

Economics of Single Use Plastic Bags (Easttown EAC, 2022)

During the February 22nd, 2022, meeting, the EAC's single use plastic bag ordinance was initially presented to the Board of Supervisors. Following the presentation, the Supervisors asked for further information regarding the economics of single use plastic bag bans. The following is a summary of information to meet that request.

In general, single use plastic bags are economically problematic because they are derived from fossil fuels, are a source of litter on land and water, create tangles and jams in recycling and wastewater processing equipment and prove costly to municipalities in terms of time and money to manage. Most of the economic data currently available focuses on the economic costs of plastics rather than the savings associated with bag bans. However, there is supportive data regarding the role of bag bans and businesses/business owners.

For business owners, removing plastic bags from the list of supplies businesses require saves them money in the long run. Currently, single use plastic bags are offered to customers free of charge and are a cost business owners must account for in their pricing for goods and services. While the per unit purchasing cost of paper bags is higher than that of plastic bags (\$0.15 versus \$0.01) the proposed ordinance requires customers to pay for paper bags (\$0.15 fee) so businesses can recoup these costs.

Prior to the statewide plastic bag ban in CA, San Francisco's Office of Economic Analysis found the following: "Their models predicted a "slight positive impact on the local economy" due to the overall decrease in bag-related costs post-ordinance, and to the economic multiplier effects that could occur alongside the projected increase in consumer spending associated with decreasing product costs passed on by retailers. The same study reported that impacted San Francisco retailers would enjoy a savings of \$3 million over the course of a year under the strengthened ban, due to the forgone purchasing costs of single use bags.¹

Additionally, with the proposed ordinance, businesses will be given a 90-day transition period during which they can utilize their existing supply of plastic bags without risk of penalty. The length of this transition period was determined based on the findings of the business community survey conducted in Easttown Township during the fall of 2021.

Beyond local businesses, plastic pollution is costly to local municipalities, utilities, and services. Penn Environment states, "Bags are an economic burden on local governments and taxpayers, with millions of dollars in hidden, externalized costs."² For example, the Clean Air Council of PA has estimated the production stream costs (from fracking to being thrown away) of plastic bags to be between \$20-\$30 per year for

¹ "Plastic Bag Bans: Analysis of Economic and Environmental Impacts". *Equinox Center*. Oct. 2013. <https://energycenter.org/sites/default/files/Plastic-Bag-Ban-Web-Version-10-22-13-CK.pdf/>.

² Savitz, Faran. Email correspondence re: economic benefits of a bag ban. Google. Mar. 2022.

Philadelphia taxpayers. Removing these bags from a municipality ultimately removes this cost for the tax base.³

Within Philadelphia, the Water Department is spending heavily to pull litter out of sewer drains and other stormwater infrastructure. They estimate that plastic pollution is doubling the maintenance costs of their green stormwater infrastructure, requiring 32 dedicated cleaning crews to remove items from their infrastructure. In 2017, city crews removed 67 tons of debris from their stormwater system, much of it being single use plastics. It bears repeating, cleaning up this litter comes with additional costs to users.⁴

Furthermore, “a recent study by Keep Pennsylvania Beautiful estimated Pennsylvania spends \$48 million a year to clean up litter. The report included an estimate that PennDOT spends approximately \$13 million annually in roadside litter clean up.”⁵ On average, Philadelphia uses approximately 1 billion plastic bags each year, and it costs the city between \$7 and \$12 million dollars to remove them.⁶ New York City has similar numbers on an annual basis: “single-use, carry-out bags account for 1,700 tons of residential garbage each week, which equates to 91,000 tons of plastic and paper carry-out bags each year and presently costs the City \$12.5 million annually to dispose of this material outside the city.”

Nationally, cities, towns, and businesses pay roughly \$80 a ton for single use plastic bags to either be buried in landfills or be incinerated, both actions have high externality costs associated with them.⁷ Hypothetically, if we were to apply this figure to Easttown Township, we are roughly 1/800th the size of New York City and thus produce approximately 114 tons of plastic and paper carry out bags each year, or \$9,120.00 in disposal costs.

Another major way single use plastic bags prove economically burdensome is for recycling facilities. “Single use plastic bags are the number one contaminant found in recycling facilities, clogging machinery and decreasing the efficiency of recycling programs in Pennsylvania that are often already struggling.”⁸

The extent of this problem can be demonstrated in San Jose CA, which spent nearly \$1 million per year on repairing plastic bag related damages. In a similar case, a recycling factory had to close down up to six times a day in order to remove the trapped plastic bags in the machinery.” Several recycling facilities in NY have estimated costs

³ Plastic Bag Ban Information Session #2 for Delaware County, PA. Logan Welde, Clean Air Council, 2/8/2022.

⁴ “Looking to Cut Plastics pollution in the ocean? Start upstream.” Jamarillo, Catalina. Jul. 2018.

⁵ Savitz, Faran. Email correspondence reg. economic benefits of a bag ban. Google. Mar. 2022.

⁶ Keep Pennsylvania Beautiful. “Litter & Illegal Dumping in Pennsylvania: A study of nine cities across the commonwealth” Jan. 2020. <https://www.keppabeautiful.org/wp-content/uploads/2020/02/KPB-Litter-Cost-Study-013120.pdf/>.

⁷ “An analysis of the Impact of Single Use Plastic Bags. Options for the New York State Plastic Bag Legislation.” New York State Plastic Bag Task Force. Jan. 2018.

https://www.dec.ny.gov/docs/materials_minerals_pdf/dplasticbagreport2017.pdf/.

⁸ Savitz, Faran. Email correspondence reg. economic benefits of a bag ban. Google. Mar. 2022.

associated with extra operational costs for removing single use plastic bags from their lines between \$300,000 to \$1 million per year.⁹

Beyond the local economic impacts, plastic pollution costs \$13 billion in economic damage to marine ecosystems per year. This includes losses to the fishing industry and tourism, as well as the cost to clean up beaches.¹⁰ This includes local beaches like the Jersey Shore, where twice annual clean ups remove litter from the beaches and accessible waters. In 2017, 84% of the material collected was plastic or foam plastic and 66% of that number was of the single use variety including single use plastic carry out bags. On average, residents of coastal areas spend \$15 per year to clean up their beaches in taxes.¹¹

Finally, a cost-benefit analysis of the proposed plastic bags ban would be incomplete if the incalculable environmental damages caused by single use plastic bags was not mentioned.

Single use plastic bags are a petroleum product; they require 12 million barrels of oil annually to produce, equating to 4% of the world's annual oil budget.¹² The emissions associated with producing plastics will exceed those from burning coal by 2030.¹³ The economic costs of these emissions at the global level are unknown but the impacts to climate change and air pollution are considerable and long lasting. The Equinox Center in San Diego calculated that a plastic bag ban and fee model similar to the one proposed in Easttown Township would reduce San Diego's energy (74 million Megajoules (MJ)), CO2 footprint (6,418 tons) and solid waste (270,000 kg) on an annual basis.¹⁴ Again, if we were to use these calculations at a per capita basis for Easttown, this would hypothetically equate to a CO2 footprint of 19.7 tons and 831 kg of solid waste for the Township.

Beyond global energy and emissions constraints, the major environmental risk posed by single use plastic bags is their inability to decompose. Over time, plastics degrade to smaller microplastics that can be ingested by the smallest species at the base of our

⁹ "An analysis of the Impact of Single Use Plastic Bags. Options for the New York State Plastic Bag Legislation." New York State Plastic Bag Task Force. Jan. 2018.

https://www.dec.ny.gov/docs/materials_minerals_pdf/dplasticbagreport2017.pdf/.

¹⁰ "Plastic Waste causes \$13 billion in annual damage to marine ecosystems, UN Agency says" United Nations. Jun. 2014. <https://news.un.org/en/story/2014/06/471492-plastic-waste-causes-13-billion-annual-damage-marine-ecosystems-says-un-agency/>.

¹¹ "Looking to Cut Plastics pollution in the ocean? Start upstream." Jamarillo, Catalina. Jul. 2018, <https://whyy.org/segments/looking-to-cut-plastics-pollution-in-the-ocean-start-upstream/>.

¹² "Plastic Bag Bans: Analysis of Economic and Environmental Impacts". *Equinox Center*. Oct. 2013. <https://energycenter.org/sites/default/files/Plastic-Bag-Ban-Web-Version-10-22-13-CK.pdf/>.

¹³ Plastic Bag Ban Information Session #2 for Delaware County, PA. Faran Savitz, PennEnvironment, 2/8/2022.

¹⁴ "Plastic Bag Bans: Analysis of Economic and Environmental Impacts". *Equinox Center*. Oct. 2013. <https://energycenter.org/sites/default/files/Plastic-Bag-Ban-Web-Version-10-22-13-CK.pdf/>.

aquatic and terrestrial food webs. Ultimately, limiting single use plastics in the food web limits our own intake of plastics from our food and water sources.

In summary, plastic bag bans reduce all these costs for municipalities, costs which are passed on to residents, by reducing the amount of plastic pollution and waste we need to handle. For businesses the impact is that a plastic bag ban with a fee on other bags reduces overall single use bag use. With less demand for bags, businesses don't need to purchase and stock as many bags, saving them costs. And although paper is more expensive than plastic, having a built-in fee for paper bag covers the difference, so businesses don't need to pay more.

Easttown Township has an opportunity to be one of the first local municipalities to pass an ordinance of this type and help push the envelope for our community.