Office of the Washington State Auditor
Pat McCarthy

Performance Audit

Embedded Commercial Recycling in Washington Cities

October 8, 2018

Embedded commercial recycling is the practice of including recycling service as part of garbage service for businesses. It is used to encourage recycling participation. The Legislature directed the Office of the Washington State Auditor to evaluate the effect of embedded commercial recycling in Washington cities.

The audit found that Washington cities that use embedded commercial recycling have significantly higher recycling rates, though other factors, including the extent to which cities educate residents about recycling, may contribute to those differences. Studies indicate embedded commercial recycling favors large solid waste companies and decreases competition, and Washington's experience may reflect this.

Although embedded commercial recycling services are frequently marketed as "free" or "for no additional charge," businesses pay for them as part of their regular garbage services. In addition, when commercial recycling is embedded in regular garbage services, businesses pay more in solid waste taxes because the recycling services are no longer exempted.

Market changes are likely to make single-stream recycling – which is commonly paired with embedded recycling – more expensive in the future.

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State Auditor's Office contacts

State Auditor Pat McCarthy
360-902-0360, Pat.McCarthy@sao.wa.gov

Scott Frank – Director of Performance Audit
360-902-0376, Scott.Frank@sao.wa.gov

Christopher Cortines, CPA – Principal Performance Auditor
360-725-5431, Christopher.Cortines@sao.wa.gov

James Geluso – Performance Audit Lead
360-725-5635, James.Geluso@sao.wa.gov

Rachel Moeckel – Senior Performance Auditor
360-725-5670, Rachel.Moeckel@sao.wa.gov

Kathleen Cooper – Director of Communications
360-902-0470, Kathleen.Cooper@sao.wa.gov

To request public records

Public Records Officer
360-725-5617, PublicRecords@sao.wa.gov

Executive Summary

Background

Embedded commercial recycling is the practice of including recycling service as part of garbage service for businesses. It is used to encourage recycling participation. In Washington, it is most prevalent in King County, with a few cities in southern Snohomish County adopting the practice in recent years; it is not used elsewhere in the state. In 2015, the Legislature directed the Office of the Washington State Auditor to evaluate the effect of embedded commercial recycling in Washington cities.

How does embedded commercial recycling affect recycling rates, solid waste companies and local businesses?

Washington cities that use embedded commercial recycling have significantly higher recycling rates, though other factors, including the extent to which cities educate residents about recycling, may contribute to those differences. Studies indicate embedded commercial recycling favors large solid waste companies and decreases competition, and Washington's experience may reflect this.

Although embedded commercial recycling services are frequently marketed as "free" or "for no additional charge," businesses pay for them as part of their regular garbage services. In addition, when commercial recycling is embedded in regular garbage services, businesses pay more in solid waste taxes because the recycling services are no longer exempted.

Market changes are likely to make single-stream recycling – which is commonly paired with embedded recycling – more expensive in the future.

State Auditor's conclusions

Many cities in Washington, especially those in or near King County, now require embedded commercial recycling as a way of increasing recycling by businesses. The results in Washington suggest embedded recycling may be effective in this regard, as recycling rates for cities in King County are far greater than the rates for cities in areas that do not use embedded recycling extensively. However, for cities that might be looking at this option as a way of promoting recycling in the future, here are some words of caution. First, because embedded commercial recycling requires a company to have the capacity to handle both garbage and recycling, it gives a strong advantage to large solid waste companies and likely limits competition. Second, global changes in the market for single-stream recyclables are likely to make embedded commercial recycling more expensive in the future. Cities that might be considering embedded commercial recycling should weigh all of these factors carefully in making that decision.

Recommendations

This audit does not make any recommendations.

Next steps

Our performance audits of state programs and services are reviewed by the Joint Legislative Audit and Review Committee (JLARC) and/or by other legislative committees whose members wish to consider findings and recommendations on specific topics. Representatives of the Office of the State Auditor will review this audit with JLARC's Initiative 900 Subcommittee in Olympia. The public will have the opportunity to comment at this hearing. Please check the JLARC website for the exact date, time, and location (**www.leg.wa.gov/JLARC**). The Office conducts periodic follow-up evaluations to assess the status of recommendations and may conduct follow-up audits at its discretion.

Background

The state, counties and cities all have a role in regulating solid waste collection

Solid waste collection in Washington is usually performed by private contractors, who are regulated by the state, counties and cities. The state, through the Utilities and Transportation Commission (UTC), regulates companies through a system of "franchises," territories in which a single company holds a permanent, exclusive right to act as the solid waste collector. Counties set standards for solid waste collection, and can control which landfills waste must be disposed in. Finally, cities can assert authority over solid waste collection service, overriding the franchise rights regulated by the UTC. When this happens, the city becomes responsible for solid waste collection and can provide service itself or contract with a private company to do so.

"Solid waste" refers to both garbage and recyclable materials.

Some cities require "embedded commercial recycling" to promote recycling and reduce the amount of waste that goes to a landfill

Cities that want to encourage commercial recycling may require their solid waste contractors to provide recycling services "free" or "for no extra charge" as part of their basic solid waste service. This is called "embedded recycling" and is already widely used for residential service; 20 cities larger than 15,000 residents have added it to commercial service, and another will add it in 2019.

City staff at one King County city said they believe the practice of embedded recycling is justified for several reasons:

- Spreading the cost of recycling service across every customer lowers the cost to each.
- Making recycling containers universal, rather than requiring businesses to set up their recycling service separately, increases participation and tonnage diverted from landfill.
- Making the charges universal compensates the hauler, which must have enough truck and processing capacity to accept all recyclables from all customers even if not all participate. City staff see this as similar to paying a base fee for a utility connection, even if the utility isn't used.

This audit examines the effect of embedded commercial recycling in Washington cities

To gain a clearer understanding of the issues surrounding embedded commercial recycling, the Legislature directed the Office of the Washington State Auditor to examine this approach. The audit answers the following question:

> How does embedded commercial recycling affect recycling rates, solid waste companies and local businesses?

Audit Results

How does embedded commercial recycling affect recycling rates, solid waste companies and local businesses?

Answer in brief: Washington cities that use embedded commercial recycling have significantly higher recycling rates, though other factors, including the extent to which cities educate residents about recycling, may contribute to those differences. Studies indicate embedded commercial recycling favors large solid waste companies and decreases competition, and Washington's experience may reflect this.

Although embedded commercial recycling services are frequently marketed as "free" or "for no additional charge," businesses pay for them as part of their regular garbage services. In addition, when commercial recycling is embedded in regular garbage services, businesses pay more in solid waste taxes because the recycling services are no longer exempted.

Market changes are likely to make single-stream recycling – which is commonly paired with embedded recycling – more expensive in the future.

Washington cities that use embedded commercial recycling have significantly higher recycling rates

Of the cities in our audit scope – cities with more than 15,000 residents in the five Class 1 counties (see sidebar) – most of the cities with embedded commercial recycling were in King County. Indeed, 18 of the 20 cities from King County that were in our scope use embedding. Only two of 10 cities in our scope from Snohomish County use embedding (both are near the border with King County). None of the cities in our scope from Pierce County, Kitsap County, or Spokane County use embedded commercial recycling.

To determine whether cities with embedded recycling have higher recycling rates, we took two separate approaches. **Exhibit 1** shows the summarized results, and **Appendix B** provides details about our methods.

Exhibit 1 – Recycling rates for King, Kitsap, Pierce, Snohomish and Spokane counties, 2016[1]

County	Extent of embedded commercial recycling	Partial recycling rate (full county)	Commercial-only recycling rate (cities)
King	Widespread	30%	47%
Snohomish	Limited	16%	17%
Spokane	None	20%	[2]
Pierce	None	19%	11%
Kitsap	None	15%	16%

Data notes: 1. Auditor-calculated recycling rates address limitations in data and for this reason may differ from rates reported by Ecology. 2. Insufficient information to calculate commercial-only rates.

Source: Auditor analysis of reports from haulers to cities and from material recovery facilities to Ecology.

What are Class 1 counties?

The Legislature defined Class 1 counties as King, Kitsap, Pierce, Snohomish and Spokane counties in 1989's Waste Not Washington Act. We used these counties because they either have cities that use embedded commercial recycling or are useful comparison counties.

The first approach used data from the state Department of Ecology, which is compiled at the county level, with the scope limited to the materials that go through the city recycling systems – paper and cardboard, plastics, cans and glass. This "partial recycling rate" ignores materials that make up large parts of commercial recycling's true rate, including scrap metal and debris from construction and demolition. This approach found that King County, where embedding is widespread, has a higher recycling rate than other counties; Spokane County came in second among the five.

The second approach used reports generated by the haulers for the cities they contract with. It compares the amount of recycling collected from commercial customers to the amount of garbage collected from the same customers. Using the numbers reported by the haulers, the audit found that cities in King County appear to recycle far more than the other cities.

It is difficult to say with certainty the degree to which embedding contributed to higher recycling rates in King County and its cities. Both haulers and staff at Ecology pointed out that King County and its cities spend more on educational efforts than other counties, and have developed a stronger recycling culture than other areas of the state simply by having recycled longer.

Nonetheless, it is also possible that the decision to embed has helped increase commercial recycling rates. According to the hauler reports, about 78 percent of commercial customers receive recycling services through the city system in cities that embed, compared to about 50 percent in cities that do not.

Studies indicate embedded commercial recycling favors large solid waste companies and decreases competition, and Washington's experience may reflect this

When cities combine all solid waste services and service areas into a single contract, the capacity that is required rules out many companies that might compete for garbage- or recycling-only contracts. A small company that handles garbage or recycling only cannot quickly purchase the trucks and hire the drivers to become a comprehensive solid waste company; only the large national firms that already have the capacity are able to do that.

Numerous academic and industry articles about solid waste contracting say that bundling multiple services into single contracts may limit competition, particularly by smaller firms. Less competition in the bidding process can mean higher prices: one study found that contracts with five or more bidders achieved prices 29 percent lower than prices for contracts with only one or two bidders. The federal Environmental Protection Agency considers separating contracts a best practice, in part because it "allows specialized service providers to compete."

In Washington, the impact of embedded commercial recycling on competition is less clear. Of 14 King County cities that solicited bids for collecting solid waste in the last decade, only one received four proposals; the rest received three or fewer, and all but one proposal came from one of the four national corporations that have the size and vertical integration (typically trucks, recycling facilities and landfills) needed to bid competitively. This is consistent with the idea that combining services, including embedding recycling, produces fewer bidders and reduces competition.

However, breaking contracts into smaller service units has not necessarily produced a larger number of bidders. For example, when the city of Spokane Valley sought bids for its solid waste service, it allowed commercial and residential services to be bid separately. But it still received only three qualifying bids from existing haulers, and found the proposals for combined service were less expensive than proposals for split service. When Mukilteo, in Snohomish County, sought bidders for service, it allowed bids to split the city into two areas, but received only one bid from a national hauler.

The specific impact of embedding commercial recycling can be seen in the small market share that smaller haulers are able to capture. Data from the UTC and the Department of Revenue show that small haulers in King County have less than 25 percent of the commercial recycling market share. In Snohomish County, where embedding is rare, and in Pierce County, where there is no embedding, small haulers have between 25 percent and 50 percent of the market. In Kitsap County, small haulers have between 50 percent and 75 percent, and in Spokane County, they have more than 75 percent. In the latter two counties, smaller companies have franchise rights over significant portions of the county, so while they count as "small" in our analysis, they have competitive advantages similar to a large hauler.

Although embedded commercial recycling services are often marketed as "free" or "for no additional charge," businesses pay for them as part of their regular garbage services

Embedded commercial recycling is provided in most cities in King County and two cities in Snohomish County. We examined the contracts and the promotional materials used by the cities and haulers to see how they characterized the embedded recycling services. In most cases the embedded service was described as "free," "at no extra charge," or "at no additional cost."

However, when a city offers a contract that requires commercial recycling at no charge, haulers build the expenses into their solid waste rates. We found two cities that, in their bid instructions, explicity told bidders to ensure the rates covered all costs. In effect, because they cannot charge separately for costs they incur to provide recycling, haulers cover their expenses by raising the price for garbage service.

Although all businesses pay for commercial recycling when it is embedded in their regular solid waste service, some choose not to use it. According to annual reports for 2017 submitted by haulers to cities using embedded recycling, about 23 percent of commercial customers do not receive recycling services from their city's hauler, despite paying for it in their garbage bills. When asked, these customers offered several reasons for this. For example:

- **Dissatisfaction with city hauler** – One company was unhappy with the contracted hauler's customer service, so it uses a different large hauler. This did not reduce the company's bill from the city's hauler, so it pays for recycling twice.
- **Unaware of included recycling** – The sustainability manager for a chain restaurant with a location eligible for recycling services from the city's hauler was also spending hundreds of dollars a month for recycling provided by another large hauler. The manager said he did not know these services were included with garbage collection provided by the city's hauler.
- **Existing alternative recycling process** – Some grocery and large retail chains return their recycling to their distribution warehouses.

When commercial recycling is embedded in regular garbage services, businesses pay more in solid waste taxes

Washington charges a 3.6 percent tax on garbage services, generating about $48 million a year statewide. The revenue historically was used for public works projects, but was sent to the state's General Fund starting in 2011 and is now being shifted to the Education Legacy Trust Fund.

The tax is applied only to garbage services and exempts recycling. In cities where garbage and recycling are separate line items on a customer's bill, the tax is applied only to garbage charges. Embedded recycling rolls recycling costs into a single charge for garbage, and so customers pay the solid waste tax on recycling services.

In King County cities, where embedding is most prevalent, it increases the annual tax paid by about $28 per business. Based on forms given to eight cities during their bidding processes, we estimate that 32 percent of the solid waste bill paid for recycling services. We calculated the bills for customers in 13 cities using customer counts obtained from the haulers' reports to cities, and extrapolated the total to the total population of the incorporated portion of King County. The result was about $2.4 million a year in taxes paid on recycling services – $900,000 by business customers, and the rest by residential customers.

Market changes are likely to make single-stream recycling – which is commonly paired with embedded recycling – more expensive in the future

With single-stream recycling, customers put all their materials – paper, plastics and metal cans – in a single cart. This is in contrast to multi-stream recycling, where customers sort their materials into multiple bins. In Washington, all the large haulers with contracts that require embedded recycling also use single-stream recycling.

Cities and haulers say the convenience of single-stream recycling increases the total amount of material collected for recycling. However, industry and government literature offers mixed views on the costs and benefits of single-stream recycling. Among the problems mentioned is that single-stream recycling tends to produce lower quality recyclables than multi-stream recycling, which results in cleaner material. This appears to be the case in Washington. At the three large recovery facilities in King County, about 10 percent to 12 percent of the single-stream recycling ends up rejected and in landfills. This is higher than the 7 percent rejected in Pierce County and 4 percent rejected in Spokane County, which use far less single-stream commercial recycling. Material can also be rejected when recyclables are turned into new product; that process is not considered in this audit.

The market for recyclables has changed as China, the destination for most of Washington's recyclables, has cut down on the material allowed to enter the country. As a result, the cost of recycling is expected to rise. Collecting and processing recyclables had been about $120 per ton, which is less than the $210 per ton it cost to collect garbage and dump it in King County's landfill. Estimates for the cost increase average about $30 a ton. That would make single-stream recycling more expensive than it currently is – but still cheaper than consigning it all to landfill.

One alternative for cities to consider is switching back to multi-stream recycling. This was common practice when cities in Washington first introduced recycling, and is still widely used for commercial recycling outside King County. Because it is less convenient, multi-stream tends to result in less material recycled, but what goes into the bins is less contaminated, making the processing cheaper. Studies and interviews suggest that multi-stream is at least $14 a ton cheaper to collect and process than single-stream, although that estimate was from before processors had to try to reach the new stricter standard for contamination. If cities do decide to return to multi-stream recycling, they would want to consider the impact on the commercial and residential customers, as well as the potential capital costs haulers and processors may incur in transitioning back to multi-stream processing.

State Auditor's Conclusions

Many cities in Washington, especially those in or near King County, now require embedded commercial recycling as a way of increasing recycling by businesses. The results in Washington suggest embedded recycling may be effective in this regard, as recycling rates for cities in King County are far greater than the rates for cities in areas that do not use embedded recycling extensively.

However, for cities that might be looking at this option as a way of promoting recycling in the future, there are a couple of words of caution. First, because embedded commercial recycling requires a company to have the capacity to handle both garbage and recycling, it gives a strong advantage to large solid waste companies and may limit competition. Second, global changes in the market for single-stream recyclables are likely to make embedded commercial recycling more expensive in the future. Cities that might be considering embedded commercial recycling should weigh all of these factors carefully in making that decision.

Recommendations

This audit makes no recommendations. The audit addresses specific questions about one aspect of Washington's solid waste system – embedded commercial recycling in city-contracted systems. The audit describes the system, but does not make recommendations about whether or how the system should be changed. Instead, the audit provides information for cities to consider as they award future contracts.

Appendix A: Initiative 900

Initiative 900, approved by Washington voters in 2005 and enacted into state law in 2006, authorized the State Auditor's Office to conduct independent, comprehensive performance audits of state and local governments.

Specifically, the law directs the Auditor's Office to "review and analyze the economy, efficiency, and effectiveness of the policies, management, fiscal affairs, and operations of state and local governments, agencies, programs, and accounts." Performance audits are to be conducted according to U.S. Government Accountability Office government auditing standards.

In addition, the law identifies nine elements that are to be considered within the scope of each performance audit. The State Auditor's Office evaluates the relevance of all nine elements to each audit. The table below indicates which elements are addressed in the audit. Specific issues are discussed in the Results and Recommendations section of this report.

I-900 element	Addressed in the audit
1. Identify cost savings	**Yes.** This audit considers whether some customers are paying for mandatory services in addition to what they procure from the private sector.
2. Identify services that can be reduced or eliminated	**No.** Solid waste disposal is a core and necessary government service.
3. Identify programs or services that can be transferred to the private sector	**Yes.** This audit provides insight into the advantages and disadvantages of local governments mandating commercial recycling versus allowing the customers to choose service providers.
4. Analyze gaps or overlaps in programs or services and provide recommendations to correct them	**Yes.** This audit looks at the overlap between government and private sector providing the same service.
5. Assess feasibility of pooling information technology systems within the department	**No.** The scope of this audit does not include information services.
6. Analyze departmental roles and functions, and provide recommendations to change or eliminate them	**Yes.** This audit considers whether providing embedded commercial recycling is ideally a government function.
7. Provide recommendations for statutory or regulatory changes that may be necessary for the department to properly carry out its functions	**No.** Although this audit looks at statutory and regulatory systems, it does not make a recommendation.
8. Analyze departmental performance data, performance measures and self-assessment systems	**Yes.** This audit assesses whether practices in King County are connected with a higher recycling rate.
9. Identify relevant best practices	**Yes.** This audit considers best practices in solid waste contracting.

Compliance with Generally Accepted Government Auditing Standards

We conducted this performance audit under the authority of state law (RCW 43.09.470), approved as Initiative 900 by Washington voters in 2005, and in accordance with generally accepted government auditing standards as published in Government Auditing Standards (December 2011 revision) issued by the U.S. Government Accountability Office. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix B: Scope, Objectives and Methodology

Scope

This audit reviewed recycling practices and outcomes during calendar year 2017 for a sample of 39 Washington cities. The sample included all cities with a population of at least 15,000 that are located in one of the five "Class 1" counties named in the State's primary recycling law: the 1989 Waste Not Washington Act. The following cities were included:

- King County: Auburn,* Bellevue, Bothell,* Burien, Covington, Des Moines, Federal Way, Issaquah, Kenmore, Kent, Kirkland, Maple Valley, Mercer Island, Redmond, Renton, Sammamish, SeaTac, Seattle, Shoreline, Tukwila
- Kitsap County: Bainbridge Island, Bremerton
- Pierce County: Bonney Lake, Lakewood, Puyallup, Tacoma, University Place
- Snohomish County: Arlington, Edmonds, Everett, Lake Stevens, Lynnwood, Marysville, Mill Creek, Monroe, Mountlake Terrace, Mukilteo
- Spokane County: Spokane, Spokane Valley

*Auburn and Bothell are both counted as being in King County only, although they have portions in Pierce and Snohomish counties respectively.

Objectives

The purpose of the audit is gain a clearer understanding of the issues surrounding embedded commercial recycling. The audit answers the following question:

> How does embedded commercial recycling affect recycling rates, solid waste companies and local businesses?

Methodology

To answer the audit questions, we reviewed relevant studies and other literature, solid waste hauler reports, contracts, and cost proposals provided to cities; state and local recycling reports; and Department of Revenue sales and tax data for recycling haulers. We also performed general research to identify recycling haulers. We did not audit the accuracy or completeness of the information obtained, with the exception of Revenue tax data.

Calculating recycling rates

From each contracting city, we obtained:

- The current contract between the city and the hauler
- The most recent report from the hauler to the city
- The proposals from the most recent bid process, when possible. In eight cases, proposals included a Form 2B, which breaks down revenues and expenditures by category; this form allowed us to see separate costs for garbage and recycling for residential and commercial customers, and compare them to how the customers in each category of service pay

The reports allowed us to calculate recycling rates using the formula

$$\text{recycling rate} = \frac{\text{recycling tonnage}}{(\text{garbage tonnage} + \text{recycling tonnage})}$$

We excluded yard waste and other organics from our calculations because this material goes through a separate system with a domestic market.

Assessing whether embedded recycling services are free

To assess whether embedded recycling is free, we reviewed 21 proposals submitted to eight cities by companies seeking contracts. We used these proposals to determine how the companies anticipated the distribution of revenues and expenditures across customer and service types.

Assessing whether embedded recycling results in higher recycling rates

To assess whether embedded recycling results in higher recycling rates, we gathered information from cities, the Utilities and Transportation Commission (UTC), and the Department of Ecology. Cities provided their solid waste contracts and annual reports received from their contracted haulers. These reports typically show the tonnage collected from commercial and residential customers for garbage and recycling. The UTC provided reports from the haulers it regulates. The Department of Ecology provided reports from the recycling processors it regulates. All these numbers are unaudited, and in some cases they did not reconcile. However, we concluded these reports are sufficiently reliable to support our audit findings.

Assessing the effect on taxes

To assess whether customers paid more taxes when cities used embedded recycling, we reviewed 21 proposals submitted to eight cities by companies seeking contracts, which contained forms showing the anticipated distribution of revenue across customer and service types. We concluded that 36 percent of the charge covers the cost of recycling. This percentage counts profit as a separate component from all other costs, which while not conventional was a deliberate choice intended to produce a more conservative estimate.

For 13 cities, the reports issued by the haulers included customer counts by container size. We multiplied the charge by the count. In some cases, commercial rates were not publicly available, so we compared current residential rates to residential rates from the start of the contract, determined how much they had increased, and applied that same increase to the commercial rates from the start of the contract.

We then calculated the population of the 13 cities and extrapolated upward to the full population of incorporated King County.

Assessing the effect on competition

To assess the effect of embedded recycling on the distribution of recycling work, we identified recycling haulers and compared their related revenues in the five Class 1 counties. For companies regulated by the UTC, we obtained recycling revenue information from required annual reports. For other companies we identified as recycling haulers in the Class 1 counties, we obtained revenue and tax data from the Department of Revenue for companies we identified as recycling haulers in the five Class 1 counties. For companies that worked in multiple counties, we allocated revenue in proportion to county population.

For each company, we then allocated sales equally to each of their lines of business, and tallied sales only for each sub-line that matched the recyclable materials collected by cities. For each county, we then compared related revenue for the four national haulers to related revenue from the other identified haulers.

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