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# ***PAY-AS-YOU-THROW / VARIABLE RATES FOR TRASH COLLECTION IN KAUAI, HI***



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# 1. Executive Summary

Pay As You Throw (PAYT) programs (also known as volume-based, or variable rate programs) charge residents for collection of their solid waste in relation to the volume of trash they set out for collection. This kind of “fee-for-service” option provides incentives for reducing trash and increasing recycling and related “diversion” behaviors that are not present in the traditional “unlimited collection for a fixed fee” trash collection model.

Research and hundreds of case studies show that PAYT (or, more recently named, “Recycling & Save”) programs are the single most effective, and most cost-effective method of increasing waste diversion. Under PAYT programs, participation in recycling programs increases dramatically, and tons to landfill decrease on the order of 15-20% from the residential sector, extending the life of the landfill. PAYT does not limit options for collection, but it allows customers that put out less trash to save money and get control over their municipal solid waste (MSW) bill.

The recommended PAYT system for County of Kaua'i includes a three-stage transition with the potential for a 3-can system – curbside trash, recycling, and green waste collection.

- Phase 1 (Years 1 and 2): A transitional variable rate system in conjunction with the final automated refuse collection transition for all residential accounts. This phase would include 64 and 96 gallon cart options for MSW.
- Phase 2 (Years 3 and 4): Once the Materials Recovery Facility (MRF) is constructed, the County will add curbside recycling and green waste collection services to the system. This phase includes 32, 64, and 96 gallon cart options for MSW. Under the fully implemented 3-cart system in Phase 2, residents will choose a trash cart size from 32, 64, or 96 gallons, and receive a 96-gallon cart for recyclables, and receive a 96-gallon cart for green waste.
- Phase 3 (Years 5 through 8): The County will assess the performance of the PAYT program, continue outreach and education to residents to encourage diversion and source reduction, and adjust the PAYT fees to move towards program self sufficiency.

A more detailed recommendation and implementation plan for this program is provided within this document.

## 2. Introduction

Under the EPA Region 9 Solid Waste Management Assistance Grant Solicitation #EPA-R9-WST7-09-002, *Econservation Institute (EI)*<sup>1</sup> is funded to provide no cost consulting to communities in EPA Region 9. The consulting assistance is designed to encourage communities to adopt variable rate pricing or Pay-As-You-Throw (PAYT) for solid waste. Under the awarded grant only a few communities were selected for in-depth PAYT consultation and Kauai, HI was one of the communities.

### *Why Consider Pay-as-you-throw?*

Pay-As-You-Throw provides a different way to bill for garbage service. Instead of paying a fixed bill for unlimited collection, these systems require households to pay for services based on how much trash they set out for collection – the less set out, the lower the bill, the more set-out, the higher the bill. Individual household rates are based on the size of trash can subscribed to, typically increasing by 32-gallon units. One of the benefits of PAYT is that the program works well under an automated collection system similar to the one Kaua'i is transitioning to, and it can be implemented with a minimal impact on costs and workload to the County.

Paying by volume (like you pay for electricity, water, groceries, etc.) provides households with an incentive to recycle more, reduce disposal, and creates a more equitable way for households to pay for trash services. Under PAYT each household is only responsible for paying for what they dispose of. Low generators, good recyclers, small households, and others no longer need to help cover the costs of disposal for households that throw away large amounts of trash on a regular basis.



It is critical for communities to have realistic expectations about what will happen if they implement PAYT. PAYT is a commonly adopted program and is in place in over 7,100 communities in the United States<sup>2</sup>. Data from more than 1,000 communities around the country was used to identify the impacts of PAYT above and beyond any other recycling or yard waste program differences, demographics, and other factors. The research showed the following impacts on residential solid waste:<sup>3</sup>

- Decreases residential disposal by about 17% - *this is a critical impact considering the remaining lifetime of Kaua'i's existing landfill.*

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<sup>1</sup> Econservation Institute is a 501c3 non-profit based in Superior Colorado dedicated to sharing information and real world data on sustainable issues including recycling. EI has a small staff of economists, analysts, and researchers dedicated to its mission.

<sup>2</sup> Skumatz, Freeman. PAYT in the United States. 2006 Update and Analysis. US EPA. Unpublished research recently conducted by the EI indicate that the number of communities with PAYT has increases significantly since 2007.

<sup>3</sup> Skumatz, Lisa A., Ph.D., "Beyond case studies: Quantitative effects of recycling and variable rates programs", *Resource Recycling* 9/1996; and Skumatz, Lisa A., Ph.D., "Achieving 50% diversion: Program elements, analysis, and policy implications", *Resource Recycling*, 8/2000.

- PAYT reduces trash disposal by impacting three behaviors, recycling, yard waste diversion, and source reduction:
  - Increases in *recycling* decrease residential trash disposal by about 6% (usually representing about a 50% increase in residential recycling).
  - Increases in *yard waste* diversion further decrease trash disposal by about 5%.
  - Aggressive *source reduction* efforts incentivized by variable rates result in an additional decrease in trash disposal of about 6%. This includes reuse, (including donations to thrift stores), waste prevention (smaller packaging), buying in bulk, etc.

Years of research indicates that adding a PAYT program is the single most effective change a community can make to increase recycling. According to published research, PAYT increases recycling more than adding new materials to a recycling program, changing collection frequency, increased outreach / education, or many other potential program design or collection changes.

### 3. PAYT System Design

The basics of the new PAYT system for the Kauai County are displayed in figure 1.1.

**Figure 1: PAYT System Design**

PAYT Rate Incentives	Description
What	<p>The County will undertake a three stage transition to a variable rate program with a 3-cart system that includes curbside trash, recycling, and green waste collection.</p> <ul style="list-style-type: none"> <li>● Phase 1 (Years 1 and 2): The County will implement a PAYT system in conjunction with the final automated collection transition for all residential accounts which includes 64 and 96 gallon cart options for MSW.</li> <li>● Phase 2 (Years 3 and 4): Once the Materials Recovery Facility (MRF) is constructed, the County will add curbside recycling and green waste collection services to the system. This phase includes 32, 64, and 96 gallon cart options for MSW. Under the 3-cart system residents will be given a choice of cart size from 32, 64, or 96 gallons for trash, a 96 gallon container for recyclables and a 96 gallon container for green waste.</li> <li>● Phase 3 (Years 5 through 8): The county will transition toward a self-sufficient program in which the residential fees cover more of the costs of the trash, recycling, and organics systems. The County will also assess the program and make any necessary adjustments as well as continue outreach and education efforts to encourage diversion and source reduction.</li> </ul>
Why	<ul style="list-style-type: none"> <li>■ PAYT has been statistically proven to be the single most effective program a community can implement to reduce trash disposal. This is a critical impact considering Kauai’s landfill lifetime and space considerations.</li> <li>■ PAYT is supported by the US EPA as a recommended strategy for increasing community environmental and economic sustainability as well as equity in solid waste rates.</li> <li>■ The program will modify rates so residents pay different rates for different amounts of trash service, providing a recycling and source reduction incentive.               <ul style="list-style-type: none"> <li>● Phase 1 will rely on recycling and green waste drop-off programs, backyard composting, and source reduction to reduce the waste stream going to the landfill,</li> <li>● Phase 2 will fully incorporate curbside recycling and green waste collection for increased diversion,</li> <li>● Phase 3 will transition toward program self-sufficiency.</li> </ul> </li> </ul>

PAYT Rate Incentives	Description
Who	Single family residents up to 4 units serviced by County solid waste staff and paying the RRCA fee.
Facilities issues	The landfill is nearing the end of its life and there is no MRF on the island. Phase 2 of the recommended plan cannot be implemented until there is adequate capacity to sort and process the comingled recyclables and process the organics.
Equipment	<ul style="list-style-type: none"> <li>■ The County is half way through the transition to automated refuse collection with 96-gallon carts. Phase 1 of the PAYT program will require the ordering, purchase, and delivery of carts to complete the transition (combination of 64-gallon and 96-gallon)</li> <li>■ Phase 2 will require the ordering, purchase, and delivery of some 32 gallon trash carts, switching a portion of the current 96-gallon trash carts into recycling carts (using labels and stickers), and the ordering, purchase, and delivery of additional recycling carts and green waste collection carts (96-gallon). Phase 2 will also require the purchase of collection trucks for recycling and green waste service provided every other week.</li> <li>■ No new carts or equipment are needed for Phase 3.</li> </ul>
Staff Effort / Admin	<ul style="list-style-type: none"> <li>■ Adequate staff to assist in the outreach / education and planning of the proposed program will be integral to a smooth transition to the PAYT program</li> <li>■ Staff effort in Phase 1 includes: <ul style="list-style-type: none"> <li>● Developing and carrying out an aggressive outreach and education program,</li> <li>● Drafting an amendment to the current Solid Waste Management ordinance,</li> <li>● Surveying customers to determine number and size of containers Ordering and delivering carts,</li> <li>● Administrative and programming time to update the county billing system,</li> <li>● Monitoring the program for impacts and any needed adjustments.</li> </ul> </li> <li>■ Phase 2 includes <ul style="list-style-type: none"> <li>● A second ordinance amendment readjusting the rates</li> <li>● Additional outreach and education,</li> <li>● Administrative and programming time to update the county billing system,</li> <li>● Surveying customers to determine number and size of containers. Ordering and delivering carts.</li> </ul> </li> <li>■ Phase 3 will require amending the ordinance a final time, additional outreach and education, administrative and programming time to update the county billing system.</li> </ul>
Cost	<p>PAYT is a user paid program; the costs are built into the residential trash bills. However, the County will incur implementation costs associated with PAYT system changes in Phase 1 and Phase 2. The most significant implementation costs for PAYT will include updating the billing system, increased outreach / education efforts, monitoring of the program, and cart change-outs<sup>4</sup>.</p> <p>The switch to automated collection will require delivery of new trash carts. In Phase 2, budget to cover delivery of recycling and green waste carts, and additional education / outreach is needed. There will be costs associated with implementation of PAYT and recycling/green waste system changes including the delivery of both green waste and recycling carts, that will need to be recovered under the new rates.<sup>5</sup></p>

### Public Acceptance

The technical aspects of variable rates or PAYT are rarely the barrier to implementation. Although studies have shown that after implementation the vast majority of residents support

<sup>4</sup> The County is switching to automated collection in a cart based system and will incur costs for new trucks and carts with or without a PAYT program. The cost estimate is for the switch to PAYT from current manual collection practices.

<sup>5</sup> The County (Harder) estimates these costs, excluding cart and truck purchase, will run between \$500,000 and \$600,000.

PAYT<sup>6</sup>, perceived concerns about rate changes, changes to existing trash systems, illegal dumping (see Section 6) , and other barriers can make ‘selling’ the program challenging.

The common areas of concern prior to implementation include:

- How it will impact rates
- Household sizes (particularly large households / generators)
- Government overextending itself
- Illegal dumping

More information regarding some of the misperceptions about PAYT are included in Section 7 of this document.

### ***Marketing the Program***

To maximize the effectiveness of the program, we believe a renaming of the program may be useful. The term “Pay as you throw (PAYT)” may not resonate well with residents or decision-makers. A locally tailored name that avoids the word “pay” may lead to a more successful implementation (we are using “Recycle & Save” in some locations) – and tailoring it further to provide a Kauai flavor may enhance the program’s success.



## **4. Background Information and Current Situation**

Based on interviews and a review of existing data from FY 2012, the following background information was used for PAYT planning. Tonnages below are annual figures:

*Residential Population: 65,000*

*Households Serviced: 18,500*

*Tons MSW to Landfill: 75,000 (roughly a 50/50 split between residential and commercial sources)*

*Tons recycled through Kaua‘i Recycles (recycling drop-off centers): 2,000 (doesn’t include HI5 redemption)*

*Tons recycled through Redemption Centers (deposit beverage containers): 2,700*

*Tons recycled from commercial generators: 4,000*

*Ton scrap metal recycled (Puhi Metals): 3,000*

*Tons of greenwaste diverted (composted): 24,000 (both residential and commercial)*

*Total diversion rate: Approximately 40%*

### ***Trash Collection:***

- County staff operates and manages the solid waste system including the transfer stations, drop-offs, and ownership of the landfill

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<sup>6</sup> 85-90% of residents prefer PAYT to flat trash rates *after* implementation Skumatz and Freeman 2006

- Curbside collection is provided by county staff to benefitted properties in serviceable areas of the county
- Many of the large multi-family and commercial facilities are serviced by the private sector through an open market system
- The County is in the process of transitioning to automated collection. Approximately 11,000 of the residential accounts have automated collection of 96-gallon carts supplied by the County. The other ~8,000 customers have manual trash collection in containers (bags or cans) supplied by the residents.

#### *Recycling:*

- A 12 month curbside pilot for 1,300 homes has been completed, however due to a lack of cost effective sorting and processing of a mixed stream of recyclables, curbside collection is not available to residential customers
- There are 8 residential drop-off sites and 8 Certified Redemption Centers located in the County that accept traditional recyclables, as well as several programs for 'special' materials such as HHWs, electronics, appliances and scrap metals, shoes, batteries, propane tanks, etc.
- The residential drop-off program for traditional recyclables diverted approximately 2,000 tons The HI-5 (beverage container redemption) program diverted an additional 2,700 tons. The statewide recycling rate for HI5 aluminum, plastic, and glass beverage containers is 77%.
- There is a County ordinance restricting the disposal of commercially generated cardboard, green waste, metals, tires, and monitors from the landfill and refuse transfer stations. The County is actively monitoring disposal and enforcing the ordinance.

#### *Organics:*

- The County does not offer curbside organics collection
- Organics can be dropped off at the four County transfer stations as well as at the landfill. This material is primarily generated by residents, though a small amount (>10%) is brought in by small commercial generators (landscapers)
- Greenwaste collected and/or shredded from County sites was approx 19,000 Food scraps are not allowed in the organics stream
- The County supports backyard composting by providing free Earth Machine bins to residents
- Greenwaste diverted by the commercial sector is estimated at 5,000 tons

#### *Fees:*

- In September 2010 the County introduced Ordinance 905 to add a Residential Refuse Collection Assessment (RRCA) to the property tax and switch a portion of the solid waste cost burden from the general fund to a user fee / tax
- The ordinance went into effect July 1, 2011
- Customers are charged bi-annually for solid waste services as a line item on their property taxes
- The fee has two parts: a \$6 base assessment charged to all eligible households and a \$6 collection assessment charged to those with subscribed collection services
- There is a \$12 assessment for each additional increment of 96 gallon collection service per dwelling
- Approximately 5% of the eligible households do not subscribe to collection services
- The \$12 fee does not cover the true costs of collection and solid waste services

- A full cost accounting of the solid waste collection system has been estimated and is presented in Section 9 of this document.

*Contracts:*

The County has contracts for hauling and processing residential recyclables and green waste materials dropped off at recycling drop bins and transfer stations. When curbside services are in effect, contract prices for drop off programs will decrease due to a reduction in need and service.

*County Facilities:*

- The County owns the one landfill located on the island located in Kekaha. The landfill is nearing the end of its life (perhaps 6 – 9 years left) and the County is in the process of siting a new landfill.
- Tip fees at the landfill are \$90/ton for all items except asbestos containing waste, which costs \$175/ton to dispose.
- There are no Materials Recovery Facilities (MRFs) located on Kauai.

*Potential Issues:*

- The program will be implemented in three phases over multiple years to coordinate full implementation with the commissioning of a cost-effective option for a MRF
- Over half of the households have automated refuse collection with a 96-gallon cart and a portion of those existing carts must be switched out with 64-gallon carts during Phase 1.
- New carts (MSW, recycling, and green waste) must be ordered, purchased, stored, and delivered
- The \$12 RRCA does not cover the true costs of collection, transfer, and disposal or processing. Rates may need to be adjusted for customers, and an estimate of the full cost of the solid waste collection system is being developed.
- Need to amend the related ordinance for each phase of the PAYT system
- PAYT will be new to the vast majority of residents and may require significant public outreach to gain support
- PAYT will be new to the majority of County staff and elected officials and may require significant education and training

## 5. PAYT System Design

A description of what the future pay-as-you-throw systems might look like in Kauai is included below:

*Implementation:*

- The program will be implemented in a three phases:
- Phase 1 (0 - 24 months): During the final phase of automation the County will transition the current RRCA which charges one subscription fee of \$6 for all households with one 96-gallon cart (under automated collection routes) or up to three 32-gallon can or bag equivalents (under manual collection routes) to a variable rate. Like the current system, the variable rate will also be a recurring charge on the property tax bill, and will be based on the cart size the customer subscribes to. Customers with automated collection will be given an option of a 64-gallon trash cart or a 96-gallon trash cart. The subscription rates will be designed to encourage residents to subscribe to the 64-gallon trash carts. By the

end of Phase 1 all households eligible for automated service will have either a 64 or 96 gallon trash cart collected on an automated route<sup>7</sup>.

- Phase 2 (24 – 48 months depending on construction of a MRF): Under Phase 2 the County will add curbside recycling and green waste collection for all eligible households and provide an option for 32-gallon refuse cart subscription. The rates charged to households under the PAYT program are based on the size of trash cart, not the size of recycling cart. All households will be provided with a 96-gallon recycling cart and a 96-gallon green waste cart serviced every other week. A portion of the cost of providing recycling and green waste service will be included in the base assessment and a portion will be included in the subscription assessment. As is currently the case, households may continue to opt out of waste, recycling, and green waste collection and use the transfer stations and recycling programs to manage their waste.
- Phase 3 (48 through 72 months): The current Residential Refuse Collection Assessment does not cover the full costs of services. Under the final implementation phase the County will increase the PAYT fee to cover a greater portion of the costs of solid waste and diversion services and move towards program self sufficiency. Additionally, the County will assess the performance of the PAYT program implemented in phases 1 and 2, make program adjustments as necessary, continue to trade out cart sizes as needed to help residents ‘right size’ their trash services, and conduct residential outreach and education to encourage diversion and source reduction.

#### *New Carts:*

Cart ordering, delivery, and change out will be one of the most significant challenges the County will face in the design and implementation of the program. Econservation Institute staff can provide guidance to the County in the estimation of the distribution cart sizes and counts for both phases as well as estimating the costs of delivery and change out time. However, additional data is needed to develop reasonable estimates. Econservation can also help guide the County on how to gather the needed baseline data.



- Under Phase 1, the County will order both 64 and 96 gallon carts. Prior to ordering the carts, the County will conduct a brief web or mail survey asking customers to report their choice of cart size. Based on that initial information a revised RRCA rate adjustment will be developed, and a formal notice of rates will be mailed out. EI recommends making the 64-gallon the default size for all new customers. For existing customers, the 96-gallon carts will be replaced with new 64-gallon carts if requested. Those same 96-gallon carts will be re-used for new automated customers who do not want 64-gallon carts.
- Under Phase 2 the County will add the 32-gallon trash option along with curbside recycling. EI recommends using the same carts for all services (trash, recycling, and green waste) with stickers on the front of the cart, and on the lid and inside the lid to distinguish the material stream (see section 8 for examples). By using the same carts for all streams the County will be able to keep a lower reserve inventory of carts, use the

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<sup>7</sup> The few homes that cannot receive fully automated service will either remain on manual collection or be collected with semi-automated trucks and the County will have a specific route to collect these homes. In manual collection, these homes will be on a subscription based service where they sign up for similar capacity solid waste service but they provide their own cans and materials are collected manually.

same parts for all cart repairs, and be able to transition 96-gallon trash carts to recycling carts when the 32-gallon trash carts are offered.

- Under Phase 3 no new carts will be added. The County will continue to offer cart exchanges to ensure that all residents are subscribed to the correct trash, recycling, and green waste service levels.

#### *Cart Exchanges:*

The most common approach to cart exchanges is one free switch within the first 3-6 months, and to impose a service fee of approximately \$15-20 per switch thereafter. This assures households get “on the right size”, and allowing it in a limited time helps figure out which sizes are needed and allows the community to move carts around first, and re-order second. The cart switch would be billed separate from the property tax bill.

It is important to note that a cost for a switch later on can create a barrier to households “downsizing” their carts, sending a mixed signal to generators. Under PAYT the goal is to have households maximize their recycling / diversion and minimize their trash disposal. We recommend the following: a free switch in the first 3-6 months, free downsizing exchanges (you shouldn’t need a maximum per year, but could limit to one), and a fee to exchange up in size (a bit higher than cost of service to help subsidize the cost of downsizes).

#### *Rates and Billing:*

Setting rates to incentivize customer behaviors while attempting to cover costs and maintaining revenues is one of the most important aspects of a PAYT program. The costs of collection include the costs to put the trucks on the road (a high cost element), the cost of operating the transfer stations, and the cost of disposal of the waste. They also include the costs of managing both the recycling and greenwaste diversion programs. Rates for higher levels of trash service would incorporate the incremental cost of landfilling additional trash. The rates would also be designed to embed the cost of the planned recycling and green waste programs

Under PAYT the challenge is to set the base fee and the incremental cost of additional trash to balance two competing considerations. While incremental amounts of trash may not cost the County significantly more to collect or dispose, the fee increase must vary enough between incremental service levels to provide a meaningful economic signal to the rate payer to reduce trash. The base rate will vary depending on the particular costs the County wishes to spread across the entire residential base, but the goal (recommended by research in the literature) is to provide **total rate levels** (base plus cart fee) to customers that show an incremental price increase of at least 80% for each larger sized cart to incentivize diversion. This value, 80%<sup>8</sup>, is based on statistical studies that balance two objectives: **1)** providing a strong waste diversion incentive; and **2)** recognizing the fact that a major cost in providing trash or diversion services is getting the truck to the door –This differential provides for pricing incentives, but also helps decrease the risk of not covering fixed costs of the operations.

In determining the actual PAYT rates the Division should include five key inputs:

1. The current cost of providing service,
2. The net changes in costs due to the implementation of PAYT (e.g. containers, changes in trash and recycled tonnage, etc.)

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<sup>8</sup>The studies also note that reflecting price differentials less than about 50% for double the service are considerably less effective than higher price incentive differentials. Skumatz, Lisa A., “PAYT rate...”, 199X.

3. The net changes in costs associated with any other programs / services being implemented concurrently;
4. The number and size of trash containers needed by households (“subscription levels”); and
5. The rate design selected and the incentives embedded in that design (see next section).

**Designing the Rate Structure:**

Kaua’i residents are currently charged \$12 per household per month to cover refuse collection service. Recent analysis indicates that these fees fall short of covering full cost of service.<sup>9</sup>

In discussion with Solid Waste staff, we recommend that Kaua’i move toward cost of service, but do so on a phased schedule. The initial increases, timed with the introduction of PAYT in Phase 1, should not be a major increase because no new services are being introduced. It might be perceived as a rate increase fully due to PAYT, which could undermine the longer-term goal of getting control of the costs of providing of waste services.

Finally, the size of carts selected by residents also directly affects the rate computations. If there are no new programs, the number of households moving to smaller carts will be less than under the case in which new and convenient diversion options are introduced at the same time. And if most customers select the smaller sized cart, the rate for higher service levels (e.g. 96 gallons) will end up higher than if most customers continued to use larger cans (e.g. 96).

For Kaua’i, we assume the rates will consist of two elements – a “base rate” and an incremental cost for increases in trash volumes. Under the new system:

- Billing would continue to be a two part fee with a base assessment billed to all households and a collection fee paid only by those receiving service like the with the current RRCA
- The two part fee will include:
  - *Base assessment.* It will cover a portion of the costs of the operations of the transfer stations, and a portion of the costs of other residential diversion programs and services provided by the County. The base assessment would be the same for all households.
  - *Subscription assessment.* This is the variable portion of the rate. It will include a portion of the costs of collection and the management of the material streams, and it would be based on the size of the refuse cart subscribed to.

**Example of Variable Rates for Kaua’i:**

The following is an example of a base fee and a 75% differential between subscription levels:

**Current RRCA Rate**

Base	\$6	
96 gal cart	\$6	\$12/month/household

**Phase 1: Completion of automation and the introduction of a 64 gallon cart option for refuse.**

Assume for these computations that without new programs (curbside recycling), about 30% of households would select 64 gallon carts, and 65% would select a 96 gallon cart. Assuming we

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<sup>9</sup> Tables of cost computations (Section 9) provided by Kaua’i SW Staff show per-household per month costs for landfill, transfer, collection, recycling and green waste, and diversion programs total about \$55/household / month.

want to 1) cover incremental costs of PAYT, and 2) start to recover **some** of the costs of service not being covered currently (an average rate of about \$17/month).

Base	\$6	
64 gal cart	\$6	\$12/month
96 gal cart	\$15	\$21/month

**Phase 2: Completion of the MRF, implementation of curbside recycling & greenwaste and introduction of a 32 gallon cart option for refuse.**

We would expect a significant shift downward in can subscriptions. For computation examples, we assume 30% of households select a 32-gallon container, 30% would select a 64 gallon can, and the remaining 35% would select 96 gallon trash cans.<sup>10</sup> (the average rate collected increases a bit more to about \$23/hh/month).

Base	\$6	
32 gal cart	\$6	\$12/month
64 gal cart	\$15	\$21/month
96 gal cart	\$30	\$36/month

**Phase 3: Two to three years following the initiation of curbside recycling and greenwaste.**

Here we would expect to see limited additional shift in subscriptions (perhaps shifting to 35% on 32 gallons, 40% on 64 gallons, and the remaining 20% on 96 gallon), but we expect to increase the share of cost of service that is covered. (on average we would recover approximately \$27/hh/month).

Base	\$9	
32 gal cart	\$7	\$16/month
64 gal cart	\$19	\$28/month
96 gal cart	\$40	\$49/month

**Figure 2: Rate Structure Examples with a 75% Differential Between Service Levels**

	Current	Phase 1	Phase 2	Phase 3
Base Fee	\$6	\$6	\$6	\$9
32 gal (can) total			(\$6) \$12	(\$7) \$16
64 gal (can) total		(\$6) \$12	(\$15) \$21	(\$19) \$28
96 gal (can) total	(\$6) \$12	(\$15) \$21	(\$30) \$36	(\$40) \$49
<b>Average paid</b>	<b>\$11.70</b>	<b>\$17.55</b>	<b>\$22.80</b>	<b>\$27.05</b>
Subscription assumptions (32 gal/64 gal/96 gal) <sup>11</sup>	0/0/95%	0/30/65%	30/30/35%	35/40/20%

*Curbside Recycling and Green Waste:*

- Waste diversion options remain unchanged in Phase 1 of the program implementation. Under Phase 2 recycling and green waste will be collected at curbside in 96-gallon carts every-other-week<sup>12</sup>.

<sup>10</sup> This assumes there are no separate fees for recycling or yard waste service. Subscriptions would be greatly altered if there were separate and optional fees for curbside recycling.

<sup>11</sup> Note we are assuming that 5% of the households will opt not to subscribe to the service.

<sup>12</sup> EI recommends every-other-week recyclables collection in 96-gallon carts because 1) it helps to reduce to collection costs of recyclables and 96-gallons typically provide enough space for household recyclables under every-other-week collection schemes and 2) it will allow to County to add every-other-week green waste collection on alternating weeks for minimal additional costs.

*Facilities:*

- Construction of a MRF is necessary to implement Curbside Recycling in Phase 2.

*Outreach and Education:*

- The concept of PAYT will be new to the majority of Kauai residents and will require public meetings, outreach, and education. EI recommends using free media (websites, newsletters, press releases) and public meetings to announce and advertise the program.
- Additionally, the County should consider budgeting for ongoing outreach and education going into the future. The outreach budget should include a new position to implement and manage the program.

- **Figure 4: Outline of PAYT Implementation**

**Phase 1**

Implementation Steps <i>0 - 24 months</i>	<ul style="list-style-type: none"><li>• Initiate public education and outreach</li><li>• Conduct set out survey to estimate cart size distribution</li><li>• Order trucks</li><li>• Refine rate analysis and cart estimates</li><li>• Establish PAYT ordinance</li><li>• Revise billing system</li><li>• Continue education and outreach</li><li>• Order carts</li><li>• Switch out 64 / 96 gallon carts</li><li>• Fully automate refuse collection and begin PAYT</li><li>• Monitor / refine / track</li></ul>
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**Phase 2**

Implementation Steps <i>24 -48 months</i>	<ul style="list-style-type: none"><li>• Initiate education and outreach on Phase 2</li><li>• Re-survey customers on cart size</li><li>• Order trucks</li><li>• Revise ordinance</li><li>• Adjust billing system</li><li>• Order carts</li><li>• Review, revise routing for new programs</li><li>• MRF in operation</li><li>• Switch out 32 / 64 / 96 gallon carts and deliver diversion carts</li><li>• Implement curbside recycling &amp; greenwaste</li><li>• Monitor / refine / track</li></ul>
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**Phase 3**

Implementation Steps <i>48 -72 months</i>	<ul style="list-style-type: none"><li>• Assess Program performance</li><li>• Continue education and outreach</li><li>• Revise ordinance and adjust rates to maximize diversion</li><li>• Monitor / refine / track</li></ul>
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## 6. PAYT and Illegal Dumping

Invariably, one of the first questions municipalities ask about PAYT is its impact on the incidence of increased illegal dumping including materials dumped in open spaces or parks and residential MSW materials illegally dumped in commercial trash containers.

Overall, PAYT does *not* lead to increased illegal dumping in any of these places. A series of surveys and interviews with hundreds of communities conducted over the past two decades by EI staff have shown that the vast majority of communities that adopt PAYT do not report increased incidences of illegal dumping. Communities report that illegal dumping is a “perceived” barrier and not an actual barrier. Although many communities report that they thought illegal dumping would increase with PAYT only a small portion actually do see increases. Virtually all of the communities that report an increase of illegal dumping after implementing PAYT also report that illegal dumping returns to pre-PAYT levels within one to three months. The bottom line is that if your community had illegal dumping before implementing PAYT, PAYT will not solve the issue. On the other side, if your community does not have issues with illegal dumping adopting a PAYT program will not cause illegal dumping to start. Illegal dumping happens with or without the presence of a PAYT program.

**Overall, PAYT does *not* lead to increased illegal dumping.**

### 2010 National Community Survey

Communities with PAYT programs in place were asked to rank illegal dumping before and after implementing PAYT on an A to F scale (where an A means that there is no incidence of illegal dumping and F means it is a huge problem). After implementation, none of the communities with PAYT reported that illegal dumping was a *huge problem* and those that reported it was a D decreased from 21% to 14% after implementing PAYT.

#### Results of 2010 Community Survey

Ranking	Before PAYT	After PAYT
A- No problem at all	0%	0%
B- Very slight issue	21%	43%
C- Medium problem	7%	7%
<b>D- Large issue</b>	<b>21%</b>	<b>14%</b>
<b>F- Huge Problem</b>	<b>7%</b>	<b>0%</b>
Don't know / wasn't there	43%	28%

### PAYT and Trash Carts

An issue closely related to illegal dumping is the perceived concern that residents will put their trash in their neighbors cans as a way to save money. An informal survey of communities that had recently adopted PAYT resulted in the following findings:

- 1) **Complaints are few and far between.** One city of 20,000 residents reported that over the last 12 months they have had one household complain about people putting trash in

their cart illegally. Another smaller community (5K households) reported that they had a few complaints over the last year but they were all from the same two households. The other communities interviewed reported similar findings.

- 2) **It is an easy fix.** To prevent the potential issue from occurring residents should be encouraged to keep their trash carts out of the street / off the curb and only wheel them out to the curb on the morning of their scheduled collection day.
- 3) **If it is happening, it is unreported and not an issue.** One regional hauler reported that they thought that neighbors could be putting their trash in each other's cart but that they rarely received any complaints about it and that it was not an issue.

## 7. Summary of Public Issues and Concerns

### Pay-As-You-Throw and Variable Rates

*Does Pay As You Throw (PAYT) cost more for the County and households?*

- ⇒ **Solid Waste costs:** Two large statewide surveys (WI, IA) showed that PAYT led to no increase in costs (or town workloads) in 2/3 of communities implementing PAYT.  
**Hauling costs:** PAYT itself can be implemented in ways that lead to virtually no cost increases, as the changes in services (automation, recycling, and greenwaste) have already been part of the long range plan with or without PAYT.  
**Household costs:** PAYT works by charging residents for the volume of trash they dispose of and encouraging recycling. Under a PAYT program some households will pay more (those throwing away a lot of trash and not recycling), others will not see significant changes in their rates, and other households (avid recyclers, small households, elderly households, etc.) will pay less.

*Is making people pay for more trash unfair to large families or large generators?*

- ⇒ PAYT works under the basic environmental law principal of *polluter pays*. The premise is that the person or entity responsible for the pollution, in this case trash and its related impacts on landfills, water, air, etc., is the one responsible for paying the costs. Unlike programs where everyone pays to benefit all regardless of personal use or responsibility, polluter pays requires each person to be responsible for their own pollution. Under unlimited trash disposal, a small generator (i.e. one bag disposer) subsidizes services for a large generator (a household with 5 or 6 bags). Under PAYT, each household only pays for what they throw away. **This is a more equitable system than unlimited trash disposal.**

*Does Pay-as-you-throw (PAYT) lead to more illegal dumping?*

- ⇒ Overall, **PAYT does not lead to increased illegal dumping.** Hundreds of communities with PAYT have been asked about the impact on illegal dumping. Only about 20% say there is an issue, and that it lasts about 3 months<sup>13</sup>. Research on illegally dumped waste in PAYT communities shows the majority is not household in origin (and thus, not due to PAYT) and the most common household items dumped are bulky items (appliances, sofas, etc.).

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<sup>13</sup> *Pay-As-You-Throw and Illegal Dumping*. Econservation Institute Fact Sheet 2009.  
[http://www.paytnow.org/PAYT\\_FactSheet\\_IllegalDumping.pdf](http://www.paytnow.org/PAYT_FactSheet_IllegalDumping.pdf)



## 9. Full (Operating) Cost Analysis

Kaua'i County staff developed an estimate of the full cost of the current solid waste services provided to residents. The costs were used to estimate the portion of the total costs covered by the current RRCA and what portion of the costs would be covered by the RRCA in the future. The current rates cover only a portion of the operating costs. Phase 3 rates, although as proposed would cover a larger portion of the system costs, would still not achieve program self-sufficiency. Figures 8 and 9 display the Kaua'i County estimate of the Solid Waste Division's full operating costs and Figure 10 compares the current and future RRCA rates to the costs.

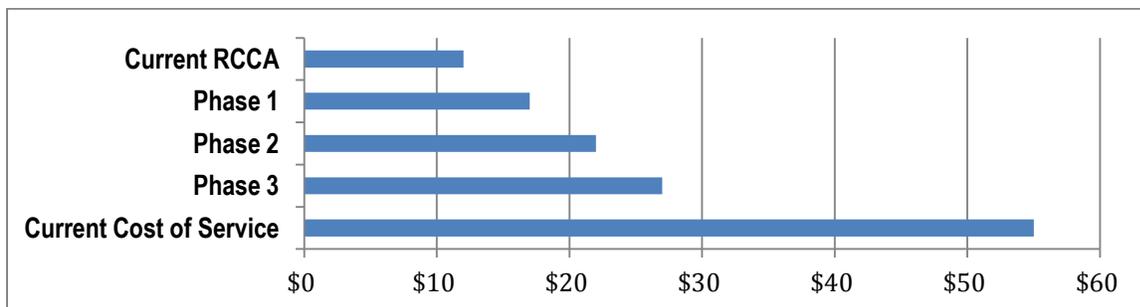
**Figure 8: Kauai Estimate of Annual Current Cost of Service (all costs shown in \$1,000's)**

	Wages	OT	Fringe	Misc	Ops	Vehicle Lease	Fuel & Maint	Admin	Indirect	Total
Admin	340	100	400	35	50			(1,825)	900	
Landfill	870	255	1,020	85	2,710			660		5,600
Transfer Sta.	615	120	660	215		280 <sup>3</sup>	185	280		2,355
Collection	1,105	210	1,180	135		460 <sup>3</sup>	130	425		3,645
Recycling	140		125	10	660			130		1,065
Green Waste				50	1,200		25	165		1,440
Other Diversion	40		35	45	1,115			165		1,400
<b>Total</b>	<b>3,110</b>	<b>685</b>	<b>3,420</b>	<b>575</b>	<b>5,735</b>	<b>740</b>	<b>340</b>	<b>0</b>	<b>900</b>	<b>15,505</b>

**Figure 9: Kauai Estimate of Annual Current Cost of Service per Household<sup>14</sup>**

	Cost per HH per Month
Landfill <sup>15</sup>	\$11.35
Transfer	\$10.60
Collection	\$16.40
Recycling and Greenwaste	\$11.30
Diversion Programs	\$6.30
Total	\$55.95
<i>Current rates for collection</i>	<i>\$12.00</i>

**Figure10: Comparison of Current and Potential RRCA Rates to Cost of Service**



<sup>14</sup> Based on 18,500 households

<sup>15</sup> Based on 45% - 55% split in landfill costs between residential & commercial