

# KING COUNTY FOOD SCRAPS DIVERSION CART TAG STUDY

Whitepaper—December 2017



## STUDY OVERVIEW

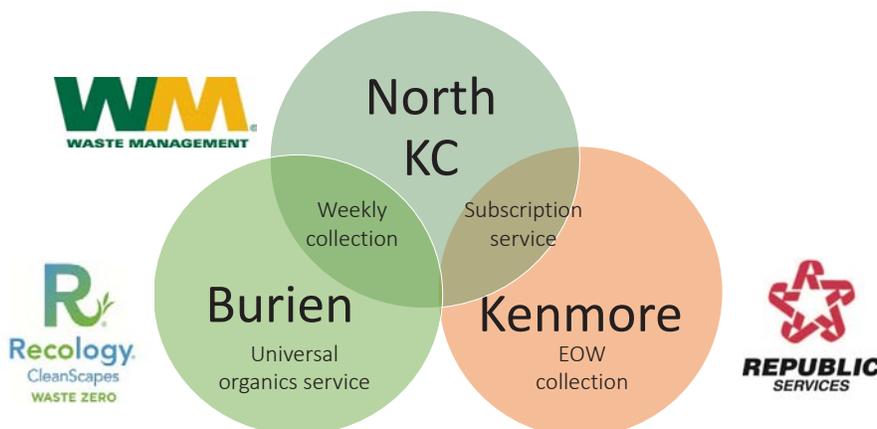
A recent study found that educational cart tags placed on residential garbage carts successfully **increased both household participation and diversion rates for food scraps composting by 20 percent.**

This whitepaper provides an overview of the study, description of evaluation methods, key findings, and recommendations for future food scraps education and outreach campaigns.

Waste Management, in collaboration with the King County Solid Waste Division, other haulers, C+C, and Cascadia Consulting Group, conducted the Food Scraps Diversion Cart Tag Study to assess whether and how educational cart tags applied to residential curbside garbage carts would affect resident behavior. The cart tags reminded residents to compost food scraps and food-soiled paper. The study, which took place between December 2015 and January 2017, was designed to address two central questions:

1. Can cart tags prompts encourage households that are not currently diverting food scraps to start diverting food scraps?
2. Can cart tag prompts increase diversion among households already participating?

**Results from audits of residential garbage and organics carts before and after the placement of educational cart tags indicate that the answer to both study questions is yes.** The study took place on nine residential organics routes in three study areas. Routes included in the study all represented different collection service arrangements, illustrated below, to identify if service arrangements also had an impact on the effect of cart tagging. Routes in Waste Management's service area in unincorporated North King County selected for the study included three in the Redmond Ridge, Sammamish, and Woodinville areas.



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Households on study routes received cart tags either quarterly or once every six months, and only households already subscribed to organics collection service and with either a garbage or organics cart set out on the day tagging occurred received tags.

Over 90 percent of all organics-subscribing households in the study area received at least one tag (nearly 7,000 households) during the project period. Behavior change as a result of cart tagging was evaluated through periodic waste audits of randomly selected garbage and organics carts set out by households on study.

## EVALUATION METHODS

Impacts of the cart tagging were evaluated using waste audits. A team from Cascadia Consulting Group collected the entire contents of garbage and organics placed at the curb from a set of randomly selected households in the study area and sorted all collected material into five categories: food; compostable paper and packaging; non-compostable paper and packaging; yard debris, and other material. Audits took place three times over the entire study:

1. Prior to the start of cart tag placement (baseline).
2. Halfway through the one-year cycle of cart tagging (midpoint).
3. At the end of the one-year cycle of cart tagging (final).

The team collected samples from a minimum of 50 households on each route in the study during each of the three audit periods. Samples were only collected from households with both garbage and organics carts at the curb on the day of the audit. Overall, sampled households represented 7 percent of households with organics service in the study area.



The field crew sorts samples of residential garbage and organics.

Cart tags contained messaging that thanked residents for diverting food scraps and food-soiled paper. The back (right) included reminders for what type of material is accepted for composting.

THANK YOU FOR PUTTING FOOD SCRAPS AND FOOD-SOILED PAPER IN YOUR YARD WASTE BIN

COMPOSTABLE BIN

FOOD & YARD

COMPOST MORE WASTE LESS

ACCEPTED IN FOOD AND YARD WASTE BIN

NOT ACCEPTED IN FOOD AND YARD WASTE BIN

QUESTIONS?  
1-800-592-9995  
RecycleFood.com

King County  
Department of Natural Resources and Parks  
Solid Waste Division

WM  
WASTE MANAGEMENT

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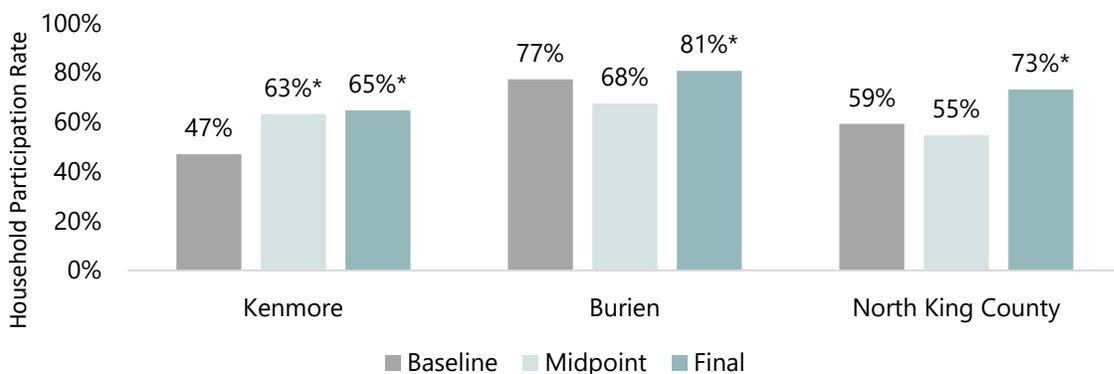
## KEY FINDINGS

Results from the audits and subsequent analysis found that cart tags had a positive impact on household participation and food capture rates. Overall, the effect of cart tagging on participation and diversion efficiency was stronger among households tagged quarterly, indicating that repetition may successfully reinforce desired behavior change, but the observed differences were not statistically significant. Our study results should be interpreted as representative of a minimum of two rounds of tagging over the course of the year. Key findings from this study are summarized below.

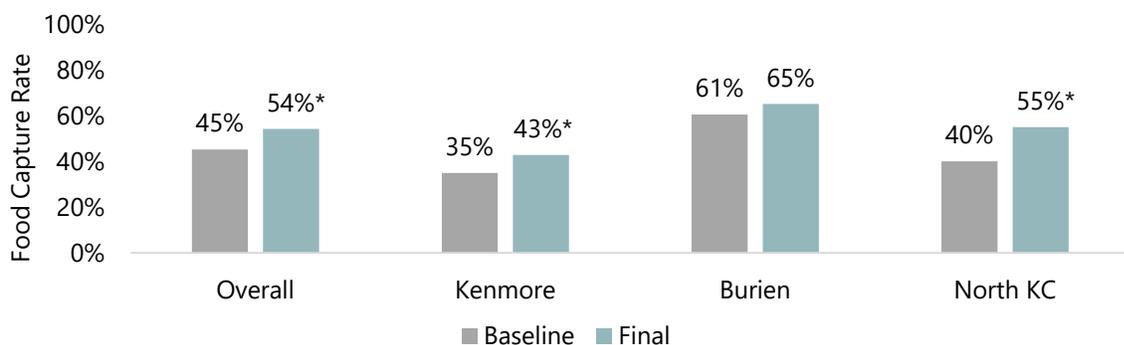
In Waste Management's North King County service area, **participation rates in food scraps diversion increased 24 percent, and food scraps capture rates increased by 37 percent** over the course of the study.

Asterisks at right indicate a statistically significant difference between baseline and final rates.

- **HOUSEHOLD PARTICIPATION.** Over the study period, the number of households participating in food scraps diversion increased by 20 percent (from 61% to 73% of households overall with organics carts set out on collection day) during the study. On routes in Waste Management's North King County service area, household participation in food scraps diversion increased by nearly 24 percent (from 59% to 73% of households).



- **FOOD CAPTURE RATES.** Overall, average household food capture rates—the percentage of all food scraps in a household's waste that is placed in the organics cart—increased by 20 percent (increased from 45% to 54%). The largest change in food capture rates over the course of the study was observed in Waste Management's North King County service area, which increased by 37% (from an average capture rate of 40% to 55%).



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- **DIVERSION EFFICIENCY.** The study revealed that food scraps diversion is largely an “all or nothing” behavior, meaning that most households participating in food scraps diversion divert a majority of the food scraps generated by their households. In unincorporated North King County, the percentage of all study households diverting more than 80 percent of food scraps generated increased from 29 to 38 percent, while the percentage of households diverting less than 20 percent of their food scraps fell from 45 to 30 percent.
- **ORGANICS CONTAMINATION RATES.** Although overall changes in contamination rates were not significant, the number of households participating in food scraps diversion with organics contamination rates greater than 5 percent increased substantially (study average contamination rate was 2.3% in final audits). This finding suggests that increasing participation in food scraps diversion may result in slightly higher levels of contamination. The tag used in this study focused primarily on encouraging participation and not on addressing contamination. It is possible that a different tag design or additional education and outreach specifically focused on reducing contamination could counteract this effect, especially for households identified as being “heavy contaminators.”

## RECOMMENDATIONS

It is important to keep in mind that the cart tag was designed before the “all or nothing” diversion efficiency pattern among participating households was observed and understood. Therefore, the message presented on the cart tag was not designed specifically to reach non-participating households and the intervention was not designed specifically to address the (perceived or real) barriers to participation among non-participating households or to speak to benefits of food scraps diversion relevant to those households. Even so, the cart tags as designed were successful in activating new households to participate in food scraps diversion programs, increasing participation rates and food capture rates by 20 percent overall during the course of the study.

Based on findings from this study, recommendations for future food scraps diversion outreach and education efforts include the following:

- **Focus on getting households to start diverting food waste rather than “doing more.”** The majority of food scraps remaining in the garbage are from households not participating at all in food scraps diversion. Future efforts should prioritize outreach and education activities aimed to activate new households over those that aim to increase diversion rates among households already participating in food scraps diversion.

## OTHER NOTABLE FINDINGS

Routes included in this study reflected different collection service arrangements. Household waste audit data collected during this study allowed us to also examine the assumptions that embedded (universal) service, which makes program participation opt-out rather than opt-in, and weekly service, which may reduce the “ick factor” associated with composting, increase household participation in organics collection programs. In Burien—the only study area where service was both embedded and weekly, we observed the highest baseline household food scraps diversion participation rates (77% at baseline, compared to 47% and 59% in the other study areas without this collection service arrangement).

We also observed that households that generate less food waste may be less likely to participate in food scraps diversion; overall, non-participating households generated two-thirds the amount of food scraps relative to participating households. The potential reasons for this disparity are numerous and may involve demographic differences and associated food consumption patterns (e.g., household size or resident age) or may indicate behavioral differences (e.g., participation in backyard composting, poultry keeping, or use of an in-sink disposal).

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- **If implementing a cart tag campaign**, provide educational messaging at least twice per year to reach households not currently diverting food scraps and increase food scraps diversion among households already participating. Additional audience testing should be conducted to tailor the message and tag design, but keep the cart tags focused on:
  - Placing food in the organics cart.
  - Keeping contaminants out of the organics cart.
- **Keep the message about contamination reduction separate from the message about participation**, and consider which audience you are trying to reach (e.g., participating or non-participating households) when prioritizing messaging.
- **Carefully consider the language demographics at the route level** to ensure you are making your best efforts to communicate with households with limited English proficiency or who do not speak English at home.

Cart tagging can fit as part of an integrated behavior change campaign to promote diversion as a social norm and overcome barriers to participation in food scraps diversion. The table at right illustrates strategies and accompanying outreach tactics that can work together with cart tagging.

STRATEGY	TACTICS
Raise awareness that you can compost at curb	<ul style="list-style-type: none"> <li>• Traditional media</li> <li>• Social media</li> <li>• Direct mail</li> </ul>
Provide tools and education to make it easy	<ul style="list-style-type: none"> <li>• Through grassroots outreach efforts: events, outreach, one-to-one</li> <li>• If possible, at point of organics service signup or service level change</li> <li>• Collect commitments to take part</li> </ul>
Prompt to start behavior or modify behavior (contamination)	<ul style="list-style-type: none"> <li>• Curbside cart tags</li> <li>• Collect commitments to take part</li> </ul>
Provide feedback	<ul style="list-style-type: none"> <li>• E-communications</li> <li>• Social media</li> <li>• Direct mail</li> </ul>