

Rebuttal of the San Jose Bag Ban Results

CLAIMS OF SUCCESS ARE BIASED, EXAGGERATED, AND HIGHLY QUESTIONABLE.
A MORE COMPLETE REVIEW ACTUALLY SHOWS THE SAN JOSE BAG BAN TO BE A COMPLETE FAILURE.

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On November 20, 2012 Kerrie Romanov (Director of Environmental Services for San Jose) issued a memorandum to the San Jose City Council claiming success of the “Bag Ban” (San Jose ordinance #28877), ten months after the Bag Ban was implemented. Romanov claimed this success based upon apparent reductions in the number of plastic bags collected from certain locations and an increase in the number of reusable bags used by shoppers. This memo has been widely used by bag ban proponents, particularly quoting incorrectly calculated reduction numbers as facts to state that bag bans “work.”

However, the memorandum is biased, factually incorrect, completely neglects a cost/benefit analysis of the bag ban, and fails to raise critical questions that should have been asked.

Report Evaluation

There are five (5) key areas in which the memorandum falls critically short of supplying a true picture of the bag ban impact. These areas are as follows:

1. The wrong parameter was measured, then claimed as a success.

The fundamental error in the report is measurement of the wrong parameter. Measuring a reduction in the number of plastic bags collected by a litter survey team at survey locations does not indicate the true reduction in the impact to the environment. The true impact is the number of plastic bags that were NOT collected and escaped into the environment, for example, made their way to San Francisco Bay or the ocean.

This issue here is that there was likely little to no change to the number of bags that got past the survey areas prior to the bag ban verses after the bag ban, and there was no attempt to measure them. There were just less numbers of bags that were cleaned up!

The vast majority (well over 99.9%) of plastic carryout bags are properly used, the majority reused, and then they are properly recycled or thrown away in trash receptacles. The small percentage of littered plastic carryout bags (basically from illegal littering or accidental release from garbage collection trucks) are collected in a number of ways, all designed to prevent them from permanently entering the environment:

- Street sweeping
- City funded park and creek garbage collection
- Storm drains, catch basins
- Voluntary citizen pickup (i.e. random “good Samaritans”)
- Citizen/Agency creek cleanups

In order for a plastic bag to permanently enter the environment, it must get past ALL of these safeguards. Measuring the reduction of one particular item (in this case plastic carryout bags) in any of these steps only measures a reduction in the amount of work required to perform the cleanup at that step. The city of San Jose made no effort to measure the true plastic carryout bag impact number before or after the bag ban. Thus, any true reduction impact to plastic bags permanently reaching the environment is completely unknown.

If the goal of the bag ban was to reduce the impact on City Employee trash collectors, then it could be argued that this was a valid measurement against that goal and it was successful. However, that was not the stated goal of the bag ban, and does not even remotely justify the huge personal and monetary cost of the bag ban imposed on San Jose businesses and citizens. (Also note that San Jose residents have seen ZERO reduction in city taxes or garbage collection costs since the bag ban went into effect. Proponents claimed millions of dollars in costs for litter cleanup, garbage collection, and the cost of equipment jams in waste management facilities. Yet NO savings have been realized by residents since the ban! Where is the money?)

The questions that should really be asked are these:

- Was the bag ban even remotely worth the cost in time and effort for everyone involved?
- Could the costs of the bag ban been better used for a greater environmental impact?

2. The measurement methodology was unscientific and seriously flawed.

The authors reviewed not only the memorandum (Romanov, 2012) but also obtained and reviewed the raw data upon which the memorandum results were based. The authors made the following observations:

- The cleanup locations measured before and after the ban were NOT the same areas! Since historical cleanup data for these sites is not known, there is no way to determine if these sites represent multi-year accumulations of litter that would skew results.
- The percentage figures cited in the memorandum do not reflect a true reduction in plastic bag litter. The figures represent a reduction in the proportion of plastic bags to other litter instead.
- Evaluating ALL of the data shows that NON-PLASTIC BAG litter was also reduced by approximately 30% to 40% in the same comparisons. This is a confirmation that the comparison locations and/or criteria is flawed, or were influenced by other unexplained factors. There was no attempt to mention or address this serious statistical error.
- The storm drain reductions are based upon too small a sample size to provide a creditable number. Twenty-three (23) storm drains catch basins outfitted with trash capture devices is too small a sample size for a city the size of San Jose. There was no attempt to discuss the status of storm drain trash capture devices in the City of San Jose and whether all planned devices have been installed.

In Appendix A, the authors critically examine the on-land, creek, and storm drain litter data. Both the city's computation of results and our computation of plastic bag reduction results are provided. The plastic bag reduction results from the city's data and methodology are questionable and flawed.

3. Bag usage observations were not taken at a broad cross-section of stores, skewing the data.

The memorandum states that “Visual observations were made at a variety of store types, including grocery stores, pharmacies, and general retailers in different San Jose neighborhoods at the same stores both before and after implementation of the BYOB Ordinance.” (Romanov, 2012, p. 5) An examination of the spreadsheet containing Bag Survey Locations shows bag observations after the bag ban were taken almost completely at grocery stores, contradicting the statement in the memorandum, and therefore heavily skewed. (City of San Jose, 2013)

Grocery stores are the one location where people shop generally knowing how much they will purchase, have a car available with reusable bags, have shopping carts to use (making it easier to carry reusable bags), and are reminded of a need for reusable bags when they see signs or others in the parking lot carrying bags. Yet, even in this environment, over 43% of the people are NOT using reusable bags, with the vast majority of the people walking out clutching an armload of products or using shopping carts or baskets to transport raw un-bagged products to their car. This is not success!

Completely missing from the survey after the bag ban were any home repair locations (Home Depot, Lowe’s, Orchard Supply Hardware, etc.), electronic resellers (Fry’s, Best Buy, etc.), malls, convenience stores (7-11, AM/PM, etc.), specialty stores (auto repair stores, flower shops, etc.), and farmer’s markets. Even a cursory view at any of these locations reflects a completely negligible rate of reusable bags. There were 3 drug stores, 3 clothing stores, an office supply store, and 2 malls included in one survey prior to the bag ban, but 100% of the data after the bag ban was from grocery stores ONLY.

In addition, some stores now choose to avoid shoplifting and theft of shopping baskets by providing free “thick” plastic bags (considered “reusable” under the San Jose law). Other stores have offered the thick plastic bags at a discounted price (for example, 7 cents instead of the city mandated 10 cent paper bag fee). None of these stores were included in the survey.

Bag ban proponents paint a false picture of a fully compliant citizen pulling into a Whole Foods parking lot in their environmentally friendly electric car gleefully pulling out a stack of reusable bags to do their pre-planned shopping. But reality is far from this romanticized picture. Any observation of shoppers reflects a large percentage of grumbling citizens ashamed to be hauling around an armload of dirty, ugly, slippery, and mismatched reusable bags against their will, people cursing at themselves and the stores when they forget their reusable bag in the car or home, or people just refusing to take part in bag bans and using no bags at all.

4. No cost/benefit analysis was performed, or even attempted!

When bag bans are passed, the city typically only worries about the cost to the city, and pays little to no attention to the impact to businesses and citizens. However, the cost to the businesses and citizens far outweigh the cost to the city. Consider these costs:

- **City Costs**

The City of San Jose spent hundreds of thousands of dollars on the bag ban, in research, legal maneuvers, documentation, education, answering calls and questions, public hearings, and investigations and follow

up. The City of San Jose continues to spend thousands of dollars per year in following up on the bag ban (such as producing the referenced memorandum), evaluation of the bag ban, and even considering modifications to the ordinance. In addition, they face potential lawsuits, and loss of sales tax from business decline. Incalculable is the frustration of the citizens, and the raw anger by many toward the city council and the city for imposing what is widely viewed as a “nanny-state” law on the citizens. One has only to read online posts and responses to newspaper articles to taste the public frustration.

- **Business Costs**

There was absolutely no attempt to evaluate the impact to businesses. Checkout stands have slowed down and lines are longer, businesses have faced increased theft, shopping baskets have disappeared from many stores, some stores installed additional barriers to ensure shoppers are properly funneled through checkout stands, and other stores have hired additional security. In addition, there was no attempt to measure business loss to surrounding cities.

- **Citizen Costs**

Citizens face the biggest penalties and costs by the bag ban. In addition to annoyance and inconvenience, just the time required to purchase, stock, prepare, use, inspect, wash, dry, restock, and replace reusable bags adds up to many hours per year. The authors have estimated the total impact in time and costs to be about \$262 per year per household. This is even higher in the San Jose area where average income is much higher than average state level. If all 301,366 households (2010 Census Data) in San Jose complied with the wishes of the city to use reusable bags, this would equate to **\$79 million per year** for San Jose residents.

A detailed Cost Analysis for Citizen Costs is provided in Appendix B. This analysis reveals that a bag ban will cost San Jose city residents an additional **\$23 million per year** based upon expected bag usage rates.

ALL of these costs must be added together then compared to the total benefit. At best, the city can only show a few thousand less plastic grocery bags were collected at catch basins and other points of entrapment. The cost/benefit analysis comes to well **over \$10,000 per littered bag** just for the citizen cost alone. Surely there could be a better use for that money!

5. Serious negative impacts were never addressed or even mentioned

In addition to the cost impact of the bag ban, serious negative and side effects were never mentioned. These include:

- **Indications of a huge loss of business**

Let’s assume there was an average overall reduction rate of plastic bag litter of 60% as claimed by Ms. Romanov. Where do the plastic bags that comprise the remaining 40% come from? Does that not indicate that 40% of the people must be shopping outside of San Jose? In fact, this may be one of the only accurate statistical analysis conclusions of these measurements, because a cross-section of the trash at any collection point should reflect the percentage of people using that particular product. Completely

banning a product from businesses in San Jose then still seeing a 40% litter rate for that product indicates that about 40% of the people must be shopping outside of San Jose!

- **User inconvenience and frustration**

No attempt was made to poll citizens, or measure wasted time and efforts due to the bag ban. How many citizens actually support or oppose the bag ban? How often do people have to go back to their car or even to their home to gather forgotten bags? How many negative posts and responses to online articles have been written? Why does a small 10 cent fee bother and anger them so much that they would carry armloads of loose goods from the store?

- **Store issues**

There are multiple reports of plastic baskets and shopping carts being stolen from stores, longer wait times in lines, additional security issues, and customer anger aimed at stores. None of these were investigated.

- **Store clerk and citizen physical impact**

The impact to the clerks and citizens on the increased use of reusable bags (or worse yet, those who opt not to use any bags) is significant. The clerks must now deal with packing bags at counter level, versus the previously used plastic bag frames at below counter level. In addition, customers insist of filling the reusable and purchased paper bags to the brim, resulting in much heavier weight being lifted. No ergonomic impact was investigated.

- **Public health concerns**

There was no investigation of the rate of washing or cleanliness in the observed reusable bags. However, it is widely measured and known that people DO NOT wash their reusable bags, particularly if those people are forced to use the bags against their own free will. In addition to the actual investigation on wash rates, there was no investigation on any increase in disease or sickness to the citizens of San Jose or to employees at stores who have to pack filthy bags.

- **Nearly half the people now use no bag at all**

Even at the grocery stores (where the city employees observed behavior), they measured 43% of the people leaving with no bags. Add in the Home Depot stores, Fry's, and others, and that number is likely well over 50%. Thus, the bag ban has had the effect of basically removing ANY form of carryout convenience. Is this progress? Is this a good thing? **No, it demonstrates the utter failure of government mandated solutions!**

Conclusion

The memorandum by Ms. Romanov clearly reflects an attempt to spin inconsistent and inconclusive data in the most positive manner possible, and completely ignoring an evaluation of the true effects (both positive and negative) of the San Jose bag ban. Therefore, the memorandum is both biased and negligent. A more

neutral evaluation would conclude that the bag ban is totally unjustified based upon a cost/benefit analysis. A more negative evaluation would conclude that the San Jose bag ban is an utter failure and complete disaster.

Yet, in the world of politics, a true evaluation and analysis is typically avoided at all cost. Thus, city officials publish biased reports that neglect the facts or negative impacts, the city council believes the bag ban has been successful, and proponents repeat this misleading memorandum as evidence when convincing other city councils to follow San Jose like lemmings over the cliff.

It is the authors' opinion that the choice of bags to offer customers should be left to the businesses. Furthermore, the choice of bag to use should be left to the individual citizen based upon their situation and personal beliefs. Some people may choose to use reusable bags on planned shopping trips, such as grocery stores, but need a bag when visiting a Home Depot or Fry's. Others may want to avoid any danger of contamination in their bags and instead take full advantage of safe, clean, disposable bags. Bag ban proponents should make their case to the people, and let the people decide.

Virtually everyone hates litter. Litter laws should be enforced and those who litter should be punished. In addition, action should be taken by the city to ensure that loads in garbage and recycling trucks are completely contained to prevent spewing loose litter on city streets and encouraging people to bag loose litter that could become airborne. To ban a product and punish everyone because of the careless behavior of a few is not a responsible solution.

The statistics and claims in the November 20, 2012 memorandum by Ms. Romanov are neither scientifically accurate nor do they justify the immense personal and financial burden of the bag ban to the businesses and people of San Jose. The city council should demand that the items raised in this document be reviewed by the city, and the issues seriously addressed. The city should determine, in a truly unbiased manner, if the San Jose bag ban is justified. If not, the city should repeal the bag ban.

About The Authors

Don Williams is the founder of the "[Stop the Bag Ban](#)" citizens group in the San Jose area. He holds a bachelor's degree in Mechanical Engineering and has worked in the high tech field for over 25 years.

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Appendix A

On-Land Litter Surveys

On Land Litter Surveys were conducted in 2009, 2010, and in 2012. Litter surveys were conducted along streets and sidewalks for a length of 100 feet. Trash collected was sorted and characterized to establish what percentage of the litter found consisted of single-use plastic bags. (Romanov, 2012, p. 3) Results of the litter surveys are summarized in Table A-1. The table shows the number of sites surveyed, total litter items found, number of plastic bags found, number of plastic bags per site, and the percent of plastic bags out of total litter items found.

Table A-1. On-Land Litter Surveys

Litter Audit Year	Number of Sites	Total Litter Items	Number of Plastic Bags	Plastic Bags Per Site	Percent of Total Litter
Pre Ban					
2009	48	7,917	387	8.1	4.9%
2010	59	7,784	409	6.9	5.3%
2009 Plus 2010	107	15,701	796	7.4	5.1%
Post Ban					
2012	31	3,679	76	2.5	2.1%

City of San Jose's Evaluation of On-Land Litter Reduction

The City of San Jose evaluated the results of the On-Land Litter Assessment in the November 2012 Memorandum. In the memo, data from the 2009 and 2010 Litter Assessments were added together to get pre-ban results. The post-ban data was obtained from the 2012 Litter Assessment. The data showed **796** plastic bags pre ban out of 15,701 litter items or **5.1%**. The post ban data showed **76** bags out of 3,679 litter items or **2.1%**. (Romanov, 2012, p. 6)

The city calculates the reduction in on-land plastic bag litter as follows:

$$\text{Percent On Land Reduction} = \frac{\text{Pre Ban Percent of Total Litter} - \text{Post Ban Percent of Total Litter}}{\text{Pre Ban Percent of Total Litter}} \times 100\%$$

$$\text{Percent On Land Reduction} = \frac{5.1\% - 2.1\%}{5.1\%} \times 100\% = 58.8\% \text{ or } 59\%$$

Critical Analysis of San Jose's Evaluation of On-Land Litter Survey

The analysis of the On-Land Litter Survey in Table 1 of the memorandum is **flawed** for a number of reasons. (Romanov, 2012, p. 6)

First, for Pre-Ordinance data the City of San Jose added the results from the **48** sites in the 2009 Litter Survey to the **59** sites in the 2010 litter survey together, identifying a total of **107** sites. For Post-

Ordinance a total of 31 sites were surveyed. What this means is that the total area surveyed before the ban is more than three times larger than the area surveyed after the ban. This will distort the results.

Second, the sites surveyed were not the same in each survey year. This means that in each successive survey year new sites are included that might contain multi-year accumulations of trash and plastic bags distorting survey results.

Table A-2. Reduction of plastic bags in on-land sites

Litter Survey Year	Number of Sites	Survey Area (feet)	Number of Plastic Bags	Normalized Number of Plastic Bags	Percent Reduction
<i>Pre Ban</i>					
2010	48	4,800	387	8.1	
2011	59	5,900	409	6.9	
2010 plus 2011	107	10,700	796	7.4	
<i>Post Ban</i>					
2012	31	3,100	76	2.5	66%

Table A-2 shows the reduction of plastic bags in on-land sites. For each survey year, the number of survey sites is listed including the survey area which is computed by multiplying the number of sites by 100 feet which is the distance of roadway that was surveyed at each site. The table also contains the number of plastic bags found and the normalized number of plastic bags found. The normalized number of plastic bags is calculated by using the formula below and represents the number of plastic bags per 100 feet of surveyed roadway or site.

$$\text{Normalized Number of Plastic Bags} = \frac{\text{Number of Plastic Bags}}{\text{Survey Area in feet}} \times 100 \text{ feet}$$

To compute the percent reduction the following formula is used:

$$\text{Percent Reduction} = \frac{\text{Pre Ban Normalized Plastic Bags} - \text{Post Ban Normalized Plastic Bags}}{\text{Pre Ban Normalized Plastic Bags}} \times 100\%$$

The Pre Ban 2010 plus 2011 normalized number of bags was then compared to Post Ban 2012 normalized number of bags to calculate a **66%** reduction or a drop of **5** plastic bags per survey site.

The city of San Jose conservatively computed the percent reduction by the computing the reduction as a percent of total litter; whereas, we calculated the percent reduction by the average number of plastic bags per survey site. While our method actually produces slightly better results, statistical uncertainty remains as a result of the underlying data.

Creek Cleanup Trash Characterization Results

Creek Cleanup trash characterization was conducted in 2010, 2011, and 2012. Litter surveys of creeks were conducted over a standardized length of 300 feet at each surveyed location. The litter surveys in

2010 and 2011 were conducted Pre-Ordinance and the 2012 litter survey was conducted Post Ordinance.

Table A-3. Creek Litter Survey Results

Litter Audit Year	Number of Sites	Total Litter Items	Number of Plastic Bags	Plastic Bags Per Site	Percent of Total Litter
Pre Ban					
2010	5	5,502	670	134	12.2%
2011	10	16,703	1367	137	8.2%
2010 Plus 2011	15	22,205	2037	136	9.2%
Post Ban					
2012	10	14,017	513	51	3.7%

City of San Jose’s Evaluation of Creek and River Litter Reduction

In Table A-3, the City of San Jose calculated the Pre-Ordinance results by adding the data from the 2010 to the 2011 Creek Litter Surveys for a total of **15** Sites, **22,205** litter items and **2,037** single-use plastic bags for an average of **136** plastic bags per site. The Post Ordinance results are taken from the 2012 Creek Litter Survey for a total of **10** Sites with **14,017** litter items and **513** single-use plastic bags for an average of 51 bags per site. Plastic grocery bags were shown as **12.2%** of total litter in 2010, **8.2%** of total litter in 2011, and **3.7%** of total litter in 2012. The city calculates the overall creek reduction by calculating the reduction of 9.2% to 3.7% of total litter for a reduction of 59.8% or rounded to **59%**. (Romanov, 2012, p. 6)

Critical Analysis of San Jose Evaluation in Creek and River Litter Survey

Table A-4 shows the reduction of plastic bags in creek sites. A distance of 300 feet of creek was assessed for litter at each site. The number of bags found was normalized to the number of plastic bags per site. The 2010 plus 2011 normalized number of bags was compared to the 2012 normalized number of bags to calculate a **62.5%** reduction from 136 to 51 bags per site for a drop of **85** bags per site. The **62.5%** reduction compares well with the **60%** reduction computed by the City of San Jose.

Table A-4. Creek Litter Reduction Results

Litter Audit Year	Number of Sites	Assessment Area (feet)	Number of Plastic Bags	Normalized Number of Plastic Bags	Percent Reduction
<i>Pre Ban</i>					
2010	5	1500	670	134	
2011	10	3000	1367	137	
2010 plus 2011	15	4500	2037	136	
<i>Post Ban</i>					
2012	10	3000	513	51	62.5%

Storm Drain Catch Basin Litter Surveys

Storm drain catch basins, retrofitted with trash capture screens, were repeatedly sampled in order to establish an accumulation rate for plastic bags in storm drain system. The storm drain catch basin litter survey in addition to counting plastic bags measured the volume and weight of litter.

City of San Jose's Analysis of Storm Drain Litter Rate

In the table in the San Jose memorandum, an average of **3.6** single-use plastic bags/inlet/year Pre-Ordinance and **0.4** single-use plastic bags/inlet/year Post Ordinance was reported. This was computed by the city of San Jose as a reduction of **89%**. (Romanov, 2012, p. 6) The analysis is based upon **80** bags Pre-Ordinance and **9** bags Post Ordinance from a total of **23** sites surveyed before and after the bag ban for a total reduction of **71** plastic bags. (City of San Jose, 2012)

Critical Analysis of Storm Drain Catch Basin Litter Survey

The spreadsheet containing storm drain catch basin results consists of Events 1-4 and Event 5 is confusing. Events 1 to 3 are Pre Ban and Event 4 is Post Ban. The results shown in the above paragraph are contained in a highlighted section of the spreadsheet. The spreadsheet also shows that the number of sites sampled for each of the events. The results reported did not include data from all sites. This was not explained.

Table A-5. Storm Drain Results

Litter Audit Year	Number of Sites	Number of Plastic Bags	Plastic Bags per Site	Percent Reduction
Pre Ban				
Event 1	31	16	0.52	
Event 2	65	50	0.77	
Event 3	62	20	0.32	
Total	158	86	0.54	
Post Ban				
Event 4	69	9	0.13	
Post Ban Reduction		77	0.41	76%

When comparing the total number of plastic bags from the three pre ban events and Post Ban events for a reduction of **86** plastic bags to **9** plastic bags for a reduction of 77 bags or a **76%** reduction. This is also equivalent to a reduction of 0.54 to 0.13 for a 0.41 bag reduction per catch basin. This differs from the reduction calculated by the city because it includes all sites surveyed rather than the selected 23 sites which shows a reduction of 3.6 bags per inlet to 0.4 bag per inlet or a reduction of 89%.

Summary

In Table A-6, the authors present both the City of San Jose calculations for a reduction in plastic bag litter and their own calculations. While the City of San Jose's numbers were fairly close to ours regarding the decrease in plastic bags found in creeks and on-land, the methodology used was flawed and the source data wanting in both cases. With regard to storm drain data, using data from 23 storm

drain catch basins outfitted with trash capture devices is much too small a sample for a city the size of San Jose to provide reasonably accurate results. Serious questions remain with San Jose’s calculation of the storm drain plastic bag reduction of 89%. The storm drain results appear to be overstated even though the plastic bag reduction only represents a reduction of 71 plastic bags. Since our calculations were based on the limited data collected, it is also considered suspect.

Table A-6. San Jose Results Compared with this Paper's Results

Survey	San Jose Reduction	Our Calculations	Bags Reduced
On-Land Survey	59%	66%	4.9 bags per site
Creek Survey	60%	62.5%	85 bags per site
Storm Drain Survey	89%	76%	0.41 bags per site

Appendix B

Table B-1 contains the estimated cost data for the City of San Jose based upon bag usage statistics for the City of Santa Monica derived from a survey conducted by a student group called Team Marine. Student volunteers from conducted over 50,000 observations of store patrons both before and after the bag ban. The number in parenthesis in the table represents the bag usage statistics from Team Marine. (Team Marine, 2013) Household cost data for the different bag options is derived from the authors' paper titled "Plastic Bag Alternatives Much More Costly to Consumers". For example, annual costs for store provided plastic bags is \$20.80, store provided paper bag is \$31.20, store purchased paper bags is \$78, and reusable bags is \$300. (van Leeuwen & Williams, 2013) Based upon Table B-1, the annual cost to San Jose residents for carryout bags more than doubled (2.5 times) even with the high number of people who now choose not use bags! In addition, San Jose residents will now spend an additional \$23 million more annually for carryout bags than they did before the ban. This \$23 million could be MUCH better spent actually doing something positive to address litter and trash, rather than regulating citizens and businesses.

Table B-1. Pre and Post Ban Cost Estimate for City of San Jose

	Population/ Households	Annual Cost
San Jose Population	984,299	
San Jose Households (3 persons)	328,100	
Pre Ban		
Households using Plastic Bags (69%)	226,389	\$4,708,886.42
Households using Paper Bags (5%)	16,405	\$511,835.48
Households using Reusable Bags (10%)	32,810	\$9,842,990.00
Households using No Bags (15%)	49,215	0.00
Total Pre Ban Cost		\$15,063,711.90
Post Ban		
Households using Plastic Bags (0%)	0	\$0.00
Households using Paper Bags (29%)	95,149	\$3,618,779.21
Households using Reusable Bags (35%)	114,835	\$34,450,465.00
Households using No Bags (36%)	118,116	\$0.00
Total Post Ban Cost		\$38,069,244.21
Total Cost Increase as a Result of Bag Ban		\$23,005,532.31