

# Triple Bottom Line Evaluation

Plastic Bag Policy Options

October 2012



Prepared for City of Fort Collins by Brendle Group, Inc.



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## EXECUTIVE SUMMARY

At the request of City Staff, and resulting from the direction of City Council, Brendle Group conducted a triple bottom line – economic, environmental, and community – evaluation of a range of plastic bag policy options suggested by Staff. For the most part, this evaluation draws on the research and work already completed by other communities that have developed and implemented bag policies which include 29 states and 80 communities nationwide and in Canada.<sup>1</sup> However it does include original research where feasible given the preliminary nature of the policy consideration and timeframe to complete. This evaluation is a first-step to begin dialogue with the community and City Council and to inform policy design should the city choose to proceed. Future steps could include more original research and analysis for implementation in Fort Collins.

The evaluation was conducted on two levels. The first level considers the general TBL impacts of reducing the consumption of single-use plastic bags. These impacts would be shared by any policy scenario that achieved this aim. The second level considers the specific impacts and effectiveness of four proposed policy scenarios for achieving this aim.

The first level evaluation identified the potential strengths of reducing single-use plastic bags to be reduced life cycle impacts (assuming the policy doesn't turn consumers to a different type of single-use bag), less stray litter, improved community aesthetics, reduced solid waste management costs, encouraging a mindset of reuse in the community, supporting the City's solid waste diversion and GHG reduction goals, and enhancing the perception of Fort Collins as a sustainable community. The potential weaknesses are the cost to implement a program and less availability of single-use plastic bags for common second uses such as trash can lining and picking up pet waste. The cost to implement the program would depend on program design, but could have cost impacts to retailers, city operations, and/or residents.

The second level evaluation considered the community, environmental, and economic strengths, weaknesses, opportunities, and threats for each of four policy options reviewed. A summary comparison of the policy options based on the triple bottom line impacts for individual policy scenarios is presented in Table 1.

**Table 1. Triple Bottom Line Summary** (strengths in green, *weaknesses in italic red*)

Scenario	Community	Environment	Economic
<b>1. No action</b>	baseline	baseline	baseline
<b>2. Fee on plastic and paper bags</b>	Less litter, retains customer choice, retailers and industry favor over ban, <i>difficult to implement, lots of education required</i>	Moderate reduction in disposable bag consumption	Cost recovery option for City and retailers, “polluter pays” model, <i>may affect low-income households, retailer costs higher</i>
<b>3. Ban on plastic and paper bags</b>	Relatively easy to enforce, less litter, <i>requires more education, City may have to supply reusable bags, removes consumer choice, not usually supported by industry or retailers</i>	Largest reduction in disposable bag consumption	Reduced retailer cost for bags, <i>no cost recovery, consumers must purchase reusable bags, possible lost business</i>
<b>4. Education campaign only</b>	Less litter, integrates well with City programs, preferred by retailers, retains consumer choice	Small reduction in disposable bag consumption	Minimizes cost to consumers and businesses, <i>no cost recovery for City and retailers</i>

## INTRODUCTION

The Fort Collins City Council has requested that City Staff consider policy options for single-use plastic bags in the community. At the request of City Staff, Brendle Group conducted a triple bottom line – economic, environmental, and community – evaluation of a range of policy options suggested by Staff. This report conveys the results of this evaluation.

Though City Council has not indicated the specific motivations for considering a plastic bag policy, there are a number of potential benefits, both locally and globally, from reducing consumption of single-use plastic bags that could motivate action on a policy. These impacts include, but are not limited to:

- Introducing alternatives to single-use plastic bags as a way of encouraging the community to reduce the use of disposable, single-use items in favor of reusable alternatives. This recognizes, for example, the U.S. Environmental Protection Agency’s resource conservation hierarchy of Reduce – Reuse – Recycle.
- Reducing “life-cycle” impacts - which include impacts from material extraction to production and disposal - of plastic bag use by transitioning to a bag type that has lower life-cycle impacts.
- Reducing stray litter in the community, and globally, including plastic bags in trees and waterways.
- Supporting the City’s waste diversion and greenhouse gas (GHG) reduction goals.
- Reducing costs for processing recycling at the regional materials recovery facility (MRF).
- Reducing costs for cleaning up plastic bags at the Larimer County Landfill and other public areas.



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## APPROACH

### SOURCES

To maximize the efficiency of this evaluation, Staff recognized that many communities have already developed and implemented plastic bag policies. As a result, City Staff directed Brendle Group to focus its efforts on evaluating the research and work already completed by these other communities. As such, this evaluation is based primarily on the research and policy analysis already completed by these other communities. Brendle Group did conduct some analysis specific to Fort Collins where feasible. This evaluation also identifies other areas where additional study is recommended.

The research and policy analysis conducted by the City of Boulder between May and October 2012 to inform their community's adoption of a plastic and paper bag fee is cited frequently in this evaluation. As a community that is similar to Fort Collins in a number of respects (e.g. location, size, etc.) the work done by the City of Boulder, which is considered thorough, is likely to be a reasonably good proxy for the City of Fort Collins. The City of Boulder also conducted a public process in developing their policy.

### TRIPLE BOTTOM LINE EVALUATION

Brendle Group completed a triple bottom line (TBL) evaluation of policy options on two levels. The first level considers the general TBL impacts of reducing the consumption of single-use plastic bags. These impacts would be shared by any policy scenario that achieved this aim. The second level considers the specific impacts and effectiveness of four proposed policy scenarios for achieving this aim.

### STAKEHOLDER REVIEW AND INPUT

The time and resources allocated to this preliminary consideration did not allow for the gathering of broad stakeholder input on the general policy aim of reducing plastic bag consumption, nor the individual policy options presented herein. A broader community questionnaire is being developed by City Staff at the time of this publication.

The following City staff members were consulted about plastic bag policy and policy implementation:

- Josh Birks, Economic Health Director
- Lucinda Smith, Environmental Services Director
- Joe Frank, Social Sustainability Director
- Carrie Dagget, Deputy City Attorney

## BACKGROUND

### CONSUMPTION OF DISPOSABLE BAGS IN FORT COLLINS

To provide context to the evaluation of plastic bag policy options in Fort Collins, a number of other communities have estimated the use of disposable bags (both plastic and paper) annually on a per-person basis as shown in Table 2.

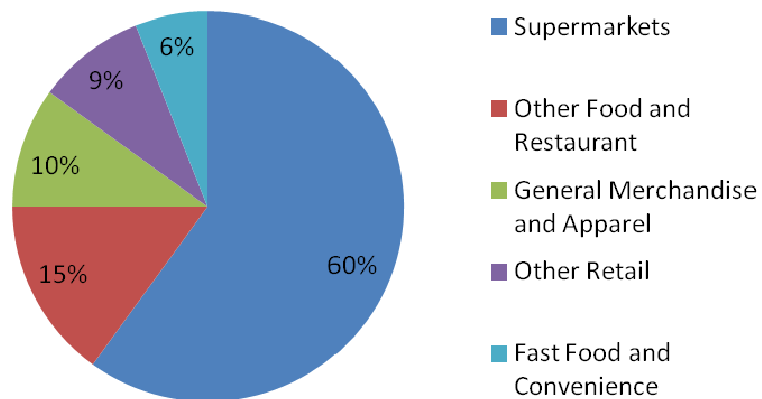
**Table 2. Disposable Bag Use Estimates<sup>ii</sup>**

Location	Plastic and Paper Bags Per Person Per Year
Seattle, WA	630
San Jose, CA	452
Washington, DC	449
Aspen, CO	398
Boulder, CO	342

A similar estimate was attempted for Fort Collins based on the most recent waste composition study from the Larimer County Landfill.<sup>iii</sup> Unfortunately, the waste sorting category in the study that includes disposable plastic bags also includes standard household trash bags. As such, this is an overestimate of the number of single-use plastic bags per capita at 1,440.

Boulder’s per capita estimate of 342 disposable bags per capita per year, of which about 88 percent or 301 bags/capita/year are plastic, is applied as a proxy for the City of Fort Collins.

Many retailers in Fort Collins offer the choice of single-use paper or plastic bags and make re-usable bags for sale at the point of check-out. Exceptions include Whole Foods, which does not offer plastic bags and Vitamin Cottage, which does not offer any single-use bags. The sources of disposable bags, as used in the analyses completed by Seattle, San Jose, and Boulder, are portrayed in Figure 1. As indicated, the majority of disposable bags (60 percent) are generated by supermarkets.



**Figure 1. Disposable Bag Generation by Retailer Type<sup>ii</sup>**

### CURRENT RECYCLING MARKET IN FORT COLLINS

The recycling rate for single-use plastic bags is less than 5 percent nationally.<sup>ii</sup> The City of Boulder estimated their community’s recycling rate to be 20 to 24 percent.<sup>ii</sup> There is insufficient data on plastic bag consumption and recycling quantities to estimate a recycling rate for the City of Fort Collins. In forthcoming outreach to retailers, City Staff will be requesting data on plastic bag consumption and recycling so that the rate can be estimated.



There are over 19 retail drop-off sites for recycling single-use plastic bags in Fort Collins. These include most major supermarkets and other large retailers that sell food. Many of these bags are recycled into landscaping and composite lumber products such as decking material.

### POLICY CHOICES AND EFFECTIVENESS IN OTHER COMMUNITIES

Over 29 states and 80 communities nationwide and in Canada have implemented a policy or program related to retail bag consumption.<sup>iv</sup> Table 3 provides a few examples of communities implementing various of policy types.

**Table 3. Examples of Policy in Other Communities<sup>ii</sup>**

Policy	Jurisdictions (year enacted)	Fee Level (cents)	Fee Retained by Business (cents)	Type of Retailers Covered (number of communities)
Fee on Plastic and Paper	Washington, DC (2009) Toronto, Canada (2009) Montgomery County, MD (2011)	5	1-5	Grocery (1) All Retail (2)
Ban on Plastic and Fee on Paper	San Francisco, CA (2007) Seattle, WA (2011) San Jose, CA (2010) Los Angeles County, CA (2010) Telluride, CO (2011) Carbondale, CO (2011) Aspen, CO (2011) Austin, TX (2012)	5-20	5-10	Grocery (4) All Retail (4)
Ban on Plastic	Portland, OR (2011) Palo Alto, CA (2009) Westport, CT (2008) Maui County, HI (2008)	Outright Ban, No Fee Collected	Outright Ban, No Fee Collected	Grocery (1) All retail (3)

The estimated effectiveness of a range of policy types, from maintaining the status quo to education only to an outright ban is shown in Table 4. As indicated, education programs alone are estimated to result in minimal change of consumer use of disposable bags, while fees and bans result in more significant change.

**Table 4. Estimated Effectiveness of Policy Types<sup>v</sup>**

	Percentage of consumers expected to change behavior		Level of change compared to Status Quo
	Plastic to Reusable	Paper to Reusable	
Status Quo	0%	0%	Reference group
Education	5%	5%	Low
Fee- plastic only	37%	10%	Medium
Fee - all bags	52%	52%	High
Ban - plastic only	40%	10%	Medium
Ban - all bags	>60%	>60%	High

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## TBL EVALUATION: GENERAL POLICY AIM OF REDUCING CONSUMPTION OF SINGLE-USE PLASTIC BAGS

This section includes a discussion of the estimated TBL impacts of the general policy of reducing consumption of single-use plastic bags. Other than the “no action” or status quo option, these impacts would be shared by all of the policy options presented in the next section; some may inform the design of those policy options as noted.

### STRENGTHS

#### Life Cycle Impacts

If single-use plastic bags are to be consumed less it will be necessary for some other type of bag to take their place. Three life-cycle analysis (LCA) studies of the impacts of various types of bags were reviewed to understand the environmental impacts of these choices in the community and globally. There are two significant conclusions made by each of these studies:

1. The LCA impacts of single-use bags made from other materials such as paper or compostable plastics can be equal to or larger than that of single-use plastic bags.<sup>vi,vii</sup> For paper bags made from 30 percent recycled fiber, this included greater total energy usage, fossil fuel use, municipal solid waste generation, GHG emissions, and fresh water usage compared to plastic bags.
2. Reusable bags made from cottons or non-woven plastic have lower LCA impacts across these categories than any single-use bag (assuming the bag is used many times, in this study it was assumed at least 1 trip per week for two years).<sup>viii</sup> Reusable plastic bags have lower life-cycle impacts than cotton bags because of the water consumption required to grow cotton.

These studies indicate that reduced LCA impacts can be considered a strength of a policy that aims to reduce consumption of single-use plastic bags as long as substitution with other types of single-use bags doesn't occur. In other words, a plastic bag policy with the intent of reducing life-cycle impacts should be designed so that consumers are not encouraged to use paper bags instead.

Santa Monica, CA sought to enhance the LCA benefits of reusable bags by sourcing them locally to reduce the impacts from the fuel needed to transport them long distances. There are a number of manufacturers of reusable bags in the western U.S., including two in the Denver area, that could make regional sourcing feasible for Fort Collins (see Appendix A). Some are boutique bags that are more expensive compared to more standard reusable bags.

#### Stray Litter and Aesthetic Impacts

Single-use plastic bags, particularly because of their weight and aerodynamic characteristics, can readily become litter even when they are disposed of properly. According to a study of litter composition on America's roadways, plastics in general make up 19.3 percent of counted items.<sup>ix</sup> A second study found that plastic bags in particular accounted for 1.2 percent of large litter items while plastic film materials, including ripped or shredded bags, accounted for 8.7 percent of small litter items.<sup>x</sup>

The cost of litter cleanup (not specific to plastics or plastic bags) nationwide was projected to be \$11.5 billion in 2009. Property values were projected to be 7 percent lower in communities with litter.<sup>ix</sup> The

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City of Boulder estimated the cost of street sweeping related to plastic bags - based on estimates by San Jose, CA, Seattle, WA, and Austin, TX - to be between \$20,000 and \$65,000 per year.<sup>ii</sup>

No studies were found directly linking a single-use plastic bag reduction policy with reduced litter on land. However, Washington D.C. has seen a reduction in bags recovered from the Anacostia River by as much as 50 percent.<sup>xi</sup> Litter reduction was frequently stated as justification for policies in other communities especially for coastal states where plastic bags represent a special problem when they are washed out to sea.

### **Solid Waste Management Costs**

Plastic bags create issues for operators of landfills and materials recovery facilities (MRFs, i.e. recycling facilities) that increase solid waste management costs for the community. For example, the Larimer County Landfill has spent over \$21,000 in each of the last two years (and \$35,000 is budgeted in 2013) on site clean-up. About half of that cost is attributed to plastic bags, although not all of these bags have their origin as single-use bags from retailers.<sup>xii</sup> The regional MRF, operated by Waste Management, also incurs costs to address plastic bag contamination in the recycled material stream. These costs include cleaning screens, sorting, machine repairs, and disposal of separated bags. Waste Management does not track cost specifically associated with plastic bag issues but estimates that at least two hours of each day's four hours of down time are spent removing plastic bags from the system.<sup>xiii</sup> Eco-Cycle, an organization supporting recycling efforts in the City of Boulder, estimated the total cost of plastic bag contamination to Boulder's MRF to be between \$200,000 and \$524,000 per year.<sup>ii</sup>

### **Reuse Mindset**

Encouraging or requiring consumers to use reusable shopping bags could be a "gateway" to other consumer choices that can benefit the environment, community, and economy. Along with recycling, drinking tap water over bottled water, buying local food, adjusting thermostats, and other related actions, using reusable bags is a relatively easy and low-cost practice for consumers to adopt. It has been suggested by proponents of bag policy in other communities that providing consumers options like these can expand awareness and engagement and lead to other similar consumer choices. This transformation could lead to increased citizen participation in a number of the activities identified in the City's Climate Action Plan, for example, such as energy efficiency programs, recycling programs, and alternative transportation. In particular, adopting a reusable bag policy may encourage action to reduce consumption of other disposable goods. Despite this speculated link between consumer choices on bags and other choices, no research was identified for this report that directly demonstrated the link between reusable bag policy and the adoption of other actions.

### **City's Waste Diversion and GHG Reduction Goals**

The City of Fort Collins adopted a resolution in 1999 to reach a solid waste diversion goal of 50 percent by 2010. In 2010, the community-wide diversion rate was estimated to be 43 percent. Using the per capita rate of plastic bag consumption from Boulder (301/capita/year) and an estimated current recycling rate for plastic bags in Fort Collins of 20 percent,<sup>ii</sup> this would represent about 220 tons of landfilled plastic bags per year, or about 0.2 percent by weight of the City's total landfilled waste. Therefore, reducing the quantity of plastic bags in the waste stream would improve the City's diversion rate, but by almost negligible amounts. The contribution to the City's GHG reduction goals would be similarly negligible.

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## **Perception of Fort Collins as a Sustainable Community**

For visitors and residents of a community, certain features are hallmarks of a sustainable community. Today, the prevalence of recycling bins in Fort Collins and the breadth of materials that are accepted for recycling are visible signs of the city's commitment to sustainability. As more communities throughout the nation adopt policies with respect to disposable bag use, this may become a more recognized and highly visible indicator of a community's sustainability commitment.

## **WEAKNESSES**

### **Cost to Local Retailers**

Depending on the particular bag policy implemented, local retailers could face additional costs, or they may realize savings. The impacts on costs for local retailers will relate to the purchase of disposable bags themselves, to operational changes related to sales systems and employee training, and to the business impacts that may result from a bag policy. To understand the economic impacts of a potential policy, City Staff are coordinating with the City's Economic Health office and will include economic impacts in a community questionnaire planned for future distribution.

A policy that reduces disposable bag consumption will reduce the direct cost to retailers for purchasing bags. If the policy discourages plastic bags in favor of paper, however, costs could increase because paper bags are more expensive than plastic bags.

To accommodate a fee/ban policy, retailers will have to invest in additional training for staff to be able to explain the policy to customers and handle customer interaction on the topic. A fee system would also likely require investment in a tracking system or modifications to the point-of-sale system for the fee to be implemented. Most fee-based policies adopted by other communities direct a portion of the fee to the retailer to cover these costs.

A common concern with bag policy is that it will drive consumers to shop outside of the area impacted by the policy. At least one survey has shown that there could be such a negative impact associated with plastic bag bans.<sup>xiv</sup> That survey, however, was industry-funded and only had a 3 percent response rate.<sup>xv</sup> When surveyed in the past, the majority of Fort Collins residents have expressed support for a personal obligation to environmental issues (air quality and reducing GHG emissions) and support for government intervention to address these issues.<sup>xvi</sup> Residents have also shown a commitment to quality of life in Fort Collins through the passage of the Keep Fort Collins Great sales tax. If residents feel similarly about the environmental impacts of disposable bags, they may not be compelled to change their shopping locations in response to a policy. Furthermore, it will likely be more costly to the consumer in fuel and time to take their business elsewhere. For example, a customer that would purchase 10 disposable bags in a shopping trip would have to travel less than 3 miles to an alternative store to save money by taking their business out of the policy area (assumes no cost of travel time, \$0.05 per bag fee rate, typical fuel economy and the current cost of gas). It is unlikely that a consumer will find an alternative store that isn't part of the policy within 3 miles.

### **Second Uses of Single-Use Plastic Bags**

Many consumers find secondary uses for single-use plastic bags, besides recycling, including as lunch bags, small trash bags, and to pick up pet waste. No research was found documenting the impact of plastic bag policies on these secondary uses, but it is possible that consumers would purchase more plastic bags for secondary uses if their sources were limited by plastic bag policy. If, however, the plastic bag policy only addresses a portion of the sources (e.g. food stores), as has been done in many

communities, there may be sufficient bags remaining in circulation to deter the need for purchasing new bags. Reusable bags can also fill some of the second use roles.

### **Reusable Bags and Health**

A study funded by the American Chemistry Council found that more than one-half of the reusable bags tested contained some form of coliform bacteria. However, few of the bacteria found pose a significant health risk, and the primary conclusion of the study was that consumers should be educated on keeping their bags clean.<sup>xvii</sup>

## **POLICY DESIGN CONSIDERATIONS AND SCENARIOS**

### **SECTORS AND RETAILERS INCLUDED**

Most of the communities implementing plastic bag policies to date have either applied them globally to all retailers or limited them to the food store/supermarket sector. Those limiting it to the food store sector cite a more manageable scope for administration, applying the policy only to the most significant source of disposable bags with a desire to not impact smaller boutique retailers as justification for the sector-specific policy.

Should the City pursue a sector-specific policy, it is recommended that options be considered for involving additional sectors in a phased approach so that the policy is fairly applied to all retailers.<sup>xviii</sup>

In Fort Collins, the approximate breakdown of establishments by sector<sup>xix</sup> are:

- Grocery Stores: 23
- Restaurants: 461 restaurants and 8 caterers (bars are included because they serve food)
- General Merchandise: 25 (some are more grocery based than others)
- Apparel: 274

### **COSTS AND POTENTIAL FEE STRUCTURES**

The City of Boulder commissioned a study of costs and number of bags impacted to establish their bag fee at \$0.199/bag.<sup>xx</sup> The scope of costs recovered included:

- City administration of bag fee program: \$0.146/bag
- Other public costs at solid waste management facilities: \$0.008/bag
- Retailer implementation of program: \$0.044/bag
- Externalities (GHG emissions and water infrastructure): \$0.001/bag

It is recommended that the City of Fort Collins undertake a similar study to establish the fee, if that is the selected policy scenario.

### **USES OF GENERATED REVENUE**

The City of Boulder identified the following uses of the revenue generated by their fee:

- Developing and administering the policy
- Providing reusable bags (or mitigating fees) for low-income households
- Education, outreach, and advertising

- 
- Covering costs at solid waste management facilities for removing plastic bags from equipment
  - Remittance to retailers to cover their implementation costs
  - Purchase of carbon offsets for the GHG emissions associated with bags and funding of bag clean-up projects in the community

## SCENARIOS

The following pages describe and evaluate four scenarios for a plastic bag policy including:

1. No action
2. Fee on plastic and paper bags
3. Ban on plastic and paper bags
4. Education campaign only

Many communities have adopted a policy that bans plastic and imposes a fee on paper bags (see Table 3). Considering that the life-cycle environmental impacts of paper bags are equal to or greater than plastic bags, paper bags are more costly for retailers, and a hybrid ban/fee is more difficult to implement, this scenario was not considered in this analysis.

**No Action**

Under this scenario, the City would take no action to address the consumption of single-use plastic (or paper) bags. This would mean that no additional City staffing or resources would be required to develop a new program or enforcement mechanism. In the community, consumers would still have the choice to select plastic or paper bags, or to use reusable bags as they choose. Retailers would not be required to institute any new programs.

This option would not address the ongoing impacts of disposable bags to solid waste management operations or the community. The City and Larimer County currently allocate staff time and spend funds from their operational budgets to control litter from disposable bags. A regional waste management firm currently goes to considerable effort to remove plastic bags from its recycling sorting infrastructure, which regularly is clogged by such bags. From an environmental perspective, this option does not address the “upstream” GHG emissions, energy, or water needed to produce disposable bags, nor the other impacts of disposables on the environment.

<b>Triple Bottom Line Evaluation</b>			
<b>Option 1: No Action</b>			
<b>Social</b>		<b>Environmental</b>	<b>Economic</b>
<p><b>City Staff/Workforce</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>No additional city staffing or resources needed for new program implementation</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Continued impacts to recycling infrastructure (e.g., plastic bag entanglement)</li> <li>Staff and resources continue to be needed for litter control, mitigation of impacts (e.g., plastic bag control at landfill)</li> </ul>	<p><b>Community</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Maintains consumer choice (plastic, paper, reusable) compared to partial or total ban options</li> <li>Maintains “status quo” for retailers in city</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Does not facilitate broader behavior change around resource consumption compared to other options</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>None identified</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Environmental impacts associated with disposables greater (GHG emissions, potential water quality impacts, wildlife impacts) compared to other options</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>No impact to consumers from reduced choice or increased fees compared to other options</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Continued costs for mitigation of disposable bag impacts - particularly plastic</li> </ul>



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### **Fee on Plastic and Paper Bags**

By imposing fees on plastic or paper bags at the point of sale, this option seeks to reduce consumption of disposable bags. Examples of implementation of fee-based approaches in other communities have demonstrated the ability to significantly reduce consumption – depending on the amount of the fee. This can help reduce impacts of disposable bags on the environment and community, as well as reduce the impact on operations associated with litter control and recycling infrastructure. A fee-based structure also allows both the City and retailers to offset increased costs for program administration with an additional funding source. By not banning any bag option outright, consumer choice is also maintained.

While fee-based programs can help reduce consumption of disposable bags, case studies in other communities show that they are not as effective in source reduction compared to outright bans and may not have as significant an effect on consumer behavior change. Such a program would also require the City and retailers to establish systems to administer and collect fees, which would probably operate in conjunction with collecting and remitting sales tax.

It has also been noted that fees have a larger impact on lower-income households because the fee will represent a larger percentage of their income.<sup>xviii</sup> Assuming 342 disposable bags per capita and a fee of \$0.05 per bag would result in a consumer cost of up to \$17 per capita each year. It is recommended that the City consider the cost of providing reusable bags or a mechanism that mitigates fees for lower-income households in the design of a policy.

Fees in other communities have resulted in litigation, usually by anti-tax groups that seek to classify the fee as a tax. Aspen is currently involved in such litigation.<sup>xxi</sup>

<b>Triple Bottom Line Evaluation</b> <b>Option 2: Fee on Plastic and Paper Bags</b> <b>52 percent estimated reduction in bag use (see Table 4)</b>			
Social		Environmental	Economic
<p><b>City Staff/Workforce</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Reduces contamination at recycling facilities</li> <li>Reduces impacts on litter cleanup efforts</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Requires more City resources to implement, administer, and enforce than no action option or outright ban</li> <li>Education will be required to communicate fee to community</li> </ul>	<p><b>Community</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Retains customer choice compared to outright bans</li> <li>Residents have quickly adapted in other communities to fee by reducing bag consumption</li> <li>Has been preferred option for larger retailers in other communities among fee and ban options</li> <li>Less opposition from paper and plastic industries compared to bans</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>May not reduce bag use as much as outright bans – not as significant a behavior change lever</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Documented reduction in use of disposable bags - plastic and paper - in other communities resulting in lower overall energy, water, and GHG emissions</li> <li>Acknowledges that life-cycle impacts of plastic and paper are similar (energy, water, fossil fuels, GHG emissions)</li> <li>Supports an overall shift away from disposable bag use</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Does not decrease bag use as dramatically as bans</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Option to recover costs to city for implementation and administration as well as to fund other source-reduction campaigns</li> <li>Can allow retailers to retain some or all of fee to offset implementation and administration costs</li> <li>Shifts bag use to a “polluter pays” model where users of disposable bags pay for the negative impacts</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Increased costs may affect low-income households negatively</li> <li>Retailer costs associated with employee training, point-of-sale system upgrades, and administration of fees</li> </ul>

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### **Ban on Plastic and Paper Bags**

By banning disposable bags, whether in a specific retail sector or across all retailers, this option seeks a maximum effect in reducing consumption of disposable bags. This can help maximize the reduction of impacts of disposable bags on the environment and community, as well as reduce the impact on City and County solid waste management operations associated with litter control and recycling infrastructure. Relative to other options that involve the collection of fees, this option would likely be more straightforward for the City to administer. From the perspective of the retailer, not having to provide bags at all would reduce their costs for providing disposable bags.

This option would place the greatest restrictions on the consumer by requiring them to provide their own bags. Some in the community may see this as a limitation of consumer choice and may oppose it, and it is not the preferred option of major traditional retailers. It is possible that consumers may choose to shop elsewhere outside of Fort Collins, or that retailers could choose to locate in nearby adjacent communities. This option also offers no revenue source to offset costs of enforcement and education as fee-based options do. The City, however, could seek redirection of the operational savings identified in global triple bottom line evaluation to education (e.g., County contributes some percent of its 2013 budget for clean-up).

Like a fee, this policy scenario also has a larger impact on lower-income households because the ban will require households to purchase reusable bags and that cost will represent a larger percentage of their income.

It should be noted that there is a precedent for banning certain items from the landfill in the City's existing ban on disposing of electronics in the waste stream. However, bans in other communities have resulted in numerous instances of litigation by the plastic and chemical industries.<sup>xxii</sup>

## Triple Bottom Line Evaluation

### Option 4: Ban on Plastic and Paper Bags

>60 percent estimated reduction in bag use (see Table 4)

Social		Environmental	Economic
<p><b>City Staff/Workforce</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Easiest of all options (other than No Action) for the City to administer and enforce</li> <li>Reduces contamination at recycling facilities</li> <li>Reduces impacts on litter cleanup efforts</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>May require more City resources relative to other options to conduct education campaign and bag giveaways</li> <li>Requires staff and resources for enforcement, though likely less compared to fee</li> <li>Efforts are not offset by a revenue source, as would be the case with fee-based option</li> </ul>	<p><b>Community</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Strong lever to change behavior that can support other City and community source reduction efforts</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Removes consumer choice in the marketplace</li> <li>Currently no local reusable bag manufacturers in the Fort Collins area (could also be an opportunity for a local company to fill the gap)</li> <li>Possible opposition from the general public</li> <li>Not supported by paper and plastic industries</li> <li>Not preferred option of retailers at least in other communities</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Will reduce the use of both plastic and paper checkout bags, and therefore reduce amounts of litter the most dramatically of all options</li> <li>Greatest reduced life cycle impacts of all options</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>None identified</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Retailer cost of purchasing and stocking bags will decrease dramatically</li> <li>Strengthens business opportunity for reusable bag manufacturers</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>No revenue stream generated for City compared to fee-based options to offset increased enforcement and education costs</li> <li>Requires consumers to purchase more expensive reusable bags (greater up-front costs); potential impact to low-income households</li> <li>Possibility that consumers or retailers may choose to relocate or shop elsewhere</li> </ul>

### Education Campaign Only

With an education-only campaign, the City would largely rely on voluntary community efforts to reduce the use of disposable bags and to increase awareness which can translate to action. Such an approach would encounter little opposition from retailers or the general public. It would not require retailers to take any additional action, other than perhaps to participate in education campaigns. One example of an educational effort would be to supply retailers with parking lot signs that remind customers to bring their reusable bags into the store with them: “Don’t forget your bags.”

While education is a non-controversial and familiar approach for the City, it alone is not expected to achieve the significant behavior change or community outcomes associated with either bans or fee-based approaches. This option also offers no alternative revenue stream as would be the case with a fee-based approach.

In addition to education on reducing the use of disposable bags, education can also be tied to existing efforts to encourage disposable bag recycling for those that are consumed.

<b>Triple Bottom Line Evaluation</b>			
<b>Option 5: Education Campaign</b>			
<b>5 percent estimated reduction in bag use (see Table 4)</b>			
<b>Social</b>		<b>Environmental</b>	<b>Economic</b>
<p><b>City Staff/Workforce</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Can be integrated into other ongoing City education programs</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Requires City resources to increase education efforts that are not offset by a revenue source compared to fee-based options</li> <li>• Since disposable bag use reductions are not expected to be as great as fee or ban-based options, impacts to City and solid waste operations (e.g., recycling, litter control) not mitigated as much</li> </ul>	<p><b>Community</b></p> <p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Preferred approach by the largest retailers</li> <li>• Little objection from the general public</li> <li>• Minimizes impacts on consumer choice</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Not as significant a behavior change lever compared to fees or bans</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• May modestly increase disposable bag recycling</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Education alone unlikely to result in significant reductions in disposable bag use compared to bans or fees</li> </ul>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Minimizes costs to consumers</li> <li>• Minimizes costs to businesses</li> </ul> <p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Overall cost-benefit to the community likely not as positive as bans or fees</li> </ul>

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## APPENDIX A: REGIONAL REUSABLE BAG SUPPLIERS

- Eco Mountain LTD, Golden CO, <http://www.ecomountainltd.com/>
  - Donates 1% of net sales to environmental conservation, education, and research organizations
- Reusable Bags Depot, Denver CO, <http://www.reusablebagsdepot.com/reusable-shopping-bags.html>
  - Appear to do some manufacturing of their own bags, some distributing of other brands
- Mission Wear, Denver CO, <http://themissionwear.org/products.html>
  - Expensive, but trendy up-cycled and cotton blend bags
- Bonny Bags, Casper WY, <http://www.bonnybags.com/shopping.shtml>
  - Local, but \$45 each; donates \$1 to World Wildlife Fund for every bag purchased
- Red Oxx, Billings MT, <http://www.redoxx.com/market-tote/91039/product>
  - \$25 each

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