Cost Benefit Analysis - Plastic Bag Reduction Act

Introduction

The Rhode Island Department of Environmental Management (RIDEM) proposes to adopt regulations regarding the implementation and enforcement of the Plastic Waste Reduction Act (ACT) R.I. General Laws Chapter 23-19.18[1]. This analysis estimates the societal benefits and costs to the State of Rhode Island and its' residents that result from the adoption of the proposed regulations

Pursuant to the Administrative Procedures Act (APA) R.I. General Laws Chapter 42-35[2], RIDEM has conducted a regulatory analysis for the proposed regulations. RIDEM used the best available information at the time of publication to estimate the benefits and costs of the proposed regulatory provisions.

RIDEM aims to complete the regulatory analysis to measure whether the benefit of the proposed rule justifies the cost of the proposed rule, the proposal rule will achieve the objectives of the authorizing statute, provide a concise summary of the analysis, and in doing so make a good-faith effort to comply with the APA.

Background

In 2022, the ACT required RIDEM to promulgate regulations prohibiting retail establishments from providing single-use plastic bags to customers at the point of sale in their establishments. The ACT was intended to address severe environmental impacts that single-use plastics bag pose to environment of Rhode Island and to incentivize the usage of durable reusable bags.

Single-use plastic bags are generally defined as bags that are provided by a retail establishment to a customer at the point of sale, and the single-use plastics bags allow for the customer to transport purchased items in the single-use plastic bag out of the retail establishment. The Plastic Bag Reduction Act prohibits the retail establishment from providing single-use plastic bags to the customer, but does allow them to provide paper bags, cardboard boxes, or bags that adhere to the definition of a reusable bag.

Regulatory Development

The ACT has an effective date of within one year from rules promulgation or on January 1, 2024. Beginning in January of 2023, RIDEM embarked on creating the regulations, cost benefit analysis, and fiscal note for the proposed regulations.

Problem being addressed

[1] http://webserver.rilegislature.gov//Statutes/TITLE23/23-19.18/INDEX.htm
[2] http://webserver.rilegislature.gov//Statutes/TITLE42/42-35/INDEX.htm

Presently there are numerous retail establishments that provide single-use plastics bags to their customers at the point of sale. These bags can become litter and a form of plastic pollution that is dangerous to the health of our oceans and ocean species, contributes to climate change, and is a major component of unsightly litter both on our lands and in our waters. Plastics that enter the marine environment break down through wave action and sunlight into smaller pieces called microplastics, which can be ingested by marine life, putting Rhode Island's fishing industries and aquatic ecosystems at risk. Plastic bags and thin plastic films are a common contaminant of recycling loads at the Rhode Island Resource Recovery Corporation Material Recycling Facility. Single-use plastic bags have severe environmental impacts on a local and global scale, including pollution of our waters, harm to marine and wildlife, greenhouse gas emissions, blocking storm drains, and creating litter.

Global issue of plastic bags

A 2023 study[3] by 5Gyres.org now estimates that over 180 trillion plastic particles are afloat in the world's ocean, and it is estimated that globally, people consume the equivalent of a credit card of plastic every week[4], and it is estimated that there will be more plastic than fish in the sea by 2050[5]. It is estimated that in America that 100 billion plastic bags are used annually[6], and each person uses 365 plastic bags per year[7]. In 2018 the Global International Coastal Cleanup Report[8] illustrated that reported that 964,541 plastic grocery bags and 938,929 other plastic bags were removed from the shoreline during this international event.

A 2014 study[9] by UNEP at a time when the worlds' population[10] was 7.2 billion people, estimates that the annual financial damage of plastics to marine ecosystems is equal to $13 Billion dollars, or approximately $1.81 per person. It also estimated that over 30 percent of the natural capital costs of plastic are due to greenhouse gas emissions from raw material extraction and processing.

Local issue of plastic bags

Rhode Island Census data for 2020[11] reported a population of 1,097,379 and applying the per person annual financial impact of plastics to the marine

[3] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281596
[4] https://d2ouvy59p0dg6k.cloudfront.net/downloads/plastic_ingestion_web_spreads.pdf
[5] https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics-catalysing-action
[6] http://www.wmnorthwest.com/guidelines/plasticvspaper.htm
[7] https://www.nationalgeographic.com/science/article/plastics-facts-infographics-ocean-pollution
[8] https://oceanconservancy.org/wp-content/uploads/2019/09/Final-2019-ICC-Report.pdf
[9] https://www.unep.org/news-and-stories/press-release/plastic-waste-causes-financial-damage-us13-billion-marine-ecosystems
[10] https://www.un.org/en/development/desa/population/publications/pdf/trends/Concise%20Report%20on%20the%20World%20Population%20Situation%202014/en.pdf
[11] https://www.census.gov/quickfacts/fact/table/RI/POP010220

ecosystems equates to annual Rhode Island Annual financial damage of plastics to marine ecosystems equal to $1,981,379.

Save The Bay runs the International Coastal Cleanup annually in September and since 2015 has provided annual reports[12] in 2015 through 2022 of the litter collected at area beaches, parks, and watershed areas around the State of Rhode Island. The litter collection and data tabulation are performed by volunteers and shows via the chart that single-use plastic bags remains a problem for the State of Rhode Island.

Applying the independent sector value of volunteer rate[13] for the State of Rhode Island to International Coastal Cleanups shows that $463,816 of labor was required to remove 15,947 grocery plastic bags during the seven-year time frame.

Year	Volunteers	Grocery Bags (Plastic)	Grocery Bags (Plastic) per Volunteer
2015	2,199	1,808	0.8
2016	2,205	2,282	1.0
2017	2,629	2,856	1.1
2018	2,293	1,862	0.8
2019	2,807	2,243	0.8
2020	587	1,254	2.1
2021	1,940	1,840	0.9
2022	2,465	1,802	0.7

Local issue on fisheries

Fisheries have a high economic value of $103.3 million[14] in 2021 for the State of Rhode Island and efforts to maintain the health of the water is of vital importance. Specifically, Quahogs are the largest sole-Bay fishery, and they are a filter feeding bivalve making it more susceptible to the impacts of microplastics. Research is underway to understand the ingestion of microplastics by bivalves and the rate of *bioaccumulation* and whether microplastics are a transfer mechanism for toxins.

Recreational fishing as defined in the Rhode Island Constitution[15] is a right for all people to enjoy and freely exercise in the State of Rhode Island. In 2021 there were 3,507,188[16] fishing trips for fish ranging from winter flounder to scup. These fish are part of the ocean's food chain where plankton are consumed by

[12] https://savebay.org/about-us/publications/
[13] https://independentsector.org/wp-content/uploads/2023/04/Value-of-Volunteer-Time-by-State-2001-2022.pdf

[14] https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf
[15] http://webserver.rilin.state.ri.us/RiConstitution/ConstFull.html
[16] https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf

zooplankton which are consumed by fish larvae which are consumed by small fish which are consumed by predators that are the common fishes caught in recreational fishing in Rhode Island. The introduction of microplastics into the oceans leads to a *trophic transfer* of microplastics across the food chain and can result in humans eating fish that contain microplastics. Research is underway to quantify the impacts of trophic transfer on humans.

Background Information

History of the Policy at the Federal Level

No policies exist at the Federal level specifically addressing plastic bags, however the Environmental Protection Agency (EPA) Draft Strategy to Prevent Plastic Pollution[17] Objective A has clearly stated to *"Reduce the production and consumption of single-use, unrecyclable, or frequently littered plastic products." Most plastic products found in the environment are items that are single-use, unrecyclable, or frequently littered. To minimize the associated environmental impacts of these plastics it is essential to reduce the increasing rates of both plastic production and consumption in the United States and to address pollution that occurs along the life cycle of plastics products. It is also important to reduce impacts from the production of materials, which can negatively impact the environment and human health, especially in disadvantaged or underserved communities with environmental justice concerns.* EPA's estimates of plastic products in the municipal solid waste stream show that plastic waste is growing. Plastic products in the U.S. municipal solid waste stream predominantly consist of containers and packaging, which includes some single-use products such as bags, wraps, and bottles[18].

History of Policy at the State Level

Ten States[19] has enacted laws that regulate single-use plastic bags with definitions ranging from an outright prohibition of plastic bags, only allowing thick plastic bags, stepwise requirements for post-consumer recycled contents, and imposing a fee on the distribution of single-use plastic bags. These mixed definitions fall into the broad category of "plastic bag bans".

History of Policy in Rhode Island at the State Level

[17] https://www.epa.gov/system/files/documents/2023-04/Draft_National_Strategy_to_Prevent_Plastic_Pollution.pdf
[18] https://www.epa.gov/sites/default/files/2021-01/documents/2018_tables_and_figures_dec_2020_fnl_508.pdf
[19] https://www.ncsl.org/environment-and-natural-resources/state-plastic-bag-legislation

The Rhode Island General Assembly has been aware of this problem which is evident in the Chart below with legislation being introduced in 2008 and eventually passed by the House and Senate in 2022.

Year	House Bill	Senate Bill
2008	https://webserver.rilegislature.gov/billtext08/housetext08/h7444.pdf	
2009		
2010		https://webserver.rilegislature.gov/billtext10/senatetext10/s2481.pdf
2011		https://webserver.rilegislature.gov/billtext11/senatetext11/s0455.pdf
2012		
2013	https://webserver.rilegislature.gov/billtext13/housetext13/h5403.pdf	https://webserver.rilegislature.gov/billtext13/senatetext13/s0404.pdf
2014	https://webserver.rilegislature.gov/billtext14/housetext14/h7178.pdf	https://webserver.rilegislature.gov/billtext14/senatetext14/s2314.pdf
2015	https://webserver.rilegislature.gov/billtext15/housetext15/h5151.pdf	
2016		https://webserver.rilegislature.gov/billtext16/senatetext16/s2527.pdf
2017	https://webserver.rilegislature.gov/billtext17/housetext17/h5538.pdf	https://webserver.rilegislature.gov/billtext17/senatetext17/s0109.pdf
2018	https://webserver.rilegislature.gov/billtext18/housetext18/h7851.pdf	https://webserver.rilegislature.gov/billtext18/senatetext18/s2354.pdf
2019	https://webserver.rilegislature.gov/billtext19/housetext19/h5577.pdf	https://webserver.rilegislature.gov/billtext19/senatetext19/s0268.pdf
2020	https://webserver.rilegislature.gov/billtext20/housetext20/h7306.pdf	https://webserver.rilegislature.gov/billtext20/senatetext20/s2003.pdf
2021	https://webserver.rilegislature.gov/billtext21/housetext21/h5358.pdf	https://webserver.rilegislature.gov/billtext21/senatetext21/s0037.pdf
2022	https://webserver.rilegislature.gov/billtext22/proposed22/h7065a.pdf	https://webserver.rilegislature.gov/billtext22/senatetext22/s2446.pdf

History of Policy in Rhode Island at the Municipal Level

Rhode Island communities have been aware of this problem which is evident in the chart below with local ordinances passed in the Town of Barrington in 2012 and most recently in the Town of Narragansett in 2023. The evolution of the ACT at the municipal level included more stringent definitions and this ultimately influenced the State definitions further explaining the prescriptive nature of the policy and the single method of the regulation.

Community (sequenced by effective date	Effective date	Estimated population
Town of Barrington	January 1, 2013	16,130
City of Newport	November 1, 2017	24,672
City of Middletown	December 1, 2017	16,150
Town of New Shoreham	January 1, 2018	1,051
Town of Jamestown	April 20, 2018	5,405
Town of Portsmouth	September 1, 2018	17,389
Town of Warren	December 1, 2018	10,611
Town of Bristol	January 1, 2019	22,954
Town of South Kingstown	January 1, 2019	30,639
Town of North Kingstown	January 1, 2019	26,486
City of Providence	October 22, 2019	178,042
City of East Providence	November 7, 2019	47,037
Town of Westerly	December 31, 2019	22,787
Town of East Greenwich	January 13, 2020	13,099
City of Central Falls	April 22, 2020	19,359
City of Cranston	July 1, 2020	80,529
Town of Litte Compton	July 1, 2020	3,518
Town of Narragansett	January 1, 2023	14,532
18 Communities		**550,390**

History of Plastic Bags at Rhode Island Resource Recovery Corporation

The Rhode Island Department of Environmental Management (RIDEM) is the lead agency of the State of Rhode Island and responsible for defining environmental regulations and enforcement of these regulations. Meanwhile, The Rhode Island Resource Recovery Corporation (RIRRC) is a quasi-state agency that created via R.I General Law 23-19[20] and is responsible for management and operation of the State's landfill for municipal solid waste (MSW) generated from the public sector from industrial, commercial, institutional (ICI) waste generated from the private sector. Within the collection of MSW, RIRRC makes it clear via their guidelines[21] to exclude plastic bags from the curbside recycling system as they can cause significant problems within the material recycling facility and have been reported as an "operational nightmare"[22].

Goal of the Policy Change

The policy of The Plastic Waste Reduction Act is in the best interests of the health, safety and welfare of citizens and visitors to Rhode Island to protect our environment and our natural resources by reducing the distribution of single-use plastic checkout bags and incentivizing the use of durable reusable bags. Retail Establishments will need to eliminate the distribution of single-use plastic bags to customers. Municipalities and RIDEM will be required to enforce this change. There is no requirement that a retailer provide bags to customers.

Setting the Scope Analysis

The timeline of the scope analysis has a timespan of one year. It is expected that numerous retail establishments will be compliant with the ACT on the implementation date, however the regulatory analysis looks at the scenarios of business that react to the rules on their implementation date.

The state law was signed by the Governor in 2022 with an implementation date of either one year from the rule's promulgation date or January 1, 2024. With local ordinances already in effect across the State of Rhode Island, the regulatory analysis assumes that businesses started to prepare for this change in 2023. From 2024 through 2025, most of the financial impacts (costs and benefits) will be realized; however, the environmental benefits will last for years, decades, and into the rest of time.

It is not expected that future changes to the ACT are to occur, with the exception being that the highly prescriptive nature of the ACT will require changes to

[20] http://webserver.rilin.state.ri.us/Statutes/TITLE23/23-19/INDEX.HTM
[21] https://www.rirrc.org/sites/default/files/2022-08/A%20Guide%20to%20Resource%20Recovery_2022_0.pdf
[22] https://ecori.org/2019-5-26-unwelcome-items-trash-desirability-of-ris-recyclables/

definitions if the intended outcome is not achieved based on innovative approaches to introduce single-use plastic bags that satisfy the stringent definitional requirements.

Established a Baseline

It should be noted that a baseline provides a means of comparing regulatory alternatives, and the analysis explores alternatives within the regulatory analysis although the ACT provides a highly prescriptive statute that evolves into one set of rules.

If the regulatory change associated with the ACT is not implemented, the future situation as it relates to single-use plastic bags and the environmental impacts is such that Rhode Island will continue to put a demand on the production of plastic bags that are mostly made from fossil-fuels, and this fundamentally is inconsistent with Act on Climate[23]. Without a state law, it is possible that municipalities will create their own local ordinances. Rhode Island has thousands of stores that sell products to customers and the continued use of single-use plastic bag increases the likelihood of the negative impacts not limited to bags incorrectly put into the recycling bin that result in major issues at the material recycling facility, and bags becoming litter throughout the marine and terrestrial environment.

Proposed Action

The proposed regulatory action is to enact rules that prevent retail establishments from providing customers with single-use plastic bags at the point of sale, however they can provide bags that are defined as “reusable bag”. It should be noted that the term “single-use” and “plastic” and when used together as “single-use plastic bag” can have individual interpretation and result in confusion, so it is most important and applicable to focus on what is allowed by abiding by the definition of “reusable bag”. A reusable bag is a bag that satisfies all three of the following conditions. (1) Handles that are stitched. The “handle” is stitched to the “bag”. The bag is the component that contains material, while the “handle” is the component that allows the customer to hold the bag. (2) The bag is designed and manufactured for one hundred twenty-five (125) or more reuse. (3) The bag is made primarily of washable cloth, other durable woven or nonwoven fabric, polyester, polypropylene, or other durable plastic with a minimum thickness of four (4.0) mils.

Identifying Stakeholders

[23] http://webserver.rilegislature.gov//Statutes/TITLE42/42-6.2/INDEX.htm

The stakeholder scope of the regulatory analysis pertains only to entities of the State of Rhode Island with a focus on the societal benefits and costs of the regulatory change. The entities include state government, local government, private businesses, individual citizens, and consumers (herein referenced as customers). Entities that are outside the scope of the regulatory analysis include and are not limited to transportation sector businesses that transport material across state borders into Rhode Island, production sector business that use raw materials to create bags, business that perform extraction, mining, harvesting, and anything related to the generation and availability of raw materials. Stakeholders are affected differently by the ACT and the regulatory analysis looks at each stakeholder with their unique circumstances.

State Government

The Rhode Island Department of Environmental Management will be required to contribute to the enforcement of the regulations. During the first few years the level of effort will be low, but significantly higher than the anticipated effort in future years (where the effort will be minimal presuming compliance). No other state agencies are anticipated to have a direct impact; however, an indirect impact could be on requirements of the Department of Business Regulations to include this regulation within the information shared with businesses. At this time there are no direct or indirect impacts to the Rhode Island Department of Health (RIDOH), however in partnership for a healthy environment, RIDOH could play a role to enforce the regulations at food establishments that may be providing takeout food in prohibited bags. However, it is very likely that enforcement of the regulations at the municipal level will address all types of businesses and therefore there is no direct or indirect impact to RIDOH.

Local Government

Local municipalities will be required to enforce the regulations, however 18 out of 39 municipalities already have a similar ordinance in place, so there will be less of a change from their status quo. The department or agencies impacted will depend on how the manager of the municipality delegates the responsibility within their organization. Municipalities are not directly affected differently by the regulation; however, the indirect local affect will be based on the number of retail establishments that are not in compliance.

Private Business and Organizations

Private businesses (retail establishments and food establishments) that provide single-use plastic bags to customers at the point of sale will be affected by the

regulation, however the extent of the impact will vary depending on the circumstances of each private business, their choice of how to provide alternatives for their customers, and the rate of transformation of the customers to bring their own durable reusable bags.

Retail establishments will not need to purchase new licenses and likely will not need any new equipment. Some retailers that have customized turnstyles may decide to retrofit these devices to work with paper bags and that could introduce a cost. Retail establishments will generally spend the same amount of time with alternatives to single-use plastic bags. Customers already bring their own reusable bags to retail establishments, so an increase in this activity will not have a new impact. Retail establishments are already familiar with operations with paper bags, so an increase in this activity will not have a new impact.

Retail establishments may experience a change of price of the alternative bags they purchase that are provided to the customer at the point of sale. It should be noted that retail establishments are not required by law to provide a bag to a customer, so this convenience and service has already been a cost that is part of the cost of doing business and is either absorbed within the operating expenses of the retail establishment or it is passed along to the customer as part of the cost of the items sold in their establishment.

Retail establishments that do not provide bags today will not experience any change of price after these rules are in effect. Retailers that do provide bags to all their customers, and plan to do so in the exact manner after the rules are in effect, will likely experience an increase in price as the unit cost of a paper bag is higher than a unit cost of single-use plastic bags. Retailers that do provide bags to all their customers, and plan to provide a modified offering (encouraging customers to bring their own bag and providing paper bags) will experience an increased in price that is positively offset by the number of customers that bring their own bag.

Secondary businesses that provide single-use plastic bags to retail establishments will be affected by the regulation as their customers will no longer purchase single-use plastic bags and may purchase more alternative bags that are compliant with the definitions of the regulation. Factors that will influence the total effect of the regulation will include the demand of alternative bags, the cost different at market rates of alternative bags, the storage space of alternative bags, and the transportation requirements of alternative bags.

Secondary businesses affected by the rule are the waste management systems of the State of Rhode Island. Whereas single-use plastic bags are not recyclable via the single stream recycling system, often they are improperly discarded into that system and wreak havoc on the star screeners used within the material recycling facility. Bags that are discarded loosely into the trash container often become airborne at the sanitary landfill and requires the RIRRC to install large fences around the open pile.

There are exemptions in the statute such that this rule is not applicable to Retail sales establishments such as markets, bazaars or festivals operated by nonprofit or religious institutions, yard sales, tag sales, or other sales by residents at their homes.

Individuals, Customers, and Constituencies

The only customers affected by this regulation are customers that do not bring their own reusable bag and purchase from retail establishments that currently provide single-use plastic bags. The customers may be impacted by the retail establishments' choice of alternative method provided to their customers and this may result in a different bag provided to the customer, and it may result in an explicit cost added to their bill. There are no individuals affected differently due to geographic location, income level, or other demographic factors.

Customers that previously utilized single-use plastic bags provided by the retail establishment had a responsibility for recycling the bag via the RESTORE program which was enabled via R.I. General Law[24] entitled the "Promotion of Paper Bag Usage". Depending on the retail establishments' choice, for example they may decide to provide paper bags, the customer will need to recycle the paper bag via their curbside recycling program.

Customers may face different benefits and costs, however that is not a direct impact of the regulation and is a result of the retail establishments' choice of alternative method. Customers may opt to purchase durable reusable bags, and this would be a one-time cost that would translate to long term benefits. At some retail establishments, customers are provided a benefit via a small discount on their total purchase price based on the usage and number of reusable bags.

The regulation may have an indirect effect on the price of goods and services depending on the retail establishments' choice as to whether they provide an

[24] http://webserver.rilegislature.gov//Statutes/TITLE23/23-18.11/INDEX.htm

alternative bag method for their customers. The existing landscape of retail establishments is such that the cost of the single-use plastic bag was already absorbed by the retail establishment and a similar approach will result in no apparent change.

Identifying Benefits and Costs

The affected stakeholders are a subset of the entire population as the regulation analysis attempts to take into consideration that current retail establishments operations vary greatly across the State of Rhode Island. This diversity can be attributed not limited to the pre-existing local ordinances, the type of retail establishment and their products, and the business policies of each retail establishment. Additionally, individuals and customers also have diverse habits in terms of bringing their own reusable bags. These factors have the greatest impact on the anticipated benefits and costs of the implementation of the regulations of the ACT.

The table below illustrates the impact matrix scenarios that best describe the possibilities that exist today in the State of Rhode Island. Shown in green highlight are the possible scenarios that could continue as-is after the implementation of the regulations of the ACT.

Scenario	Customer Options	
Retail Options	Does not bring their reusable bag	Does bring their reusable bag
Provides plastic bags only	S1	
Provides plastic and paper bags	S2	
Does not provide any bags		
Provides paper bags at no charge		
Provides paper bags at no charge, and cash back for bringing your reusable bag		
Provides paper bags at a charge, and cash back for bringing your reusable bag		
Provides plastic bags only, and cash back for bringing your reusable bag	S3	S5
Provides plastic and paper bags, and cash back for bringing your reusable bag	S4	S5
Green - Scenario that ***will not*** be impacted by the regulations.		
Yellow - Scenario that ***will*** be impacted by the regulations.		

The regulatory analysis therefore puts attention and consideration for identifying the benefits and costs for the impact matrix scenarios with yellow highlight as these are scenarios that currently rely on the usage of bags that will be prohibited and ***will experience a change*** from the regulations.

Benefits to Stakeholders

State Government Agencies

The direct benefits of the regulations are that the agency will have promulgated rules to support the ACT that advances the mission of the agency to protect, restore, and promote our environment to ensure Rhode Island remains a wonderful place to live, visit, and raise a family. The elimination of prohibited bags will reduce the estimated annual economic impact of $1,981,379 and reduce the average annual amount of 2,249 plastics bags collected at the International Coastal Cleanup. This will have the direct benefit to reduce plastic pollution, reduce the amount of plastic that enters the marine environment and breaks down into microplastics, reduce the occurrence of contaminants impacting the material recycling facility, reduce pollution of our waters, reduce greenhouse gas emissions, reduce storm drain blockage, and reduce litter. The ancillary benefits of moving away from single-use plastics towards durable reusable alternatives is that it promotes sustainability, circular economies, and sends a message that the State of Rhode Island cares deeply about the natural resources. This message can be amplified by the tourism agencies across the State of Rhode Island to increase visitors and this will have a positive impact on the local and state economy. Lastly, while not considered a formidable amount nor a source of direct revenue, all penalties collected by the agency pursuant to this rule will be retained by the agency.

Local Government

Local governments will experience similar benefits as state government. It should also be stated that local governments are the originating entity for enforcement and while not considered a formidable amount nor a source of direct revenue, all penalties collected by the local governments pursuant to this rule will be retained by the local governments.

Private Business and Organizations

The potential benefits to private business and organization are limited to the affected stakeholders as to whether their current operations will require changes because of the rules. As shown in the impact matrix scenarios, numerous retail establishments will not be affected by the rules while some will have some experience. For those affected, compliance costs will likely not decrease at the implementation of the regulation. However, as the regulation becomes standard practice, customers will increase their usage of durable reusable bags, and retail

establishments will experience a decrease in compliance costs. This variability of customer behavior is unpredictable, and the best-case scenario is that 100% of customers bring their own reusable bags which will have the greatest benefit to retail establishments. The worst-case scenario is that no customers bring their own reusable bags, and the retail establishment must provide an alternative bag to all customers. The competitive advantage of eliminating bags that are now prohibited with the implementation of the regulation will be less available, so an increase in revenue is not expected. Market demand for alternative bags will influence the global supply chain of extraction of raw materials, production of finished products, and the transportation of these products to retail establishments. It is possible that price changes will occur in either direction, however the volume of bags that are used in the State of Rhode Island is a fraction of the global supply chain volume. The ancillary benefits of abiding by the regulations are that retail establishments will be inspired to take a proactive approach towards evaluating all their single-use plastics and exploring alternatives.

Individuals, Customers, and Constituencies

There is no expected reduction in price or quality affected by the regulation, nor are there any anticipated increases in health and safety outcomes. The direct benefit to the individuals is the improvement in the quality of the environment. Litter is not only unsightly, but it is also harmful to the health and well-being of humans and the marine and terrestrial ecosystems.

Costs to Stakeholders

The affected stakeholders are a subset of the entire population as the regulation analysis attempts to take into consideration that current retail establishments operations vary greatly across the State of Rhode Island. This diversity can be attributed not limited to the pre-existing local ordinances, the type of retail establishment and their products, and the business policies of each retail establishment. As a result of this wide range of impact, the direct costs, indirect costs, opportunity costs, costs of reduced competition and substitution effect, and unintended consequences have an equally wide range of possibilities.

State Government

The agency does not face any measurable costs for the administration of the regulation, it is seen as the cost of doing business. Employees will require minimal training as the Office of Compliance and Inspection provided input and review on drafting the regulation and are knowledge of the definitions and enforcement

requirements. The Office of Compliance and Inspection will use their existing systems and processes for the enforcement of the regulation. No direct or indirect substantial costs are anticipated for the cost of implementing, administering, and enforcing the regulation and the work effort will be performed by the Office of Customer Technical Assistance where entities reach out for assistance, and by the Office of Compliance and Inspection for the enforcement of violations. The agency is a staff-limited entity, so opportunity costs do not exist as the staff is optimized to work on the high-impact high-value outputs and outcomes aligned with the strategic direction of the agency.

Local Government

Local governments are required to enforce the regulation and fortunately 18 out of 39 local governments already have a very similar ordinance that matches the regulation. For these local governments, minimal adjustment will be required to make sure they abide by the terms and conditions of the regulation as opposed to their prior ordinance. Local governments that do not have an existing ordinance will require the manager of the local government to appoint a resource to enforce the regulation, and this will require time allocated for the various work efforts of enforcement.

Private Business and Organizations

The regulatory analysis puts attention and consideration for identifying the benefits and costs for the impact matrix scenarios with yellow highlight as these are scenarios that currently rely on the usage of bags that will be prohibited and ***will experience a change*** from the regulations. The exact number of retail establishments affected is not known and will continuously change up until the point the regulation is active. It is presumed that businesses are eliminating prohibited bags during 2023 and leading up to the implementation date. Nevertheless, careful consideration is provided for the impacted scenarios.

Scenario	Number
Provides plastic bags only, customers do not bring their reusable bag	**S1**
Provides plastic and paper bags, customers do not bring their reusable bag	**S2**
Provides plastic bags only, and cash back for bringing your reusable bag	**S3/S5**
Provides plastic and paper bags, and cash back for bringing your reusable bag	**S4/S5**
Yellow - Scenario that ***will*** be impacted by the regulations.	

At a general level, there are minimal costs associated with the work efforts to plan, train, or otherwise prepare the retail establishment for the regulation. Retail establishments may need to adjust their turnstyles in grocery stores to accommodate alternative bags (such as paper). Retail establishments are not required to acquire additional or modified licenses, neither are higher costs for equipment or other requirements. Retail establishments will not have any additional overhead for compliance costs with inspections, record-keeping or auditing, however large stores that receive automated inventory from distribution centers will need to make sure that national campaigns for prohibited bags are not inadvertently introduced into Rhode Island retail establishments.

At a specific level, a valid question for inspection of the costs associated with the implementation of the regulations is whether retail establishments will face higher prices or lost sales due to these changes. Regulatory analysis is considered at a worst-case / best-case for each of the impacted scenarios.

Provides plastic bags only, customers do not bring their reusable bag (S1)

This is the worst-case scenario where a retail establishment provides plastics bags to all their customers and after the regulation is enacted that all their customers continue to request a provided bag and do not bring their reusable bag. This scenario is not likely as typically customers are comfortable leaving the retail establishment carrying just a few items and it is likely that some customers will bring their reusable bag. Nevertheless, the quantitative analysis of a hypothetical bag containing $50 of goods is illustrated below that puts the increase of the cost of the provided bag into context of the price of the goods, and retail sales tax. It is not available to know the actual cost that a retail establishment pays for a plastic bag or paper bag, but the values listed are sourced from Uline for paper[25] and plastic[26] bags that are commonly used in retail establishments. Scales are provided that support an incremental reduction of the cost of paper bags and are considerable reasonable and likely with the requirement of storage space.

[25] https://www.uline.com/BL_5504/Grocery-Bags
[26] https://www.uline.com/BL_38/Economy-T-Shirt-Bags?keywords=Grocery+Shopping+Bag

Cost Benefit Analysis - Plastic Bag Reduction Act

Parameter	Small Retail Establishment	Medium Retail Establishment	Large Retail Establishment
Cost of provided plastic bag	$0.03	$0.03	$0.03
Cost of provided paper bag	$0.40	$0.20	$0.10
Increase cost of provided bag	$0.37	$0.17	$0.07
Average Price of 1 bag of goods	$50.00	$50.00	$50.00
Retail Sales Tax on 1 bag of goods (7%)	$3.50	$3.50	$3.50
Customer Price of 1 bag of goods plus with tax	$53.50	$53.50	$53.50
Customer Price of 1 bag of goods plus tax and bag fee	$53.87	$53.67	$53.57
Customer Price Percent Change	0.70%	0.32%	0.14%

Applying the worst-case scenario to a hypothetical retail establishment that transacts a specific amount of bags where the average price of 1 bag of good is $50 for every day of the year shows the annual increase of bag cost (versus the prohibited bag) and a relative comparison of this annual increase to the annual revenue of the retail establishment.

Hypothetical Retail Establishment	Increase of bag cost	Annual Revenue	Percent of Revenue
Small Retail Establishment - Transacts 10 bags per day, 365 days per year	$1,361	$196,636	0.69%
Medium Retail Establishment - Transacts 100 bags per day, 365 days per year	$6,315	$1,959,065	0.32%
Large Retail Establishment - Transacts 500 bags per day, 365 days per year	$13,323	$9,777,073	0.14%

Provides plastic and paper bags, customers do not bring their reusable bag (S2)

This is the most likely scenario as most retail establishments already provide an option of paper or plastic bags. A worst-case scenario will occur such that after the regulation is enacted that all their customers continue to request a provided bag and do not bring their reusable bag. This scenario is not likely as typically customers are comfortable leaving the retail establishment carrying just a few items and it is likely that some customers will bring their reusable bag. If this scenario were to occur the worst-case scenario would be identical to scenario S1.

Provides plastic bags only, and cash back for bringing your reusable bag (S3/S5)

This scenario will be impacted however the foundation of the scenario is the same as scenario S1 and brings up the question of whether the retail establishment will continue to provide cash back to the customer to bring their reusable bag. Because the scope of the regulatory analysis is limited to the direct benefits and costs of the regulation, this scenario is not expanded upon, with the primary motivation that the value proposition of providing cash back will lose its attractiveness and these incentives will fade away. An unintended consequence of this assumption is that customers will shop at any retail establishment as opposed to retail establishments that provided a cash back reward.

Provides plastic and paper bags, and cash back for bringing your reusable bag (S4/S5)

This scenario will be impacted however the foundation of the scenario is the same as scenario S2 and brings up the question of whether the retail establishment will continue to provide cash back to the customer to bring their reusable bag. Because the scope of the regulatory analysis is limited to the direct benefits and costs of the regulation, this scenario is not expanded upon, with the primary motivation that the value proposition of providing cash back will lose its attractiveness and these incentives will fade away. An unintended consequence of this assumption is that customers will shop at any retail establishment as opposed to retail establishments that provided a cash back reward.

Individuals, Customers, and Constituencies

Retail establishments are not required to provide bags to customers at the point of sale, and customers can bring their own reusable bag to retail establishments to be used at the point of sale. This creates a complex scenario for the regulatory analysis of the costs on the individual customer.

In the scenario where the retail establishment insists on providing an allowed bag (such as paper) to their customers, the retail establishment will have the choice to absorb the incremental cost of the allowable bag that would have no direct cost on the customer but may introduce an indirect cost of a fractional uptick of the price of goods sold at the retail establishment to cover the incremental cost of the allowable bag. Alternatively, the retail establishment may decide to pass the incremental cost of the allowable bag to the customer, resulting in a direct cost as shown in the chart below. The chart uses the same definition of small (10 bags per day) and medium (100 bags per day) and large (500 bags per day) and omits scenarios where the individual customer is purchasing more than 10% of the revenue of the retail establishment.

Customer Parameter	Small Retail Establishment	Medium Retail Establishment	Large Retail Establishment
Customer purchases 1 bag of goods per week for every week of the year	$19.40	$9.00	$3.80
Customer purchases 2 bagsof goods per week for every week of the year		$17.99	$7.59
Customer purchases 5 bags of goods per week for every week of the year			$18.98

The incremental cost difference of using an allowable bag is not seen as a factor that would reduce the availability of products or the customer face negative health or safety effects.

Developing Alternatives

While the statute is very prescriptive in nature, it does allow for the development of alternatives. The alternatives reflect the scope of the discretion provided by the statute authorizing the proposed rule within the framework of reasonable alternatives that are simple, accurate, and sustainable for all stakeholders.

The alternatives established by statute are derived by the clarity of the penalties of the violation and the discretion available for defining the definition of a violation. The discretion used to construct the definition was based on several broad factors as follows: (1) The regulation of plastics bags has been a topic of consideration for many years in Rhode Island and therefor the implementation of the regulations is not considered to be a "new" topic and is something that is ubiquitous to the operations of retail establishments and customer behaviors. (2) The law was passed in 2022 with an expected implementation date of January 1, 2024, providing ample time for retail establishments to achieve compliance before the implementation date. (3) Retailers are not required to provide customers bags of any type at the point of sale, so any violations can be immediately resolved by the retailer removing the prohibited bags from their establishments. (4) If a retailer makes a choice to provide an alternative bag, that is a decision that is out of scope of the regulation, so the lead time to source this alternative bag is not part of the development of alternatives.

Different degrees of stringency

The different degrees of stringency of the regulation are primarily defined by the definition of the violation in terms of: (1) the "act" that defines the violation, and (2) the "time period" of the violation itself, as the statute provides clear guidelines that penalties for the violation should be given for the 1st, 2nd, 3rd, and subsequent violations within a calendar year. Defining the "act" of a retail establishment providing a prohibited bag to a customer has the greatest impact on the size and distribution of the penalty costs to the retail establishment. Reasonable consideration is given to the options of defining the "act" of the violation as per bag or per day, as that can have huge range of impact whereas some retail

establishments may currently be providing as few as 10 prohibited bags per day and others may be providing more than 500 prohibited bags per day. Reasonable consideration is given to the options of defining the "time period" of the violation as a single penalty only at the inception of the violation and the period ending when the prohibited bags are no longer present, or, to issue the violation for every "act" within the time from inception to the date that prohibited bags are no longer present. These options are shown below:

Act
A1. Every bag that a retail establishment provides a prohibited bag to a customer
A2. Every day that a retail established provides a prohibited bag to a customer

Time Period
T1. Single penalty at the inception of the violation and the time period ends when the Act no longer occurs
T2. Daily penalty from the inception of the violation to last day when the Act no longer occurs
T3. Weekly penalty from the inception of the violation, and every future week until the last day when the Act no longer occurs
T4. Monthly penalty from the inception of the violation, and every future month until the last day when the Act no longer occurs

Consideration was acknowledged but not given to "annual" time periods as the statute requires that a framework is created that accommodates up to four violations in a calendar year, and this would not be possible with an "annual" period.

Different compliant dates

The statute did not afford regulatory authority for discretionary selection of the different compliance dates of the regulation. This is reasonable as the regulation of plastics bags has been a topic of consideration for many years in Rhode Island and therefor the implementation of the regulations is not considered to be a "new" topic, and the State Law was passed in 2022 with an expected implementation date of January 1, 2024, providing ample time for retail establishments to achieve compliance before the implementation date.

Different enforcement methods

Consideration of different enforcement methods were part of the regulatory analysis to identify that the first method of enforcement will be performed by the municipality with the opportunity for the agency to perform additional enforcement as required. Although not part of the scope of the regulation, it is stated that within each municipality, the manager will delegate responsibility to a municipal resource who will be empowered with the enforcement mechanisms of their municipality. It is expected that community reporting of violations will assist

the enforcement of the regulations and that enforcement will shift from active to passive within week or months, followed by sporadic enforcement with new retail establishments.

Discretionary selection of varying requirements by firm size

The statute did not afford regulatory authority for discretionary selection of varying requirements by firm size. However, consideration was given to understand the costs (retailer and customer) with varying firm sizes to establish a range of scenarios for considerations for the regulation. The rule affects firms with consistent and uniform requirements.

Discretionary selection of varying requirements by geographic region

The statute did not afford regulatory authority for discretionary selection of varying requirements by geographic region. However, consideration was given in the form of acknowledgement that the affect of the regulation on a particular geographic region will be determined by how many retail establishments exist within a municipality.

Discretionary selection of market-oriented vs. direct controls

The statute did not afford regulatory authority for discretionary selection of market-oriented vs. direct controls via means not limited to taxes, performance standards, or design standards. Design standards by way of “definitions” are highly prescriptive and are based on the evolution of bag designs with local ordinances primarily in the Town of Barrington.

Comparing Alternatives

The regulatory analysis compares alternatives to provide transparency to the public of the decision calculus that takes into consideration the construct definition of several broad factors and inspection of the different degrees of stringency.

Comparing Alternatives of the “time period”

The “time period” options of the Violation listed in this table omit the “annual” time periods as the statute requires that a framework is created that accommodates up to four violations in a calendar year, and this would not be possible with an “annual” period.

Time Period
T1. Single penalty at the inception of the violation and the time period ends when the Act no longer occurs
T2. Daily penalty from the inception of the violation to last day when the Act no longer occurs
T3. Weekly penalty from the inception of the violation, and every future week until the last day when the Act no longer occurs
T4. Monthly penalty from the inception of the violation, and every future month until the last day when the Act no longer occurs

While the alternative time periods would result in less stringent and more stringent alternatives, consideration was given based on the 15-year history of plastic bag policy at the state level, passage of state law in 2022, lead time to implementation of more than 18 months, and that retailers are not required to provide customers bags of any type at the point of sale.

The first period “T1” would be inconsequential as the retail establishment would have an unlimited amount of time to become compliant. This is not a practical alternative as the time required to eliminate prohibited bags is just a few minutes of operational work by the retail staff. The second period “T2” was seen as best alternative as it provides the retail establishment a daily accountability to eliminate the prohibited bags that seems fair and reasonable. The third period “T3” and fourth period “T4” would create scenarios where retail establishments could continue to use prohibited bags for numerous days and is inconsistent with the statute purpose.

Comparing Alternatives of the “Act”

The “act” options of the Violation listed in this table provide the greatest visibility to the alternatives compared within the regulatory analysis.

Act
A1. Every bag that a retail establishment provides a prohibited bag to a customer
A2. Every day that a retail established provides a prohibited bag to a customer

The first option “A1” would put an undue hardship on the retail establishment with a series of three violations resulting in penalties that represent over 4% of the annual revenue. This is also not a feasible option as it would require the agency to provide a staff member at the retail establishment to record how many prohibited bags were provided to the customers.

Retail Establishment Scenario with Violation Act defined as per Bag and resolved in 1st day	Annual Revenue	1st violation	2nd violation	3rd violation	Total Violations	Percent of Revenue
Small Retail Establishment - Transacts 10 bags per day, valued at $50 per bag, 365 days per year	$196,636	$1,000	$2,000	$5,000	$8,000	4.07%
Medium Retail Establishment - Transacts 100 bags per day, valued at $50 per bag, 365 days per year	$1,959,065	$10,000	$20,000	$50,000	$80,000	4.08%
Large Retail Establishment - Transacts 500 bags per day, valued at $50 per bag, 365 days per year	$9,777,073	$50,000	$100,000	$250,000	$400,000	4.09%

Cost Benefit Analysis - Plastic Bag Reduction Act

The second option “A2” would put a fair and reasonable burden on retail establishment and provide for a simple, accurate, and sustainable enforcement method for the agency.

Retail Establishment Scenario with Violation Act defined as per Day and resolved in 1st day	Annual Revenue	1st violation	2nd violation	3rd violation	Total Violations	Percent of Revenue
Small Retail Establishment - Transacts 10 bags per day, valued at $50 per bag, 365 days per year	$196,636	$100	$200	$500	$800	0.41%
Medium Retail Establishment - Transacts 100 bags per day, valued at $50 per bag, 365 days per year	$1,959,065	$100	$200	$500	$800	0.04%
Large Retail Establishment - Transacts 500 bags per day, valued at $50 per bag, 365 days per year	$9,777,073	$100	$200	$500	$800	0.01%

The compared alternatives build on the construct definitions that a retail establishment can resolve its violation within one day by removing the prohibited bags.