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STOPWASTE.ORG

ADVANCE DISPOSAL FEE (ADF) OPTIONS RESEARCH

*Submitted to
StopWaste.Org*

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In association with Heidi Sanborn, Independent Consultant

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1. EXECUTIVE SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

StopWaste.Org, (the Alameda County Waste Management Authority and Recycling Board, functioning as a single agency) is one of the leading agencies in recycling and waste prevention in North America. The Alameda County Waste Management Authority covers the County, as well as 14 cities, and two sanitary districts that provide recycling and solid waste services within the County. The mission of StopWaste.Org, the Alameda County Waste Management Authority & Recycling Board is to achieve a 75% and beyond diversion rate. StopWaste.Org's commitment to achieving 75% and beyond diversion has led it to explore cutting-edge options including mandatory programs, aggressive organics, commercial waste prevention, and many other programs that now serve as the model for other agencies.

Alameda County residents and businesses disposed approximately 1.3 million tons of municipal trash in 2008. The estimated 2008 diversion rate is 67 percent through recycling, composting, and waste reduction activities. To make this diversion happen, County businesses and residents enjoy an array of convenient collection, drop-off, event, and educational programs at the County and State level. In addition, the County's Hazardous Waste site properly manages another 1,026 tons annually. Stopwaste.Org has a 75 percent waste diversion goal, and is in the process of adopting a new performance metric aimed at reducing the portion of readily recyclable and compostable materials in the waste stream to no more than 10 percent by 2020.

The Agency provides financial and technical assistance to its member jurisdictions to achieve this goal and it also funds four household hazardous waste facilities (partial funding for one). Since about 90% of the Agency's core revenue comes from per ton landfill fees, mission success or declining waste equals significant reductions in core revenue. Additionally, the HHW drop-off program is very expensive to operate (approximately \$2,200 per ton on average), but the costs are invisible to those who purchase products classified as HHW at end of life, because they pay for the HHW program via a landfill tip fee of \$2.15 per ton. A landfill tip fee is a less visible cost than a point of purchase surcharge. For these reasons, StopWaste.Org sought a review and assessment of alternatives for environmental fees (called Advance Disposal Fees or ADFs) that relate to the cost of disposal and management of a number of problematic products. Certain products are problematic because they:

- Are hazardous (paint, batteries, pesticides)

- Create litter(plastic bags, packaging)
- Are hard to recycle (aseptic packaging) or compost

Starting with a list of more than 25 possible products, the consultant team¹ worked with Agency staff to focus on options for 13 key product categories, and identify the feasibility of ADFs for these materials.

To conduct this analysis, the project team gathered examples of ADFs in place elsewhere in the US, Canada, and Europe; identified the materials and products of most interest to StopWaste.Org, examined administrative alternatives, computed potential revenues associated with the ADFs, and provided feedback on the pros and cons of the ADFs that were most administratively feasible for consideration by StopWaste.Org and its stakeholders. The final results are summarized in the Tables in this section and the final conclusions chapter. Chapter 2 discusses ADFs, fees, and examples. Chapter 3 describes the materials prioritized for ADFs, and the general design of the ADFs. Chapter 4 includes an assessment of revenue collection and administration options and estimates of the fixed and on-going costs. Chapter 5 computes the potential revenues associated with a one-cent and a one-percent ADF on each product, and also provides estimates of three costs associated with the ADFs. These include the current and full cost to manage the subset of the analyzed ADF materials that are and could be handled at the household hazardous waste facilities, and an estimate of the reduction in revenues from sales taxes due to the changes in purchases of the products due to the ADFs. Chapter 6 includes the conclusions. The Appendices contain the detailed data, computations, case studies, information, and analyses that informed the results of this project.

The key tables and results from the report are reproduced below in this Executive Summary. Table 1.1 provides a brief description of the materials, ADF system, and general rationale for the ADF.

¹ Skumatz Economic Research Associates, and Heidi Sanborn, Independent Consultant

Table 1.1 Summary of ADF Materials and Options, and Administration

ADF Material	Description and background
Fast food takeout packaging	This would consist of an ADF on retail fast food containers that could be imposed by unit (cents per non-recyclable container), by transaction (assuming an average number of containers per visit), or as a percentage of retail sales (again, assuming average transactions). We did not find a precedent in the US. This is not likely a practical alternative at the wholesale level. The Fee's rationale is litter ² and incentive to modify materials used in the product.
All Toxics	If the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.005 on first sale of products entering state). The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.
Pesticides	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.
Fertilizer	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). Ontario fee is \$0.003-0.005 / gallon. The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.
Paint	This ADF might be no longer relevant to StopWaste.Org because of new state EPR law. For background the paint fee in Oregon is established as 35 cents per half gallon and \$1.60 per 5 gal container. Ontario charges about \$1.06/gallon. The Fee's rationale may be related to cost to dispose of the product properly / cost at hazardous waste site, and provide incentives not to purchase more product than needed.
Single Use Bags	The ADF would most likely be assessed as a unit fee per bag assessed to the consumer at point of purchase (percent of price is not relevant for an un-paid item). In Washington DC's model, the fee is 5 cents per bag, with 1 cent provided to the retailer; in Ireland the fee is 33 cents per bag. The Fee's rationale is generally related to the high amount of this type of product in litter, and the availability of substitute products with recyclable / reusable components (behavior change).
Cigarettes	The ADF could be assessed fairly easily as a per-pack fee or a percent on purchase price. The model in San Francisco is 20 cents per pack, assessed at the point of purchase. The Fee's rationale is generally based on its contribution as a constituent of litter.
Packaging	There are limited packaging models in Europe, Asia, and Australia, but complexities exist. Presumably recycled or recyclable packaging may be exempted, but oversizing of packaging, regardless of material, may also be a concern. There has been work conducted examining ratios of packaging to product (in Asia), and extensive work on fees and EPR models in Europe. Australia uses a voluntary, cooperation-based model including the array of actors along the packaging supply chain. The fees would presumably be negotiated on manufacturers and embedded in the price. However, considerable complexity arises in envisioning a successful packaging model of this type at the COUNTY (rather than national) level. The Fee's rationale is generally based on a desire to reduce overuse of materials, encourage use of recyclable / recycled / reusable materials and options for resource conservation.

² Note that the estimated annual litter related costs for Alameda County are \$26 million (from the County Stormwater program).

ADF Material	Description and background
Fluorescents	Assuming a retail model, the fee would be assessed at point of purchase as either a fee per bulb (easier model) or a percentage surcharge assessed per bulb. We did not find an existing ADF model on this product (estimates place disposal costs at about \$0.75 each or about 1/2 the purchase price of many models). The Fee's rationale derives from the cost to properly dispose of the product, and the costs at the hazardous waste site.
Hard to Recycle Containers - wine+gable+aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (encouraging aseptic products which are difficult to recycle).
Hard to Recycle Containers - Spirits only	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers.
Hard to Recycle Containers-gable tops and aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (including aseptic packages, which are difficult to recycle).
Batteries (all)	If the ADF is assessed at the retail level, the ADF could either be assessed as a fee per unit or a percent of purchase price. Ontario has an ADF on this product, as one example. The Fee's rationale would derive from the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components. In addition, this product has a disposal cost at the hazardous waste site.
Universal Electronics	If the ADF is assessed at the retail level, the ADF could either be assessed as a percent of purchase price, or as a fee per unit. We did not identify a precedent for an ADF on this product elsewhere. The Fee's rationale would be based on the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components.
Aerosols	Significant portions of this ADF may no longer be relevant to StopWaste.Org because of new state EPR law (see paint discussion above), or covered via pesticides, etc above. However, if assessed on broader aerosols (hairspray, etc.), the fee may still be assessed (but with significantly smaller units). Examples exist in Ontario, for example. The rationale is based on the need to address both the contents (when hazardous) and the container properly.

Revenue Potential

Table 1.2 below provides a summary of the estimated revenue that would be raised from the imposition of:

- a one-cent ADF per unit purchased retail of the product and
- a one-percent ADF on the products analyzed in this report.³

³ For those products with ADFs in other locations, the dollar values assigned in these other locations are provided in Appendix F

The table allows readers to estimate the revenues from alternate assumptions about the ADF fee level. For instance, if the ADF of interest is on cigarettes, the table shows the impact of a one percent per pack ADF is \$1.4 million. If instead, a 5% fee was imposed as the ADF, then the impact would be five times as large, or \$7 million. Examining the one-penny column, the table shows a one-cent ADF on cigarettes would raise approximately \$268,000. Using these figures, if a \$0.20 ADF was being considered, the estimated revenues raised would be approximately \$5.4 million.

Table 1.2 ADF Revenue Estimates for Purchases in Alameda County
(Derived in Chapter 5 and Appendix D; adjusted for changes in demand due to the price increase (elasticity); but not net of administrative costs.)

ADF Material	ADF Revenue per 1% change in product price; (adjusted for elasticity, not net of administration costs)	ADF Revenue per 1 PENNY change in price (adjusted for demand elasticity, but not net of administration costs)	Units (relevant for “per penny” adjustment (units for % are dollar sales)
Fast food takeout	\$4,239,661	\$699,850	Per takeout meal
Toxics All	\$40,438,482	Unable to estimate (“units” unknown)	Not available
Pesticides	\$103,814	\$1,727	Retail containers sold
Fertilizer	\$1,421,359	Unable to estimate	Retail containers sold
Paint	\$586,124	\$29,531	Gallons
Single Use Bags	Available data, but not how the fee is assessed.	\$1,420,000 - \$7,885,147 ⁴	Bags distributed at retail
Cigarettes	\$1,353,088	\$268,036	Pack of cigarettes
Packaging	Unknown	Unknown	Not available
Fluorescents	\$10,770	\$3,596	Per bulb purchased
Hard to Recycle Containers - wine+gable+aseptic	\$5,825,679	\$1,075,187	Per container
Hard to Recycle Containers - Spirits only	\$4,076,871	\$339,739	Per bottle
Hard to Recycle Containers-gable tops and aseptic	\$1,842,716	\$738,564	Per container

⁴ Traditional elasticities would indicate that the revenue per penny might be on the order of \$7.9 million. However, recent data from the bag fee instituted in Washington DC indicates that bag use fell much more than this after the imposition of a 5 cent fee. Bag use fell to 18% -33% of normal usage, so the lower figure is also included in the table.

ADF Material	ADF Revenue per 1% change in product price; (adjusted for elasticity, not net of administration costs)	ADF Revenue per 1 PENNY change in price (adjusted for demand elasticity, but not net of administration costs)	Units (relevant for “per penny” adjustment (units for % are dollar sales)
Batteries (all)	\$142,683	\$30,031	Per battery sold
Universal Electronics	\$23,473,410	Units unknown	Not available
Aerosols	\$440,923	\$147,467	Per container

Administration

The report also examines potential administration methods and the approximate cost to administer and enforce potential ADFs that might be imposed or considered. These costs are illustrated in Table 1.3.

Implementation Costs: Administrative costs associated with the ADFs include identifying the potential payee businesses (usually by business type using NAICS code), developing forms, computer programming, outreach, setting up funds / transfer / authorization procedures, testing, and other activities. We found two main sources of estimates of administrative costs. Figures from the Board of Equalization (BOE) were between \$500K and \$1 million dollars to program a new ADF.⁵ However, it may be possible for StopWaste.Org to license and adapt the same delinquency collection software⁶ that was modified by San Francisco for its cigarette litter abatement fee. If this is feasible, the set-up costs might be on the order of \$100-200K (a high end estimate, assuming a list of businesses and addresses are available from another location).⁷ Thus, we assume, for lack of a better estimate and closer model, that the implementation costs will be approximate \$150K if an adaptation of the San Francisco-type software approach can be used; or if a more complex BOE-type model is needed, the set-up costs may be \$500K to \$1 million (or a mid-point of \$750K) for a new fee. Given that we explored the treasurer / financial departments of StopWaste.Org, Alameda County, and sample Cities within the County (as proxies), and found no particularly well-suited systems on which to “piggy-back” for an administrative revenue collection

⁵ They did not have a closer range than this estimate, which was their estimate of the cost for implementing the statewide electronics waste fee.

⁶ REVQ by Columbia Ultimate Business Solutions of Vancouver, WA. This software, designed for delinquency management, can be adapted to fee collection applications, and was adapted by the City of San Francisco to implement both a tourism fee and a cigarette assessment. The licensing fee is about \$200 per concurrent County staff user per year; the set-up fees cited by the software company range from a few thousand dollars to higher amounts, depending on the modification. StopWaste.Org would be setting up most of a new system, so the costs may be higher than this range. San Francisco noted the adaptation for the tourism fee was about \$60,000, and adding the cigarette fee cost another \$50,000 in set-up costs.

⁷ The on-going license fee, per-user, would be about \$2,400, which would not be a large proportion of the on-going administration cost estimates.

system⁸, we believe the set-up of a new fee system will be a similar cost whether one were to implement the revenue system with StopWaste.Org, or attempt a memorandum of understanding (MOU) or contract arrangement with either Alameda County or the BOE.

On-going Costs: The next element to explore was the on-going costs, which include basically distribution of forms, auditing and enforcement, revenue collection, and similar duties. All entities interviewed noted that the on-going costs were very closely related to the number of businesses that were potential “payees”. Computations of the cost-per-payee annually for BOE were about \$200 per year, and the figure for San Francisco’s cigarette system was \$245 – numbers that are fairly similar. The other key driver to these cost estimates is the number of businesses. We used data on the number of businesses for hundreds of different business types within Alameda County (See Appendix G), and totaled the number of businesses that would be the retail (or in a few cases, wholesale) points of purchase for the products being analyzed in this study. Wholesale contacts are fewer, driving down the on-going costs. Retail outlets for some products are many, and that bears a direct relationship to the costs shown in Table 1.3 (for example, single use bags are used in nearly 5,000 stores in Alameda County; spirits are sold at about 180 outlets).

There is one very important caveat to using the figures in Table 1.3. These costs are not additive. If multiple products are selected for an ADF and they are all sold at grocery-type stores, then the costs would not increase much above the cost for one product sold there. The main driver for the on-going costs is the number of stores, not the number of products. Thus, there are administrative cost savings from picking products for ADFs that retail or wholesale at the same businesses.

Administrative Summary: There are three main options for administering potential ADFs in Alameda County; in each case, we do not see a strong case that the costs would be dramatically different than those described above.

- **Establish an MOU with the BOE:** The BOE has a system that is generally well-suited to adding the types of ADFs assessed in this report.⁹ However, the BOE normally takes its assignments directly from legislation – they are named collection agents for sales taxes (state and local), various transit fees, and the electronics waste fee. They have not traditionally become agents for other entities. However, they have established MOUs or contracts with organizations, and no one interviewed believed the practice was disallowed. Moving forward would take a meeting with board members or others¹⁰ to determine if

⁸ See Appendix E for a summary of the types of fees and revenues these different entities collect.

⁹ Either retail, or potentially wholesale.

¹⁰ The BOE was not completely negative on this issue; however, they were not immediately positive. All interviewees agreed the adaptation of their collection process for the ADFs envisioned by the study was administratively possible.

there is interest in taking on this assignment for StopWaste.Org.¹¹ If it moves forward, StopWaste.Org would need to work with BOE to identify the business types that would be “payees”, and assure that the description of the products covered by the ADF was clear, among other activities (authorization, contract, etc.).

- **Contract or establish an MOU with Alameda County:** Alameda County “touches” many of the businesses that would be potential payees for the various ADFs discussed in this report. However, they do not have a system that allows a great deal of flexibility in the types of fees, by either business type or types of products. Significant work would be involved in set-up and administration – probably similar in scope to the figures for BOE or San Francisco.
- **StopWaste.Org collects:** StopWaste.Org could elect to establish its own system for collecting these revenues, though they currently have limited capabilities. However set up costs may be similar to establish a system with the County.¹² Note that StopWaste.Org has the ability to contract out billing for the fee.

Finally, although we did not conduct a detailed review of the legal aspects of the manner in which ADFs might be authorized by StopWaste.Org, we would expect them to be implemented as a fee with a connected purpose (nexus), not a general fund-type tax (like a business license tax or other general purpose tax) that must be approved by the voters.

An assessment of the relative administrative feasibility is also provided in the Table.

¹¹ Because it has not been common practice, it is not clear what form the mandate for the ADF would need to take; it is not clear if an ordinance would be sufficient from BOE’s perspective, for instance. They commonly deal with revenue collection related to legislation or “votes of the people”.

¹² Presumably, between agencies, business contact information may possibly be shared to streamline the process if StopWaste.Org wishes to set up its own system.

Table 1.3 Summary of Estimated Administration Costs and Feasibility for ADFs¹³

(Costs discussed in Chapter 4, Appendix E and Appendix F)

ADF Material	Retail Admin Option and Implementation Cost (Set-up assumed \$150K if local software option; \$750K if BOE-level complexity)	Estimated Number of Payee Businesses (Retail)	On-going estimated Administration Cost (\$220/business/yr), Retail option. Economies available if multiple products with same retail outlets selected.	Likely Administrative Feasibility at the County Level
Fast food takeout	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,289	\$284,000	Moderately administratively feasible, retail level, must clearly define eligible businesses; product definitions may be complex and frequently changing.
Toxics All	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,769	\$609,000	Highly administratively feasible, retail level; however, large number of businesses may increase complexity (and on-going cost).
Pesticides	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	566	\$125,000	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses keeps costs low.
Fertilizer	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	566	\$125,000	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses reduce costs.
Paint	Not relevant due to recently-passed legislation.	909	\$200,000	Not relevant due to recently-passed legislation.
Single Use Bags	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	4,755	\$1,050,000	Highly feasible administratively, retail level, large number of businesses, but clearly-defined product. ¹⁴
Cigarettes	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,363	\$520,000	Highly feasible administratively, retail level, large number of businesses, but clearly defined product that is taxed in other ways ¹⁵
Packaging	Not addressed	326 (included only consumer product manufacturing-	\$72,000	Not currently very feasible administratively – establishing product categories complicated; more feasible at a manufacturer level, which is not feasible for a County

¹³ IF wholesale ADFs are an option, the business counts (and computed administration costs) follow. Toxics (967 wholesale businesses / \$200K administration cost); Pesticides (120 businesses / \$25K); Fertilizers (120 businesses / \$25K); Paint (199 businesses / \$40K); Aerosols (199 businesses / \$40K cost).

¹⁴ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared). Workable example in DC.

¹⁵ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared); also shown feasible in neighboring community, San Francisco.

ADF Material	Retail Admin Option and Implementation Cost (Set-up assumed \$150K if local software option; \$750K if BOE-level complexity)	Estimated Number of Payee Businesses (Retail)	On-going estimated Administration Cost (\$220/business/yr), Retail option. Economies available if multiple products with same retail outlets selected.	Likely Administrative Feasibility at the County Level
		type businesses). Alternative could be all retail.		
Fluorescents	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,480	\$326,000	Highly feasible administratively, retail level, clearly defined product
Hard to Recycle Containers - wine+gable+aseptic	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,336	\$514,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹⁶
Hard to Recycle Containers - Spirits only	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	182	\$40,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses very clear
Hard to Recycle Containers-gable tops and aseptic	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,154	\$474,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹⁷
Batteries (all)	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,566	\$565,000	Quite highly feasible administratively, retail level, clearly defined products; varied businesses sell this product. ¹⁸
Universal Electronics	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,329	\$292,000	Less feasible, retail level. Products may not be easy to define (constantly changing) at the County level.
Aerosols	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	909	\$200,000	Moderately feasible administratively. Paint aspect of this product covered by recent legislation. Pesticides and Fertilizers discussed above. Administration of other types of gas tanks may be complex to define and track sales at the County level

¹⁶ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹⁷ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹⁸ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

Waste Management Costs and Lost Sales Tax Revenues from the ADFs

Information on two other main costs was analyzed as part of this study:

- The cost per year to manage the minor share of the product that is currently brought to one of the County's four household hazardous waste facilities.¹⁹ The total of the costs for just the materials treated at the HHW site annually is approximately \$2.7 million (See Appendix F for more detail). As one example, the table shows that dealing with pesticides is about \$168,000. We also provide an estimate of the potential costs should all of the HHW materials by-passing the facility and being disposed of at the landfill, instead, be brought to the HHW facilities for management. Note that an estimate of this potential cost of fully implementing the HHW objective in the Countywide Integrated Waste Management Plan that hazardous wastes be removed from the solid waste stream for proper management (Objective 1.3) is more than \$19.3 million.
- The sales tax impact from the reduction in sales of the item. An ADF effectively increases the price of a product. People buy less of an item if the cost increases, depending upon the elasticity²⁰. Thus, economic theory argues there will be an impact on sales tax at the county level. This column provides an estimate of that impact. As an example, the table shows that an ADF on the combination of hard-to-recycle containers might reduce sales taxes by as much as \$900,000 in the County.

The consultants were asked to avoid setting priorities or recommendations, but to provide information for use by StopWaste.Org and stakeholders to consider in upcoming meetings. Criteria that may be appropriate for helping to determine the desirability of potential ADFs are described in Chapter 6.

¹⁹ As mentioned below, the costs are based on assumptions provided by StopWaste.Org; specifically, that the materials that are brought to the HHW facility are in roughly the same proportions as the material generated, and the material brought to the landfill.

²⁰ Elasticities are defined in a later chapter of this report. Generally, though, "elasticity" quantifies how demand changes when price changes.

Table 1.4 Summary of Costs Related to ADFs: HHW Management Costs and Reductions in Sales Tax Revenues from Imposition of ADF Fees (Discussed in Chapter 5 and Appendix D and Appendix F)

ADF Material	Cost per Year for Product at HHW (CURRENT volumes), including overhead	Percent of Total Costs for all these materials for each Material	Potential Costs per Year at HHW for 100% capture of these products, including Overhead ²¹	Relative costs of managing waste at HHW site, through recycling, or other methods	\$ Loss in County Sales Tax per 1% change in product price (9.75% sales tax)	Pct Change County Tax from 1% change in product price	\$ Loss in County Sales Tax per 1 cent change in product price (9.75% sales tax)	Pct Change County Tax from 1 penny change in product price
Fast food takeout	Not addressed at HHW site			Unknown	\$53,808	-0.13%	\$8,873	-0.02%
Toxics All	\$389,914 ²²	15%	\$2,854,000	Average at HHW \$3,120/ton ²³	\$195,263	-0.05%	\$0	0.00%
Pesticides	\$168,000	6%	\$1,230,000	Average at HHW \$3,120/ton	\$10,224	-1.00%	\$168	-0.02%
Fertilizer	\$141,120	5%	\$1,032,000	Average at HHW \$3,120/ton	\$83,651	-0.60%	\$389	0.00%
Paint	\$1,401,797	53%	\$10,261,000	Average at HHW \$3,120/ton	\$46,086	-0.80%	\$2,304	-0.04%
Single Use Bags	Not addressed			Est. \$5-30 million using Washington DC estimates ²⁴	n/a		n/a	

²¹ Per assumptions provided by Alameda StopWaste.Org, we use ratios from CURRENT volumes column, and proportion the costs upward to reflect an additional 6,483 tons (HHW that currently goes to the landfill) in addition to the 1,026 tons currently handled by the HHW facilities annually. Figures in this fourth column are, therefore, 7.3 times the cost estimates in the second column of the table. This is one estimate of the total costs if the ColWMP was fully implemented. Certainly, more refined estimates are possible, but this figure makes it clear there is considerable cost potential.

²² Note that this HHW management cost figure EXCLUDES the following HHW cost figures for pesticides and fertilizers.

²³ Computed as \$3.2 million (total HHW site costs) to address 1,026 tons currently managed at the site. Cost for just materials addressed in this study are about \$2,600/ton, counting \$2.7 million divided by the total 1026 tons.

²⁴ Using Washington DC's cost of \$0.05 per bag, this would total more than \$39 million (times figure of \$7.9 million per one penny assessed per bag from Table 1.2. Given one cent that is retained by the retailer, the figure is closer to \$32 million. However, given the most recent figures from Washington DC's program, bag use has declined much more than elasticities would expect. The Washington DC case study cites a decline of 60% in bag usage (see case study in Chapter 2, or data from the *Wall Street Journal*, Environment Section, Monday October 18, "The Secret to Turning Customers Green", which notes a usual number of bags handed out is 68 million per quarter, and in the two most recent quarters (after the 5 cent fee) they handed out an average of 12 million bags, 18% of the normal number.

ADF Material	Cost per Year for Product at HHW (CURRENT volumes), including overhead	Percent of Total Costs for all these materials for each Material	Potential Costs per Year at HHW for 100% capture of these products, including Overhead ²¹	Relative costs of managing waste at HHW site, through recycling, or other methods	\$ Loss in County Sales Tax per 1% change in product price (9.75% sales tax)	Pct Change County Tax from 1% change in product price	\$ Loss in County Sales Tax per 1 cent change in product price (9.75% sales tax)	Pct Change County Tax from 1 penny change in product price
Cigarettes	Not addressed			Total \$6.4 million in Alameda County (\$0.24/pack) ²⁵	\$71,093	-0.54%	\$14,022	-0.11%
Packaging	Not addressed				Not modeled	Not modeled	Not modeled	Not modeled
Fluorescents	\$101,000	4%	\$739,000	Average at HHW \$3,120/ton ²⁶	\$263	-0.25%	\$88	-0.08%
Hard to Recycle Containers - wine+gable+aseptic	Not addressed at HHW site			Curbside recycling programs are about \$165/ton ²⁷	\$915,595	-1.59%	\$166,783	-0.29%
Hard to Recycle Containers - Spirits only	Not addressed at HHW site			Curbside recycling programs are about \$165/ton	\$278,246	-0.70%	\$23,187	-0.06%
Hard to Recycle Containers-gable tops and aseptic	Not addressed at HHW site			Curbside recycling programs are about \$165/ton	\$285,017	-1.59%	\$114,235	-0.64%
Batteries (all)	\$195,000	7%	\$1,427,000	Average at HHW \$3,120/ton	\$6,991	-0.50%	\$1,466	-0.10%
Universal Electronics	Not addressed			Unknown	\$2,779,746	-1.20%	Not modeled	Not modeled
Aerosols	\$240,000 ²⁸	9%	\$1,756,000	Average at HHW \$3,120/ton	\$21,594	-0.50%	\$7,198	-0.17%
Total Costs for these materials at HHW site	\$2,637,000	100%	\$19,300,000					

²⁵ Note that Alameda County's annual litter-related costs are about \$26 million for all litter. If TPL is a similar percentage as in San Francisco, the TPL-related litter costs would be \$6.4 million. Divided by the number of packs of cigarettes sold, that would be approximately 23.8 cents per pack.

²⁶ or computed another way, About \$0.75 each unit or 50% of retail price

²⁷ Source: StopWaste.Org email, Debra Kaufman, October 2010.

²⁸ Includes flammable aerosols, propane / butane / map gas cylinders, and poison aerosols.

2. BACKGROUND ON ADFs AND PRODUCT MANAGEMENT OPTIONS

Solid Waste Management is Not Free

Solid waste management is not free. The direct fees paid by stakeholders (trash bills, AB939 fees, the Measure D tip fee surcharge, facility fee and household hazardous waste (HHW) fee surcharge, container deposits, taxes, franchise fees, etc.) cover a great deal of the direct costs of management at the local and State level. However, the current system has three main weaknesses:

- It does not cover the indirect costs of solid waste management (health, environmental effects, etc.).
- It does not provide a sustainable source of funds to cover all direct costs now or into the future;²⁹ Declining landfill tonnages provide declining revenues to pay for rising costs and problematic and hazardous products. The household hazardous waste landfill fee of \$2.15 does not cover the costs of the program, which are currently being subsidized by a declining account balance.
- It provides incentives for some improved waste generation and management behaviors by the stakeholders (for example, recycling /source reduction/composting vs. disposal in the trash); however, other important behaviors, such as choosing less toxic or recyclable packages (by consumers and manufacturers) are not addressed.



Costs to address end-of-life management of litter prone, recyclable, non-recyclable and hazardous products are rising as revenues to address these materials decline.³⁰ The following is a description of the fees that StopWaste.Org collects:

- StopWaste.Org levies two AB 939 fees that help fund compliance with state waste reduction mandates. The Facility Fee funds countywide recycling, waste prevention and planning efforts contained in the CoIWMP. This fee is currently \$4.34 per ton on disposed waste and a fixed amount for "other waste" as agreed to by the two in-county facility operators, projected to total

³⁰ The costs within Alameda County for addressing just the hazardous waste components included in Table G are more than \$2.6 million. Alameda County's annual litter-related costs are about \$26 million for all litter. These costs do not include the other recycling, source reduction, and other initiatives undertaken by StopWaste.Org.

approximately \$1.2 million in FY10/11. The Household Hazardous Waste Fee is \$2.15 per ton and is paid directly to the Alameda County Environmental Health Department for the operation of the countywide system of HHW collections. These two fees are levied on all wastes landfilled in Alameda County, all wastes generated in Alameda County transferred through a county solid waste facility for out-of-county disposal, and on all franchised wastes collected in Alameda County and direct-hauled out-of-county for disposal.

- The Measure D Landfill Surcharge is collected on waste disposed at the Vasco Road and Altamont Landfills pursuant to a County Charter Initiative Amendment approved by the voters of Alameda County in November 1990. The surcharge, currently set at \$8.17 per ton as of 1/1/10, may be adjusted annually for CPI inflation by the Alameda County Board of Supervisors. Half of these revenues are allocated to participating Alameda County municipalities for waste reduction efforts and half are allocated to specified countywide waste reduction programs administered by StopWaste.Org.
- The City and County of San Francisco pays a per-ton Waste Import Mitigation Fee to StopWaste.Org for waste disposed at Waste Management’s Altamont Landfill, under a 1988 contractual agreement for the disposal of 15 million total tons of San Francisco waste. This Import Mitigation Fee is \$5.75 per ton as of 10/1/09, adjusts annually. This contractual San Francisco tonnage is exempt from the other fees collected or levied by StopWaste.Org.
- An Import Mitigation Fee of \$4.53 per ton is collected on all other wastes landfilled in Alameda County that originate out-of-county.

Strategies for Addressing Revenues and Material Management

There are several broad classes of strategies that can provide material management incentives and/or provide revenue streams.³¹

General / Broad Fees or Product-based fees

- **General / Broad environmental fees and tax options:** These include per household or per business “generator” or environmental fees, charges through tax or landfill surcharges, or similar options. These revenue options are broad-based and do not associate with specific products, items, or behaviors. There are widespread examples of environmental fees (e.g. per-household fees³², trash rates), and landfill surcharges³³ across the US. These fees are effective at generating revenues for broad programs and can

³¹ A table of examples of Take-back, EPR, and ADF options is included in Appendix A.

³² In addition to assessments on tax bills (e.g. Boulder’s trash tax; Seattle’s B&O tax on businesses, etc.), there are examples of cities that pay a per-capita fee to fund multi-county non-profit drop-off recycling centers (SEERC and others in Colorado and many other states), and hundreds of other examples.

guide general behaviors (e.g. PAYT); however, they tend not to provide incentives for changes in behavior related to *specific* problem products and behaviors.

- **Product-based bans:** Bans have two general goals: to “force” diversion of easily managed materials in a more appropriate way (bans on recyclables, yard waste), or, to reduce use of and/or improper disposal of hazardous materials (oil, mercury-containing products, etc.). Bans are sometimes instituted as disposal or landfill bans; other times they are bans from collection. Bans based on hazardous elements provide incentives for consumers to find alternatives, and can encourage manufacturers to redesign products to exclude and find substitutes for problem components.

Product-based bans:

- *Encourage better disposal*
- *Reduce improper disposal*

- **Producer or retailer management options including “Extended Producer Responsibility / EPR”³⁴:**

Retail take-back³⁵ and extended producer responsibility programs are product-based. Retailer take-back programs and EPR programs tend to be government-enforced programs operated by the private sector (businesses or industry) that are focused on achieving returns of specific products that are then delivered to a party for appropriate management.

Industry-based Options:
Retailer take-back

Extended Producer Responsibility (EPR)

The costs are incorporated at point of sale (auto battery deposits, mercury thermostat programs). Retailer take-back programs are often at the state and local level; EPR legislation is usually at the State or Federal level.³⁶ These alternatives can address a large percent of the problem material, encourage the set up of cost-effective methods to address the program material (when costs are borne by the product suppliers chain), and can encourage manufacturers to redesign products to exclude and find substitutes for problem components.

³³ Again, numerous examples including California, Statewide in Iowa, Colorado and many other states.

³⁴ These programs overlap in many ways with ADFs, but the funds remain private-sector

³⁵ Some consider retailer take-back as a private market ADF. It has ADF elements, but the programs are generally run by the private sector (enforced by government), do not function as governmental revenue sources, don't incorporate indirect costs, and have other differences. Retailers generally collect the fee and pay for disposal. They can be considered ADFs; in this report, we group them with private manufacturer options.

³⁶ Numerous examples in Europe, Canada and in Asia.. There are examples of State legislation on producer responsibility in Maine (many products, EPR “Framework”), California, Vermont, and Maryland (four products each); Iowa, Illinois, Rhode Island and New Jersey (three products); Washington, Oregon, Minnesota, South Carolina, North Carolina, Virginia, and Indiana (two products), and Texas, Oklahoma, Louisiana, Missouri, Arkansas, Florida, Wisconsin, Utah, Montana, Michigan, West Virginia, Pennsylvania, New York, New Hampshire, and Connecticut (one product each). The products covered by one or more of these states include: auto switches, batteries, cell phones, electronics, fluorescent lighting, mercury thermostats, paint, and pesticide containers. Source: Product Stewardship Institute Website.

- **Product-based Advance Disposal Fees (ADFs):** Advance disposal fees are product-based fees, aimed at incorporating a fee into the cost of the product that recognizes (and incorporates, some or all of) its differential extra cost for management³⁷ – because of its direct costs (managing toxic materials) and/or its broader health / environmental impacts (“externalities”). These fees are based on the “polluter pay” principle – only users of the product pay these fees, not all residents or businesses. These fees provide incentives for modified behavior by consumers and manufacturers. If imposed across whole product categories, they help provide revenues for proper solid waste management of the product but do not distort demand within the product category. If they are imposed for component materials (or packaging), they encourage consumers to purchase versions of the product that do not incorporate the problem component (a price preference or cost savings), and summararily, encourage exploration of alternative (less problematic) components by manufacturers. ADFs do not necessarily limit access to products (like bans might), but they incorporate a reflection of the “truer” cost of disposal into the price but still maintain consumer choice and access to the product.

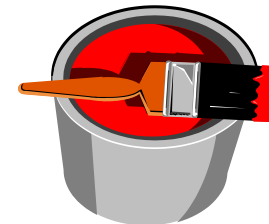
ADFs:

- *Product-based*
- *Incorporate fees related to cost of management*
- *Polluter Pay Principle*

Summaries of ADF and ADF-like Programs Elsewhere

Our research on ADFs found a few examples in the US and others internationally. A variety of designs are provided below; a number are described in the case studies below.

- **Examples of ADFs** - Examples of traditional ADFs include:³⁸
 - San Francisco’s Litter Abatement Fee
 - California’s Tire fee and E-waste law, passed in 2004
 - Washington DC: ADF on plastic single-use bags
 - Ireland, Italy, and Belgium: ADFs on plastic single-use bags
 - Broad-based product fees in Ontario (recently rescinded on certain products).
 - Bottle bills or deposit legislation in place in many states³⁹



³⁷ “It is a disposal cost fee, not a recycling fee. It is based on the full cost of waste management, including the cost of recycling for those items that are recycled”, Source: “Disposal Cost Fee Study Final Product”, Tellus Institute, February 15, 1991, page ES-2.

³⁸ The first 4 of these are included in Appendix A.

- Beverage litter fees, set at low amounts and primarily for litter control efforts.⁴⁰
 - Florida had broad-based packaging fees for many years, starting in 1992.⁴¹
 - Florida has a ten cent per ton disposal fee on newsprint unless 50% of the newsprint used in the state is made from recycled fiber (1992, probably not still in existence).⁴²
 - Rhode Island examples biodegradable and returnable products from state sales tax.⁴³
 - Delaware modified its bottle bill / deposit legislation law from a traditional model to a new design. Rather than a fee that is rebated for proper return, the fee is now collected, but then directed to a fund for recycling programs and grants. The provision sunsets in a couple years.
- **Examples of Retailer take-back options with fees:** Retailer take-back can sometimes be considered an ADF. A number of examples we uncovered include:^{44 45}
 - San Luis Obispo, CA: Three ordinances covering ADFs for batteries and mercury (2008), paint (2009), and sharps (2008).⁴⁶
 - Madison, WI: Mercury thermostats and lamps fee (2003)
 - Dane County, WI: tires, lead-acid batteries, thermostat, mercury containing lamps (1990)
 - State of California: Auto-battery retailer take-back (many other states as well)
 - Ottawa, Canada's Local Take-It Back Network covering all kinds of products from automotive fluids and batteries to flower pots.
 - Maine: \$5 ADF on major new appliance, furniture, bathtubs, and mattresses⁴⁷



³⁹ Note that we include these as examples of ADFs because in most cases, the state government is quite involved in the system. Others might think it looks like a “take-back” program. The lines are not unique.

⁴⁰ Listed as an option in Tellus, 1991, page ES-3.

⁴¹ Listed as an option in Tellus, 1991, page ES-3.

⁴² Listed as an option in Tellus, 1991, page ES-3.

⁴³ Listed as an option in Tellus, 1991, page ES-3.

⁴⁴ In addition, we found pending ordinances for City of Sacramento covering sharps.

⁴⁵ The first five of these are described in the Table in Appendix A.

⁴⁶ There may be a small per-refuse-account fee associated with this, but not a retail fee.

⁴⁷ The remainder of these take-back fee examples were included in the Tellus Report, 1991, page ES-3.

- Rhode Island: Fees on several categories of hazardous waste including tires, motor vehicle oil, antifreeze, and organic solvents.
- Fees on motor vehicle batteries (3 or more states), tire fees (California and at least 9 other states)



- **Examples of EPR legislation or privately-administered ADFs:** Some EPR programs provide avenues for industry to help cover a share of the costs that municipalities or counties in end-of-life product management. Examples include:
 - Curbside recycling programs (“Blue Box”) delivered by industry, paid by industry with funds assembled by proportional contributions from various product categories (paper, cardboard, cans, etc.) to an industry association or hired third party non-profit. Versions of this model pay (or “pay back”) cities / counties that are providing the curbside service, rather than having industry deliver the program. These types of models are in place in Canadian provinces (including Ontario, Quebec, examples described below).⁴⁸
 - Oregon – State level paint EPR with fee embedded in the price from manufacturer to retail level
 - Voluntary EPR programs at the federal level in North and South America on agricultural pesticide containers, rechargeable batteries and cell phones
 - Mandatory EPR programs (250 in Europe, 90 in Canada, Japan, hundreds throughout the world) on e-waste, paint, pesticides and pesticide containers, mercury thermostats and switches, aerosol cans, tree paint, packaging, large and small appliances, batteries, fluorescent lamps, oil, sharps, pharmaceuticals, beverage containers, tires, flammables, large appliances, small appliances, cars, carpet, and packaging.
 - California and 7 other states have mercury thermostat EPR laws
 - There is pending legislation in San Francisco addressing pharmaceuticals



⁴⁸ Some may also view these as bordering on ADFs.

- Australia’s National Packaging Covenants (1999)
- South Korea, Japan, Taiwan, Australia: Packaging - Empty space laws limiting the amount of “empty space” packaging can have for single and grouped products



Case Studies for many of these options are provided below.

California Electronic Waste Fees

On January 1, 2005 California began collecting advance deposit fees on all CEDs, Covered Electronic Devices. Fees are collected at point of purchase. It is not a deposit and there is no redemption value on the electronics. Depending on the size of the screen, the retailer collects \$8, \$16, or \$25. This fee was raised in 2009 from \$6, \$8, and \$10 and remains the same for 2010.

Retailers may retain 3% of the fee as reimbursement for the cost of collection. The remainder is remitted to California’s tax collection agency, The Board of Equalization. The BOE retains a percentage for processing the fee. They send a percentage to Toxic Substances Control for the physical management of the electronic devices. The BOE sends the remainder of the money to CalRecycle. From this, CalRecycle retains a portion for management. We spoke with Andrew Hurst of CalRecycle who said that in their E-Waste branch, they currently have approximately 20 employees who commit various hours towards this program. The majority of CalRecycle’s administrative effort is focused on reviewing claims and approving payments to collectors and processors. CalRecycle reimburses the recycler who is charged with paying the collector. Hurst says that on average, CalRecycle pays out \$.39 per device. The recycler keeps \$.23 and pays the collector \$.16. The amount paid to the collector varies depending on the costs to the recycler.

In this way cities can provide residents with free electronic programs. For example, Redding, CA contracts with an approved recycler, California Asset Recovery, or CEAR. Since CEAR is reimbursed by the state through the ADF, they can offer their services to the city at no cost.

California requires the recycler and collectors to document their associated costs so CalRecycle can evaluate, then set appropriate fees. Hurst admits that one of the biggest challenges of the program is making sure the devices for which they reimburse the recyclers are actually generated in California.

California Redemption Value Fund- Beverage Containers

California has been collecting fees on beverage containers since 1987. Various revisions have been enacted to bring the recycling rate up to 80% while maintaining the proper fund balance.

Currently, consumers pay a \$.05 charge for 12oz containers and \$.10 for 24oz, collected by the retailer. Supermarkets are required to have a recycling center, also called a convenience zone, within a specified area. If there is not one nearby, the supermarket or other retailers must provide one, for which they receive a handling fee. However, 55%-65% of all beverage containers are returned to private recycling centers. Consumers are reimbursed the fee only if they take their container to a recycling center, otherwise they “donate” their fee to the hauler that collects their recycling.

The program defines the redemption value as the money paid into the program by the consumer from the fee charged on 100% of beverage containers sold in California (In practice, the funds are paid to the state by distributors based on their sales to retailers. Retailers then reimburse distributors as part of the sale terms of their transactions). The refund value is the money paid out to the recycler and consumer only when the container is recycled. The difference between these two is the main source of funding for the program. In 2005, only 61% of containers were recycled and approximately 70% in 2008. Manufacturers of beverage containers also pay a fee to the Department of Resources Recycling and Recovery to contribute to pay for a share of the differential in cost to recycle versus the price the recycler actually receives. With these funds coming in, and the administrative cost never exceeding 5%, by 2007 the fund balance was up to \$206 million. That year, the program refunded more than it charged per container. Manufacturers also negotiated with legislatures to reduce their contribution. Stephen Bantillo, former Assistant Director, Division of Recycling, at the California Department of Conservation, estimates that the processing fee now subsidizes about 88% of what the manufacturers once paid. His concern with this is that with manufacturers only paying 12% of the differentials, recyclers and processors have at times only been reimbursed \$.15 on the dollar due to low sales prices. Many have gotten out of the program or gone out of business. His hope is that if manufacturers again pay the difference, they may be inclined to produce containers using materials that have higher recycling value, and in turn avoid having to contribute to the program.

The 2010 fund balance is estimated to be \$120 million and the recycling rate is up to 82%. The Department of Resources Recycling and Recovery receives processing fees from beverage manufactures, redemption payments from distributors, pays refund value and processing payment to processors, pays participants various other program payments and funds program administration. The fees

cover departmental administration, handling fees, curbside supplemental payments, market development payments, public education programs, payments to cities and counties, incentive payments to recyclers as well as grants.

California Tire Fee

By the late 1980's, California was faced with a huge used tire inventory of 100 million tires, which was growing by at least 20 million per year. This was accompanied by several huge tire fires, some that took years to put out. In 1989, the legislature passed the Tire Recycling Fee. In 1986, it was shifted from used tires to new tires. The intent was to reduce landfill disposal and stockpiling by 25% within four years.

The structure of this program is very simple. Retailers of new tires must charge a \$1.75 point of sale fee. A sunset clause takes effect in 2015 setting the rate back to \$.75. Retailers are allowed to keep \$.05 of the fee for processing. This is remitted to California's tax authority, the Board of Equalization (BOE). Through a MOU with the Department of Resources Recovery and Recycling (CalRecycle), the BOE places this in the California Tire and Recycling Management Fund and retains a portion for processing. CalRecycle manages this fund to initiate recycling programs, eliminate illegal dumping, award grants and provide education, and sponsor market development.

Tire-related activities are performed by a total of 39.5 positions within six divisions. The total cost of staffing and administration is \$4.9 million. Currently diversion is at 74%, up from 20% in the early 90's. The goal is to increase tire diversion to 90%, eliminate illegal tire piles, bring all facilities into compliance and reduce waste tire generation.

One interviewee noted that this program is not as costly to run as others like the E-waste program, which must conduct detailed reviews of payment claims and address myriad compliance and fund management issues. He considers it successful not only in terms of the diversion rate, but also in the area of market development. The interviewee commented that the program provides assistance for many recycling businesses and the California Air Resources Board (CARB) also receives revenue through a remittance of -\$0.75 of the fee.

Below is an excerpt from the program's five year plan showing the breakdown of the budget.

Table 2.1 Budget Breakdown for Tire Fund

Program Areas	FY 2009/10 (thous)	FY 2010/11 (thous)
Enforcement	\$7,601	\$8,360
Cleanup*	\$4,500	\$4,100
Hauler and Manifest	\$325	\$450
Research	\$1,150	\$850
Market Development	\$21,458**	\$21,274**
Program Staffing & Administration	\$4,924**	\$4,916**
Administration	\$1,500	\$1,500
Mandatory Contracts	\$1,832	\$1,832
Totals	\$43,290	\$43,282

*Table Notes: * The cleanup element includes the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program. Its spending authority is separate from the Tire Fund's spending authority. **Subject to approval by the Legislature and Governor.*

SFO Cigarette / Litter Abatement Fee

The City of San Francisco imposed a litter abatement fee, assessed as a fee of 20 cents per pack at the point of sale. The “Estimated Cost of Tobacco Litter” study for the fee⁴⁹ notes that tobacco product litter (TPL) is the second largest component of litter in the City (glass is 27.5%, TPL is 24.6%, paper is 16.6%, and then it falls off to plastic at 6.6% and other smaller constituents⁵⁰). Given these percentages, TPL’s share of the direct costs of litter abatement in the City are \$7.5 million per year (not including the important indirect effects related to environmental and tourism impacts), based on the City’s 2009 Street Litter Audit.⁵¹ An estimated 30.6 million packs of cigarettes are consumed in the City annually, leading to a maximum fee of 22 cents per pack. The fee is aimed at addressing the litter of cigarette butts and cigarette-related packaging, and helping recover costs of cleaning up this litter. The retailers collect the funds and submit them to the City Tax Collection office into a dedicated fund for street sweeping associated with cigarette waste and litter.⁵²

⁴⁹ Schneider, et. al., 2009 found at

http://www.sfenvironment.org/downloads/library/tobacco_litter_study_hecg_062209.pdf, accessed as of October 26, 2010.

⁵⁰ The McKenney Management Group cited in the Schneider 2009 study cites the following litter percentages, based on pieces of litter: glass 27.5%, TPL 24.6%, paper 16.6%, plastic 6.6%, candy wrappers 3.6%, plastic film 3.0%, metal (not aluminum) 2.4%, aluminum 1.8%, other materials not elsewhere classified (n.e.c.) 1.2%, poly foam pieces 1.0%, bottle caps 0.6%, rubber 0.5%, straws 0.5%, poly foam packing peanuts 0.1%.

⁵¹ This audit is referred to in Schneider, et.al. Note that Alameda County’s annual litter-related costs are about \$26 million for all litter. If TPL is a similar percentage as in San Francisco, the TPL-related litter costs would be \$6.4 million. Divided by the number of packs of cigarettes sold, that would be approximately 23.8 cents per pack.

⁵² The abatement fee in San Francisco is currently under legal challenge.

DC Bag program

The District of Columbia Department of Environment (DDOE) conducted a study on the Anacostia River and found that disposable bags were the largest source of litter. In response to that, the DC Council introduced The Anacostia River Clean Up and Protection Act of 2009. This requires any business that sells food or alcohol to charge a \$.05 carry out bag fee on all plastic and paper disposable bags. The proceeds from this go to the Anacostia River Clean Up and Protection Fund. The program took effect January 1, 2010.

With this program, businesses must charge a minimum of 5 cents per bag and may retain 1 cent for processing. If they offer a credit program for customers who bring their own bag, which many do, they may keep another 1 cent. Each month they send in the amount collected to the Office of Tax and Revenue, although some send it in quarterly. The tax office puts this in the Clean Up and Protection Fund and retains nothing for processing. This fund is managed by the DDOE and pays for the river clean up, outreach and education as well as providing reusable bags to residents. Other income to this fund is planned through commemorative license plates and tax income check boxes.

DC Councilman Tommy Wells is one the coauthors of this program. His chief of staff, Charles Allen, reports they've already seen great reduction in bag litter, though it's still early in the program. From the businesses he's spoken with, they feel comfortable admitting to over 60% reduction in bag usage. On a regular basis, there is a group that does bag counts along the river. What they tell Mr. Allen, is that the last count in May was down 66% from the previous count the same time.⁵³ He's looking forward to the DDOE doing another study of litter along the Anacostia to see the official numbers. One of the reasons he feels it's been so successful with businesses is that they got them, along with environmentalists, involved early on, before the law was written. From what they found, most grocery stores and other low margin retailers were not happy with giving away bags anyway. The biggest concern they had with this program was the cost associated with collecting and reporting. The 1 cent they retain has solved that concern.

Additional specifics of the businesses covered by the program, and what the fee pays for follow. District businesses that sell food or alcohol (including grocery, liquor and drug stores, restaurants, and street vendors) are affected by the law. If a restaurant has

⁵³ Recent data from the *Wall Street Journal* indicates that usage may be at 18% of pre-fee bag hand-outs. An article dated 10/18/2010 states that retail outlets that typically use 68 million bags per quarter handed out an average of 12 million each of the last two quarters (after the imposition of the 5 cent fee). This is 18% of pre-fee usage.

seating (holds a restaurant license), the restaurant will need to charge five cents for plastic bags only--paper bags are exempt. Food courts and fast-food restaurants are also included in this group and are exempt from the paper bag fee. The paper bag exemption applies only to food items. If a restaurant sells a nonfood item, such as a CD, mug, hat or shirt, the restaurant will need to charge five cents for the paper bag or the plastic bag. If a restaurant does not have seating (holds a delicatessen license), the restaurant will need to charge for both paper and plastic bags. The majority of the proceeds from the carryout bag fee will go into the new Anacostia River Clean Up and Protection Fund. DDOE will administer this fund, and use it to clean and protect the Anacostia and other local waterways, and to provide reusable bags to residents. Proceeds from a new commemorative license plate and income-tax check-off will also go into the fund. The DDOE also conducted public education campaigns about the impact of trash on the District's environmental health, and continues to provide reusable carryout bags to District residents (with particular outreach to low income residents).

Stewardship Ontario

In 2002 the Province of Ontario passed the Waste Diversion Act (WDA). It established a non-crown corporation under the name of Waste Diversion Ontario (WDO) for the purpose of managing waste diversion programs in conjunction with industry funded organizations (IFO). The WDO has a direct reporting relationship to the Minister of the Environment. Stewardship Ontario was the IFO mandated to discharge industries' stewardship responsibilities. In 2010 Stewardship Ontario will flow \$150 million (Canadian) total of industry funds to meet its stewardship responsibilities under both the Blue Box Plan and the Municipal Hazardous or Special Waste program.

Blue Box Program-

The BBP was revised in 2009 to increase the recycling rate from 65% to 70% by 2011. The plan objectives are:

- Divert 70% of printed paper and packaging
- Ensure stewards contribute 50% of the cost of operating the municipal recycling system
- Ensure consumers adopt appropriate recycling behavior
- Provide province-wide access to curbside recycling among others.

The BBP focuses mainly on printed paper and packaging materials, but covers any waste that consists of the following, or combination of:

- Glass
- Metal

- Paper
- Plastic
- Textile

This definition includes items such as film over wrap for CD's, chocolate boxes, disposable plates and cups, pizza boxes and take out containers, mascara brushes in-cap, staples, pins, clips, and grocer meat packaging. Excluded items would be those too large to fit on a vehicle or through sorting equipment, or a shape that gets caught or wrapped around equipment.

Stewards are designated and financially responsible if they are a brand owner, a franchisor, or, if neither is available, a first importer. For wines and spirits, The Province of Ontario has designated LCBO to be steward. The De Minimis Threshold allows those with less than \$2 million of Ontario sales to be exempt from stewardship. The steward fee for each material is calculated and processed as follows:

- Determine Recycling Rate (total tons of BB waste reported recycled divided by total tons available for collection);
- Determine Net Cost by subtracting revenue for material sale from gross cost to manage that material;
- Allocate Stewardship Ontario financial obligation to municipalities (through net cost, recycling rate, and equalization);
- Add any material specific market development fees
- Add a share of the BBP delivery costs and administrative fee;
- Add share of any shortfalls or surplus;
- Calculate the total fee, fee rates, and any aggregate fees.

Stewardship Ontario pays municipalities 50% of the approved net cost which equals gross material management cost less revenue (commodity sales and others). The following steps determine the industries obligation and what to allot to municipalities.

- Collect Recycling Program Data from municipalities via the Blue Box Datacall. Municipalities must provide expenses (direct service delivery costs, public education, amortized capital costs and indirect admin costs) and revenues (from sale of BB wastes, processing fees, sale of curbside containers, and grants).
- Verify Municipal Costs.
- Calculate Stewardship Ontario's funding to Municipal programs based on "Best Practice" determined costs. This equals 50% of the net BB system costs (total best practice gross cost and prior-year adjustments less three-year rolling average revenue and prior adjustments).
- Calculate and Report on Payments to Individual Municipalities and perform auditing.

Table 2.2 Example of How the Formula Works

Material Costs	Recycling Rate (%)	50% of Net Cost Obligation (\$)	Base Fees (\$)	Transferred (\$)
Corrugated Cardboard and Boxboard	69%	\$35 million	\$19 million	- \$16 million
Other Plastics	6%	\$6 million	\$24 million	+ \$18 million

Municipal Hazardous or Special Waste Program

This program is set up with three phases intended to provide for the end-of-life management of all MHSW materials specified from the Minister of the Environment. The following list includes all three phase materials for which stewards will be required to report sales and pay fees to Stewardship Ontario.

- Batteries, including those from all IC&I generators
- Pressurized containers
- Aerosol containers
- Portable fire extinguishers
- Fertilizers, fungicides, herbicides, insecticides or pesticides, and containers in which they are contained
- Paints and coatings, and containers in which they are contained
- Containers that have a capacity of 30 liters or less and that were manufactured and used for the purpose of containing lubricating oil
- Oil filters, after they have been used for their intended purpose
- Fluorescent light bulbs or tubes
- Pharmaceuticals, (residential only)
- Sharps, including syringes, (residential only)
- Switches that contain mercury
- Thermostats, thermometers, barometers or other measuring devices, if the thermostats, thermometers, barometers, or other measuring devices contain mercury
- Antifreeze, and containers in which it is contained
- Solvents, and containers in which they are contained

The MHSW program must provide collection points, (municipal, permanent depots, special event days, return to retail), registration and approval process for transporters, approval for companies to receive and process, and system performance data. The program must also establish management practices and opportunities for increased diversion.

The main costs of the program are divided into four categories; common, material specific, contingency for forecast, and deficit recovery. The common costs incorporate plan development, start-up costs, steward registration and management of compliance, material and suppliers, program as well as shared education and phase one cost. These costs are allocated in an 85/15 formula where 85% is in proportion to the direct cost of managing a specific material and 15% is shared equally across all material categories. Material-Specific Costs consist of those which pertain directly to the following operational activities in respect of each material:

- Collection- 37% of direct operating costs
- Transportation-26%
- Processing/Consolidation- 5%
- Haulage- 0.5%
- Treatment/Recycling/Disposal-25%
- Promotion & Education (P&E)
- Research & Development (R&D)

The contingency forecast amount is a built in margin for fee estimates and material cost estimates. In case sales are over-estimated or collection costs are under-estimated, a deficit recovery amount is budgeted. Below is an example of fees associated with specific materials.

Table 2.3 Example of Fees Associated with Specific Materials

Category	Phase 1 SO Plan Development/Start up 18 month fee recov.	Phase 1 Program Management	Deficit Phase 1 Direct Material Costs Development	Total
Oil Containers	\$67,100	(\$21,100)	\$0	\$46,000
Oil Filters	\$231,700	(\$40,700)	\$0	\$191,000
Paint & Coatings	\$404,000	\$141,200	\$4,610,500	\$5,155,700

The plan was to implement these “eco fees” for the range of products described above. According to an article in *Resource Recycling* (October 2010), a number of the planned “eco fees” were ended recently. On July 1, 2010, many difficult-to-recycle household items, like aerosol containers, cleaners, or flammables, were assessed a fee ranging from a penny to few dollars (\$CN), administered by Stewardship Ontario, a non-profit industry trade group. However, as *Resource Recycling* notes, “...due to poor communication as to what the eco fees were, a public backlash quickly materialized. To make matters worse, reports circulated that some retailers were overcharging or charging fees inconsistently, and the government floundered in explaining them. Not even a month after the fees were launched, the provincial government demoted its environment minister and announced it would shelve the fees until it could come up with a better idea, which it announced this week.”

Ontario is modifying the system to begin providing funding for municipalities to help cover the cost associated with recycling many of the items formerly covered by the fee. According to the article, Phase 1 will stay in place. This phase was instituted two years ago, and covered items like single-use batteries, paints, oil containers, pressurized containers and fertilizers, and Stewardship Ontario will continue to administer this program for the 9 covered materials, as well as the associated outreach. Ontario Electronic Stewardship sets fees for electrical and electronic equipment, while Ontario Tire Stewardship levies fees on tires. Both of these programs are outside the jurisdiction of the eco fees program and will not be affected.

Manitoba Product Stewardship

The Canadian Province of Manitoba set up its Product Stewardship Plan in 1995 as a result of the 1990 Waste Reduction and Prevention Act (WRAP). The program is mandatory for the fee on certain material, but the municipal involvement is voluntary. There are three main target areas covered by WRAP: multi-materials (mostly curbside types), tires, and used motor oil. The Manitoba Product Stewardship Corporation was established to run the program. They collect a 2 cent fee on all non-milk, non-deposit beverage containers to fund the required 80% of the costs of municipal recycling programs. Municipalities have a choice of materials they may collect, but must collect at least five.

Tire Stewardship Manitoba (TSM) was formed as a result of the Tire Stewardship Regulation 2006 of the WRAP. All producers and retailers of tires must participate in an approved stewardship program. TMS is authorized to license all tire and vehicle retailers and Manitoba Finance is the agency that collects the tire levy. Of the collected fees, 100% goes toward the operation of the scrap tire recycling program.

Currently, Manitoba is in the process of changing the design and management of these programs in an effort to provide more consistency across the board. The intent is also to shift more of the responsibility away from the municipal tax base onto the

producers and product users. Green Manitoba is coordinating the development of these programs for enhanced product stewardship and extended producer responsibility (EPR).

The design of Manitoba's Oil Stewardship Program, managed by the Manitoba Association of Resource Recovery Corp. (MARRC), is more in line with the desired approach. MARRC derives revenue principally in the form of Environmental Handling Charges (EHCs) applied to the sale or consumption of selected lubricating products in Manitoba. The company handles payment of Return Incentives (RIs) to companies licensed by the province and registered with MARRC to collect used lubricating products and transfer them to approved processors and end-users and; payment of Processing Incentives to companies licensed by the province and registered with MARRC to recycle used oil containers. In July of 2010, MARRC was in the process of launching a similar antifreeze program.

In 2010, Manitoba launched its new Extended Producer Responsibility program through joint stewards who formed the Multi-Material Stewardship Manitoba (MMSM). The program is a result of the Packaging and Printed Paper Stewardship Regulation on 2008. To determine their contributions, most Stewards are required to file Steward's Reports with MMSM and pay fees based on an applicable fee schedule. Within a short time after filing the Steward's Report, an invoice is automatically generated in the online reporting system. An email notification is sent to both the primary and billing contacts advising them that the invoices are available and ready for processing by the Steward. The fees are calculated on a per-material basis in each program year and automatically programmed within the online reporting system. For example, Gable top containers – non-beverage have a base fee rate of 24.21 ¢/kg.

Australia's National Packaging Covenant (1999 and 2010)

In 1999, a broad based agreement called the *National Packaging Covenant* was established to reduce environmental degradation from the disposal of used packaging material and conserve resources through better product design. They encouraged recovery, reuse and recycling of used packaging materials through voluntary commitments by corporations involved in the packaging supply chain. The program initially set a recycling rate goal of 48%, and was set to expire in 2005.⁵⁴ A 2005 addendum / enhancement established a recycling rate performance target of 65% and extended the performance period to 2010.⁵⁵ This initial Covenant was the leading instrument for managing the environmental impacts of consumer packaging in Australia since 1999. It is the voluntary component of a co-regulatory arrangement based in the principles of shared responsibility through product stewardship, between

⁵⁴ Several sources were used for this description, but there was very little available that provided details on how the system worked. See <http://www.environment.gov.au/settlements/waste/covenant/index.html>; www.alga.asn.au/policy/environment/waste, among others.

⁵⁵ A 2007 report (BDA Group) recommended ADFs; however, the new program does not include an ADF component as far as we can tell. BDA Group, "National Packaging Covenant Complementary Economic Mechanisms Investigation", prepared for National Packaging Covenant Jurisdictional Working Group, Manuka, ACT, December 21, 2007.

key stakeholders in the packaging supply chain, and all spheres of government – Australian, State, Territory, and Local. The covenant is designed to minimize environmental impacts from disposal of used packaging, conserve resources through better design and production processes, and facilitate the re-use and recycling of used packaging materials. The Covenant established a framework for the effective life cycle management of consumer packaging and paper products through a collaborative approach between all sectors of the packaging supply chain, consumers, collectors, reproducers, and all spheres of government. The regulatory underpinning⁵⁶ was designed to deal with free riders and non-signatories and applied at the jurisdictional level. The Australian government was a Covenant signatory since 1999 and fully supported the Covenant principles of shared responsibility and life cycle management of packaging and paper. In contrast, the Australian Local Government Association (ALGA) had concerns with the Covenant on a number of grounds.⁵⁷

In July, 2010 the new *Australian Packaging Covenant* (APC) was launched. This Covenant replaces the National Packaging Covenant which expired on 30 June 2010. On June 25, 2010, the National Environment Protection Council varied the Used Packaging Materials NEPM to align it with the new Covenant. Its goal states it will focus on “improved packaging design, away from home recycling, litter reduction and increased engagement across the supply chain through product stewardship. An important element of the APC is the Sustainable Packaging Guidelines (SPG) which has been developed to assist signatories to review and optimize their packaging”. Each signatory will be required to make annual financial contributions to the Covenant Fund as well as implement procedures in the SPG. They are also required to establish a recycling and collection program. In addition to clear goals for design, recycling and product stewardship, the new Covenant provides an increased focus on workplace and public place recycling and litter reduction programs. It provides a significantly reduced administrative burden on signatories, and strengthened governance and compliance procedures. An important element of the Covenant is the Sustainable Packaging Guidelines, developed to assist Covenant signatories and others to review and optimize consumer packaging to make efficient use of resources and reduce environmental impact without compromising product quality and safety.

⁵⁶ National Environment Protection Measure on Used Packaging Materials (NEPM)

⁵⁷ Their issues were three-fold: 1) The Covenant’s definition of product stewardship is based on a principle of “shared responsibility” which is directly at odds with Local Government’s view that the packaging industry should take responsibility for the waste it produces. 2) The Covenant does not commit industry to paying a fair price (i.e. at least a cost-recovery price) for recyclables, requiring only payment of market price; and 3) the Covenant is totally reliant on curbside collection as the means of recycling, and fails to explore other proven initiatives such as industry run collections / drop-offs and container deposit legislation.

3. EXAMINING ADFs AND MATERIALS OPTIONS FOR STOPWASTE.ORG

This Project – Feasible ADF Options for StopWaste.Org

StopWaste.Org has initiated or backed numerous Extended Producer Responsibility (EPR) initiatives (e.g., carpet and battery options). EPR remains the Agency's number one legislative priority and the Agency views EPR as the best solution to end-of-life management for problematic products. In the absence of an EPR funded solution, however, for all the identified problematic products, StopWaste.Org seeks to examine feasible options for the development of Advance Disposal Fees (ADFs), or similar fee systems that:

- provide opportunities for diversification and augmentation of revenues that can better support the associated recycling / proper end of life management for the product(s), and
- Provide important (financial) incentives for improved behavior – potentially from production through consumption.⁵⁸

Consider ADFs to:

- *Diversify revenues and fund proper disposal*
- *Improve behavior / provide incentives*



Well-designed, well-priced ADFs have the potential to provide long-term indicators of the full costs associated with products, and can be effective at encouraging “right” decisions by consumers and the supply chain.⁵⁹

Additional context for this work is summarized as follows:

- Alameda has a long-standing Measure D tip fee and facility fee surcharge mechanism; however, due in part to StopWaste.Org’s programs and activities, garbage tonnage is falling, reducing revenues to support the waste management activities;

⁵⁸ If the externalities associated with consumption (purchase / management) of a product can be correctly integrated into a product’s price (or total cost to the consumer), economic theory indicates that the demand will be modified (reduced) to a level appropriate to its impact on the environment. That basic principle can be expanded – taking into account a broader version of “externalities”. Environmental externalities are one effect; other factors potentially recommending ADFs (or similar fees) for use in modifying behavior include encouraging design for disassembly, improving safety in the home; minimizing waste, reducing bags on a landscape, and many other big and small rationales.

⁵⁹ Decisions that might ultimately increase the adoption of behaviors and substitution of products that reduce the need for associated high-cost management options.

- StopWaste.Org has expressed support for Extended Producer Responsibility (EPR) as part of its policy and programmatic directions;
- The “Battery Bill” proposed in the latest round of legislation failed, potentially moving this product higher on the priority list;
- Similarly, the plastic bag bill proposed in the latest round of legislation failed, which potentially moves this product higher on the priority list⁶⁰;
- A Paint Stewardship Bill (AB 1343)⁶¹ was signed into law (after the first draft of this report was written), so additional treatment of this product is low priority;
- Proposition 26, on the 2010 ballot,⁶² would require a two-thirds supermajority vote in the California State Legislature to pass many fees, levies, charges, and tax revenue allocations that under existing rules can be enacted by a simple majority vote. This may affect the ease of passage of future fees and taxes, but may also affect existing fees.

An analysis of the potential for feasible ADFs at the local level – specifically at the Countywide level administered via StopWaste.Org - was the purpose of this project. *The type of fees under consideration were described generally as those that would be assessed on products or product groups, that could provide a revenue system to address end of life costs realized by StopWaste.Org or other local governmental agencies for selected categories of products.*

**StopWaste.Org's
Interest**

To conduct the work, StopWaste.Org contracted with Skumatz Economic Research Associates (SERA) from Superior, Colorado, and its subcontractor, Heidi Sanborn, an independent consultant. We have examined databases, reports, articles, and pursued interviews to identify fee strategies used for to pay for end of life management or reduce consumption/production of problematic materials. Our focus was to identify monetary-based options to provide options for the County and constituent cities to diversify revenues.

⁶⁰ Note that San Jose and Los Angeles County have completed Plastic Bag EIRs.

⁶¹ AB 1343 was signed into law on September 28, 2010. The law requires manufacturers of architectural paint sold in this state to submit an architectural paint stewardship plan by April 1, 2012 to the Department of Resources, Recycling & Recovery to reduce the generation of postconsumer architectural paint, promote the reuse of postconsumer architectural paint, and manage the end-of-life of postconsumer architectural paint, including collection, transportation, processing, and disposal. The plan shall include a funding mechanism and provide for an architectural paint stewardship assessment fee for each container of architectural paint sold by manufacturers in this state. The paint assessment fee would be added to the cost of all architectural paint sold to California retailers and distributors, and each California retailer or distributor would add the assessment fee to the purchase price of all architectural paint sold in the state. The law states that the plan shall address the coordination of the architectural paint stewardship program with existing local household hazardous waste collection programs to the extent feasible and mutually agreeable between those programs. Summary provided by Debra Kaufman, who notes she added the word "fee"; the bill itself only calls it an "assessment".

⁶² Summary culled from Wikipedia entry, “California Proposition 26, Supermajority Vote to Pass New Taxes and Fees (2010)

The work included:

- A review of ADFs from other locations
- An analysis of potentially-problematic priority materials for consideration for ADF treatment
- An economic analysis of the demand for products and revenue implications should ADFs be assessed, and
- An analysis of the potential for suitable, workable administrative systems for assessing the ADFs.⁶³

The results provide a list of potential ADF opportunities for StopWaste.Org to consider.

Which Materials / Products? Identifying Highest Priority Materials for ADFs for StopWaste.Org

StopWaste.Org and the project team identified a list of a number of “potential” products that might be considered for ADFs. The SERA team examined these products to identify those of greatest interest and potential. The detailed analysis of products and rationale for their selection for further analysis is included in Appendix B. ADFs are especially suited if the materials meet one or more of the following conditions. They might be materials that:

- Are difficult or costly to dispose (e.g. appliances, tires),
- Are common, quickly used and disposed (newspaper, disposable diapers, bottles, litter),
- Are hazardous waste, or
- Have high environmental or health effects.

Product Assessment Factors:

- *Cost / difficulty*
- *Temporary*
- *Hazardous*
- *Environmental effects*

⁶³ Note that all our findings are shadowed by an initiative at the State level that may affect how easily any “feasible” systems may be to implement. There is an initiative which will qualify for the November ballot which would require 2/3 vote for virtually all environmental mitigation fees, including carbon fees. It does that by saying that any fee which is not a direct payment for service is a tax, subject to 2/3 vote of the legislature or 2/3 of the local voters, including public health, public nuisance, prevention, mitigation etc. If this is successful, it will affect the feasibility of implementing any of these fee systems. As described by Heidi Sanborn, “This is an attempt to overturn the Sinclair decision and replace it with a highly restrictive regime, in which virtually every current environmental fee becomes a tax, subject to 2/3 vote, not just for the state but for local government as well. In particular, it would make any carbon permit fees a tax subject to 2/3 vote of the legislature

Table 3.1: Initial List of 25 Products Considered for ADFs for StopWaste.Org

<ul style="list-style-type: none"> • Cigarettes • Single Use Bags • Other Litter • Latex Paint • Oil based Paint • Aerosols • Antifreeze 	<ul style="list-style-type: none"> • Batteries - alk & carbon • Batteries - Nicad / NiMetal Hydride • Batteries - Lithium • Fluorescent tubes & bulbs • Hard to recycle containers (e.g. expanded bottle bill products) • Liquor containers 	<ul style="list-style-type: none"> • Propane / Butane cylinders • Packaging - Fast Food Takeout • Packaging - Product • Pharmaceuticals • Pesticides • Liquid fertilizers • CDL / Treated Wood 	<ul style="list-style-type: none"> • Mercury Thermostats • Toxics / Poisons • Universal waste electronic devices (outside SB20) • Automotive fluids • Sharps
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The consultants provided a variety of information to StopWaste.Org to help prioritize the materials ultimately analyzed for ADF potential (See Appendix B). We provided information on examples of ADFs elsewhere on the product, the availability of demand and elasticity information that could support detailed financial analysis of the ADF, costs at the Household Hazardous waste facility, the revenues raised by ADFs on these materials elsewhere, and other data. This information helped supplement the primary assessment based on the rationale for a fee on the product.⁶⁴ The project Team identified a list of 13 priority materials that would be considered for further ADF assessment. Generally, the following products “made the cut”, based on five key considerations:

- Are difficult or costly to dispose:⁶⁵ paint, aerosols, fluorescents, batteries.
- Are common, quickly used and disposed and create litter: fast food take-out, single use bags, cigarettes, hard to recycle containers (beyond bottle bill products), packaging.
- Are hazardous waste: paint, aerosols, batteries.
- Have revenue potential: fast food takeout, toxics / pesticides / fertilizers, paint, single use bags, cigarettes, universal electronics.
- Have ADF examples that have been implemented elsewhere: toxics, pesticides, fertilizer, paint, single use bags, cigarettes, batteries.

⁶⁴ As discussed earlier, while cost issues and incentives to manufacturers are important in ADFs, recall that labels and education may be at least as important an element of a fee system as the fee itself – at least if behavior change is desired.

⁶⁵ And, for example, may have had high costs at the HHW facility.

Table 3.2. Priority Materials for Further Study for ADFs – Near Term or “Longer Term / Conceptual”.⁶⁶

1. Fast food takeout ⁶⁷	8. Cigarettes
2. Toxics	9. Fluorescents
3. Pesticides	10. Hard to recycle containers (wine, spirits, aseptic, etc.)
4. Fertilizer	11. Batteries (all types)
5. Paint (all types)	12. Universal electronics
6. Aerosols	13. Packaging ⁶⁸
7. Single Use Bags	

Based on a review of the programs in place in other locations, and the materials selected for more detailed analysis, Table 3.3 provides a summary of the general types of ADFs that would potentially be feasible for consideration by StopWaste.Org.

Table 3.3 Summary of Potential ADF Programs Description for Selected Materials

ADF Material	Description and background
Fast food takeout	This would consist of an ADF on retail fast food containers that could be imposed by unit (cents per non-recyclable container), by transaction (assuming an average number of containers per visit), or as a percentage of retail sales (again, assuming average transactions). We did not find precedent in the US. This is not likely a practical alternative at the wholesale level. The Fee’s rationale is litter ⁶⁹ and incentive to modify materials used in the product.
Toxics All	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.005 on first sale of products entering state). The Fee’s rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.
Pesticides	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). The Fee’s rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.

⁶⁶ The goal was to identify about 10 products; however, StopWaste.Org was interested in a few additional products, as shown here.

⁶⁷ Another conceptual option would be enforcing existing anti-litter regulations at the municipal level. This was not evaluated.

⁶⁸ For this product, StopWaste.Org asked the consultants to consider near-term options if available, but generally for this product to consider longer term strategies / directions / goals, particularly longer term / conceptual options.

⁶⁹ Note that the annual litter related costs for Alameda County are estimated at \$26 million (from County Stormwater program).

ADF Material	Description and background
Fertilizer	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). Ontario fee is \$0.003-0.005 / gallon. The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.
Paint	This ADF may no longer be relevant to StopWaste.Org because of new state EPR law. For background the paint fee in Oregon is established as 35 cents per half gallon and \$1.60 per 5 gal container. Ontario charges about \$1.06/gallon. The Fee's rationale may be related to cost to dispose of the product properly / cost at hazardous waste site, and provide incentives not to purchase more product than needed.
Single Use Bags	The ADF would most likely be assessed as a unit fee per bag assessed to the consumer at point of purchase / use (percent of price is not relevant for an un-paid item). In Washington DC's model, the fee is 5 cents per bag, with 1 cent provided to the retailer; in Ireland the fee is 33 cents per bag. The Fee's rationale is generally related to the high amount of this type of product in litter, and the availability of substitute products with recyclable / reusable components (behavior change).
Cigarettes	The ADF could be assessed fairly easily as a per-pack fee or a percent on purchase price. The model in San Francisco is 20 cents per pack, assessed at the point of purchase. The Fee's rationale is generally based on its contribution as a constituent of litter.
Packaging	There are limited packaging models in Europe, Asia, and Australia, but complexities exist. Presumably recycled or recyclable packaging may be exempted, but oversizing of packaging, regardless of material, may also be a concern. There has been work conducted examining ratios of packaging to product (in Asia), and extensive work on fees and EPR models in Europe. Australia uses a voluntary, cooperation-based model including the array of actors along the packaging supply chain. The fees would presumably be negotiated on manufacturers and embedded in the price. However, considerable complexity arises in envisioning a successful packaging model of this type at the COUNTY (rather than national) level. The Fee's rationale is generally based on a desire to reduce overuse of materials, encourage use of recyclable / recycled / reusable materials and options for resource conservation.
Fluorescents	Assuming a retail model, the fee would be assessed at point of purchase as either a fee per bulb (easier model) or a percentage surcharge assessed per bulb. We did not find an existing ADF model on this product (estimates place disposal costs at about \$0.75 each or about 1/2 the purchase price of many models). The Fee's rationale derives from the cost to properly dispose of the product, and the costs at the hazardous waste site.
Hard to Recycle Containers - wine+gable+aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, , in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (encouraging aseptic products which are difficult to recycle).
Hard to Recycle Containers - Spirits only	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers.

ADF Material	Description and background
Hard to Recycle Containers-gable tops and aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (including aseptic packages, which are difficult to recycle).
Batteries (all)	If the ADF is assessed at the retail level, the ADF could either be assessed as a fee per unit or a percent of purchase price. Ontario has an ADF on this product, as one example. The Fee's rationale would derive from the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components. In addition, this product has a disposal cost at the hazardous waste site.
Universal Electronics	If the ADF is assessed at the retail level, the ADF could either be assessed as a percent of purchase price, or as a fee per unit. We did not identify a precedent for an ADF on this product elsewhere. The Fee's rationale would be based on the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components.
Aerosols	Significant portions of this ADF may no longer be relevant to StopWaste.Org because of new state EPR law (see paint discussion above), or covered via pesticides, etc above. However, if assessed on broader aerosols (hairspray, etc.), the fee may still be assessed (but with significantly smaller units). Examples exist in Ontario, for example. The rationale is based on the need to address both the contents (when hazardous) and the container properly.

4. ADMINISTRATION AND REVENUE COLLECTION

Exploring Administrative Options for the ADFs

A number of administrative options / models were considered in association with the priority materials. We examined existing ADFs as one set of models for administering the program. In addition, we explored the current revenue collection options at StopWaste.Org, Alameda County, several cities, and at the state level (including the Board of Equalization). A brief summary of the models we explored follows. Case studies of key options are provided below and in Appendix C.

*Identifying Feasible
Administrative
Options*

Examples of Existing ADF Administration / Revenue Collection Elsewhere

- **Washington DC Single Use Bag:** This is a fee assessed at the retailer / point of sale (also exist in Ireland, Italy, Belgium, etc.). The fee is set at 5 cents; with 4 cents to the Anacostia River Litter Clean-Up Fund, and 1 cent to the retailer⁷⁰. The program is charged on the same form / line item on a sales tax payment form, so required no new administrative system. However, it does require a system that allows (self-) reporting by products, and requires periodic auditing.⁷¹ The fee was introduced by the DC Council (City level) as “the Anacostia River Clean Up and Protection Act of 2009”. It is collected at point of purchase / retail. Any business that sells food or alcohol must charge a 5 cent carry out bag fee on all plastic and paper disposable bags. There is an additional line item on the normally filed sales and use



⁷⁰ 33 cents in Ireland; unsuccessfully tried 25 cents in Seattle

⁷¹ Note that there were several factors that made this program a success in DC as an ADF. The fee was hooked to the cleanup of the Anacostia River, not recycling (it was found that plastic bags were one of the largest contributors to litter in the Anacostia river and its tributaries). It became politically difficult to oppose the clean-up of the very visible river. Key potential objections were addressed as exemptions in the law (exempts “doggie bags” at restaurants, etc.). It was not introduced until 11 of the 13 council were brought on as co-sponsors. The program was exceptionally well-researched, well-designed, and well-lobbied prior to introduction.

tax form for the bag tax sent to the Office of Tax and Revenue.⁷² The fees are directly deposited into the Anacostia River Cleanup and Protection Fund. One cent is retained by business to cover processing, and if they offer a credit program for customers that bring their own bag, they may keep another one cent. Each month the business sends the money collected to the Office of Tax and Revenue (some remit quarterly). The fund is managed by the District of Columbia Department of the Environment and pays for river clean-up, outreach, and education, as well as providing reusable bags to residents.

- **Delaware Revised Bottle Bill:** Delaware’s bottle bill has changed from the traditional model. Consumers pay fees (nonrefundable deposits) at the point of sale and the revenue is then paid by retailers to a division of revenue into special recycling fund – it is NO LONGER rebated to consumers. This remodeled option is sunseting in 2014, along with the associated recycling grants and loans program. The fee remains at 4 cents per beverage container. The fee is collected at retail sale and remitted to the State. It represents a direct tax on a direct commodity, directed to a purposed fund.



- **Washington State Toxics Control Fund:** The fee is assessed on the “first owner” of three classes of “toxic” goods, and payers include potentially manufacturers, wholesalers, and retail establishments. The fee⁷³ is paid only once – at the “first” sale (import) of covered toxics. The fee covers 1) petroleum products (some); 2) CERCLA substances⁷⁴; and 3) FIFRA products⁷⁵. Some exemptions and credits exist. The largest share of the statewide tax comes from the petroleum product portion, and the largest portion of that is paid by 4 refiners in the State. This makes the collection and auditing system easier because the main contributors are known. The companies are audited every 4 years, and there are always issues and appeals, but it isn’t

⁷² The City’s tax forms already allow for differential fees by business types, etc. They have an array of tax forms based on the business type (special event / food; as opposed to corporate franchise, high tech company returns, contractors, etc.). Thus, there was not a significant cost beyond a line-item on the tax forms covering relevant business types.

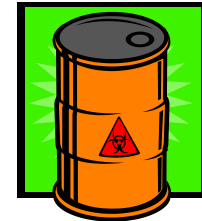
⁷³ 0.7% on hazardous categories; 0.5% on petroleum

⁷⁴ CERCLA substances: Substances identified as hazardous substances under CERCLA (Comprehensive Environmental Response, Compensation and Liability Act). Those substances are identified in the following list (organized both by unique CAS# and by name), which is available on the DOR’s web site: <http://dor.wa.gov/Docs/Pubs/Misc/CERCLAHazardousSubstances.pdf>. Products manufactured from a CERCLA substance and one or more other substances, whether hazardous or not, is not itself a CERCLA substance. The only exception to this rule is where the product is simply a diluted form of a pure substance (e.g., CERCLA substance + water).

⁷⁵ The **Federal Insecticide, Fungicide, and Rodenticide Act** of [1972](#) (amended somewhat in [1996](#) by the Food Quality Protection Act) set up the basic US system of pesticide regulation to protect applicators, consumers and the environment. It is administered by the Environmental Protection Agency ([EPA](#)) and the appropriate environmental agencies of the respective states.

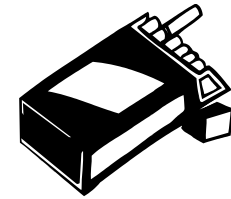
hard to administer in that sense. However, the website shows 8000 products and two lists (products and chemical compounds) in order to cover the range of items addressed by the tax. The State believes it is not collecting all the due funds on all materials, but they are collecting on the bulk of this material. The hazardous substance tax is reported as a line item along with other excise taxes to the State's Department of Revenue. The dollars are reported as a total value, without components of the computation. Taxpayers report on their assigned frequency (some monthly, some quarterly, some annually). The largest taxpayers report and pay monthly. The DOR reports that there are two staff assigned full time to conduct the audits, and about 500 businesses remit the tax each year. The Department of Revenue serves as a collection mechanism for the Department of Ecology, and the funds are deposited from the Department of Revenue into the Department of Ecology's (DOE) fund, and DOE uses the funds for programs provided for under that funding statute. About 47% of the State toxics account goes for clean-up by the DOE, and 53% is distributed to the local toxic control account, which is applied to a number of local uses, with fairly wide latitude.

The tax is a "first possession" tax, which is not straightforward and has led to some issues (firms may come back some time later and note that they were second owner, and they are remitted money, and if this is a large change, it can make budgeting difficult). Also, there are differences between chemical names and product names, which can be complex. Mainly, the DOR says they take the reported dollars at face value and check at audit time. Washington is a voluntary compliance state. The State DOR thinks it would be hard to do a similar tax at the county level because of administration, record checking, and first-owner issues.



- **SFO Cigarette / Litter Abatement Fee.**

As mentioned previously, this fee of 20 cents per pack is assessed at the point of sale. It is aimed at addressing the litter of cigarette butts and cigarette-related packaging. The retailers collect the funds and submit them to the City Tax Collection office, which is then deposited into a fund to reimburse for street sweeping associated with cigarette waste and litter. To streamline implementation, the City piggy-backed on a tourism tax they had recently implemented. They worked with a software company to insert a specially-designed new module into a delinquent tax tracking / billing program they license,⁷⁶ and the costs for the addition of the cigarette fee was about \$50,000 (and the total cost for both the tourism and cigarette applications was about \$110K). The list of cigarette vendors was available from another tax that had been assessed on these vendors in the past.⁷⁷ The administration of this fee is costing about \$318,000⁷⁸ per year.⁷⁹



- **Local Fee on Hard-To-Recycle Containers - liquor, aseptic, gable-tops, etc.:** In this case we would be discussing establishing a separate system within Alameda County, adding wine or spirits (or both) and other hard-to-recycle containers (gable-top, aseptic). This would need to be a separate system, as the state-wide bottle bill is a redemption / rebate system, and is administered state-wide.⁸⁰

⁷⁶ The software is REVQ, licensed by Columbia Ultimate Business Solutions. When the Columbia representative was queried about the costs to purchase the delinquency software, they noted it does not vary in cost by number of businesses billed, but by the number of County users that would be on-line at any one time. The cost to license the web version of this software package is \$200 per month per concurrent user. When asked about the cost to set up the system, import data, “conversion”, and similar activities, they noted their costs are \$160 per hour, and the costs have been a couple thousand to “up to \$10,000”. Given that StopWaste.Org does not have extensive current billings, it might be expected that set-up costs would be on the high end (or perhaps somewhat higher). When we described that the program might be used more as a billing program than a delinquency program, Columbia indicated that this was not an uncommon application.

⁷⁷ If this software approach is transferable to StopWaste.Org for some of its potential ADFs, the set-up costs might be on the order of \$100-200K (a high end estimate, assuming a list of businesses and addresses are available from another location. The on-going license fee, per-user, would be about \$2,400.

⁷⁸ Given that there are an estimated 1,300 businesses selling cigarettes in the City, this equates to an on-going cost of about \$245 per year per businesses for administering this litter abatement fee. We estimate the number of cigarette selling businesses based on the number in Alameda County (see Appendix), reapportioned based on population. (2,400 businesses in Alameda County in Appendix H, population in San Francisco is 815,400, population in Alameda County is 1,491,500, both 2009 population estimates)

⁷⁹ We were unable to uncover the costs associated with establishing this fee because the documents will not be available until the lawsuit is resolved. Note that the interviewee stated that they expected to recover about \$5.5 million annually.

⁸⁰ California’s redemption system requires retailers to collect 5 or 10 cents per container (depending on container type) from consumers and to pay the total of this fee collection to distributors, who are responsible for paying redemption value on all shipments, prior to sale to individual consumers, to the Department of Resources Recycling and Recovery (CalRecycle, formerly the California Department of Conservation, Division of Recycling, administered this program). Consumers are reimbursed the fee only if they take their container to a recycling center; otherwise their fee is “donated” to the hauler that collects their recycling. The Department of Resources, Recycling, and Recovery receives the processing fees from beverage manufactures, redemption payments from

- CDL (Examples in San Jose, Dublin, and elsewhere):** In some cities, builders pay a deposit when pulling a permit for construction or demolition. The per-square-foot fee varies with size of the job (square footage) and the class or type of job (new vs. remodel, residential vs. commercial, etc.). The deposit is rebated to the builder at the conclusion of the project if 50% of material generated as part of the project is recycled or reused (demonstrated through weight slips). Unclaimed deposits have been used to help fund recycling and reduction efforts in the communities. Generally, the funds are collected by the Building / Permit department, piggybacking on a payment and administration system that already exists. The smallest 25% of jobs (square foot threshold) are excluded from the fee, which leaves about 10% of the tonnage uncovered. However, this lowers administrative costs. There was no change required in staffing.
- California Electronic Waste Fees:** California’s ADF on all “covered electronic devices (CEDs)” are collected at the point of purchase, and there is no redemption value (it is not a deposit). The retailer collects \$8, \$16, or \$25 depending on the product sold. The fee is collected at point of sale – as an ADF. Retailers retain 3% as reimbursement for the cost of collection; the remainder is remitted to the Board of Equalization, which retains a percentage for processing the fee. They send a percentage to the Toxic Substances Control for the physical management of the electronic devices, and the remainder is forwarded to CalRecycle. CalRecycle retains a portion for management (they have 20 employees with various amounts of time dedicated to the program, the majority of which manage payments out to approved collectors and recyclers, not collection of fee revenue). CalRecycle also reimburses the recycler who is charged with paying the collector. On average, CalRecycle pays out \$0.39 per device. The recycler keeps \$0.23 and pays the collector \$0.16. This program helps provide cities with free electronic programs. California requires the recyclers and collectors to document their associated costs so CalRecycle can evaluate and set appropriate fees. Discussions with the BOE



distributors, pays refund value and processing payments to processors, pays participants various other program payments, and funds program administration. The fees cover departmental administration, handling fees, curbside supplemental payments, market development payments, public education programs, payments to cities and counties, incentive payments to recyclers, as well as grants. The flow for collection of funds is provided in the Appendix.

indicates that they collect fees from about 12,000 businesses across the state, that it takes about 45 people to do the work, and they collect about \$80 million annually. The annual costs are about \$200 per business per year.⁸¹ This is fairly costly because the program is state-wide, and touches a fairly large number of businesses or payees. Interviews with BOE indicate the costs to implement this system were between \$500,000 to \$1,000,000.⁸²

- **California Tire Fee:** Retailers of new tires must charge \$1.75 as a point of sale fee. A sunset clause taking effect in 2015 sets the rate back to \$0.75. Retailers may keep \$0.05 of the fee for processing. The fees are remitted to California’s tax authority, the Board of equalization. Through an MOU with the Department of Resources, Recovery, and Recycling (CalRecycle), the BOE places this in the California Tire and Recycling Management Fund and retains a portion for processing. CalRecycle manages this fund with two main goals: to ensure proper management of waste tires through enforcement of waste tire shipment and facility regulations, and to conduct market development activities designed to achieve a 90 percent tire diversion rate. This program is reportedly less costly than the E-waste program fee collection system, and has helped nurture market development.

Exploring ADF Revenue Collection / Administration Options for StopWaste.Org

In order to explore potential collection mechanisms that might serve well as a piggy-backing mechanism for new ADFs for StopWaste.Org, we looked at four levels - StopWaste.Org, Alameda County, the Cities within Alameda County,⁸³ and the State Level. We conducted interviews to identify whether there were already existing revenue collection mechanisms that (1) “touched” a variety of relevant⁸⁴ businesses within the StopWaste.Org territory, or (2) allowed varying fees to be assessed for different businesses or for different products. These would be ideal candidates for piggy-backing. The results of our interviews are presented in Appendix E. The alternative is setting up a new infrastructure (as, for example, they did for the San Francisco cigarette tax). We examined potential administration methods and the approximate cost to administer and enforce potential ADFs that might be imposed or considered. These costs are illustrated in Table 4.2 below. The derivation of these costs follows.

⁸¹ We estimate a cost of about \$200 per payee business per year. We use this estimate as a driver in other computations associated with administration of fees at the BOE.

⁸² And that this range would be appropriate for a first level estimate of the cost of implementing other ADF / revenue collection initiatives at BOE.

⁸³ Conducting the work at the City level would require 14 plus agencies to implement new collection mechanisms at a time when they are cutting staff.

⁸⁴ Relevant interpreted generally as businesses that sell products that might be candidates for ADFs for StopWaste.Org.

Implementation Costs: Administrative costs associated with the ADFs include identifying the potential payee businesses (usually by business type using NAICS code), developing forms, computer programming, outreach, setting up funds / transfer / authorization procedures, testing, and other activities. We find that, in all cases, the administrative costs will be approximately the same. The California Board of Equalization (BOE) provided an estimated cost of between \$500K and \$1 million dollars to program a new ADF into their existing system, using the Statewide Electronics fee as the proxy. This is a large range, but no estimates were available that were more precise (these were their estimates for the set-up of the E-waste fee). We asked similar questions of San Francisco, which had recently established a new litter fee on cigarettes, and provided a model that could be similar in scope to both the size (not State-wide like BOE), and complexity (a per-unit fee, which might approximate a number of the ADFs described in Table 1.1 above).⁸⁵ However, it may be possible for StopWaste.Org to license and adapt the same delinquency collection software⁸⁶ that was modified by San Francisco for its cigarette fee. If this is feasible, the set-up costs might be on the order of \$100-200K (a high end estimate, assuming a list of businesses and addresses are available from another location).⁸⁷ Thus, we assume, for lack of a better estimate and closer model, that the implementation costs will be approximate \$150K if an adaptation of the San Francisco-type software approach can be used; or if a more complex BOE-type model is needed, the set-up costs may be \$500K to \$1 million (\$750K midpoint) for a new fee. Given that we explored the treasurer / financial departments of StopWaste.Org, Alameda County, and sample Cities within the County (as proxies), and found no particularly well-suited systems on which to “piggy-back” for an administrative revenue collection system⁸⁸, we believe the set-up of a new fee system will be a similar cost whether we implement the revenue system with StopWaste.Org, or attempt a memorandum of understanding (MOU) or contract arrangement with either Alameda County or the BOE.

***Board of Equalization
(BOE)***

- *Used to collect more than 20 taxes and fees*
- *Administrative / enforcement set up*
- *Economies*
- *Business contact & differentiation by type*

On-going Costs: The next element explored were the on-going costs, which include basically distribution of forms, auditing / enforcement, revenue collection, and similar duties. We examined the on-going costs for both the BOE-administered Electronic Waste fee (as this fee is somewhat more complicated than the majority of what we describe in this report), and the on-going costs in

⁸⁵ Detailed information for San Francisco was not available, partly because there is a lawsuit pending associated with San Francisco’s cigarette ADF.

⁸⁶ REVQ by Columbia Ultimate Business Solutions of Vancouver, WA. This software, designed for delinquency management, can be adapted to fee collection applications, and was adapted by the City of San Francisco to implement both a tourism fee and a cigarette assessment. The licensing fee is about \$200 per concurrent County staff user per year; the set-up fees cited by the software company range from a few thousand dollars to a high of about \$10K. StopWaste.Org would be setting up most of a new system, so the costs may be higher than this range. San Francisco noted the adaptation for the tourism fee was about \$60,000, and adding the cigarette fee cost another \$50,000 in set-up costs.

⁸⁷ The on-going license fee, per-user, would be about \$2,400, which would not be a large proportion of the on-going administration cost estimates.

⁸⁸ See Appendix H for a summary of the types of fees and revenues these different entities collect.

San Francisco for the cigarette fee. Both entities stated the logical conclusion – that the on-going costs were very closely related to the number of businesses that were potential “payees”. When we computed the costs per business for the Electronics fee for the BOE, the cost was approximately \$200 per business per year. The same computation for the San Francisco program provided an estimate of about \$245 per business annually. These numbers, given the differences in programs and scope, are fairly close. In the tables below, we used an estimate of \$220 per business per year. The other key driver to these cost estimates is the number of businesses. We used data on the number of businesses for hundreds of different business types within Alameda County (See Appendix E), and totaled the number of businesses that would be the retail (or in a few cases, wholesale) points of purchase for the products being analyzed in this study. Wholesale contacts are fewer, driving down the on-going costs. Retail outlets for some products are many, and that bears a direct relationship to the costs shown in Table 1.3 (for example, single use bags are used in nearly 5,000 stores in Alameda County; spirits are sold at about 180 outlets).

There is one very important caveat to using the figures in Table 1.3: these costs are not additive. If multiple products are selected for an ADF and they are all sold at grocery-type stores, then the costs would not increase much above the cost for one product sold there. The main driver for the on-going costs is the number of stores, not the number of products. Thus, there are administrative cost savings from picking products for ADFs that retail or wholesale at the same businesses.

Administrative Summary: There are three main options for administering potential ADFs for StopWaste.Org; in each case, we do not see a strong case that the costs would be dramatically different than those described above.

- **Establish an MOU with the BOE:** The BOE has a system that is generally well-suited to adding the types of ADFs assessed in this report.⁸⁹ However, the BOE normally takes its assignments directly from legislation – they are named collection agents for sales taxes (state and local), various transit fees, and the electronics waste fee. They have not traditionally become agents for other entities. However, they have established MOUs or contracts with organizations, and no one interviewed believed the practice was disallowed. Moving forward would take a meeting with board members or others⁹⁰ to determine if there is interest in taking on this assignment for StopWaste.Org.⁹¹ If it moves forward, StopWaste.Org would need to work with BOE to identify the business types that would be “payees”, and assure that the description of the products covered by the ADF was clear, among other activities (authorization, contract, etc.).

⁸⁹ Either retail, or potentially wholesale.

⁹⁰ The BOE was not completely negative on this issue; however, they were not immediately positive. All interviewees agreed the adaptation of their collection process for the ADFs envisioned by the study was administratively possible.

⁹¹ Because it has not been common practice, it is not clear what form the mandate for the ADF would need to take; it is not clear if an ordinance would be sufficient from BOE’s perspective, for instance. They commonly deal with revenue collection related to legislation or “votes of the people”.

Although the BOE system has the following ready-advantages, it is important to note that establishing such a relationship with StopWaste.Org would be a new undertaking. BOE’s advantages include:

- They “touch” most all of the businesses in the state,
 - They have the ability to differentiate by business type
 - They currently have reporting by product types (E-waste, containers)
 - They have enforcement procedures
 - They can address issues related to business-to-business or wholesale vs. retail sales (sales for resale are examples from the sales tax currently)
 - There can be economies of scale if several new fees are instituted that touch similar lists of businesses. Then the personnel that audit / implement can do several fees at the same time, saving labor.
- **Contract or establish an MOU with Alameda County:** Alameda County “touches” many of the businesses that would be potential payees for the various ADFs discussed in this report. However, they do not have a system that allows a great deal of flexibility in the types of fees, by either business type or types of products. Significant work would be involved in set-up and administration – probably similar in scope to the figures for BOE or San Francisco.
 - **StopWaste.Org collects:** StopWaste.Org could elect to establish its own system for collecting these revenues. They currently have limited capabilities. However, set up costs may be similar to establish a system with the County.⁹² Note that StopWaste.Org has the ability to contract out billing for the fee.

Finally, although we did not conduct a detailed review of the legal aspects of the manner in which ADFs might be authorized by StopWaste.Org, we would expect them to be implemented as a fee with a connected purpose (nexus), not a general fund-type tax (like a business license tax or other general purpose tax) that must be approved by the voters.

⁹² Presumably, between agencies, business contact information may possibly be shared to streamline the process if StopWaste.Org wishes to set up its own system.

Administration of ADF Revenue Collection

Whether StopWaste.Org establishes an arrangement with another agency (BOE or Alameda County, “piggybacking” on an existing system), or establishes an entirely new fee collection / administration / enforcement system, it must undertake a number of preparatory efforts to implement the fee.

Setting up a new fee system (with the steps that were envisioned in discussion with the BOE as an example), requires several steps:

- **Enabling the Fee.** A vote of the Board of the Agency if the fee is Countywide and administered by StopWaste.Org or via an MOU between StopWaste.Org and an identified administrative entity. If the fee is at the City level, a vote of the City Council. Fees on certain products may be preempted by state law, which is the case for plastic bags until 2013. A vote of other entities may be necessary depending upon the type of product covered by the fee.
- **Identifying the fee payer population.** This requires identifying which retailers, or types of retailers, are required to pay. This may be accomplished by searching the BOE database by industry code (as was done for the e-waste program), coupled with internet retailer searches.
- **Identify products clearly.** The definitions would generally be based on the criteria deigned in the statute or regulations establishing the program. In discussions with program staff around the country (for the other programs) and at BOE, the description of products is not via UPC code, but rather, based on product categories and descriptions included in the legislation. In NO case did the agency we contacted suggest that the regulations had been (or should be) written at the UPC level when identifying commodities / products. Piggybacking on existing “lists” saves work creating and periodically updating the lists.⁹³ Most others identified products by verbal description.⁹⁴
- **Who will manage the fund / account?** In this case, we assume

Set-up:

- *Enabling the Fee*
- *Identifying Payer Population for accounts*
- *Identifying products clearly*
- *Managing the Fund*
- *Reviewing tradeoffs on Fee Structure*

⁹³ Washington State’s use of product categories defined by CERCLA and FIFRA are examples.

⁹⁴ Some of the product definitions we used for the demand and revenue computations are provided in Appendix C.

StopWaste.Org would be the ultimate receiver of funds. If the funds must be designated to specific funds (e.g. if independent material categories, or groups are identified), separate funds may need to be established. Rules must be established covering the types of expenditures that may be undertaken using the funds, and who is authorized to withdraw / authorize funds.

- **Considerations regarding structure of the fee.** The BOE identified several different considerations:
 - Fee to retailer (excise tax) – not exempt from sales tax
 - Fee to consumer - may be exempt from sales tax
 - Disclose fee on receipt – can cause reactions by consumers
 - Keep it simple as the complexity grows rapidly.

These elements come from the definition of the program in the enabling legislation or ordinance.

- **Estimated cost.**

The E-waste account regularly collects fees from 12,000-13,000 businesses. The fee is a per-unit fee, with a self-assessed bill to the retailer. The cashier takes the information (prices are keyed into the database), and if the retailer doesn't pay, they are sent for collection and enforcement. Audits occur roughly every three years. The staff assigned to this account is about 40-45 person years (on-going). The fund collects about \$80 million per year. We provide approximate estimates of administrative costs based on this fund, using a ratio of about .003 staff per business "touched" or from which fees will be collected (or equivalently, 1 staff per 300 businesses). We are assuming that the administrative / enforcement cost is about \$220 per business per year for gross estimation purposes (rounded midpoint of BOE estimate of \$200 and San Francisco estimate of \$245).⁹⁵ The costs accrue for staffing for the (business / payee) registration process and infrastructure for capturing the data, developing a (filing) return, staff to administer, bill, enforcement, auditing. Appendix G contains information about the number of businesses of different types that are active in Alameda County. These data can be used to identify the likely businesses that would be "registered" for various fees, and thus, the approximate administration costs per ADF. This figure can be compared to the revenues to identify the "net" revenue associated with an ADF of different levels.

***Estimated On-going
administrative cost:
\$200-\$245 per payee
business***

⁹⁵ Note that the delinquency software approach has a small licensing fee in addition (\$200 per concurrent user per month for StopWaste.Org staff).

- **Suggestions:** BOE staff recommended considering ADFs on several products rather than just one, because the administrative costs and personnel (if the ADFs affected similar business types) could largely be shared, and full costs would not be assessed for each ADF.

Whether the fund is administered by the BOE or other entities, these same steps will generally be needed.

Table 4.1 below provides a rough estimate of the number of businesses that would be potential “payees” or points of revenue collection for the various ADFs under study.⁹⁶ Table 4.2 includes a summary of the estimated cost to administer the ADF for particular products. The estimates are based on order of magnitude estimates, “scaling” the costs from the E-waste program (including staffing for identifying businesses, administration and collection costs, enforcement, etc.).

It is very important to note that there would be savings in administrative fees if multiple products sold through the same business types are selected for ADF treatment (e.g. grocery and similar stores were assumed to sell single use bags, cigarettes, fluorescents, gable-tops, aseptics, and batteries).

⁹⁶ We used data from the website (http://www.city-data.com/business2/econ-Alameda_County-CA.html) to approximate the number of “sellers” of the product (retail, and in a few cases, wholesale). These computations are detailed in Appendix H.

Table 4.1 Estimate of Businesses that would be Potential “Payees”, by ADF Material
(underlying assumptions included in Appendix G)

Industry Description	Estimated Total Number of Potential "Payees"
Fast food takeout	1,289
Toxics All	2,769
Pesticides	566
Fertilizer	566
Paint	909
Single Use Bags	4,755
Cigarettes	2,363
Packaging	326
Fluorescents	1,480
Hard to Recycle Containers-wine+gable+aseptic	2,336
Hard to Recycle containers - Spirits only	182
Hard to Recycle Containers - gable tops and aseptic	2,154
Batteries (all)	2,566
Universal Electronics	1,329
Aerosols	909
Toxics Wholesale	967
Pesticides Wholesale	120
Fertilizer Wholesale	120
Paint Wholesale	199
Aerosols beyond paint	2,472

Table 4.2 Summary of Estimated Administration Costs and Feasibility for ADFs⁹⁷
(Costs discussed in Chapter 4 and Appendices E and H)

ADF Material	Retail Admin Option and Implementation Cost (Set-up assumed \$150K if local software option; \$750K if BOE-level complexity)	Estimated Number of Payee Businesses (Retail)	On-going estimated Administration Cost (\$220/business/yr), Retail option. Economies available if multiple products with same retail outlets selected.	Likely Administrative Feasibility at the County Level
Fast food takeout	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,289	\$284,000	Moderately administratively feasible, retail level, must clearly define eligible businesses; product definitions may be complex and frequently changing.
Toxics All	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,769	\$609,000	Highly administratively feasible, retail level; however, large number of businesses may increase complexity (and on-going cost).
Pesticides	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	566	\$125,000	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses keeps costs low.
Fertilizer	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	566	\$125,000	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses reduce costs.
Paint	Not relevant due to recently-passed legislation.	909	\$200,000	Not relevant due to recently-passed legislation.
Single Use Bags	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	4,755	\$1,050,000	Highly feasible administratively, retail level, large number of businesses, but clearly-defined product. ⁹⁸
Cigarettes	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,363	\$520,000	Highly feasible administratively, retail level, large number of businesses, but clearly defined product that is taxed in other ways ⁹⁹
Packaging	Not addressed	326 (included only consumer product manufacturing-	\$72,000	Not currently very feasible administratively – establishing product categories complicated; more feasible at a manufacturer level, which is not feasible for a County

⁹⁷ IF wholesale ADFs are an option, the business counts (and computed administration costs) follow. Toxics (967 wholesale businesses / \$200K administration cost); Pesticides (120 businesses / \$25K); Fertilizers (120 businesses / \$25K); Paint (199 businesses / \$40K); Aerosols (199 businesses / \$40K cost).

⁹⁸ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared). Existing example in Washington DC.

⁹⁹ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared); also shown feasible in neighboring community, San Francisco.

ADF Material	Retail Admin Option and Implementation Cost (Set-up assumed \$150K if local software option; \$750K if BOE-level complexity)	Estimated Number of Payee Businesses (Retail)	On-going estimated Administration Cost (\$220/business/yr), Retail option. Economies available if multiple products with same retail outlets selected.	Likely Administrative Feasibility at the County Level
		type businesses). Alternative could be all retail.		
Fluorescents	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,480	\$326,000	Highly feasible administratively, retail level, clearly defined product
Hard to Recycle Containers - wine+gable+aseptic	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,336	\$514,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹⁰⁰
Hard to Recycle Containers - Spirits only	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	182	\$40,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses very clear
Hard to Recycle Containers-gable tops and aseptic	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,154	\$474,000	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹⁰¹
Batteries (all)	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	2,566	\$565,000	Quite Highly feasible administratively, retail level, clearly defined products; varied businesses sell this product. ¹⁰²
Universal Electronics	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	1,329	\$292,000	Less feasible, retail level. Products may not be easy to define (constantly changing) at the County level.
Aerosols	StopWaste.Org, County, or BOE options, \$150K or \$750K set-up	909	\$200,000	Moderately feasible administratively. Paint aspect of this product covered by recent legislation. Pesticides and Fertilizers discussed above. Administration of other types of gas tanks may be complex to define and track sales at the County level

¹⁰⁰ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹⁰¹ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹⁰² Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

5. ADF REVENUE POTENTIAL AND NON-ADMINISTRATIVE COST ELEMENTS

Estimating the Potential Collection Revenues

We used two main steps to estimate the potential revenues available from the imposition of ADFs on a variety of products:

- **Identify the demand for the product annually within Alameda County.** We used local and national data to identify the demand, in dollars and/or units. These computations are described (and sources cited) in Appendices D and E.
- **Identify the elasticity of demand for each product / category.** The elasticity of demand is the factor that represents how much less of a product is purchased when the price increases (the economic law of demand, based on the observation that we buy less of a product if it gets more expensive). We searched research and academic literature for these factors.

Estimating ADF revenues needs:

- *Product demand estimates*
- *"Elasticities" (Price reactions)*

For each product / category being studied, we computed "net" ADF revenues¹⁰³, and the change in sales tax revenues that would be collected because of the reduction in sales from the "apparent" price increase. These figures are presented in Table 5.1 and 5.2. A more detailed table is included in Appendix D.

Table 5.1 below provides a summary of the estimated revenue that would be raised from the imposition of:

- a one-cent ADF per unit purchased retail of the product and
- a one-percent ADF on the products analyzed in this report.¹⁰⁴

¹⁰³ We multiplied the potential ADF amount (percentage or per unit) times the demand (units or dollars sold) to identify the base ADF revenues. We then reduced the sales (number or dollars) based on the elasticity factor to arrive at the expected "net" ADF revenues associated with the imposition of the fee.

The table allows readers to estimate the revenues from alternate assumptions about the ADF fee level. For instance, if the ADF of interest is on cigarettes, the table shows the impact of a one-cent per pack ADF is \$1.4 million. If instead, StopWaste.Org imposed a 5% increase as the ADF, then the impact would be five times as large, or \$7 million. Examining the one-cent column, the table shows a one-cent ADF on cigarettes would raise approximately \$268,000. If a \$0.20 ADF was proposed, the approximate revenues raised would be approximately \$5.4 million.

Table 5.1 Approximate ADF Revenues for Purchases in Alameda County
(derived in Chapter 5 and Appendix D; adjusted for changes in demand due to the price increase (elasticity); but not net of administrative costs.)

ADF Material	ADF Revenue per 1% change in product price; (adjusted for elasticity, not net of administration costs)	ADF Revenue per 1 PENNY change in price (adjusted for demand elasticity, but not net of administration costs)	Units (relevant for "per penny" adjustment (units for % are dollar sales))
Fast food takeout	\$4,239,661	\$699,850	Per takeout meal
Toxics All	\$40,438,482	Unable to estimate ("units" unknown)	Not available
Pesticides	\$103,814	\$1,727	Retail containers sold
Fertilizer	\$1,421,359	Unable to estimate	Retail containers sold
Paint	\$586,124	\$29,531	Gallons
""Single Use Bags	Available data, but not how the fee is assessed.	\$1,420,000 - \$7,885,147 ¹⁰⁵	Bags distributed at retail
Cigarettes	\$1,353,088	\$268,036	Pack of cigarettes
Packaging	Unknown	Unknown	Not available
Fluorescents	\$10,770	\$3,596	Per bulb purchased

¹⁰⁴ For those products with ADFs in other locations, the dollar values assigned in these other locations are provided in Appendix E

¹⁰⁵ Traditional elasticities would indicate that the revenue per penny might be on the order of \$7.9 million. However, recent data from the bag fee instituted in Washington DC indicates that bag use fell much more than this after the imposition of a 5 cent fee. Bag use fell to 18% -33% of normal usage, so the lower figure is also included in the table.

ADF Material	ADF Revenue per 1% change in product price; (adjusted for elasticity, not net of administration costs)	ADF Revenue per 1 PENNY change in price (adjusted for demand elasticity, but not net of administration costs)	Units (relevant for “per penny” adjustment (units for % are dollar sales)
Hard to Recycle Containers - wine+gable+aseptic	\$5,825,679	\$1,075,187	Per container
Hard to Recycle Containers - Spirits only	\$4,076,871	\$339,739	Per bottle
Hard to Recycle Containers-gable tops and aseptic	\$1,842,716	\$738,564	Per container
Batteries (all)	\$142,683	\$30,031	Per battery sold
Universal Electronics	\$23,473,410	Units unknown	Not available
Aerosols	\$440,923	\$147,467	Per container

Information on two other main costs was analyzed as part of this study, and is presented in Table 5.2:

- The cost per year to manage the minor share of the product that is currently brought to one of the County's four household hazardous waste facilities. The total of the costs for just the materials treated at the HHW site annually is approximately \$2.7 million. As one example, the table shows that dealing with pesticides is about \$168,000.
- The sales tax impact from the reduction in sales of the item. An ADF effectively increases the price of a product. People buy less of an item if the cost increases, depending upon the elasticity¹⁰⁶. Thus, economic theory argues there will be an impact on sales tax at the county level. This column provides an estimate of that impact. As an example, the table shows that an ADF on the combination of hard-to-recycle containers might reduce sales taxes by as much as \$900,000 in the County.

¹⁰⁶ Elasticities measure the percentage change in sales given a one percent change in price. Elasticity values vary, meaning that purchases of some items change more with a 1% change in the price than do purchases of other products. This “elasticity” figure quantifies those differences.

Table 5.2 Summary of Costs Related to ADFs: HHW Management Costs and Reductions in Sales Tax Revenues from Imposition of ADF Fees (Discussed in Chapter 5 and Appendix D and Appendix F)

ADF Material	Cost per Year for Product at HHW (CURRENT volumes), including overhead	Percent of Total Costs for all these materials for Each Material	Potential Costs per Year at HHW for 100% capture of these products, including Overhead ¹⁰⁷	Relative costs of managing waste at HHW site, through recycling, or other methods	\$ Loss in County Sales Tax per 1% change in product price (9.75% sales tax)	Pct Change County Tax from 1% change in product price	\$ Loss in County Sales Tax per 1 cent change in product price (9.75% sales tax)	Pct Change County Tax from 1 penny change in product price
Fast food takeout	Not addressed at HHW site			Unknown	\$53,808	-0.13%	\$8,873	-0.02%
Toxics All	\$389,914 ¹⁰⁸	15%	\$2,854,000	Average at HHW \$3,120/ton ¹⁰⁹	\$195,263	-0.05%	\$0	0.00%
Pesticides	\$168,000	6%	\$1,230,000	Average at HHW \$3,120/ton	\$10,224	-1.00%	\$168	-0.02%
Fertilizer	\$141,120	5%	\$1,032,000	Average at HHW \$3,120/ton	\$83,651	-0.60%	\$389	0.00%
Paint	\$1,401,797	53%	\$10,261,000	Average at HHW \$3,120/ton	\$46,086	-0.80%	\$2,304	-0.04%
Single Use Bags	Not addressed			Est. \$5-30 million using Washington DC estimates ¹¹⁰	n/a		n/a	

¹⁰⁷ Per assumptions provided by Alameda StopWaste.Org, we use ratios from CURRENT volumes column, and proportion the costs upward to reflect an additional 6,483 tons (HHW that currently goes to the landfill) in addition to the 1,026 tons currently handled by the HHW facilities annually. Figures in this fourth column are, therefore, 7.3 times the cost estimates in the second column of the table. This is one estimate of the total costs if the ColWMP was fully implemented. Certainly, more refined estimates are possible, but this figure makes it clear there is considerable cost potential.

¹⁰⁸ Note that this HHW management cost figure EXCLUDES the following HHW cost figures for pesticides and fertilizers.

¹⁰⁹ Computed as \$3.2 million (total HHW site costs) to address 1,026 tons currently managed at the site. Cost for just materials addressed in this study are about \$2,600/ton, counting \$2.7 million divided by the total 1026 tons.

¹¹⁰ Using Washington DC's cost of \$0.05 per bag, this would total more than \$39 million (times figure of \$7.9 million per one penny assessed per bag from Table 1.2. Given one cent that is retained by the retailer, the figure is closer to \$32 million. However, given the most recent figures from Washington DC's program, bag use has declined much more than elasticities would expect. The Washington DC case study cites a decline of 60% in bag usage (see case study in Chapter 2, or data from the *Wall Street Journal*, Environment Section, Monday October 18, "The Secret to Turning Customers Green", which notes a usual number of bags handed out is 68 million per quarter, and in the two most recent quarters (after the 5 cent fee) they handed out an average of 12 million bags, 18% of the normal number.

ADF Material	Cost per Year for Product at HHW (CURRENT volumes), including overhead	Percent of Total Costs for all these materials for Each Material	Potential Costs per Year at HHW for 100% capture of these products, including Overhead ¹⁰⁷	Relative costs of managing waste at HHW site, through recycling, or other methods	\$ Loss in County Sales Tax per 1% change in product price (9.75% sales tax)	Pct Change County Tax from 1% change in product price	\$ Loss in County Sales Tax per 1 cent change in product price (9.75% sales tax)	Pct Change County Tax from 1 penny change in product price
Cigarettes	Not addressed			Total \$6.4 million in Alameda County (\$0.24/pack) ¹¹¹	\$71,093	-0.54%	\$14,022	-0.11%
Packaging	Not addressed at HHW site				Not modeled	Not modeled	Not modeled	Not modeled
Fluorescents	\$101,000	4%	\$739,000	Average at HHW \$3,120/ton ¹¹²	\$263	-0.25%	\$88	-0.08%
Hard to Recycle Containers - wine+gable+aseptic	Not addressed at HHW site			Curbside recycling programs are about \$165/ton ¹¹³	\$915,595	-1.59%	\$166,783	-0.29%
Hard to Recycle Containers - Spirits only	Not addressed at HHW site			Curbside recycling programs are about \$165/ton	\$278,246	-0.70%	\$23,187	-0.06%
Hard to Recycle Containers-gable tops and aseptic	Not addressed at HHW site			Curbside recycling programs are about \$165/ton	\$285,017	-1.59%	\$114,235	-0.64%
Batteries (all)	\$195,000	7%	\$1,427,000	Average at HHW \$3,120/ton	\$6,991	-0.50%	\$1,466	-0.10%
Universal Electronics	Not addressed			Unknown	\$2,779,746	-1.20%	Not modeled	Not modeled
Aerosols	\$240,000 ¹¹⁴	9%	\$1,756,000	Average at HHW \$3,120/ton	\$21,594	-0.50%	\$7,198	-0.17%
Total Costs for these materials at HHW site	\$2,637,000	100%	\$19,300,000					

¹¹¹ Note that Alameda County's annual litter-related costs are about \$26 million for all litter. If TPL is a similar percentage as in San Francisco, the TPL-related litter costs would be \$6.4 million. Divided by the number of packs of cigarettes sold, that would be approximately 23.8 cents per pack.

¹¹² or computed another way, About \$0.75 each unit or 50% of retail price

¹¹³ Source: StopWaste.Org email, Debra Kaufman, October 2010.

¹¹⁴ Includes flammable aerosols, propane / butane / map gas cylinders, and poison aerosols.

6. SUMMARY AND CONCLUSIONS

The analysis contained in this document provides:

- An assessment of ADFs and ADF-like fees and programs, their rationale, and examples from numerous jurisdictions;
- A review of potential materials on which ADFs might feasibly be assessed by StopWaste.Org, and basic structural alternatives (generally percentage or per-unit);
- Feasible administrative alternatives, and their order-of-magnitude costs;
- Revenue that could be raised by fees, given the demand for these materials within Alameda County;
- The current costs at the household hazardous waste site to manage the (limited) quantities of these materials that are delivered to and managed by the HHW site;
- The potential impacts on County (and proportionally, city) sales tax revenues associated with the imposition of ADFs on these materials.

The analysis shows that there are a number of products that are feasible for ADFs for StopWaste.Org, and these fees could help alleviate management costs at the HHW site, in litter clean-up, and potentially other direct waste management costs.

The order-of-magnitude administrative costs show three options are feasible, and show no strong differences that would indicate a preference for administering through either:

- StopWaste.Org,
- Alameda County, or
- California Board of Equalization.

However, negotiation steps would differ.

Table 6.1 summarizes the design of the ADF and the assessment of the administrative feasibility of an ADF on the material for StopWaste.Org.

Table 6.1 Summary of the Design and Administrative Feasibility Assessment for ADF Options for StopWaste.Org

ADF Material	Summary / Description	Likely Administrative Feasibility at the County Level
Fast food takeout	This would consist of an ADF on retail fast food containers that could be imposed by unit (cents per non-recyclable container), by transaction (assuming an average number of containers per visit), or as a percentage of retail sales (again, assuming average transactions). We did not find a precedent in the US. This is not likely a practical alternative at the wholesale level. The Fee's rationale is litter ¹¹⁵ and incentive to modify materials used in the product.	Moderately administratively feasible, retail level, must clearly define eligible businesses; product definitions may be complex and frequently changing.
Toxics All	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.005 on first sale of products entering state). The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.	Highly administratively feasible, retail level; however, large number of businesses may increase complexity (and on-going cost).
Pesticides	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses keeps costs low.
Fertilizer	IF the ADF option is at the retail level, the ADF can be set as percent of retail price (however, higher priced products may not be more toxic). Alternatively, it may be set per-unit, but should likely vary by container volume purchased. IF the ADF option is at the wholesale level, it is most conveniently assessed as percent of price (that is the model in Washington State, which charges 0.007 on first sale of products entering state). Ontario fee is \$0.003-0.005 / gallon. The Fee's rationale is related to toxic aspect of the products (incentives for substitutes) and the costs to dispose.	Highly feasible administratively, retail level, clearly define eligible businesses. Relatively few businesses reduce costs.
Paint	This ADF is no longer relevant to StopWaste.Org because of new state EPR law. For background the paint fee in Oregon is established as 35 cents per half gallon and \$1.60 per 5 gal container. Ontario charges about \$1.06/gallon. The Fee's rationale may be related to cost to dispose of the product properly / cost at hazardous waste site, and provide incentives not to purchase more product than needed.	Not relevant due to recently-passed legislation.
Single Use Bags	The ADF would most likely be assessed as a unit fee per bag assessed to the consumer at point of purchase / use (percent of price is not relevant for an un-paid item). In Washington DC's model, the fee is 5 cents per bag, with 1 cent provided to the retailer; in Ireland the fee is 33 cents per bag. The Fee's rationale is generally related to the high amount of this type of product in litter, and the	Highly feasible administratively, retail level, large number of businesses, but clearly-defined product. ¹¹⁶

¹¹⁵ Note that the annual litter related costs for Alameda County (from County Stormwater program) are \$26 million.

¹¹⁶ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared). Existing example in Washington DC.

ADF Material	Summary / Description	Likely Administrative Feasibility at the County Level
	availability of substitute products with recyclable / reusable components (behavior change).	
Cigarettes	The ADF could be assessed fairly easily as a per-pack fee or a percent on purchase price. The model in San Francisco is 20 cents per pack, assessed at the point of purchase. The Fee's rationale is generally based on its contribution as a constituent of litter.	Highly feasible administratively, retail level, large number of businesses, but clearly defined product that is taxed in other ways ¹¹⁷
Packaging	There are limited packaging models in Europe, Asia, and Australia, but complexities exist. Presumably recycled or recyclable packaging may be exempted, but oversizing of packaging, regardless of material, may also be a concern. There has been work conducted examining ratios of packaging to product (in Asia), and extensive work on fees and EPR models in Europe. Australia uses a voluntary, cooperation-based model including the array of actors along the packaging supply chain. The fees would presumably be negotiated on manufacturers and embedded in the price. However, considerable complexity arises in envisioning a successful packaging model of this type at the COUNTY (rather than national) level. The Fee's rationale is generally based on a desire to reduce overuse of materials, encourage use of recyclable / recycled / reusable materials and options for resource conservation.	Not currently very feasible administratively – establishing product categories complicated; more feasible at a manufacturer level, which is not feasible for a County
Fluorescents	Assuming a retail model, the fee would be assessed at point of purchase as either a fee per bulb (easier model) or a percentage surcharge assessed per bulb. We did not find an existing ADF model on this product (estimates place disposal costs at about \$0.75 each or about 1/2 the purchase price of many models). The Fee's rationale derives from the cost to properly dispose of the product, and the costs at the hazardous waste site.	Highly feasible administratively, retail level, clearly defined product
Hard to Recycle Containers - wine+gable+aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (encouraging aseptic products which are difficult to recycle).	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹¹⁸
Hard to Recycle Containers - Spirits only	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers.	Highly feasible administratively, retail level, clearly defined products, eligible businesses very clear

¹¹⁷ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared); also shown feasible in neighboring community, San Francisco.

¹¹⁸ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

ADF Material	Summary / Description	Likely Administrative Feasibility at the County Level
Hard to Recycle Containers-gable tops and aseptic	The ADF would be assessed as a fee per unit (possibly varying by ounces) or percentage surcharge at point of purchase. Rather than the California Container Deposit Model, we assume the Delaware bottle bill model, in which the product's "deposit" would not be rebated, but instead, dedicated to a recycling or clean-up fund. This would be assessed for purchases of the eligible products within the County. The rationale for the fee would be to encourage recycling, reduce litter, encourage recycled content and/or take-back and re-use by manufacturers (including aseptic packages, which are difficult to recycle).	Highly feasible administratively, retail level, clearly defined products, eligible businesses reasonably clear. ¹¹⁹
Batteries (all)	If the ADF is assessed at the retail level, the ADF could either be assessed as a fee per unit or a percent of purchase price. Ontario has an ADF on this product, as one example. The Fee's rationale would derive from the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components. In addition, this product has a disposal cost at the hazardous waste site.	Quite Highly feasible administratively, retail level, clearly defined products; varied businesses sell this product. ¹²⁰
Universal Electronics	If the ADF is assessed at the retail level, the ADF could either be assessed as a percent of purchase price, or as a fee per unit. We did not identify a precedent for an ADF on this product elsewhere. The Fee's rationale would be based on the metals and other hazardous components of these products, and the desire to provide an incentive for redesign by manufacturers to include fewer toxic components.	Less feasible, retail level. Products may not be easy to define (constantly changing) at the County level.
Aerosols	Significant portions of this ADF may no longer be relevant to StopWaste.Org because of new state EPR law (see paint discussion above), or covered via pesticides, etc above. However, if assessed on broader aerosols (hairspray, etc.), the fee may still be assessed (but with significantly smaller units). Examples exist in Ontario, for example. The rationale is based on the need to address both the contents (when hazardous) and the container properly.	Moderately feasible administratively. Paint aspect of this product covered by recent legislation. Pesticides and Fertilizers discussed above. Administration of other types of gas tanks may be complex to define and track sales at the County level

The consultants were asked to avoid setting priorities or recommendations, but to provide information for use by StopWaste.Org and stakeholders to consider in upcoming meetings. Criteria that may be appropriate for helping to determine the desirability of potential ADFs, beyond administrative feasibility, include the following:

- **Revenue potential:** Some have very strong ADF revenue potential from even a small intervention in the market.¹²¹ Strong products include: toxics, single use bags, fee on hard-to-recycle containers, cigarettes, universal electronics, and fluorescents.

¹¹⁹ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹²⁰ Administration even more feasible if other products at similar retail establishments are also imposed (costs and contact / outreach / audit are shared)

¹²¹ Table 1.2 presents the revenue from a one cent and from a one percent ADF on the various products. Table 3.2 in Chapter 3 shows the revenue potential from ADF fees set at dollar values used in other jurisdictions (where available).

- **Consumption Incentives:** The impact on sales for products that are “undesirable” may be a valued outcome of the ADF. If a problematic product has a high elasticity, a positive environmental (and waste management) outcome is realized. This “reaction to price changes” is reflected in a factor called an “elasticity”, which is provided in Chapter 3. A high elasticity¹²² means people buy considerably less of the product when the price increases. The products with relatively high elasticity in this list include: electronics, paint, pesticides, and some of the hard-to-recycle container components.
- **Hard to recycle, litter prone, hazardous products:** Some products have greater negative environmental impacts, while some represent large components of litter. Products with a hazardous component include: toxics, pesticides, and fertilizer, oil paint, fluorescents, and aerosols. Litter-prone items include: plastic bags, cigarettes, and packaging. Hard to recycle products include gable top and aseptic containers. We reviewed data on waste composition studies for the landfill, litter on the street¹²³, and litter in the ocean / water¹²⁴ for consideration of troublesome products from that point of view.
- **High cost at the HHW site:** Those products that have proven especially costly at the HHW site include: paint and pesticides / toxics.
- **Administrative costs and net revenue potential:** Lower administrative costs are preferred; however this needs to be balanced against the revenue potential. For example, the products sold at grocery and drug stores touch a lot of stores; hence the administrative costs are higher. However, many also have high revenue potential (e.g. single use bags). In addition, the administrative costs can be shared if multiple ADFs are selected that cover products sold at the same types of stores.

¹²² for example near or above 1 in absolute value

¹²³ The high percentage of cigarette butts as a component of litter in San Francisco, when measured by the number of units counted, was a prime motivator for its use as the basis for a litter-type ADF using cigarette sales.

¹²⁴ The single use bag fee in Washington DC was motivated by the high percentage of these items as a component of the litter and contamination of the Anacostia River and its tributaries.

- **Complexity:** Some products will be inherently more difficult to define, administer, or implement. The “general packaging” ADF would be difficult, as an example, because of the large number of fee paying entities (e.g., retailers, restaurants, etc.), the challenge of correlating packaging to products, and differentiation that may be desired between recyclable and non-recyclable packaging or “excessive” packaging, for example.¹²⁵ In some cases, however, complexity can be greatly reduced by simplifying the fee system, but this often comes at the price of reducing the incentives for behavior change. For example, a flat unit or percentage fee could be assessed on all retail products and take-out restaurants to simplify a packaging system. Establishments could be exempt if they make specified wholesale changes to their packaging, however, where feasible (e.g., take out packaging which is controlled by restaurants but not retail packaging which is controlled by producers). Administration and re-qualification would presumably change as the packaging for any products changes.
- **Likelihood of legislation at the state, or federal level that will address the same product:** Proponents are currently attempting, or are expected to attempt in the next two years, to move forward legislation on extended product responsibility (EPR), bans, or take-back laws for several of the products considered for local fees in this report. This may affect the priority of a product as a candidate for an ADF,¹²⁶ especially if a state program is enacted that would nullify or complicate administration of a locally enacted fee.

¹²⁵ Attempts at identifying “excessive” packaging have been attempted in Asia, using percent of air space within packaging, etc. This is summarized later in the document.

¹²⁶ This may be positive or negative and should be considered on a case-by-case basis. If there is a strong likelihood of EPR legislation passing, then an ADF may not be worth exploring. However, if it is sensed that an EPR may not be successful, an ADF, or the threat of an ADF, may help achieve passage of the EPR approach. However, this would result in costs to Alameda to evaluate, enact and institute the fee system which may then need to be canceled.

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