclays
    - When one company promotes reuse/refill and does well, more in the sector will follow

- Grocery store sector is ideal because high visibility. Important to meet people where they are to make it as convenient as possible with reuse/refill/return stations. For example, Whole Foods offers reusable to-go containers at certain locations.
- Food service and beverage sectors are ideal because of the amount of waste that can be mitigated, greenhouse gas emissions savings, and ease of transition because existing technologies can support transition.

Resources:
https://upstreamsolutions.org/biz-directory
https://www.reuselandscape.org
https://usplasticspact.org

3. What are the major initiatives/actions/focus areas for businesses to advance reduce/reuse/refill? Do we have a toolkit to guide outreach? Focus areas:
   - Cafeteria/food service
   - Manufacturing changes
   - Performance rating elements (PSEG)
   - Procurement
   - Toxicity reduction
   - Truth in labeling – critical because there's too much green washing
   - Composting
   - Must identify and clearly define what is reusable. Need standards and a process to scale up.

4. What can we learn from existing reuse platforms that we might apply to plastics reduction? Do collateral benefit opportunities exist? (recent Helpsy example with reusable bag collection)
   - Helpsy, Goodwill Industries (textiles)
   - Food banks and pantries
   - Consumer electronics EPR
   - Batteries
   - Second Chance Toys

5. Incentives were mentioned by many in our survey as needed to address upfront costs of reuse. How can we use government and nonprofit initiatives to incentivize changes in business practices and culture? (Woodbridge Township Sustainable Restaurant example and Sector approach).

   - Regulation vs Advocacy – important to have both
   - Woodbridge Township – Sustainable Restaurant program rolled out through the local health department with affordable options that has led to strong business recognition and rewards
   - Provide tax credits similar to EV Federal Program

- Revolving loan fund – put in dishware facilities – Example – Philadelphia's Productive Bank – Mayor Randell
- Restart NJ's Recycling Fund

6. Recognition is important to businesses as is their image. Many examples of recognition programs that showcase sustainable business practices (WasteWise, DEP Sustainable Business Registry, Sustainable Jersey sponsors, TerraCycle free programs). Can more be done with recognition programs and registries to expand business engagement, examples from around the country?

7. Can we expand upon the TerraCycle LOOP Corporate Sponsorship Model for reuse and refill to engage big-corporate involvement and sponsorship of a reuse platform? How do we advance a "buy-anywhere-return-anywhere" system? Opportunities for eligibility of reuse under EPA Climate Pollution Reduction Grants?

8. Should New Jersey consider a true Reuse Collaborative with business? Does this exist anywhere? What is the make-up? (back to LOOP model?) Do we have other European examples?

    - Yes, good to start a Reuse NJ Collaborative
    - Critical to understand the sheer volume of RETURNS – hard to manage on the backend without additional staff and technology
    - Critical to understand Hidden Costs – inventory loss, additional staff, cleaning/sanitization – For example Sustainable Haus offers Dish Rental service but doesn't make money
    - Reusables must be part of the waste stream with bins on sidewalks (EU). Develop a return process – public enterprise system
    - Need scalability and standards
    - Ulster County, NY – joint venture between gov't and private to support industrial reuse businesses
    - French – association for reuse/refill – trade organization Bulk and Reuse Network: Association of Bulk and Packaging Reuse Professionals (reseauvracetreemploi.org)
    - Provide product alternatives (example shampoo bars/concentrates)

9. Reference made in the surveys to developing interoperable infrastructure to accommodate shared/standardized packaging? Elaboration on such opportunities, any real-world examples? (pallets?) Opportunities for third-party service providers, dishwashing, containers, products?

10. Do we have education resources/platforms for zero waste planning for businesses? Have they been effective? Any good models of success here with education and staff training? Reference to the Ellen MacArthur Foundation and life-cycle costs.

- Zero Waste USA – managing the waste stream USEPA and Direct technical assistance https://zerowasteusa.org/certification/ Contact Ruth Abbe ruth.abbe@zerowasteusa.org

- Rethink Disposables, Upstream, Sustainable Packaging Coalition, Consumer Goods Forum
- Skip the Stuff Ordinances (Beyond Plastics, Clean Water Action)

11. A barrier noted in the survey responses was public health considerations. How significant are these barriers in the business sector and how do we address them effectively? Chapter 24 changes – difference depends on the risk – example – listeria breakout – reusable containers people bring in – model food code will be adopted next year

- Require clear information in multiple language explaining health code for refilling returnable containers

  N.J.A.C. 8:24-3.3(p) provides for the refilling of returnable containers as follows:

  a. A take-home food container returned to a retail food establishment shall not be refilled at a retail food establishment with a potentially hazardous food.

  b. A take-home food container refilled with food that is not potentially hazardous shall be cleaned as specified under N.J.A.C. 8:24-4.6 except as specified in (p)3 below.

  c. Personal take-out beverage containers, such as thermally insulated bottles, non-spill coffee cups and promotional beverage glasses, may be refilled by employees or the consumer only if refilling is a contamination-free process as specified under N.J.A.C. 8:24-4.2(m)1, 2 and 4.

- N.J.A.C. 8:24-4.6(p) provides that returned empty containers intended for cleaning and refilling with food shall be cleaned and refilled in a regulated food processing plant, except as specified in (p)1 and 2 below:

  a. A food-specific container for beverages may be refilled at a retail food establishment if the following requirements are met:

    i. Only a beverage that is not a potentially hazardous food is used;

    ii. The design of the container and of the rinsing equipment and the nature of the beverage, when considered together, allow effective cleaning at home or in the retail food establishment;

    iii. Facilities for rinsing before refilling returned containers with fresh, hot water that is under pressure and not recirculated are provided as part of the dispensing system;

iv. The consumer-owned container returned to the retail food establishment for refilling is refilled for sale or service only to the same consumer; and

v. The container is refilled by either an employee of the retail food establishment or the owner of the container if the beverage system includes a contamination-free transfer process that cannot be bypassed by the container owner.

b. Consumer-owned containers that are not food-specific may be filled at a water vending machine or system.

12. In the longer term, how will Extended Producer Responsibility (EPR) programs change the dynamic? Requirements of manufacturers in their Packaging Product Stewardship Plans under proposed New Jersey legislation A2094/S208 include the following:

- Encourage participating producers to increase the post-consumer content in packaging products and reduce the amount of waste generated from discarded packaging products; **(Manufacturing changes?)**
- Prioritize and promote the reuse and recycling of discarded packaging products; **(Education?)**
- Reduce, through product design modifications and program innovation, the amount of material that is used for each packaging product and the amount of waste resulting from use of each packaging product; **(Manufacturing changes?)**
- Facilitate the reuse of discarded packaging products for alternate second-life purposes, **(Uncertain)**
- Europe has entered a new era of reuse because of 3 critical changes:
  - Tipping point was revisions to EU's packaging regulations – moved away from only providing guidelines to developing regulations –
  - Indemnification from liability provides protection for businesses
  - Reuse targets

    PPWR (especially Annex VI): https://environment.ec.europa.eu/publications/proposal-packaging-and-packaging-waste_en

    Coalition paper with more than 100 businesses, NGOs and cities signed on advocating for reuse targets https://www.reloopplatform.org/appeal-to-keep-drs-in-the-eu-packaging-and-packaging-waste-regulation/
- Our behavior is informed by the way our gov't and policies/regulations are set up. Well-designed laws such as in Sweden have a suite of waste policies that places requirements on businesses. TerraCycle France/Japan are championing LOOP which is brining other brands along with reuse/refill.
- We can get stuck in perpetual pilot mode rather than really build a reuse system.
- Misspell Misconceptions – important to show and share business case studies of overall savings https://cleanwater.org/nj-donate-rethink-disposable
- EPR with Direct Return System (DRS) are needed. EPR can become a barrier to reuse if not done properly. Requiring producers within DRS to transition a portion of their

goods into reusable and returnable packaging that funds and builds (retrofits) the infrastructure is needed statewide to make the system work.

- Develop a NJ Waste Reduction Act – can be a challenge to have reuse within EPR- for example it's acceptable to use virgin plastic for a reuse product but not for single-use plastic product
- NJDOH promotes Reuse for the protection of public health.

Zero Waste Europe Fact Sheet
https://refillandreusetradefair.com/

New Jersey Plastics Advisory Council
Reuse and Refill Stakeholder Discussion #4
Plastics Waste Reduction in Government Facilities/Municipalities
Background and Discussion Questions
February 21, 2024

Discussion Questions:

1. Survey results repeatedly expressed a lack of awareness by municipal officials of the importance and practical application of reuse and refill programs. Are there available resources off the shelf to help educate government officials – what are they and where can we find them?

    - Re:Dish is speaking with NY legislative members – being strategic on who to connect with (example head of climate policy) – relationships take time to build
    - DEP for too long has been focused on recycling and not on waste reduction
    - Woodbridge received a lot of push back from residents from the Freedonia study that claimed the bag law is not working, however, didn't receive info from state sources about how to counter green washing with relevant info.
    - Municipal staff receive a lot of information daily from a variety of sources – what's the best way to communicate? – for Woodbridge Twp – it's through email, Clean Communities, DPW contacts
    - Update DEP website content to focus on waste reduction /reuse/refill – website example https://www.santamonicabay.org/what-we-do/projects/rethink-disposable/
    - Survey municipal staff about methods for communication and outreach

2. Where do we have our greatest opportunities for success in plastics waste reduction in government operations?
    - Water refill stations in municipal offices and at sports venues?
    - Municipal food service?
    - State, county, local events (like zero waste event opportunities)?
    - Purchasing/procurement?
    - Other?
    - State agencies must take the lead with promoting and hosting zero waste events
    - RU Cooperative Extensions
    - Engage the Association of Counties for county events
    - Westfield hosted 5-mile run event that was zero waste – example that can be replicated

3. Government procurement presents an opportunity to advance plastics waste reduction. Do we have any great examples of well-articulated actions that can be taken for reduction? Do we have a body of purchasing specifications related to reduction?

    - NJ Division of Purchase and Property: https://www.nj.gov/treasury/purchase/

- Procurement is very difficult at the local level. Even with an approved vendor list, process is extremely time consuming

4. Local governments have the authority to adopt ordinances to drive behavior. Clean Water Action's Skip the Stuff is one example related to restaurants. Decades ago the DEP adopted and widely distributed Model Ordinances for municipal recycling and for managing construction waste through Construction, Renovation and Demolition Debris Recovery Plans tied to the issuance of building permits: https://www.nj.gov/dep/dshw/recycling/whatsnew/model_waste_ordinance.pdf . Do we have examples from other States of ordinances dedicated to reduction, reuse and refill? Should the PAC work with the DEP/counties to craft such a model ordinance?

   - Oakland CA – most comprehensive reuse/refill policy in the nation
   - **Washington State (**RCW 70A.245.080**):** Jan. 1, 2022, a food service business may provide the following single-use food service products only after affirming that the customer wants: utensils, straws, condiment packaging, and beverage cup lids.
   - Woodbridge's philosophy is that it's better to provide educational material than adopt an ordinance – change process is slower but more effective – receive community buy-in and less push back

5. Development of a new Governor's Executive Order to advance plastics waste reduction and recycling was mentioned in survey comments and was a recommendation of the first-year report. Do we have any good models of similar actions in other states? New Jersey Governor Jim Florio adopted a very progressive Executive Order 30 years ago in 1993: https://www.nj.gov/infobank/circular/eof91.htm . However, the prime focus was on recycling and not reduction.

   - September 2023, Massachusetts via Executive Order No. 619 became the first state to eliminate the purchase of single-use plastic bottles by the executive department

6. From a big picture perspective, should the PAC advocate for the establishment by government of numeric waste reduction goals? Historically, the Statewide Solid Waste Management Plan Update of 1993 established recycling goals of 60% of the total waste stream and 50% of the municipal waste stream. More recently in 2017, S3027, commonly referred to as the New Jersey Food Waste Reduction Act, established a goal of reducing food waste by 50% by 2030. In like fashion, should waste reduction targets be established as aspirational goals through a Governor's Executive Order or legislation? Do we have good models from other States?

   - Pay as You Throw programs do work!
   - Having a goal of waste reduction is fine but without a roadmap of how to achieve it – it's difficult to meet – for example, NJ has food waste reduction goal of 50% by 2030, however without proper subsidies/regulations to build out infrastructure, it's been difficult to achieve

- Don't start with legislation, start with consumer interest/sentiment on why reuse is important

7. Government incentives were mentioned by many in our survey as needed to address the upfront costs of reuse. One comment stated that "a few municipalities and one county have established grant funding pools to address" upfront costs. Where was this done, how, can this model be replicated?

    - Boulder City, CO officials and Partners for a Clean Environment (PACE) providing incentives for the replacement of single-use items. Successful applicants receive refunds of up to $2,000 or 70% of costs for eligible upgrades.
    - Town of Frisco, CO- $10,000 Frisco Waste Reduction Business Grant is intended to support projects/programs to reduce waste in local Frisco businesses

8. Collaborative dialogue appears critical between government and other players in reduction, reuse and refill. This can be initiated by government, primarily at the regional/county or statewide levels. Upstream Solutions currently provides a number of opportunities for collaboration: https://upstreamsolutions.org/join

    - Reuse Solutions Network;
    - Reuse Refill Action Forum;
    - Reuse Coalitions;
    - The Friends Network;
    - Business Sponsors.

    How can we foster participation in these types of existing programs or should a similar network (like the New Jersey Sustainable Business Network) forum (WasteWise) be developed with a reuse and refill focus in New Jersey?

    - DEP WasteWise Business Network been around for 25 years and provides resource
    - Engage the NJ Business Action Center on waste reduction
    - It's not enough to have presentations but strong policy is also needed – structured collaborative with gov't and business
    - Pass the NJ Right to Repair Act

9. Reuse stores are expanding in New Jersey. Does an inventory of these stores currently exist? If not, is this a function that State government can perform? Can such a public inventory help grow this sector? As an example, non-profits like the Clean Cities Coalition have maintained a registry/inventory of electric car charging stations for years. Should we consider a similar registry?

    - Litterless lists zero waste stores - https://www.litterless.com/bulk-food-guide/new-jersey
    - Furniture Assist (Union County) – **county** program that provides **free** donated furniture and other items to residents in need

- Sage Elder Care (Summit) – elders provide workshops on woodwork/canning
- Second Chance, Baltimore, MD – excellent model for job creation and waste reduction https://www.secondchanceinc.org/ – possible to bring to NJ?
- Ulster County, NY – gov't/private venture to build reuse center – gov't provided $100K
- Encourage more Repair Cafés community events
- Incredibly difficult for start-ups/small zero waste businesses to be profitable – need incentives and promotion at the state level
- Need to combat misinformation that buying reuse/refill products more expensive than conventional products. For example, powdered laundry detergent or shampoo bars substantially cheaper than mainstream products

10. The New Jersey Department of State has a Business Action Center (BAC) which serves as a business attraction vehicle to advertise existing incentive programs and provide technical assistance. The BAC was an active State government participant in the implementation of Chapter 117 (the Get Past Plastic Law) with a website platform to help businesses comply with the bag ban legislation: https://business.nj.gov/bags/plastic-ban-law. Should we consider asking the Department to work with the PAC to engage the assistance of the BAC in the reuse and refill space? Yes.

11. The Climate Pollution Reduction Grant (CPRG) program is being administered under a nationwide, two-phase EPA grant funded initiative via the Inflation Reduction Act. Phase One involves $250 Million in noncompetitive planning grants. Phase Two, nationally, represents a $4.6 billion competitive implementation grant opportunity to carry out the greenhouse gas reduction measures proposed in the climate action plans. DEP is considering adding municipal reuse projects as eligible. Where could the most progress be made under such a grant to advance reuse and refill? Examples:
    - Expanded dishwashing infrastructure in restaurants?
    - Upfront costs to purchase reusable cups, plates, flatware, etc.?
    - Seed money to attract and incentivize reuse stores?
    - Model programs in schools?
    - Installing water filling stations around town?
    - Working with the business sector to embrace reuse?

Need scalable projects: follow how NJ built recycling infrastructure

12. Sustainable Jersey is a voluntary certification platform for municipalities to advance sustainability goals. The existing Waste Management Action Area currently has 15 specific actions towns can take to earn points towards certification and 6 related to waste reduction. Do any of the topics discussed today or in prior stakeholder discussions lend themselves to new action development? What are they?
    - Materials reuse
    - Waste audits
    - Free Markets – Example- Westfield and Summit

Appendix D

Extended Producer Responsibility State Comparison Table

Categories	Maine (LD1541) Passed June 14, 2021	Oregon (SB582) Passed August 6, 2021	Colorado (HB22-1355) Passed May 11, 2022
Covered Materials	• Paper • Primary and secondary packaging • Residential and some commercial packaging (no distribution packaging) • Reusables: Covered; only charged at initial distribution	**Packaging including:** • Paper • Plastic • Glass • Metal • Mixture • Printing and writing paper **Food service ware including:** • Single-use paper and plastic plates • Wraps • Cups • Bowls • Pizza boxes • Cutlery • Straws • Lids • Bags • Aluminum foil • Clamshell or similar containers	• Primary and secondary packaging • Single or short-term use residential and most commercial • Not designed for reuse or refill • Printing and writing paper • Plastic • Glass • Metal • Cartons • Flexible foam • Rigid packaging • Combination of materials **The PRO will develop a minimum recyclable list based on:** • availability of recycling services • recycling collection and processing infrastructure • recycling end markets
Covered Material Exemptions	• Packaging for long-term storage • Protection of a durable product that can be expected to be usable for that purpose for a period of at least 5 years • Beverage containers subject to a deposit system • Paint containers, if PaintCare demonstrates they are recycling at least 50% of collected containers • Federally regulated perishable foods • Small local producers/low-volume packaging producers	• Beverage containers subject to a deposit system • Bound books • Napkins, paper towels or other paper intended for cleaning or the absorption of liquids • Rigid pallets • Specialty packaging items that are used exclusively in industrial or manufacturing processes such as: - cores and wraps for rolls - trays used for transport	• Packaging for long-term storage • Beverage containers subject to a deposit system • Packaging used in industrial or manufacturing processes • Packaging of a product regulated as a drug (including cannabis packaging), medical device or dietary supplement by the FDA • Packaging material used to contain a product that is regulated as animal biologics • Packaging material that is used to contain a product that is regulated under the "Federal

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		-liquified, refillable petroleum gas containers - Paint containers under PaintCare - Items sold on or used on a farm - Packaging and paper products sold in connection with prescription drugs, nonprescription drugs, and brand name or generic drugs - Packaging and paper products sold for animal medicine - Packaging and paper products sold in connection with infant formula, medical food, and fortified nutritional supplement - Packaging for hazardous materials	Insecticide, Fungicide, and Rodenticide Act" • Packaging of products regulated as infant formula or fortified nutrition supplements • Business to business transport/distribution packaging • Printed financial/billing statements, medical documents required to be printed by law • Printed publications primarily covering news and current events • Bound books • Packaging material used to contain paint covered under a paint stewardship program • Packaging material used to contain a product in the "Poison Prevention Packaging Act of 1970" • Packaging material used to contain a portable electronic device that has been refurbished • Packaging materials used solely in transportation or distribution to nonconsumers
Responsible Party	• Brand owner; or • Importer	**Physical retail location:** • Manufacturer of the packaged item; or • Licensee; or • Importer **Remote sale or distribution:** • Packaging used to directly protect or contain the item; • Producer of packaging used to ship the item: • The person that packages and ships the item to the consumer	• Brand owner; or • Licensee ; or • Importer **Internet transactions:** • The producer of the packaging material used to directly protect or contain the product; and • For the purposes of packaging material used to ship a product to a consumer, the person that packages or ship the product to the consumer

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		• Person that first distributes that packaged item in or into this state **For printing and writing paper not described above:** • Brand; • Importer **For foodservice ware:** • The person that first sells the food service ware in or into this state	**Paper Production:** • Brand; or • Licensee; or • The person that first distributes the covered material

Responsible Party Exemption	• Realized less than $2,000,000 in total gross revenue during the prior calendar year
	• Producers who used less than one ton of packaging material in total in the prior calendar year
	• Realized more than 50% of its total gross revenue in the prior calendar year from the sale of goods it acquired through insurance salvages, closeouts, bankruptcies and liquidations
	• Producers who used less than 15 tons of packaging material in total for perishable foods in the prior calendar year
		Small producer:
		• Nonprofit organization;
		• Public body;
		• Gross revenue of less than $5 million for the most recent fiscal year;
		• Sold in or into OR less than one metric ton of covered products for use in the state in the most recent calendar year;
		• Manufacturer of a beverage sold in a beverage container that sold in or into OR less than five metric tons of covered products
		• A restaurant or food cart that primarily sells to members of the public food that is generally intended to be consumed immediately and without the need for further preparation; and
		• Not a producer of food service ware
		• Operates a single retail sales establishment, has no online sales and is not supplied or operated as part of a franchise or a chain
			• Less than five million dollars in realized total gross revenue, excluding alcohol sales, during the prior calendar year
			• Used less than one ton of covered materials:
			  • State or local government;
			  • Nonprofit organization
			  • Agriculture employer
			• Individual business operating a retail food establishment with a physical location
			• A builder, construction compony, or construction contractor

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Producer Responsibility Organization (PRO)	• The state will select a packaging stewardship organization via a competitive bid process, and then enter a contract with that organization to coordinate the packaging stewardship program. • Producers will be individually responsible for compliance	• A PRO must provide for the collection and responsible recycling of a specified list of covered products identified by the state that are not collected in municipal programs • The materials are a subset of the total materials collected for recycling • Ensure covered products collected by a recycling collection service are recycled by responsible end markets • Searchable registry of the organization's compliant members • List of non-compliant producers • Submit a coordination plan if more than one PRO • A PRO will fund in advance or reimburse the eligible expenses of a local government or the local government's service provider for eligible costs • Must provide for the collection and responsible recycling of covered products by: - Contracting with existing recycling depots or drop off centers; - Establishing and operating other drop off centers for the covered products; • Establishing and operating collection events for the covered product; or • Making other arrangements for the collection of the covered products as described in the plan • Ensure covered products collected will be: - Delivered to responsible end markets - Managed according to the hierarchy of	• EPR program will be operated and fully funded by producers joining a non-profit PRO • The PRO will be overseen by the Colorado Department of Public Health and Environmental with input from the advisory board • Must reimburse 100% of new recycling service using cost formulas proposed in the stewardship plan

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		materials management options; and - Managed in an environmentally protective way through final disposition • A PRO may not take possession of covered products from a processor without written consent	
Needs Assessment	**Needs assessment carried out by the PRO within 18 months of entering a contract with the Department evaluating:** • Funding needs for recycling • Capacity, costs and need for collection and transportation • Market conditions and opportunities • Consumer education needs (No date set in statute) • How reusable packaging material will be managed • Identify regional investment to efficiently manage packaging material in a single-stream, dual-stream or base material	The department shall conduct a statewide needs assessment with local governments to determine local interest in expanding collection options and recycling depots in the area•Shall include a process for local governments to request services and commit to providing additional services•Periodically repeat the assessment•May include recommendations for adding and funding litter and marine debris cleanup and prevention to the PRO	**The PRO must hire an independent third party to do a needs assessment by September 1, 2023 evaluating:** • the state's current recycling services • develop a minimum recyclable list • needed improvements to expand access and increase recycling rates • Results of the needs assessment must be reported by April 1, 2024
Stewardship Contents Plan	• The mechanism or process by which a producer may request and receive assistance from the stewardship organization in the reporting of required information and regarding methods by which the packaging material used by a	**Objective and measurable criteria:** Manage and administer a program to: • Provide for the collection of covered products	**Submit a plan proposal for the program based on approved needs assessment results by February 1, 2025 and every five years thereafter and must include:**

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	producer may be modified to reduce the producer's payment obligations • The mechanism or process by which a participating municipality may request and receive assistance form the stewardship organization in the reporting of required information and regarding methods by which a municipality's recycling program may be modified to increase access to and participation in the program • Solicit and consider input from interested parties • Establish and manage the packaging stewardship fund • Financial assurance plan that ensures all funds held in the packaging stewardship fund are available to the department to support waste diversion, reuse or recycling programs when the contract is terminated or expires • Proposed budget outlining the anticipated costs of operating the program including start-up costs • Needs assessment	• Meet convenience and performance standards for covered products • Maximize the use of existing infrastructure • Ensure responsible management of covered products and other contaminants collected with the covered products • Make continual reductions in the environmental and human health impacts of covered products through a graduated fee structure • Ensure that covered products are collected for recycling, and contaminants collected with those covered products, are managed and disposed of consistent with the goals, standards and practices required • Ensure that covered products collected for recycling will be transferred to responsible end markets including: • The type and general locations of responsible end markets that may use the material collected from covered products in the manufacturing of new products; • Whether any of those responsible end markets are certified for environmental and social sustainability • The organization will follow the hierarchy of materials management • The organization will ensure responsible management is maintained through the final disposition of the covered product; and • the PRO has made with processors to ensure that covered products are recycled at a responsible end market, including any	• contact information for the organization • describe how the plan proposal will address and implement the findings of the needs assessment; • describe the manner in which the organization solicited and considered input from stakeholders and the advisory board • describe how the organization will notify affected producers of their obligations • describe how the organization will track compliance • include a list of covered materials • establish recycling practices that: • meet or exceed the convenience standards; • use open, competitive and fair procurement practices when entering into contracts • ensure that any covered material collected will be transferred to a responsible end market; and • use environmentally sounds practices • Establish a funding mechanism that does not exceed the direct and indirect costs of implementing the programs • **Set targets for minimum:** • collection rates • recycling rates • postconsumer-recycled content

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		investment intended to be made to support processors • Ensure that any material that will be marketed for use through a method other than mechanical recycling will be transferred to a responsible end market including: • A description of how the proposed method will affect the ability of the material to be recycled into feedstock or the manufacturing of new products • A description of how the proposed method will affect the types and amounts of plastic recycled for food and pharmaceutical-grade applications; • A description of any applicable air, water and waste permitting compliance requirements; and • An analysis of the environmental impacts for the proposed method compared to the environmental impacts of mechanical recycling, incineration and landfill disposal as solid waste • Provide public outreach and education • Identify and provide contact information for the PRO and each registered producer • Describe the structure of the PRO, including the management structure and roles and functions of committees • Describe how the PRO will communicate and coordinate with the department, advisory council, local governments and their providers, processors, any other PRO and the topics of communication and coordination	• Describe how the organization will provide the opportunity to purchase postconsumer-recycled materials • Describe how the organization will reduce or offset the producers dues based on eco-modulation

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		• Describe the process and timeline for how the PRO will resolve disputes involving compensation of local governments and their service providers, and commingled recycling processing facilities • Projections on recycling rates for plastic • Describe efforts to use education and promotion to encourage proper participation in recycling collection of specifically identified materials; • Any investments to support the successful processing of specifically identified materials • Any other efforts to develop or support responsible end markets for specifically identified materials • Describe the membership fee structure including a schedule of the membership fee actually charged • Demonstrate the membership fees collected will provide adequate revenue to fund all costs associated with the program • Describe how the PRO will provide funding to allow local governments to protect ratepayers from increased costs associated with the processing and marketing of recyclables • Include a process to notify the department of producer noncompliance • Describe reserve funds and contingency plans for responding to changes in markets or other circumstances that could affect the effectiveness of the program • Include a closure plan to settle the affairs of the PRO that ensure the producers will	

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		continue to meet their obligations in the event of dissolution of the organization • Include methods for advance funding, reimbursements and making payments to local governments or their service providers • **The PRO will establish**: A schedule for implementing collection program expansions and improvements throughout this state; A method for determining funding or reimbursement amounts	
Cost Coverage (Funding input and allocation)	• Producers pay a fee into a program fund that will reimburse local governments for operation costs including collection, transportation and sorting • Producer fees also cover the costs of: • Administration and enforcement • Investments in infrastructure • Improvement in recycling education • A program fund that will reimburse local governments for operation costs including collection, transportation, and sorting	• Producers in a PRO must provide for the collection and recycling list of covered products identified by the state that are not collected in municipal programs and fund or reimburse local government for costs of: • Transportation of covered products • Contamination reduction • Education and outreach • Expansion of recycling • Recycling improvements • Market development/end markets • Infrastructure improvements	• Producer to establish the funding mechanism through responsibility dues that include the costs of: • providing recycling services or reimbursement of recycling services cost • conducting the needs assessment • education and outreach reimbursement of administrative and implementation costs • surpluses must be placed back into the program to fund improvements or reductions in PRO dues • PRO calculates using an objective formula that incorporates: • cost information from the needs assessment • regional recycling costs • population density • number and types of households served • collection method • revenue generated from collected

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			materials • contamination rates
Ecomodulation	• The department will adopt rules establishing payment calculation designed to incentivize the use of materials that are readily recyclable	• Membership fees must be designed to differentiate between types of covered products, and the materials and formats that comprise those covered products • Membership fees charged for different covered product types, materials and formats must be proportional to the costs of the PRO for that covered product type, material or format • Material-specific base fee rates; • Covered products that are not accepted by recycling collection programs in the state shall be assessed base fee rates as follows: •First, the average base fee rates for covered products that are accepted by recycling collection programs in this state •Second, provided that the requirements above are satisfied, the base fee rate shall be approximately proportional to the covered products' relative contribution to the financial obligations of the PRO • In addition, a PRO's membership fee must incentivize producers to continually reduce the environmental and human health impacts of covered products by offering fee adjustments	• Producer responsibility dues must vary by the type of covered material • Incentivizes: - reductions in the amount of packaging materials used for products; - innovations and practices that enhance the recyclability or commodity value of covered materials - high levels of postconsumer recycling material use - designs for reuse and refill - high recycling and refill rates • Discourages: - designs and practices that increase the costs of recycling, reusing or composting - designs and practices that disrupt the recycling of other materials; and - producers from using covered materials that are not on the minimum recyclable list;

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		• Fee adjustments must include lower fees for covered products with a lower environmental impact and higher fees with a higher environmental impact • Factors for consideration include: •Post-consumer content; •Product-to-package ratio; •Producer's choice of material; •Life cycle environmental impacts; •Recycling rate of the material realize to the recycling rate of other covered products •Department may approve alternative membership fee structure	
Performance Standards	• Determined in rulemaking • Must include: • Goals supporting an overall reduction by producers in the amount of packaging materials used • Reuse increase • Post-consumer recycled content increase • Litter reduction • Recycling access and collection rate goals	• Recycling rate for plastic packaging and plastic food service ware are: • At least 25% by calendar year 2028 and in each subsequent year; • At least 50% by calendar year 2040 and in each subsequent year; • At least 70% by calendar year 2050 and in each subsequent year • On or after January 1, 2038 the recycling goal can be adjusted • Department to establish contamination reduction goals	Needs assessment will determine minimum goals to be met by January 1, 2030 and January 1, 2035: • set target for the minimum collection rates • set target for the minimum recycling rates • set target for the minimum postconsumer-recycled-content rates
Collection and Convenience	• Determined in rulemaking	• Establish by rule collection targets, convenience standards and performance standards	• The collection of readily recyclable materials must be provided in a manner that is as convenient as the collection of solid waste in the geographic area in which the covered entity is located

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Outreach and Education Requirements	• The stewardship organization shall make investments in education and infrastructure that support the recycling of packaging material	• Develop educational resources and promotional campaigns to promote the uniform statewide collection list
		• Resources and campaigns must include:
		  • A description of materials identified for recycling;
		  • Requirements to properly prepare materials for recycling;
		  • Education on the importance of not placing contaminants in commingled recycling collection; and
		  • Container signs or decals
		• Education resources and campaigns developed must be:
		  • Culturally responsive to diverse audiences across the state, including non-English speakers and people with disabilities
		  • Printed or produced in languages other than English; and
		  • Accessed easily and at no cost to local governments and users of the recycling systems
		• Local government shall utilize and distribute education resources
		•PRO shall coordinate and fund
			• The organization shall develop and implement a statewide education and outreach program and includes:
			• proper end-of-life management of covered materials;
			• location and availability of recycling services under the program;
			• how to prevent littering in the process of providing recycling service for covered materials
			• provide clean and concise recycling instructions
			• coordinate with existing recycling education materials and services provided throughout the state; and
			• be designed to help the state achieve the minimum collection and recycling rates and reduce contamination
			• The organization shall develop a proposed methodology for evaluating and reporting on the effectiveness of the education and outreach program

Equity and Environmental Justice	• N/A	• The department shall conduct a study of equity in OR recycling system at least once every four years • The department shall provide public involvement opportunities in underserved communities during the study which must include:	•N/A

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		• an evaluation of commingled recycling processing facility worker conditions, wages and benefits; • the availability of opportunities in the recycling system for women and minority individuals; • the sufficiency of local government requirements related to multifamily recycling services and their implementation • the availability of opportunities in the recycling system for OR businesses; and • recommendations for improving equity and equitable outcomes for underserved population's in OR recycling system, including recommendations for new responsibilities of PROs and recommendations for funding such responsibilities • The department shall conduct a needs assessment to determine the challenges facing residents of multifamily housing and make recommendations for improvements at least once every four years to allow for effective and equitable recycling opportunities for residents of multifamily housing and must include: • an evaluation of the placement of and quality of spaces provided for recycling containers • recommendations for improving spaces that are determined to be inadequate	

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Annual Report	• Producer shall annually report to the stewardship organization: • Total amount, by weight or volume, each type of packaging material sold, offered for sale or distributed for sale in or into the State in the prior calendar year • Describe the methods used to determine the amount reported for each type of packaging material • Describe the characteristics of each type of packaging material • List of producer's brands and the UPC's of the products associated with each type of packaging material • A complete accounting of payments made to and by the stewardship organization during the prior calendar year • List of non-participating producers and any product-specific non-compliance • A description of education and infrastructure investments made by the stewardship organization in prior calendar years and an evaluation • A description of the results of the representative audits required • Estimate of annual greenhouse gas emissions	• Cover the prior calendar year • Present information in a manner that can be understood by the general public • Prepared in the form and manner prescribed by the department • Must include: • a list of the producers that participated in the program • a list of producers found to be out of compliance and steps taken to bring those producers into compliance; • the total amount, by weight and type of material, of covered products in the prior calendar year; • PRO's efforts to ensure that the collected products were responsibly managed and delivered to responsible end markets • a description of all expansions and improvements to recycling collection systems that have been paid for by the PRO; • a summary of payments requested by local governments or their service providers that were denied or reduced by the PRO • a summary of all payments made to satisfy the PRO's obligations • a summary of the financial status of the PRO, including expenditures, revenues, and assets; •the membership fee schedule •the fees collected for the reporting year •a description of how the current membership fee schedule meets the	• Before March 31st of the second year of the program's implementation and by March 31st each year thereafter must submit an annual report: •describe the progress of the program •evaluation of the impacts on the performance of the program and the producer responsibility dues schedule •a detailed description of the progress toward each element of the final plan •a list of all the producers, brands, and materials covered by the final plan; •a list of producers that are not participating in the program •noncompliant producers •total weight of covered materials that are sold or distributed in the state •total amount of producer responsibility dues collected under the program •total weight of each type of covered material that is collected and recycled with the data broken down by: •means of collection •number of covered entities by type and by county •method used to handle the collected covered material •geographic area • the recycling rate, collection rate and postconsumer-recycled-content rate for each type of covered material and a description of the organization's process in achieving the goals • the rate schedules for

Categories	Maine (LD1541) Passed June 14, 2021	Oregon (SB582) Passed August 6, 2021	Colorado (HB22-1355) Passed May 11, 2022
		requirements • a description of activities undertaken by the PRO that relate to the uniform statewide collection list and the specifically identified materials list; • an assessment of whether the PRO has met collection targets, convenience standards and performance standards; • a summary of efforts taken by the PRO to meet the statewide plastic recycling goal established and efforts planned to maintain performance in meeting the goal, or efforts planned to meet the goal; • the results of any in-person site inspections, material tracking or other audits; • recommendations for any changes to the plan to improve recovery and recycling; • summary of the quarterly reports and an evaluation of the adequacy of responsible end markets; • a summary of actions taken or planned by the PRO to improve responsible end markets, pay for improvements in processing infrastructure or improve the resiliency of the program; • the number of producers that received each type of membership fee adjustment and the amount of covered products, by materials and format, for which producers received each type of adjustment; • an evaluation of the effectiveness of membership fee adjustments at encouraging	reimbursement •a summary of the education and outreach efforts •list of names, location and hours for curbside services, drop off center, and other collection areas •list of the recycling end markets •if processed in other ways than mechanical recycling provide: •a description of how the method will affect the ability to recycle the material into feedstock •a description of any applicable State and Federal Air, Water, and Waste permitting •an analysis of the environmental impacts of the method compared to the environmental impacts of incineration of solid waste in landfills •a copy of an independent third party's report auditing the program •a description of the status of reserve funds •any amendments to the final plan •any updates to the minimum recyclable list

Categories	Maine (LD1541) Passed June 14, 2021	Oregon (SB582) Passed August 6, 2021	Colorado (HB22-1355) Passed May 11, 2022
		producers to reduce the environmental and human health impacts of covered products; • a report by an independent certified public accountant, retained by the PRO at the organization's expense, on the accountant's audit of the organization's financial statements; • the results of any nonfinancial audits or assessments measuring performance or outcomes; • educational resources and promotional campaigns	
Enforcement and Penalties	• The department shall administer and enforce	• The department may bring an enforcement action if the department requires a second revision of the program plan • The department may bring enforcement action if: • revised annual report is not submitted timely; or • the revised annual report does not meet the requirements	• First violation: •$5,000 for the first day of each violation •$1,500 per day for each day the violation continues • Second violation committed within twelve months after prior violation: •$10,000 for the first day of each violation •$3,000 per day for each day the violation continues • Third violation committed within twelve months after two or more violations: •$20,000 for the first day of each violation •$6,000 per day for each day the violation continues

Categories	Maine (LD1541) Passed June 14, 2021	Oregon (SB582) Passed August 6, 2021	Colorado (HB22-1355) Passed May 11, 2022
Implementation Timeline	**Initiate rulemaking:** • December 31, 2023 Adoption of major substantive rules: • Summer 2024 First program update to Legislature: • February 15, 2025 and annually thereafter • Issue RFP for stewardship organization: • Fall 2025 Select stewardship organization: • 2026 First producer payment: • 2026 First payment to municipalities: • 2027 Comprehensive review of rules report to legislature: • February 15, 2028 • Reissue bid for stewardship organization: • July 2035 A producer may not sell, offer for sale or distribute for sale in or into the State: • One calendar year following the effective date of the contract entered into by the department and the stewardship organization	• Effective date: January 1, 2022 • First plan due: March 31, 2024 • Decision on program: 120 days after receipt implementation and recycling program changes begin: • July 1, 2025 No later than July 1 of each year, a PRO must submit to the department an annual report on the development, implementation, and operation of the program	• Effective date: 1, 2025 • Plan effect: January 1, 2029 • Additional PRO: January 1, 2029 • Producer may submit an individual program plan proposal: • January 1, 2025 and each January 1 thereafter

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Covered Materials	• Single-use packaging • Plastic single-use food service ware: •Plastic-coated paper •Plastic-coated paperboard •Multilayer flexible material •Trays •Bowls •Clamshells •Lids •Cups •Utensils •Stirrers •Hinged or lidded containers •Straws •Wraps or wrappers and bags sold to food service establishments • Sales or primary packaging • Grouped or secondary packaging • Transport or tertiary packaging • Packaging components and ancillary elements	• Packaging products • Paper products • Paper, plastic, metal, or glass that can be categorized based on distinguishing chemical or physical properties • Food packaging	• Primary packaging •a sales unit at the point of purchase • Secondary packaging: •used to group other products for multiunit sale or •is intended to brand or display another product • Tertiary packaging: •used either for transportation and distribution of another product directly to the consumer or •protection of the product during transport • Service packaging: •carry-out bags •bulk goods bags •take-out bags •home delivery food service packaging •prescription bottles • Beverage containers • Ancillary elements: •attached to another product and that serve a packaging function • Any other product which serves a packaging function constituted of: •paper •plastic •glass •metal •a mixture •any other material

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Covered Material Exemptions	• Medical products and prescription drugs • Medical products and drugs used for animals • Infant formula • Medical food • Fortified oral nutritional supplements • Packaging for products by Federal Insecticide, Fungicide, Rodenticide Act • Plastic packaging containers for hazardous materials and flammable products • Beverage containers subject to bottle deposit • Packaging for long-term storage of a product • Packaging under the architectural paint recovery program	• Packaging for infant formula • Packaging for medical food • Packaging for fortified oral nutritional supplement • Packaging for a produced regulated as a drug or medical devise by the US FDA • Packaging for a medical equipment that is regulated by the US FDA • Drugs, biological products, parasiticides medical devices, or in vitro diagnostics that are used to treat or are administered to animals and regulated by the US FDA • Packaging for products regulated by the US EPA under the FIFR Act • Packaging used to contain liquefied petroleum gas and are designed to be refilled • Paper products used for a newspaper's print publications • Paper products used for a magazine's print publication that has a circulation of less than 95,000 • Packaging used to contain hazardous or flammable products • Packaging that is being collected and properly managed through a paint stewardship plan • Determined by the Commissioner • Producer distributes to another producer • Packaging used to contain a product, and the product is distributed to a commercial or business entity for the production of another product	•N/A

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		• Not introduced to a person other than the commercial or business entity that first received the product used for the production of another product	
Responsible Party	• Licensee; or • Sells, offers for sale, or distributes the products	• Physical Retail Location: •manufacturer; •licensee; •brand owner; •importer; or •distributor • E-Commerce, Remote sale, or distribution: •manufacturer; •the person that packages the item to be shipped to the consumer; •distributor into the State; •for magazines, catalogs, telephone directories, or similar publication, the producer is the publisher; •if paper product not described above then the producer is the: •manufacturer of the paper product; •licensee of a brand; •the brand owner of the paper product; •the importer into the US; •distributor; or •franchisor	• Brand owner; • Owner or licensee of a trademark; • Any person who sells, offers for sale, or distributes a packaging product in the State; or • Importer

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Responsible Party Exemption	• Agriculture	• State, federal, or state agency Non-profit charitable organization or social welfare organization • De minimus producer: In the most recent fiscal year: •introduced less than 1 ton of covered material into this state; or •earned global gross revenue of less than $2,000,000 • Mill that uses any virgin wood fiber in the products it produces • Paper mill that produces container board derived from 100% PCR and non-PCR	•N/A
Producer Responsibility Organization (PRO)	• Within 12 months of the effective date, producers will form a nonprofit PRO • Upon approval of a plan or by January 2027, a producer cannot sell, distribute, or import a covered material unless the producer is approved to participate in the plan of a PRO • A producer can comply individually without joining a PRO if the producer achieved between 2013 and 2022: •at least a 5% source reduction of covered materials through shifting to refill, reuse or elimination •at least an 8% source reduction of covered material through optimization, concentration, right-sizing, bulking, shifting to non-plastic packaging, light-weighting, or increasing the number of consumer uses •achieve recycling rate performance standards	• Non-profit • Must maintain a website: •information regarding a process that the public can use to contact the PRO •a directory of all service providers operating under the stewardship plan •registration materials submitted to the commissioner •the draft and approved stewardship plan and any draft and approved amendments •information on how to manage materials •the list of exempt materials and covered materials exempt from performance targets and statewide requirements •current and all past needs assessments •annual reports submitted to the commissioner by the PRO •a link to administrative rules	• Collective producer responsibility •must either individually or collectively join a PRO • individual Producer Responsibility Option •must either individually or collectively join a PRO

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		implementing this act •comments of the advisory board •the names of producers and brands that are not in compliance •a list updated at least monthly of all member producers that will operate under the stewardship plan by the PRO •education materials on waste reduction, reuse, recycling, and composting for producers and the general public	
Needs Assessment	• The department and PRO will contract an independent third-party to prepare a needs assessment: • Will be updated every five years • Funded by the PRO • An initial needs assessment for specific covered materials will also be completed before any PRO plan that includes such material is approved	• December 31, 2025- commissioner must complete a preliminary assessment • December 31, 2026 and every five years thereafter- the commissioner must complete a needs assessment • The commissioner may adjust the required content in a specific needs assessment to inform the next stewardship plan • Commissioner must initiate a process to obtain recommendations from the advisory board, political subdivisions, service providers, PRO, and other interested parties • Contract with a third party who is not a producer • Prior to finalizing the needs assessment, make the draft needs assessment available for	•N/A

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		comment by the advisory board, PRO, and the public • Identification of currently or recently introduced covered materials and covered materials types • Tons of collected covered materials•The characteristics of recycling and composting programs • Average frequency of collection of covered materials for recycling and composting, types of collection containers used, commonly accepted materials for recycling and composting, and total costs by type of covered entity • Processing capacity at recycling facilities, including total tons processed and sold, composition of tons processed and sold, current technologies utilized, and facility processing fees charged to collectors delivering covered materials for recycling • Capacity of technology used by, and characteristics of compost facilities to process and recover compostable covered materials • Capacity and number of drop-off collection sites • Capacity and number of transfer stations and transfer locations • Average term length of residential recycling and composting collection contracts issued by political subdivisions and an assessment of contract cost structures	

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		• Estimate of total annual collection and processing service costs based on registered service provider costs • Available markets in the state for covered materials and the capacity of those markets • Covered materials sales by volume, weight, and covered materials types introduced by producers • An evaluation of: • existing waste reduction, reuse, recycling, and composting for each covered materials type, including collection rates, recycling rates, composting rates, reuse rates, and return rates for each covered materials type •overall recycling rate, composting rate, reuse rate, and return rate for all covered materials; and • the extent to which PCR by the best estimate, is or could be incorporated into each covered materials types including a review of market and technical barriers to incorporating PCR into covered materials • An evaluation of covered materials in the disposal, recycling, and composting streams to determine the covered materials types and amounts within each stream • Proposals for a range of outcomes for each covered materials type to be accomplished within a five-year time frame in multiple units of measurement including unit-based, weight-based, and volume-based for waste reduction, reuse rate and return rates,	

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		recycling rates, composting rates, and PCR content • Proposed plans and metrics for how to measure progress in achieving performance targets and statewide requirements • An evaluation of third-party certification for activities to meet obligations • Inventory of the current systems including: • infrastructure, capacity, performance, funding level, and method and sources of financing for the existing covered services for covered materials operating in the state; • an estimate of total annual costs of covered services based on registered service provider costs; and • availability and cost of covered services for covered materials to covered entities and any other location where covered materials are introduced • Evaluation of investments needed to increase waste reduction, reuse, recycling, and composting rates of covered material • A recommended methodology for applying criteria and formulas to establish reimbursement rates • An assessment of the viability and robustness of markets for recyclable covered materials and the degree to which these markets can be considered responsible markets • An assessment of the level and causes of contamination of source-separated recyclable materials, source-separated compostable	

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		materials and collected reusables, and the impacts of contamination • An assessment of toxic substances intentionally added to covered materials • An assessment of current best practices to increase public awareness, educate, and complete outreach activities • Identification of the covered materials with the most significant environmental impact, including generation of hazardous waste, greenhouse gases, environmental justice impacts, public health impacts • Recommendations for meeting the criteria for an alternative collection program	
Stewardship Contents Plan	• Actions and investments to meet the requirements and address the needs assessment • Source reduction plan • Technologies and means utilized to achieve recycling requirements • Objective and measurable criteria to describe: •provide for the necessary infrastructure and viable responsible end markets in an economically efficient and practical	• Documentation demonstrating adequate financial responsibility and financial controls to ensure proper management of funds and payment of the implementation fee • Describe the proposed operation by the organization of programs to fulfill the requirements of this act and that incorporates the findings and results of the needs assessment • Performance targets established to each covered materials type	• Managing and facilitating: •collection •transportation •reuse and •recycling or disposal • Encourage the increase of post-consumer content in packaging products • Reduce the amount of waste generated from discarded packaging products • Prioritize and promote reuse and recycling • Minimize public sector involvement in the life-cycle management of packaging waste

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
	manner •budget •supplemental to the solid waste network •leverage and use existing programs and infrastructure •does not violate existing franchise agreements •how covered materials will be collected, processed, and management, and recycled, remanufactured, or composted •end markets •establish and fund reuse or refill infrastructure, including retrofits •postconsumer recycled content incorporated •consistent with the waste hierarchy • Membership fee collection • Membership fee structure and schedule • Education and engagement to: •reduce contamination •obtain high levels of participation • properly recycle, compost, reuse and refill • Closure or transfer plan in the event of dissolution of the organization • The process for determining and paying costs incurred • Process to resolve disputes • Source reduction data • Consideration of the needs assessment and recommended investments	• A description of the methods of collection, how collection service convenience metrics will be met, and processing infrastructure and covered services to be used for each covered materials type at covered entitles and how these will meet the statewide requirements • Proposals for exemptions from performance targets and statewide requirements for covered materials that cannot be waste reduced or made reusable, recyclable, or compostable • A description of how, for each covered materials type, the PRO will measure recycling, waste reduction, reuse, composting, and the inclusion of PCR • Third-party certifications • A budget identifying funding needs for each of the plan's five calendar years, producer fees, a description of the process used to calculate the fees, and an explanation of how the fees meet the requirements • A description of infrastructure investments, including goals and outcomes and a description of how the process to offer and select opportunities will be conducted in an open, competitive, and fair manner; how it will address gaps in the system not met by service providers; and protentional financial and legal instruments • An explanation of how the program will be paid for by the PRO through fees from producers, without any new or additional consumer-facing fee to members of the public, businesses, service providers, the	• Identify the means, methods, processes, procedures, systems, and strategies that will be used to : •reduce, through product design modification and program innovation •facilitate and promote the prompt and efficient collection •transport discarded packaging to authorized storage and recycling facilities •facilitate the reuse for alternate second-life purposes • Identify performance goals and how goals will be met or exceeded • Work with: •existing infrastructure •existing waste haulers, storage and recycling facilities •counties and municipalities • Describe the means and methods that will be used to facilitate public outreach, education, and communication

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
	•Budget: •expanding access or improvement of curbside collection •expanding drop off site access •expand access to collection in public spaces •deployment of innovative enhanced collection, composting, and recycling systems •creation of on-premise access to recycling or composting for multifamily residences •efficient transport from remote or rural areas •enhance existing infrastructure •investments in reuse, refill, and composting infrastructure •reimbursing costs incurred by the department •administer PRO •environmental mitigation activities •develop and sustain viable responsible end markets • May not expend revenue collected for implementation to: •pay an administrative civil penalty •pay costs associated with litigation between PRO and the state •compensate a person who is primarily representing the PRO in legislation •paid advertisement 30 calendar prior to or during a legislative session •subsidize, incentivize or otherwise	state, or any other person who is not the producer • Minimize the environmental impacts and human health impacts of covered materials • A description of how the PRO will promote the opportunity for all service providers to register with the commissioner and to submit invoices for reimbursement with the PRO • A description of how the program will reimburse service providers under an approved plan • Performance standards for service providers • A description of how the PRO will treat and protect nonpublic data • A description of how the PRO will provide technical assistance • A description of how the PRO will increase public awareness, educate, and complete outreach activities • A proposed alternative collection program • A description of how producers can purchase PCR materials from service providers at market prices if the producer is interested in obtaining recycled feedstock • A summary of consultations held with the advisory board	

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
	support incineration, engineered municipal solid waste conversion, the production of energy or fuels •Shall include curbside recycling and composting collection • Specific measures for: •incentives for compliance (malus fee) •protocols to ensure the PRO become aware of producer violation •criteria for producer termination due to performance merits •record maintenance protocols • Avoids or minimizes negative environmental or public health impacts on disadvantaged or low-income communities		
Cost Coverage (Funding input and allocation)	• A PRO determines fee structure and schedule for producers based on: • the cost of implementing the plan • operating costs • completing the needs assessment • mitigation requirements • California circular economy fee • Fee structure for covered material based on the following factors: • cost to develop and sustain end markets • cost to collect, sort, avoid or remove contamination, aggregate and transport materials into defined streams to support end markets for recycling • costs incurred by local jurisdictions or recycling service providers •other costs necessary to implement the	• Registration fee- as determined by the Commissioner	• Participating producers will be responsible for covering the costs of implementing the stewardship plan: • collection • transportation • reuse • recycling • disposal • outreach • The department and participating producers shall jointly develop a financing system to ensure the provision of prompt payment to counties and municipalities, recycling and other solid waste collection and disposal facilities

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
	plan • hard to recycle elements (labels, inks, adhesives) • presence of renewable materials • commodity value of covered material		• The financing system shall be evaluated by an independent financial auditor
Ecomodulation	• Malus fee or credits based on: • post-consumer recycled content • source reduction • right-sizing • optimization • bulking of packaging • standardization of packaging that simplifies processing, marketing, sorting, recycling and composting • presence of hazardous materials and toxic additives • labeling instructions that improve consumer behavior • accelerate source reduction and invest in reuse/refill systems • weight and unit-based metric • certified compostable that do not contain toxic additives • charge producers not achieving source reduction for similar products (malus fee) • Fees paid to the PRO shall be used to implement the plan and fund the budget	• N/A	**No eco-modulation** • Recycled content: • encourage participating producers to increase post-consumer recyclables in packaging products • Design: • encourage producers to reduce the amount of packaging and material through design modifications

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Performance Standards	**Recycling rates:** • not less than 30% of covered material on and after January 1, 2028 • not less than 40% of covered material on and after January 1, 2030 • not less than 65% of covered material on and after January 1, 2032 • January 1, 2032 25% reduction by weight • 25% by plastic component source reduction **Source Reduction:** • 10% through shifting to refillable or reusable • remaining source reduction shall be reduced through: • concentration • lightweighting • shift to bulk/large format packaging that allows consumers to refill home/commercial reusable containers • shift to a nonplastic **Source Reduction Timeline:** • 10% by January 1, 2027 • 20% by January 2030 • Polystyrene recycling: • not less than 25% on and after January 1, 2025 • not less than 30% on and after January 1, 2028 • not less than 50% on and after January 1, 2030 • not less than 65% on and after January 1, 2032	• The PRO must propose performance targets based on the needs assessment • Must include reuse rates, return rates, recycling rates, and composting rates and targets for waste reduction and PCR by covered materials types • The PRO must select the unit that is most appropriate to each each performance targets as informed by the needs assessment • Proposed performance targets must demonstrate continuous improvement in reducing environmental impacts and human health impacts of covered materials over time • Must provide a methodology for measuring the amount of recycled material at the point at which material leaves a recycling facility and must account for: • levels of estimated contamination documented by the facility • any exclusions for fuel or energy capture; and • compliance with toxic substance laws	**Rate targets** • the PRO must meet the performance goal of all single-use packaging products to be readily recyclable or compostable by January 1, 2030Recycled content targets • the PRO must meet the performance goal of all single-use packaging products to be composted of at least 75% PCR by January 1, 2027 **Material specific targets:** • the PRO must meet the performance goal of all single-use plastic packaging to be reduced to the maximum extent practicable, or by at least 25%, by January 1, 2030 **Targets set in legislation** • the PRO must identify performance goals for a minimum PCR rate and a minimum recycling rate for packaging products, and describe how such goals will be met or exceeded over time

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Collection and Convenience	•N/A	•N/A	• Facilitate and promote the prompt and efficient collection of discarded packaging products throughout the State in a manner that is as, or more, convenient for consumers than the other collection programs available prior to the implementation of the stewardship plan
Outreach and Education Requirements	• Education and engagement to reduce the rate of inbound contamination • Outreach to obtain consistently high levels of participation in and use of collection services and reuse and refill stations • Education and engagement with residents on proper recycling, composting, and reuse and refill behaviors	• Education on waste reduction, reuse, recycling, and composting for producers and the general public • In the stewardship plan provide a description of awareness, education, and outreach activities undertaken including any evaluation conducted of their efficacy plans for next calendar year's activities, and an evaluation of the process established by the PRO to answer questions from consumers regarding collection, recycling, composting, waste reduction, and reuse activities	**Producers shall:** • conduct public outreach • provide consumers with educational and informational materials • respond to questions and address concerns raised by consumers **Outreach, educational and informational material provided shall:** • provide information on the end-of-life management • location and availability of curbside and drop-off collection • provide instructions to enable consumers to recycle or compost • describe the environmental impact with improper disposal • encourage consumers to avoid littering • notify consumers producers will cover cost of disposal • Utilize all available forms of media • Coordinate with the various municipalities and other similar public outreach and education programs in the State

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
Equity and Environmental Justice	• Regulations shall encourage recycling that minimizes environmental justice impacts • The PRO shall ensure the plan implementation avoids or minimizes negative environmental or public health impacts	• January 1, 2032, the commissioner of the Pollution Control Agency must contract with a third party that is not a producer or a PRO to conduct a study of the recycling, composting, and reuse facilities operating in the state The study must analyze information about: • working conditions, wage and benefit levels, and employment levels of minorities and women at those facilities • barriers to ownership of recycling, composting, and reuse operations faced by women and minorities • the degree to which residents of multifamily buildings have less convenient access to recycling, composting, and reuse opportunities than those living in single-family homes • the degree to which individuals living in EJ areas have access to fewer recycling, composting, and reuse opportunities compared to other parts of the state • strategies to increase participation in reuse, recycling, and composting • the degree to which residents and workers in EJ areas are impacted by emissions, toxic substances, and other pollutants from solid waste facilities in comparison to other areas of the state and recommendations to mitigate those impacts	•N/A

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024

Annual Report	• Describe in detail progress made toward meeting or exceeding requirements
	• Shall include evaluation of whether the PRO is likely to meet requirements
	• If PRO unable to meet requirements, PRO must submit a revised plan
	• PRO's cost and revenues
	• Updated list of the names and contact information for each participant
	• Description of outreach efforts and education to consumers
	• Activities PRO has taken to implement plan:
	  • methods used to collect, transport, process, and recycle or compost covered material
	  • recycling technologies and means that will be utilized to achieve recycling requirements
	  • progress made in meeting source reduction goals
	
	• Data report:
	  • the amount of plastic covered materials sold, offered for sale, or distributed in the state
	  • the number of plastic components and the weight of plastic covered material shifted to refillable or reusable or food service ware
	  • the number of plastic components and the weight of plastic covered material eliminated
	  • the number of plastic components and
		• The amount of covered materials introduced by each covered materials type, reported int eh same unites used to establish fees
		• Progress made toward the performance targets reported in the same units used to establish producer fees and reported statewide and for each county, including:
		  • the amount of covered materials successfully waste reduced, reduced, reused, recycled, and composted by covered materials type and the strategies or collection method used; and
		  • information about third-party certifications obtained
		• The total cost to implement the program and a detailed description of program expenditure by category including:
		  • the total amount of producer fees collected
		  • a description of infrastructure investments made; and
		  • a breakdown of reimbursements by covered services, covered entities, and regions of the stateA copy of a financial audit of program operations conducted by an independent auditor approved by the commissioner
		• A description of program performance problems that emerged in specific locations and efforts taken or proposed by the PRO to address them
		• A discussion of technical assistance provided to producers regarding toxic
			• Producers participating in the plan shall collectively submit a written report to the department and includes at minimum:
			  • a list of producers participating in the plan
			  • list of covered packaging products
			  • description of methods used to collect, transport, reuse, and recycle or dispose
			  • total volume of discarded packaging products collected
			  • volume of collected packaging products that have been disposed by method of disposition:
			  • reuse
			  • recycling
			  • disposal
			  • Total cost of implementing the stewardship plan, itemized, third party auditor
			  • samples of education materials
			  • evaluation of the effectiveness
			  • steps to improve the plan's effectiveness

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	the weight of plastic covered material reduced through concentration, right-sizing, and shifting to bulk or large format packaging • the amount of postconsumer recycled content used	substances in covered materials and actions taken by producers to reduce intentionally added toxic substances in covered materials beyond compliance with prohibitions already established in law • A description of public awareness, education, and outreach activities undertaken • Summary of consultations held with the advisory board and how any feedback was incorporated or rejected • A list of out of compliance producers • Proposed amendments to the stewardship plan to improve program performance or reduce costs, including changes to producer fees, infrastructure investments, or reimbursement rates • Recommendations for additions or removals of covered materials to or from the recyclable or compostable covered materials list • Information requested b the commissioner to evaluate the effectiveness of the programs • Every fourth year a performance audit of the program must be completed by the PRO	
Enforcement and Penalties	• Administrative civil penalty not to exceed $50,000 per day per violation	• Commissioner may revoke registration of a PRO or service provider found to have violated this act • A person that violates or fails to perform a duty imposed by this act or any rule adopted is liable for a civil penalty: • first violation: • not to exceed $25,000 per day of	• Reporting requirements: • plan must be reviewed and updated every 5 years • the PRO will be required to submit an annual evaluation report to the department

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024
		violation • second violation occurring within 5 years: • not to exceed $50,000 per day of violation • third or subsequent violation occurring within 5 years: • not to exceed $100,000 per day of violation	• Enforcement: • Commissioner may: • Issue an order requiring the violator to comply • bring a civil action • levy a civil administrative penalty • bring an action for a civil penalty • Penalties • if a producer is not participating in a PRO within 18 months of the effective date, that producer is not to sell, offer for sale, distribute or import for sale or distribution any packaging products • $5,000 to $10,000 for each violation day • Producer violates an approved plan: • $5,000 to $10,000 for each violation day • Commissioner may order the producer to stop selling, offering for sale, distributing, or importing for sale any packaging

Categories	California (SB54) Passed June 3, 2022	Minnesota (HF39114) Passed May 24, 2024	New Jersey (A2094) Introduced January 9, 2024

Implementation Timeline	• Appoint advisory board:
	  • July 1, 2023
	• Producer shall form and join PRO:
	  • January 1, 2024
	• Rule and regulation adoption:
	  • January 1, 2025
	• Plan approval:
	  • 2026
	  • 90 days to implement
	• Prohibit sale, import, or distribution of covered materials:
	  • Upon approval of plan or January 1, 2027, whichever is sooner
	• Publish materials characterization study:
	  • 2030
		• Appoint a PRO:
		  • January 1, 2025
		• Commissioner to provide written notice to PRO's of the commissioner's estimates of the cost required to perform the commissioners duties:
		  • February 15, 2025 and annually until February 15, 2028
		• Commissioner must complete a preliminary assessment:
		  • December 31, 2025
		• PRO must register with the commissioner:
		  • July 1, 2026 and each January 1 thereafter
		• Commissioner must complete a needs assessment
		  • December 31, 2026 and every 5 years thereafter
		• PRO must submit a stewardship plan
		  • October 1, 2028 and every 5 years thereafter
		• Commissioner must provide written notice to registered PRO in writing of the amount of the registration fee:
		  • October 1, 2028
		• Annual registration fee:
		  • January 1, 2029
		• No producer may introduce covered materials unless with a PRO:
		  • January 1, 2029
			• Shall not sell, offer for sale, distribute, or import unless participating producer:
			  • 18 months after the effective date of this act
			
			• Develop and submit stewardship plan:
			  • 180 days after enactment
			
			• Approve, conditionally approve, or disapprove the plan:
			  • 120 days after receipt of completed stewardship plan
			
			• Date of implementation:
			  • plan must be implemented within 90 days of stewardship plan approval

Appendix E

Education Steering Committee Session Summaries Discussion Questions and Meeting Notes

Introduction: OFAs #6 and #7 highlighted the need for a Statewide and ongoing education and promotional campaign targeted at plastics waste reduction and recycling to be developed in collaboration and consultation with academia and other non-profit organizations to highlight:

- Opportunities to reduce plastics through consumer purchasing choices;
- How to find out what products, containers and packaging are recyclable in each community;
- Guidance to assist consumer evaluation of claims that products or packaging are recyclable, compostable and/or biodegradable;
- The distinction between macroplastic litter versus hard to see or invisible microplastic and nanoplastic particles and fibers;
- The current state of knowledge regarding environmental and public health impacts of plastics in plain talk terms.

The PAC recommended the formation of a Steering Committee to assist the DEP in developing the overall statewide public education campaign. In December 2023 Education Steering Committee leadership assembled committee membership as follows:

1. Amanda Nesheiwat, Deputy Director of Sustainability, Hudson County Improvement Authority (co-committee leader)
2. Beth Ravit, PhD, retired Rutgers Professor (co-committee leader)
3. Gary Sondermeyer, Bayshore VP of Operations
4. Seth Hackman, DEP Bureau Chief, Division of Sustainable Waste Management
5. Brooke Helmick, Environmental Justice Alliance
6. Carole Tolmachewich, Middlesex County and Association of New Jersey Recyclers representative
7. Eric Ascalon, Global Director of Community Outreach, TerraCycle
8. JoAnn Gemenden, Executive Director, New Jersey Clean Communities
9. Rebecca Turygan, Atlantic County Utilities Authority
10. Kathleen Hourihan, Retired Morris County Recycling Coordinator
11. Kevin Lyons, PhD, Rutgers Business School
12. Laura Lawson, Executive Dean, Rutgers College of Biological and Environmental Science
13. Jeff Gallad, President, Recycle Coach
14. Kelly Stone, George Catrambone Elementary School, Long Branch
15. Shaina Brenner, ELM Elementary School, Jackson Township
16. Randy Solomon, Executive Director, Sustainable Jersey

Committee leadership also put together a “Google Forms” survey which was sent to each member later in December which asked for input on four basic questions:

1. How would you rate plastic waste as an environmental issue in New Jersey?
2. What are we collectively doing well now to communicate with the general public about plastic waste?
3. Where are we falling short with existing education and outreach programs about plastic waste?

4. Recommend solutions and steps needed to overcome existing limitations to educate the public about plastic waste.

The input from these surveys helped inform an initial set of discussion questions distributed to all stakeholders prior to the first session. Agendas were subsequently sent prior to each Committee meeting. The sessions were not recorded, and all participants were told that there would be no attribution to their remarks toward stimulating free-flowing discussion. Transcription was arranged by the DEP to capture the discussion and allow for accurate notetaking.

What follows are the discussion questions and agendas sent out by session, with meeting notes provided thereafter. From these informative discussions, a series of recommendations were generated which are outlined in Section 1: "Evaluation of the Implementation and the Effectiveness of the Get Past Plastic Law" under the heading "Waste Reduction and Recycling Public Education and Outreach Campaign."

Education Steering Committee – Meeting #1 February 1, 2024
Committee Goals and Discussion Questions
We will allow a maximum of 20 minutes to discuss each topic.

1. Reduced plastic waste through changes in consumer purchasing choices: In your experience, are there alternatives to plastic containers readily available to NJ consumers? If not currently available or desired by consumers, what approaches do you think could be employed?

2. Identification of products, containers and packaging that are recyclable in each community: Is the current recycling system effective in all NJ counties/communities? What challenges exist?

3. Consumer ability to evaluate claims that products or packaging are recyclable, compostable and/or biodegradable: Can composting and/or materials that biodegrade be effective in reducing NJ's plastic waste?

4. Increase understanding that macroplastic litter produces hard to see or invisible microplastic and nanoplastic particles/fibers: Demonstrating the link between microplastic items and the production of microscopic or molecular scale pollution is challenging. How do you think this issue could be addressed?

5. Communicate the current state of knowledge regarding environmental and public health impacts of plastics in plain talk terms: What are the various audiences for a statewide educational campaign? How best to reach the largest numbers of these different audiences? How important is it to engage K-12 students in efforts to reduce plastic waste? What approaches should be considered?

Education Steering Committee – Meeting #1 February 1, 2024
Discussion Insights

Four topics were discussed during the first Education Steering Committee (ESC) meeting:

1. Are alternatives to plastic containers readily available in NJ? What approaches could be employed to increase alternatives?
2. Are currently recycling systems effective in all NJ Counties/communities? What challenges exist?
3. Can alternative materials that "biodegrade" be effective in reducing plastic waste?
4. How should microplastic pollution be addressed?

A fifth question regarding reaching various audiences in an education campaign was tabled until the next meeting due to running out of time.

Significant points raised during the two-hour discussion include:

- The importance of positive empathic messaging to consumers:
  a. Consumer decisions can make a difference in reducing plastic waste generation;
  b. Consumer behavior doesn't have to be *perfect*;
  c. Develop a ***NJ Buyer's Guide to Sustainable Purchasing*** to support proactive actions.

- Alternative plastic carriers/containers applicable under suburban conditions where residents own cars are not appropriate in urban communities where car ownership tends to be lower, and transportation of food and grocery items differs.

- There is significant confusion related to plastic recycling:

  a. Definitions used now are chemical names, numbers, or chasing arrows that have low meaning for the average resident disposing of plastic waste – there is general confusion about what is or is not, recyclable;
  b. Each of the 21 NJ Counties has their own list of recyclable items – no Statewide standard for plastic waste recycling;
  c. Funding is needed to support plastic reduction and recycling efforts;
  d. Data (rates, percentages) describing plastic recycling are at best estimates, based on different information and data sources. Various assumptions make it difficult, if not impossible, to agree on the "real" recycling rates. This lack of accurate and easily understood data create conditions where data can be manipulated to conform to specific viewpoints and supports general distrust of various recycling estimates.
  e. There is skepticism related to what percentage of curbside recycled plastic is actually recycled (versus unrecyclable items that are then thrown away or lost during the recycling process);

- Confusion over the different claims regarding biodegradability and compostability. These claims may only be appropriate under very specific conditions, often industrial situations in controlled environments, rather than home or natural environments. This can be a Truth in Labeling issue that supports Greenwashing.

- Calling ***all items*** (ranging from plastic film to plastic packaging, cigarette butts, cloth fibers, containers, computer components, medical devices, etc.) ***"plastic"*** makes the reduction of plastic waste seem an insurmountable challenge and is confusing. Each of these categories of plastic waste need to be defined individually and management options tailored specifically to the various types of waste.

- Can modeling approaches developed for Covid transmission be utilized to model the spread of microplastics and nanoplastics in the environment?

Appendix F

Full copy of P.L. 2020, Chapter 117 (CORRECTED COPY)

AN ACT concerning single-use plastic carryout bags, single-use paper carryout bags, polystyrene foam food service products, and single-use plastic straws, supplementing Title 13 of the Revised Statutes, and amending P.L.2002, c.128.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

C.13:1E-99.126 Findings, declarations relative to certain single-use products.

1. The Legislature finds and declares that, since 1950, global annual production of plastics has increased from two million tons to over 381 million tons; that approximately one third of all plastics produced are single-use plastics, which are plastics designed to be used only once and then thrown away; and that an estimated 100 billion single-use plastic carryout bags and 25 billion styrofoam plastic coffee cups are thrown away in the United States each year.

The Legislature further finds that, in 2017, only 8.4 percent of plastics in the United States were recycled; that most single-use plastics are disposed of in landfills, are incinerated, or become litter in waterways and oceans; that plastics released in the environment do not biodegrade, but instead break down into smaller pieces, known as microplastics, which accumulate in the natural environment and are eaten by fish and other marine life; and that microplastic pollution moves through natural food webs and accumulates in fish and shellfish tissues, which means microplastics and associated pollutants can move into the food chain.

The Legislature further finds that approximately eight million tons of plastic end up in the oceans annually; that, without action, scientists estimate that by 2050 the mass of plastic pollution in the ocean will exceed the mass of fish; that currently, there is a collection of litter in the North Pacific Ocean, known as the Great Pacific Garbage Patch, that is 7.7 million square miles and is composed primarily of plastics; that one study found plastics in the gut of every sea turtle examined and in 90 percent of seabirds examined; and that plastics have been known to cause death or reproductive failure in sea turtles, birds, and other organisms that ingest plastic.

The Legislature further finds that, as plastics break down through photodegradation, they release harmful chemicals such as bisphenol A (BPA) into the environment that have been linked to health problems in humans; that these chemicals enter the food chain when consumed by marine life; and that single-use plastic waste creates visual pollution, degrades water quality, and impacts the tourism, fishing, and shipping industries, all of which are major contributors to the New Jersey economy.

The Legislature therefore determines that it is no longer conscionable to permit the unfettered use and disposal of single-use plastics in the State; that New Jersey must do its part to minimize plastic pollution in the ocean, and to ensure that future generations have a clean and healthy environment to live, work, and recreate in; that banning or limiting the use of single-use plastic carryout bags, polystyrene foam food service products, and single-use plastic straws is a significant step in this effort, as these items are among the most significant sources of beach and ocean pollution; that New Jersey joins several other states and hundreds of municipalities across the country in banning or limiting the use of single-use plastics; and that such bans and limitations have drastically lowered consumer consumption of single-use plastics.

The Legislature further finds that single-use paper carryout bags use as much or more energy and resources to manufacture and transport than single-use plastic carryout bags and contribute to harmful air emissions. Consequently, the Legislature further determines that it is in the public interest to prohibit grocery stores from providing single-use paper carryout bags.

The Legislature further finds that the State's nascent hemp-growing industry, regulated through the New Jersey Department of Agriculture's Division of Plant Industry, would be a significant force in creating biodegradable raw materials that can be turned into hemp-based biopackaging, which breaks down in approximately 90 days versus the dozens of years it takes petroleum-based plastics to break down into microplastics in the ocean.

C.13:1E-99.127 Definitions relative to certain single-use products.

2. As used in P.L.2020, c.117 (C.13:1E-99.126 et al.):

"Carryout bag" means a bag that is provided by a store or food service business to a customer for the purpose of transporting groceries, prepared foods, or retail goods. "Carryout bag" shall not include:

(1) a bag used solely to contain or wrap uncooked meat, fish, or poultry;

(2) a bag used solely to package loose items such as fruits, vegetables, nuts, coffee, grains, baked goods, candy, greeting cards, flowers, or small hardware items;

(3) a bag used solely to contain live animals, such as fish or insects sold in a pet store;

(4) a bag used solely to contain food sliced or prepared to order, including soup or hot food;

(5) a laundry, dry cleaning, or garment bag;

(6) a bag provided by a pharmacy to carry prescription drugs;

(7) a newspaper bag; and

(8) any similar bag, as determined by the department pursuant to rule, regulation, or guidance.

"Department" means the Department of Environmental Protection.

"Food service business" means a business that sells or provides food for consumption on or off the premises, and includes, but is not limited to, any restaurant, café, delicatessen, coffee shop, convenience store, grocery store, vending truck or cart, food truck, movie theater, or business or institutional cafeteria, including those operated by or on behalf of any governmental entity.

"Grocery store" means a self-service retail establishment that occupies at least 2,500 square feet and that sells household foodstuffs for off-site consumption, including, but not limited to, fresh produce, meat, poultry, fish, deli products, dairy products, canned foods, dry foods, beverages, baked foods, or prepared foods. "Grocery store" shall not include an establishment that handles only prepackaged food that does not require time or temperature controls for food safety.

"Hemp product" means a finished product with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent that is derived from or made by processing a hemp plant or plant part and prepared in a form available for commercial sale.

"Person" means any individual, corporation, company, association, society, firm, partnership, joint stock company, or governmental entity.

"Plastic" means a synthetic material made from linking monomers through a chemical reaction to create an organic polymer chain that can be molded or extruded at high heat into various solid forms retaining their defined shapes during the life cycle and after disposal.

"Polystyrene foam" means blown polystyrene and expanded and extruded foams that are thermoplastic petrochemical materials utilizing a styrene monomer and processed by a number of techniques, including, but not limited to, fusion of polymer spheres (expandable bead polystyrene), injection molding, foam molding, and extrusion-blow molding (extruded foam polystyrene).

"Polystyrene foam food service product" means a product made, in whole or in part, of polystyrene foam that is used for selling or providing a food or beverage, and includes, but is not

limited to, a food container, plate, hot or cold beverage cup, meat or vegetable tray, cutlery, or egg carton.

"Reusable carryout bag" means a carryout bag that: (1) is made of polypropylene, PET nonwoven fabric, nylon, cloth, hemp product, or other machine washable fabric; (2) has stitched handles; and (3) is designed and manufactured for multiple reuses.

"Single-use paper carryout bag" means a carryout bag made of paper that is not a reusable carryout bag.

"Single-use plastic carryout bag" means a carryout bag made of plastic that is not a reusable carryout bag.

"Store" means any grocery store, convenience store, liquor store, pharmacy, drug store, or other retail establishment.

C.13:1E-99.128 Dispensing of single-use plastic carryout bags prohibited.

3. a. Beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.):

(1) no store or food service business shall provide or sell a single-use plastic carryout bag to a customer; and

(2) no grocery store shall provide or sell a single-use paper carryout bag to a customer.

b. A municipality or county shall not adopt any rule, regulation, code, or ordinance concerning the regulation or prohibition of single-use plastic carryout bags or single-use paper carryout bags after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

c. Beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), this section shall supersede and preempt any municipal or county rule, regulation, code, or ordinance concerning the regulation or prohibition of single-use plastic carryout bags or single-use paper carryout bags that was enacted prior to the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

C.13:1E-99.129 Dispensing of polystyrene form food service products prohibited.

4. a. Beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), no person shall sell or offer for sale in the State any polystyrene foam food service product.

b. Beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), no food service business shall provide or sell any food in a polystyrene foam food service product.

c. The following products shall be exempt from the provisions of subsections a. and b. of this section for a period of two years beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.):

(1) disposable, long-handled polystyrene foam soda spoons when required and used for thick drinks;

(2) portion cups of two ounces or less, if used for hot foods or foods requiring lids;

(3) meat and fish trays for raw or butchered meat, including poultry, or fish that is sold from a refrigerator or similar retail appliance;

(4) any food product pre-packaged by the manufacturer with a polystyrene foam food service product; and

(5) any other polystyrene foam food service product as determined necessary by the department.

d. The department may extend any exemption provided for in subsection c. of this section for additional periods not to exceed one year upon a written determination that there is no cost-effective and readily available alternative for the item. An exemption shall expire after one year unless the department extends the exemption pursuant to this subsection.

e. The department may, upon written application by a person or food service business, waive the provisions of subsection a. or b. of this section for the person or food service business for a period not to exceed one year, if:

(1) there is no feasible and commercially available alternative for a specific polystyrene foam food service product; or

(2) the person or food service business has less than $500,000 in gross annual income and there is no reasonably affordable, commercially-available alternative to the polystyrene foam food service product.

The department shall prescribe the form and manner of the application for a waiver pursuant to this subsection. The department may, upon written application, extend any waiver granted pursuant to this section for additional periods not to exceed one year.

f. A municipality or county shall not adopt any rule, regulation, code, or ordinance concerning the regulation or prohibition of polystyrene foam food service products after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

g. Beginning 18 months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), this section shall supersede and preempt any municipal or county rule, regulation, code, or ordinance concerning the regulation or prohibition of polystyrene foam food service products that was enacted prior to the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

C.13:1E-99.130 Dispensing of single-use plastic straws.

5. a. Beginning one year after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), a food service business shall only provide a single-use plastic straw to a customer upon the request of the customer.

b. A food service business shall maintain an adequate supply of single-use plastic straws to provide at the request of customers pursuant to subsection a. of this section.

c. Nothing in this section shall be construed to prohibit a store from selling packages of single-use plastic straws to customers, or from providing or selling a beverage pre-packaged by the manufacturer with a single-use plastic straw, including, but not limited to, a juice box.

d. Notwithstanding the provisions of subsection c. of section 6 of P.L.2020, c.117 (C.13:1E-99.131), the Department of Health shall enforce the provisions of this section. The Department of Health may adopt, pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.), any rules and regulations necessary to effectuate the provisions of this section.

e. No later than four years after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), the Department of Health shall prepare and submit to the Plastics Advisory Council a written report evaluating the compliance of food service businesses with the requirements of this section.

f. A municipality or county shall not adopt any rule, regulation, code, or ordinance concerning the regulation or prohibition of single-use plastic straws after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

g. Beginning one year after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), this section shall supersede and preempt any municipal or county rule, regulation, code, or

ordinance concerning the regulation or prohibition of single-use plastic straws that was enacted prior to the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.).

C.13:1E-99.131 Violations, penalties.

6. a. Any person or entity that violates a provision of P.L.2020, c.117 (C.13:1E-99.126 et al.), or any rule or regulation adopted pursuant thereto, shall be subject to a warning for a first offense, up to $1,000 for a second offense, and up to $5,000 for a third or subsequent offense, to be collected in a civil action by a summary proceeding under the "Penalty Enforcement Law of 1999," P.L.1999, c.274 (C.2A:58-10 et seq.), or in any case before a court of competent jurisdiction wherein injunctive relief has been requested. If the violation is of a continuing nature, each day during which it continues shall constitute an additional, separate, and distinct offense. The Superior Court and the municipal court shall have jurisdiction to enforce the provisions of the "Penalty Enforcement Law of 1999" in connection with P.L.2020, c.117 (C.13:1E-99.126 et al.).

b. Any penalty collected pursuant to this section shall be remitted to the State Treasurer for deposit in the Clean Communities Program Fund established pursuant to section 5 of P.L.2002, c.128 (C.13:1E-217), except that a municipality or entity certified pursuant to the "County Environmental Health Act," P.L.1977, c.443 (C.26:3a2-21 et seq.) may retain 30 percent of any penalty it collects pursuant to subsection a. of this section.

c. The Department of Environmental Protection, a municipality, and any entity certified pursuant to the "County Environmental Health Act," P.L.1977, c.443 (C.26:3a2-21 et seq.) shall have the authority to enforce the provisions of P.L.2020, c.117 (C.13:1E-99.126 et al.). Those entities may institute a civil action for injunctive relief to enforce P.L.2020, c.117 (C.13:1E-99.126 et al.) and to prohibit and prevent a violation thereof, and the court may proceed in the action in a summary manner.

C.13:1E-99.132 Plastics Advisory Council.

7. a. There is established in the Department of Environmental Protection the Plastics Advisory Council. The council shall monitor the implementation of P.L.2020, c.117 (C.13:1E99.126 et al.), and evaluate its effectiveness in reducing single-use plastics and plastic waste in the State.

b. The council shall consist of 16 members as follows:

(1) the Commissioner of Environmental Protection, who shall serve ex officio, or the commissioner's designee;

(2) the Commissioner of Health, who shall serve ex officio, or the commissioner's designee;

(3) the Secretary of Agriculture, who shall serve ex officio, or the secretary's designee; and

(4) the following members appointed by the Governor:

(a) two members of the academic community with expertise on the issues of single-use plastics and plastic waste;

(b) four members representing the environmental community;

(c) four members representing stores and food service businesses in the State;

(d) one member representing the polystyrene foam industry;

(e) one member representing the recycling industry; and

(f) one member representing local governments.

c. All appointments to the council shall be made no later than 90 days after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.). The term of office of each public member shall be three

years. Each member shall serve until a successor has been appointed and qualified, and vacancies shall be filled in the same manner as the original appointments for the remainder of the unexpired term. A member is eligible for reappointment to the council. The members of the council shall serve without compensation, but shall be eligible for necessary and reasonable expenses incurred in the performance of their official duties within the limits of funds appropriated or otherwise made available for the council's purposes.

d. The council shall organize as soon as practicable following the appointment of its members and shall select a chairperson and a vice-chairperson from among its members, as well as a secretary who need not be a member of the council. A majority of the membership of the council shall constitute a quorum for the transaction of council business. The council may meet and hold hearings at the place or places it designates.

e. No later than one year after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), and each year thereafter, the council shall prepare and submit a written report to the Governor, the Legislature pursuant to section 2 of P.L.1991, c.164 (C.52:14-19.1), and the respective chairpersons of the Senate Environment and Energy Committee and the Assembly Environment and Solid Waste Committee, or their successors, evaluating the implementation and effectiveness of P.L.2020, c.117 (C.13:1E-99.126 et al.), and making any recommendations for legislative or administrative action to improve the implementation or effectiveness of P.L.2020, c.117 (C.13:1E-99.126 et al.).

f. (1) The council shall also study the environmental and public health impacts of single-use plastics and micro-plastics; healthy and environmentally-friendly alternatives to single-use plastics; strategies and policies to increase the recyclability of plastics and reduce the amount of plastic entering the environment; the technological feasibility of increasing recycled content of consumer plastics and expanding the types of plastics that may be manufactured from recycled material; and ways to enhance the development and expansion of markets of post-consumer recycled plastic, including State and local purchasing and procurement practices.

(2) No later than two years after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.), the council shall submit a written report to the Governor, the Legislature pursuant to section 2 of P.L.1991, c.164 (C.52:14-19.1), and the respective chairpersons of the Senate Environment and Energy Committee and the Assembly Environment and Solid Waste Committee, or their successors. The written report shall summarize the analysis conducted pursuant to paragraph (1) of this subsection and recommend ways to reduce the use of plastics and the amount of plastic entering the environment, and increase the rate of recycling of plastics.

C.13:1E-99.133 Program to assist businesses with compliance.

8. No later than six months after the effective date of P.L.2020, c.117 (C.13:1E-99.126 et al.):

a. the Department of State, in consultation with the Department of Environmental Protection, shall establish a program to assist businesses in complying with the provisions of P.L.2020, c.117 (C.13:1E-99.126 et al.), including, but not limited to, developing and publishing on its Internet website guidance on compliance with the act, and establishing an online clearinghouse of vendors who provide environmentally sound alternatives to single-use plastic carryout bags, single-use paper carryout bags, polystyrene foam food service products, and single-use plastic straws; and

b. the organization under contract with the Department of Environmental Protection pursuant to section 6 of P.L.2002, c.128 (C.13:1E-218) shall, in cooperation with local governments and the business community, develop and implement a Statewide public information and education program concerning the provisions of P.L.2020, c.117 (C.13:1E99.126 et al.). The program shall include, but need not be limited to, educational programs, public service announcements, and the distribution of free reusable carryout bags throughout the State.

C.13:1E-99.134 Rules, regulations.

9. The department shall adopt, pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.), any rules and regulations necessary to effectuate the provisions of P.L.2020, c.117 (C.13:1E-99.126 et al.).

10. Section 5 of P.L.2002, c.128 (C.13:1E-217) is amended to read as follows:

C.13:1E-217 Clean Communities Program Fund.

5. The Clean Communities Program Fund is established as a non-lapsing, revolving fund in the Department of the Treasury. The Clean Communities Program Fund shall be administered by the Department of Environmental Protection and credited, in addition to any appropriations made thereto, with all user fees imposed pursuant to section 4 of P.L.2002, c.128 (C.13:1E-216) or penalties imposed pursuant to section 10 of P.L.2002, c.128 (C.13:1E-222), and any sums received as voluntary contributions from private sources. Interest received on moneys in the Clean Communities Program Fund shall be credited to the fund. Unless otherwise expressly provided by the specific appropriation thereof by the Legislature, which shall take the form of a discrete legislative appropriations act and shall not be included within the annual appropriations act, all available moneys in the Clean Communities Program Fund shall be appropriated annually solely for the following purposes and no others:

a. 10 percent of the estimated annual balance of the Clean Communities Program Fund shall be used for a State program of litter pickup and removal and of enforcement of litter related laws and ordinances in State owned places and areas that are accessible to the public. Moneys in the fund may also be used by the State to abate graffiti;

b. 50 percent of the estimated annual balance of the Clean Communities Program Fund shall be distributed as State aid to eligible municipalities with total housing units of 200 or more for programs of litter pickup and removal, including establishing an "Adopt-A-Highway" program, of public education and information relating to litter abatement and of enforcement of litter-related laws and ordinances. The amount of State aid due each municipality shall be solely calculated based on the proportion which the housing units of a qualifying municipality bear to the total housing units in the State. Total housing units shall be determined using the most recent federal decennial population estimates for New Jersey and its municipalities, filed in the office of the Secretary of State. Moneys in the fund may also be used by an eligible municipality to abate graffiti;

c. 30 percent of the estimated annual balance of the Clean Communities Program Fund shall be distributed as State aid to eligible municipalities with total housing units of 200 or more for programs of litter pickup and removal, including establishing an "Adopt-A-Highway" program, of public education and information relating to litter abatement and of enforcement of litter-related laws and ordinances. The amount of State aid due each municipality shall be solely calculated based on the proportion which the municipal road mileage of a qualifying municipality bears to the total

municipal road mileage within the State. For the purposes of this subsection, "municipal road mileage" means that road mileage under the jurisdiction of municipalities, as determined by the Department of Transportation. Moneys in the fund may also be used by an eligible municipality to abate graffiti;

d. 10 percent of the estimated annual balance of the Clean Communities Program Fund shall be distributed as State aid to eligible counties for programs of litter pickup and removal, including establishing an "Adopt-A-Highway" program, of public education and information relating to litter abatement and of enforcement of litter-related laws and ordinances. The amount of State aid due each county shall be solely calculated based on the proportion which the county road mileage of an eligible county bears to the total county road mileage within the State. For the purposes of this subsection, "county road mileage" means that road mileage under the jurisdiction of counties, as determined by the Department of Transportation. Moneys in the fund may also be used by an eligible county to abate graffiti;

e. No eligible municipality shall receive less than $4,000 in State aid as apportioned pursuant to subsections b. and c. of this section. A municipality or county may use up to five percent of its State aid for administrative expenses;

f. Prior to the distribution of funds pursuant to subsections a. through d. of this section:

(1) $375,000 of the estimated annual balance of the Clean Communities Program Fund shall be annually appropriated to the department and made available on July 1 of every year to the organization under contract with the department pursuant to section 6 of P.L.2002, c.128 (C.13:1E-218) for a Statewide public information and education program concerning antilittering activities and other aspects of responsible solid waste handling behavior, of which up to $75,000 shall be used exclusively to finance an annual Statewide television, radio, newspaper and other media advertising campaign to promote antilittering and responsible solid waste handling behavior.

(2) in each of the first three years after the effective date of P.L.2020, c.117 (C.13:1E99.126 et al.), $500,000 of the estimated annual balance of the Clean Communities Program Fund shall be appropriated to the department and made available on July 1 of each year to the organization under contract with the department pursuant to section 6 of P.L.2002, c.128 (C.13:1E-218) for the Statewide public information and education program developed pursuant to subsection b. of section of section 8 of P.L.2020, c.117 (C.13:1E-99.133).

The organization under contract with the department pursuant to section 6 of P.L.2002, c.128 (C.13:1E-218) shall, no later than the date on which the contract period concludes, submit a report to the Governor and the Legislature concerning its activities during the contract period and any recommendations concerning improving the program. Every eligible municipality and county shall cooperate with the organization under contract with the department pursuant to section 6 of P.L.2002, c.128 (C.13:1E-218) in providing information concerning its program of litter pickup and removal.

No later than May 31, 2008, 25 percent of the estimated annual balance of the Clean Communities Program Fund shall be appropriated to the State Recycling Fund established pursuant to section 5 of P.L.1981, c.278 (C.13:1E-96). These moneys shall be used by the Department of Environmental Protection for direct recycling grants to counties and municipalities, up to a maximum appropriation of $4,000,000.

g. As used in this section, "graffiti" means any inscription drawn, painted or otherwise made on a bridge, building, public transportation vehicle, rock, wall, sidewalk, street or other exposed surface on public property.

The department may carry forward any unexpended balances in the Clean Communities Program Fund as of June 30 of each year.

11. This act shall take effect immediately.
Approved November 4, 2020