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**THE STATE OF  
RECYCLING AND COMPOSTING  
IN WASHINGTON STATE**  
RESPONDING TO WASHINGTON STATE'S RECYCLING CRISIS

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**Dear reviewers,**

**Please review Appendix 1 for the garbage/recycling/composting information for your jurisdiction.**

**If you have time, we would greatly appreciate your comments on the text of the draft document and any ideas you have for additional tables. Let Heather know if you would like a word version, so you can do track changes.**

**Please reply by October 7, 2019, midnight.**

**Thank you so much!**

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## **1 INTRODUCTION**

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This report seeks to describe the state of recycling and composting programs administered by local governments in Washington State. Specifically, the study compiled existing information (as of October 1, 2019) about service areas, providers, frequency and type of collection, lists of accepted materials, and available drop-off locations for recycling and composting at the city and county level. The report is informed by interviews with key actors in the local recycling system to obtain their impressions, perspectives, and approaches to the recycling and composting context, challenges, and potential policy solutions.

### **1.1 CONTEXT OF RECYCLING AND COMPOSTING**

Washington's recycling and composting system is a complex network of different levels of government and private actors encompassing waste collection, processing, recycling, and end-use domestic and international markets. The historic paradigm of the system was supported by the stability of processing capabilities located in Asian countries - mostly China – which accepted recycling bales at competitive prices and low costs of transportation (shipment). This paradigm started to languish during 2016 and ended up breaking during 2017's China Sword Policy severely limiting the import of recyclables and scrap.

The drastic changes in international destinations for Washington's recyclables exports and increasing concerns about plastics handling in other Asian countries motivated the public agencies and their private partners to seek new solutions. Such policy has put pressure in the already stressed local recycling systems, making evident historical problems and raising issues including contamination, cost structure, existing infrastructure gaps, and underfunded programs.

Recycling and composting are certainly not the only changing systems in the state. An influx of new residents and an overall increasing population brings educational and outreach challenges to ensure that people understand proper disposal of waste, recyclables and compostable materials, while e-commerce growth and changing attitudes of customers continue to modify waste composition. Language barriers, equity, and multi-cultural needs are shaping the way governments and corporations

relate to customers, while differentiated economic development and drivers affect the state's local and regional communities.

## 1.2 METHODOLOGY

This study involved collection and assessment of data about county and municipal recycling and composting programs for residential customers. Online materials were examined for each analyzed jurisdiction and associated haulers, including digital pamphlets, lists of prices and materials, handling instructions, associated UTC permits, and current solid waste management plans. The collected information was then organized in an Excel spreadsheet identifying each jurisdiction's areas serviced by a specific set of hauling providers. Such information was then shared with the identified solid waste managers, recycling coordinators or public works directors for each jurisdiction. The provided feedback was then included in the spreadsheet. *As of this draft, feedback was received for 77 service areas.*

The focus of the assessment was on recycling and composting programs that were either administered or directly funded by government. Such programs are administered directly through contracts between cities and hauling companies or through UTC permits for counties' unincorporated areas. The data was compiled by service area. So, for example, in some cities, there might be multiple service areas, each served by a different hauler.

In order to simplify recording of data, the identification of curbside collection was prioritized over drop-off only collection, which was only identified when curbside was not available for an area. Therefore, drop-off collection of an item was only registered in the dataset if no curbside collection was available for such item in a service area. Multi-family, commercial and industrial customers were not included in the study, except that some of those customers might also use drop off services.

Thus, this report mostly describes single-family recycling and compost collection, prioritizing curbside when available and identifying publicly-funded drop-off locations when available within 10 miles, some of which charge fees for specific items. Dropoff locations were identified in county waste management plans as well as jurisdictional and provider websites. Dropoff locations also include additional collection sites provided through the light recycle and e-cycle programs.

A total of 14 phone or in-person interviews were conducted with representatives of state, county and city solid waste management programs as well as recycling companies, across the state. The format of interviews was semi-structured with occasional interventions of the interviewer to clarify and connect related answers. Any identification of interviewees or their associated jurisdictions is avoided in this report either using generic interviewee profiles and the omission of identifying information, though this is minimal.

## 2 WASHINGTON'S RECYCLING AND COMPOSTING PROGRAMS

This chapter describes the main features of recycling and composting programs in Washington State by first identifying the type of collection performed in different waste generation areas. The description is followed by an identification of specific recycling, compost and garbage items collected in curbside programs and at drop-off locations, or items not locally collected by publicly funded or sponsored programs.

### 2.1 OVERVIEW

Washington State Department of Ecology (Ecology) has divided the state into six Waste Generation Areas (Table 1), characterized by determined geographical and socioeconomic variables<sup>1</sup>. For this study, key features and updated populations for these areas were updated (Table 2) showing the large range from 23 jurisdictions in each of the West and Northwest areas to 94 in the Puget Sound area.

**TABLE 1: COUNTIES INCLUDED IN EACH WASTE GENERATION AREA**

Central	East	Northwest	Puget Sound	Southwest	West
Chelan	Adams	Lincoln	Island	King	Clallam
Douglas	Asotin	Pend Oreille	San Juan	Kitsap	Grays Harbor
Grant	Benton	Spokane	Skagit	Pierce	Jefferson
Kittitas	Columbia	Stevens	Whatcom	Snohomish	Mason
Klickitat	Ferry	Walla Walla		Thurston	Pacific
Okanogan	Franklin	Whitman			
Yakima	Garfield				

Note: Further information regarding Waste Generation Areas can be found at State of Washington Department of Ecology (2018) 2015-2016 Washington Statewide Waste Characterization Study available online at <https://fortress.wa.gov/ecy/publications/summarypages/1607032.html>

**TABLE 2: CHARACTERISTICS OF ANALYZED WASTE GENERATION AREAS**

Waste Generation Area	Counties	Jurisdictions	Estimated Population (2018)
<b>Central</b>	7	66	577,137
<b>East</b>	13	85	1,050,680
<b>Northwest</b>	4	23	455,479
<b>Puget Sound</b>	5	94	4,495,587
<b>Southwest</b>	5	29	686,798
<b>West</b>	5	23	269,910
<b>Total general</b>	<b>39</b>	<b>320</b>	<b>7,535,591</b>

Population data: Annual Estimates of the Resident Population, U.S. Census Bureau, Population Division

Solid waste collection is provided either through permits granted by the Washington Utilities and Transportation Commission (UTC) or through direct contracts with incorporated areas (cities and towns) (Table 3). The latter have the option of allowing a provider to operate through each option or also provide services directly to their customers. Statewide, most of the analyzed jurisdictions are

<sup>1</sup> See State of Washington Department of Ecology (2018) 2015-2016 Washington Statewide Waste Characterization Study available online at <https://fortress.wa.gov/ecy/publications/summarypages/1607032.html>

served through UTC permits (87%). This percentage does not vary considerably among the waste generation areas, with percentages ranging from 83% (West) to 100% (Southwest).

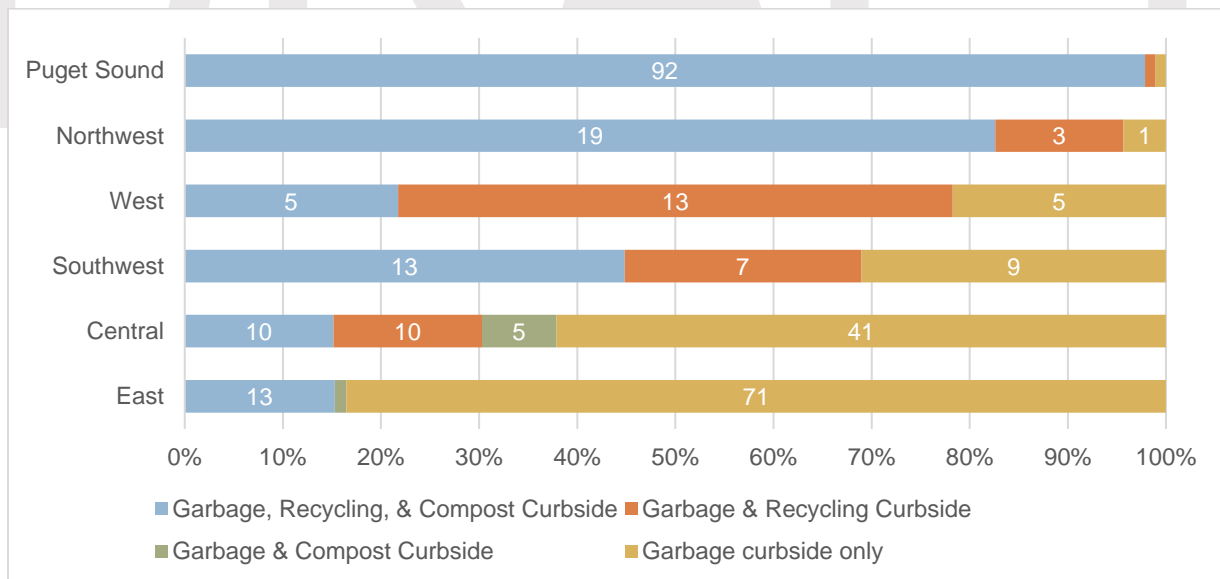
**TABLE 3: TYPE OF PERMIT BY JURISDICTION**

Waste Generation Area	UTC permit		City/Town contract only		Mixed service		Total
	N	%	N	%	N	%	N
<b>Central</b>	57	86%	9	14%	0	0%	66
<b>East</b>	73	86%	12	14%	0	0%	85
<b>Northwest</b>	21	91%	2	9%	0	0%	23
<b>Puget Sound</b>	79	84%	11	12%	4	4%	94
<b>Southwest</b>	29	100%	0	0%	0	0%	29
<b>West</b>	19	83%	3	13%	1	4%	23
<b>Total</b>	<b>278</b>	<b>87%</b>	<b>37</b>	<b>12%</b>	<b>5</b>	<b>2%</b>	<b>320</b>

Note: Mixed service refers for cities with more than one provider including both a contract and UTC associated permit.

A total of 186 jurisdictions (48%) in Washington have curbside collection of garbage, recyclables, and/or compost, which corresponds to 88% of the population. These figures vary considerably among different Waste Generation Areas. While 98% Puget Sound jurisdictions have curbside collection for the three type of materials (corresponding to almost 100% of the population), 15% of both Central and East municipalities have such type of collection (corresponding to 59% and 68% of their population, respectively). In the West area only 5 of the 23 jurisdictions include collection of the three type of materials, which is associated to 38% of its population (Figure 1),

**FIGURE 1: TYPE OF COLLECTION BY WASTE GENERATION AREA, NUMBER OF JURISDICTIONS**



A total of 53 active private haulers operate in the state of Washington, of which 29 offer curbside recycling collection (Table 4). Those with the higher number of serviced areas<sup>2</sup> are: Waste Management (60), Republic services (33), and Harold LeMay Enterprises (33). There are also 9 cities that collect their own recyclables, being these Chelan, Enumclaw, Oak Harbor, Olympia, Richland, Ruston, Spokane, Sedro-Woolley, and Tacoma. Compost and recycling, when collected, are usually picked up by the garbage service provider in the area. Additionally, most of haulers operate under Washington's Utilities and Transportation Commission administered permits, which account for a total of 45 permits.

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<sup>2</sup> We use the term *service area* to describe that part of a jurisdiction (county or municipality) that is served by a specific hauling company, designated either by contract or through a UTC permit. We identified 384 service areas. Some cities and counties have multiple service areas.



**TABLE 4: RECYCLING HAULERS IN WASHINGTON**

Private Hauler	Permit no.	Service areas with curbside recycling
Waste Management of Washington, Inc.	237	60
Republic Services	12	34
Harold LeMay Enterprises, Inc.	98	33
DM Disposal / Murrey's Disposal Company, Inc.	9	18
Waste Connections of Washington, Inc.	253	10
Recology Cleanscapes	Contract only	9
Nooksack Valley Disposal, Inc.	166	6
Sanitary Service Company, Inc.	14	5
Mason County Garbage Co., Inc.	88	4
Island Disposal, Inc.	154	3
Methow Valley Sanitation Service, Inc.	146	3
Sunshine Disposal & Recycling	199	3
Bainbridge Disposal, Inc.	143	2
Pullman Disposal Service, Inc.	42	2
San Juan Sanitation Company	144	2
University Place Refuse Service, Inc.	64	2
Waste Control, Inc.	101	2
Yakima Waste Systems, Inc.	89	2
Basin Disposal of Washington, LLC	165	1
Basin Disposal of Yakima, LLC	45	1
Community Waste & Recycling	219	1
Freedom 2000 LLC	63819	1
Hometown Sanitation, LLC	Contract only	1
Lakeside Disposal	Contract only	1
Rubatino Refuse Removal, Inc.	58	1
Sound Disposal, Inc.	82	1
Vashon Disposal	87	1
West Waste & Recycling, Inc.; DM Disposal	Contract only	1
Zippy Disposal Service, Inc.	121	1

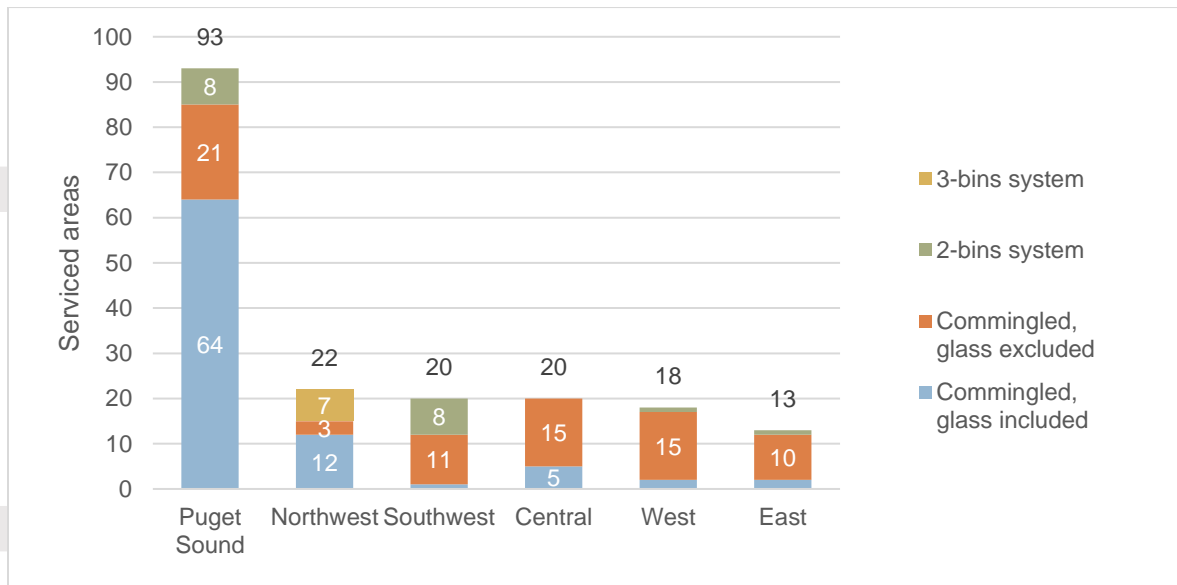
Nine additional areas are directly serviced by public entities: Chelan, Enumclaw, Oak Harbor, Olympia, Richland, Ruston, Spokane, Sedro-Woolley, and Tacoma

Along with curbside collection, collection is performed through publicly owned and/or funded drop-off locations, comprising both transfer stations and dropboxes. A total of 160 such locations could be identified in counties' and cities' online published materials, most of them located in the East area (41), followed by the Puget Sound (34) and Central area (33). At a state level, an average of 2 drop-off locations are available per 100,000 inhabitants, although widely varying in different waste generation areas. The West and Central areas have higher ratio of drop-off service with 7 and 6 drop-off locations per 100,000 inhabitants, respectively. On the other hand, the Puget Sound area displays the lowest ratio of this service with less than one drop-off site per 100,000 inhabitants but has higher levels of

curbside service. Many public drop-off locations also accept covered materials through statewide Product Stewardship programs, being these E-Cycle and LightRecycle accepting electronic waste and light bulbs.

Of the 186 jurisdictions providing with curbside recycling (Figure 2), most are located within the Puget Sound waste generation area (93). This area is both characterized for offering commingled curbside recycling with 85 jurisdictions including this type of collection and with 64 also accepting glass.<sup>3</sup> Other waste generations areas have much lower numbers of jurisdictions providing curbside recycling which usually is commingled with “glass out.” Such systems usually rely on drop-off locations for recycling of glass or have implemented systems that separate glass in at the source (2-bins system in Puget Sound and Southwest generations areas, and 3-bins system in the Northwest).

**FIGURE 2: RECYCLING COLLECTION BY JURISDICTION**



**Dear reviewers,**

**We will add a table here that depicts frequency of curbside pickup (i.e., weekly, etc.) after the review of this draft is completed.**

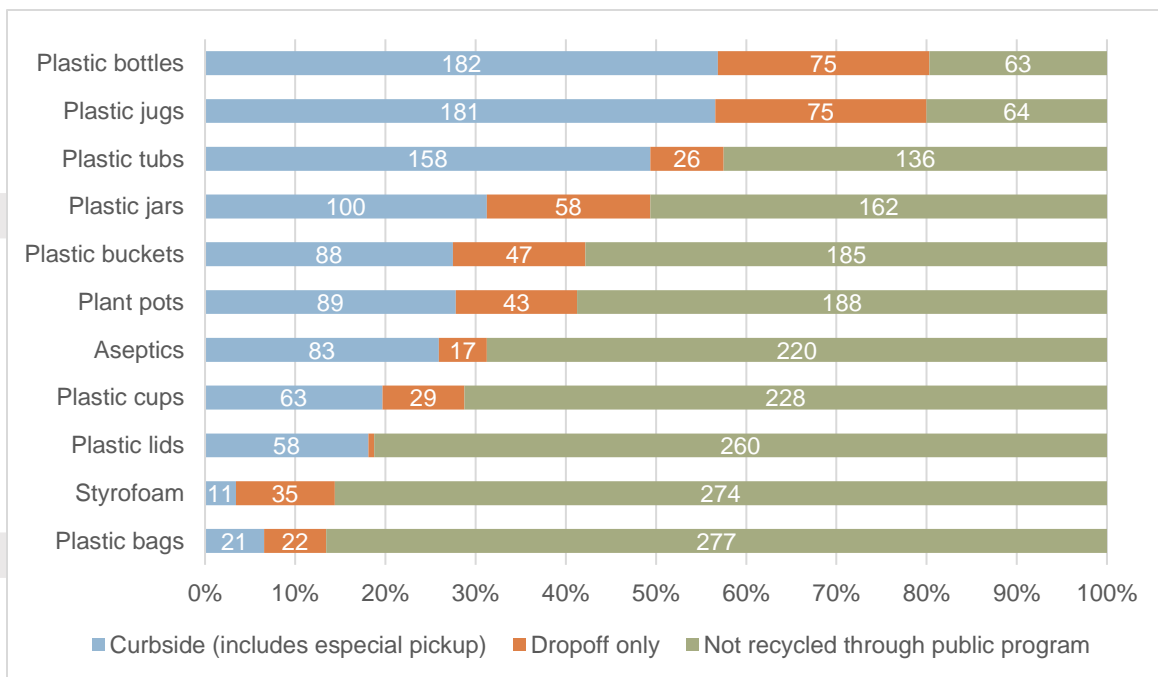
<sup>3</sup> This differentiation is made because of the difficulties that glass pose in recycling operations from feedstock obtained from commingled systems.

## 2.2 RECYCLING AND COMPOSTING IN WASHINGTON STATE

### Plastic

Collection of plastics varies widely. Historically, categories were divided by type of resin (#1 thru #7) but this currently changing to a division by shapes (e.g. bottles vs. flexible), which is better correlated with separation characteristics rather than final destination of the items. The type of plastics most accepted for recycling in public programs are plastic bottles and jugs (generally #1 and #2 resins), which are accepted in curbside programs in 57% of the jurisdictions representing nearly 91% of the state’s population. When including drop-off only recycling programs, this percentage increases to 80% of jurisdictions and 97% of the state’s population (Figure 3).

**FIGURE 3: TYPE OF RECYCLING BY TYPE OF PLASTIC, BY JURISDICTION (COUNT AND PERCENTAGE)**



Plastic tubs, generally associated with dairy products and traditionally #2 resin-type, are being increasingly accepted in public recycling programs as markets for end-use of this material continue to grow and stabilize. These materials are currently accepted at the curb in 49% of the state’s jurisdictions and in an additional 8% of jurisdictions that collect them in drop-off locations. With this, collection of tubs for recycling reach 86% of Washington’s population, most of it through curbside collection programs (84% of total population).

On the other hand, certain materials are minimally collected. Those less accepted are Styrofoam and plastic bags, with about 14% of programs accepting them either at the curb or in drop-off locations. Plastic bags are the least collected material among all accepted plastics, only covering 26% of the state’s population. King County and City of Seattle have announced that they will stop collecting plastic bags in recycling programs starting in 2020.

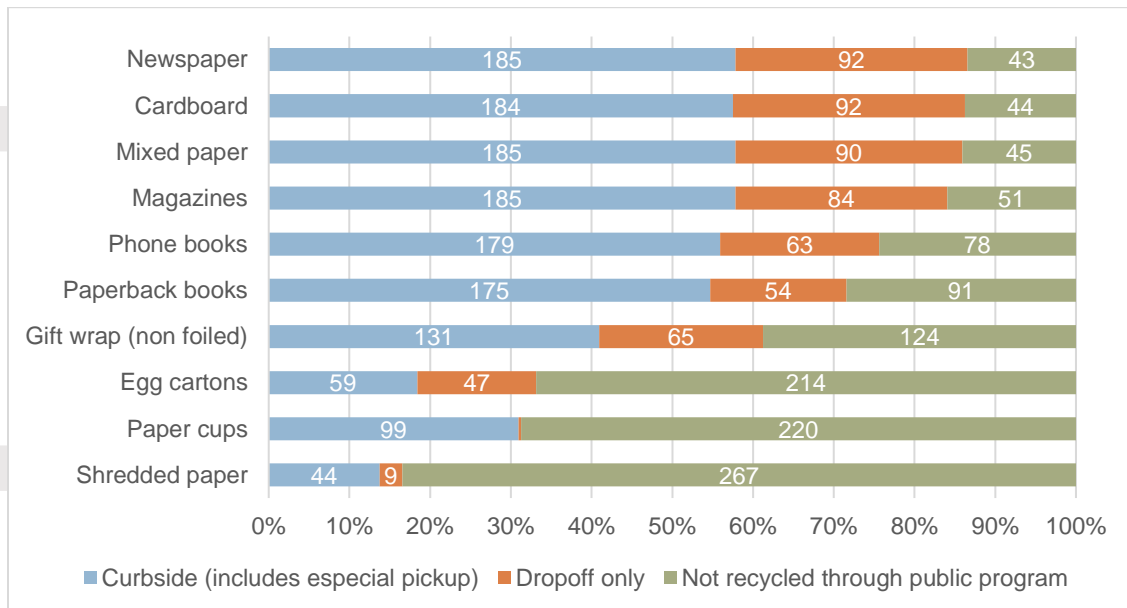
Certain materials are not accepted in any program: plastic utensils and prescription vials. Plastic jars containers are only accepted in 31% of curbside collection and 18% of drop-off only programs, but these areas represent 78% of the state’s population.

## Paper

Recycling collection of mixed paper is somewhat difficult to quantify because of inconsistent descriptive language (or imagery) on websites. “Mixed Paper” - including magazines - is collected in most of the jurisdictions (nearly 85%), either in curbside programs (58%) or in drop-off only programs (28%). Such programs represent 98% of the state’s population, with 92% covered by curbside collection. Other paper materials with collection rates over 75% are cardboard, newspaper, phone books, and paperback books. For the latter, donation and re-sell are often promoted options, although it’s often not fully evident if they’re accepted for recycling or not (Figure 4).

Materials with low acceptance in recycling programs include paper cups (31% of jurisdictions), shredded paper (17%), and egg cartons (33%). Such jurisdictions comprise approximately 53%, 21%, and 38% of the state’s population, respectively.

**FIGURE 4: TYPE OF RECYCLING BY TYPE OF PAPER BY JURISDICTIONS (COUNT AND PERCENTAGE)**



## Glass

Glass is collected at the curb in 35% of the jurisdictions accounting for 70% of state population. An additional 20% of jurisdictions collect glass at drop-off locations, thus glass recycling is available for 90% of the state’s population.

Several governments have modified to their glass recycling programs in recent months, especially those collecting it at commingled collection systems. Such changes are commonly due to glass’ impact as a contaminant in bales of other materials, cost of transport due to its weight, and challenges regarding the final use of the recycled material.

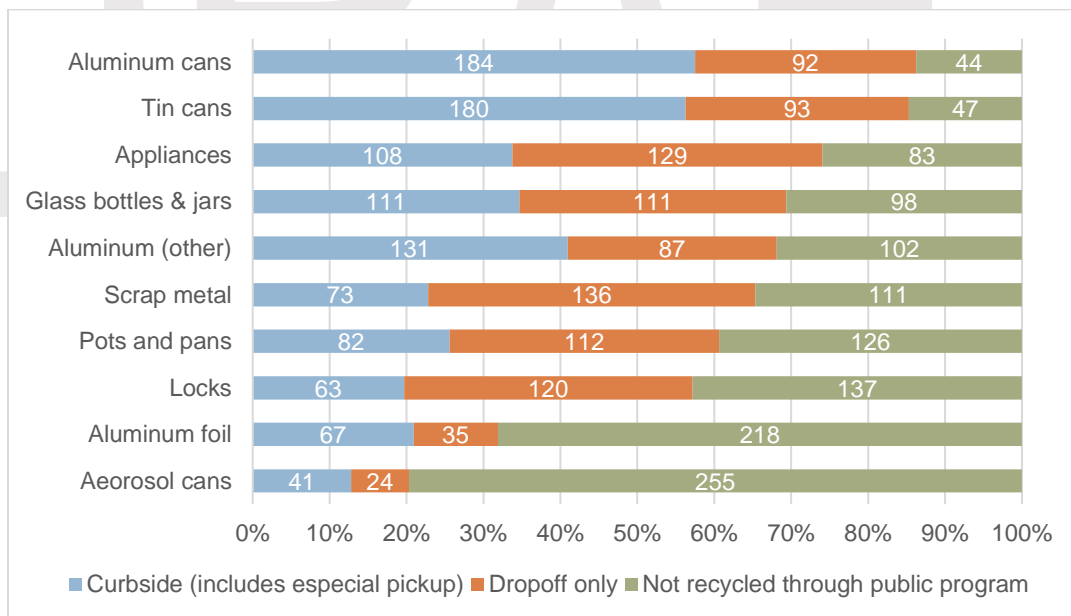
## Metal

Metal is commonly known for higher marketability and easier processing compared to other recyclables. Historically recycled materials such as aluminum and tin cans present the highest collection rates with 86% of the jurisdictions offering either curbside collection (57%) or drop-off only alternatives (29%) for these materials. Such programs account for 98% of the state’s population, including 91% of it serviced through curbside collection programs for this material (Figure 5).

Scrap metal is usually another accepted material in recycling programs with 65% of jurisdictions allowing it in curbside programs (23%) or through drop-off only (43%). Such programs cover 81% of the state’s population, although curbside is somewhat more limited than for cans, accounting for 54% of the population (compared to 57% of cans). Pots, pans, and locks are specified as examples of scrap metal and, thus, show similar collection rates to scrap metal (Figure 5). In observations of the online materials, it was evident the existing gaps in information regarding what constitutes scrap metal: size, weight, non-metal content and shape often diverge from one area or service provider to another.

Other metal items are less often accepted in these programs due to contamination risk and safety concerns. Aluminum foil and aerosol cans are the most common among them, with 32% and 20% of jurisdictions accepting them either at the curb or at drop-off locations. Aerosol cans, along with auto parts, are specially challenging due to the risk of explosion and incineration they pose on operations if not completely clean or empty.

**FIGURE 5: TYPE OF RECYCLING BY TYPE OF METAL BY JURISDICTION (COUNT AND PERCENTAGE)**

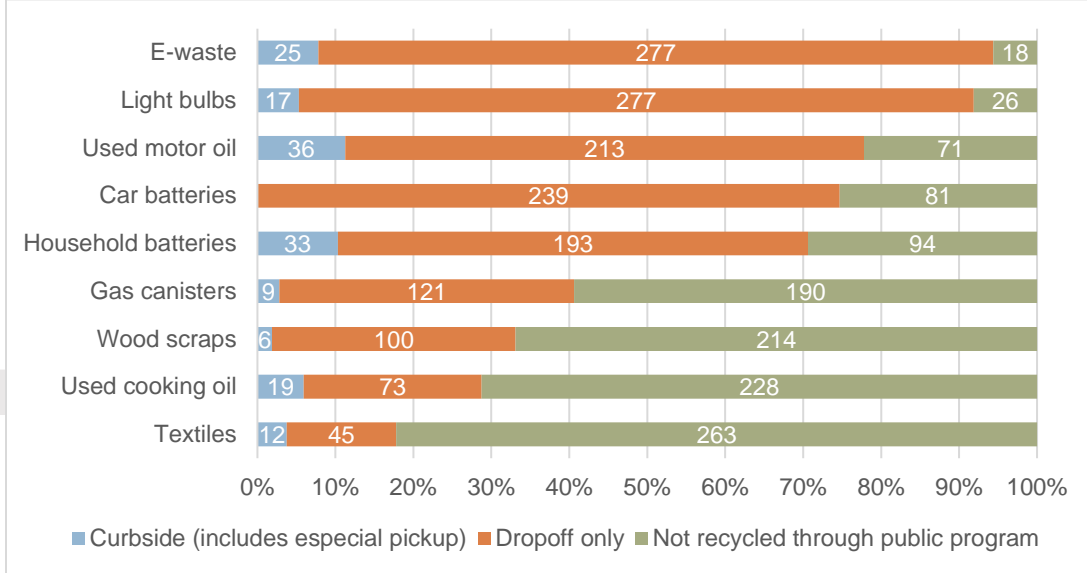


Appliances show higher rates of collection than scrap metal, with 74% of jurisdictions including them through various collection programs (curbside accounts for 34% of collection). Thus, 91% of the state’s population can access a recycling program for appliances, most of it at the curbside through regular service for small appliances or special pickup for bulky items, such as refrigerators. The difference between both types of appliances is, nevertheless, not entirely clear. While small appliances are often defined as being less than 2’x2’x2’ size, the associated weights can differ from one jurisdiction to another and it’s not always clear what types of appliances are accepted at drop-off sites. Additionally, there is also some variation regarding acceptance of materials with content of hazardous gases inside them (i.e., freon and neon).

## Other materials

Household Hazardous Waste are usually handled separately from recyclable materials because of safety and pollution risks associated with storage, transportation and disposal. Recycling collection can present an opportunity to improve these materials' diversion as several curbside programs include several items and many drop-off recycling locations can handle some of them too (Figure 6).

**FIGURE 6: TYPE OF RECYCLING OF OTHER MATERIALS BY JURISDICTION (COUNT AND PERCENTAGE)**



E-waste and light bulbs are the most collected materials among household hazardous waste items, with approximately 93% of jurisdictions collecting them thus representing nearly 98% of the state's population. Statewide programs E-Cycle and LightRecycle play a key role providing coverage for electronics and light bulbs due to required coverage mandated in state statute.

Additional materials with high collection acceptance are motor oil<sup>4</sup> (78%), car batteries (75%), and household batteries<sup>5</sup> (70%). On the other hand, materials like untreated and unpainted wood scraps, used cooking oil, and textiles display the lower acceptance collection rate.

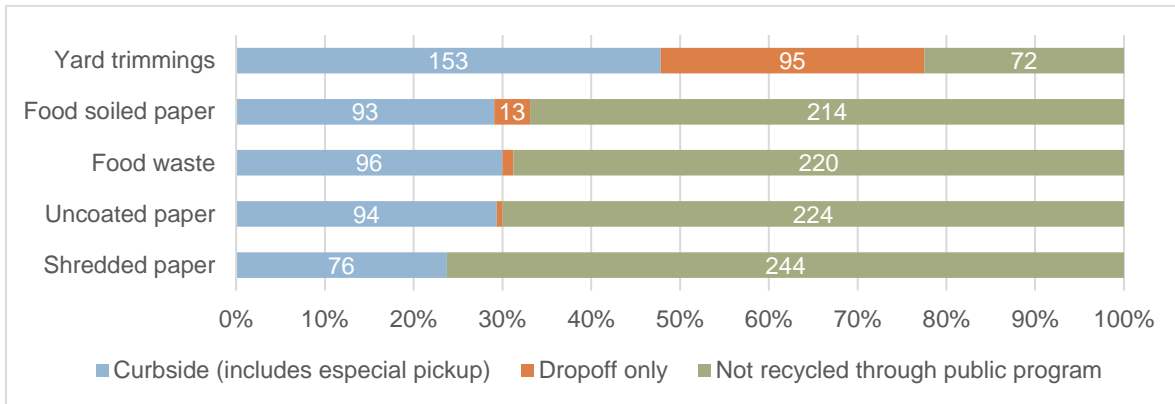
## Organic material

Collection of organic material for composting is found in 78% of the jurisdictions, representing 93% of Washington's population. Such collection, however, is often seasonal, voluntary (subscription required), or limited in terms of accepted materials. The most accepted materials are yard trimmings, which are collected at the curb in 48% of the jurisdictions, representing 86% of the state's population. Other materials like food waste, food soiled paper, and uncoated paper products are often collected together and present much lower collection rates (31% of jurisdictions representing 60% of the state population). Due to risk of contamination with plastic, shredded paper is the least accepted material with 24% of jurisdictions accepting it.

<sup>4</sup> Most recycling programs require that the oil is clean in order to be recycled.

<sup>5</sup> The type/composition of accepted household batteries varies widely.

**FIGURE 6: TYPE OF ORGANICS COLLECTION BY JURISDICTION (COUNT AND PERCENTAGE OF JURISDICTIONS)**



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### 3 PERSPECTIVES ON THE SYSTEM

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To provide context on current conditions and potential future actions, interviews were held with 14 solid waste experts, including solid waste coordinators, state, city and county recycling managers, and representatives from the private recycling sector. The section summarizes the main takeaways from the interviews.

As summarized below, interviews covered 4 topics: Recycling systems' adaptation, Coordination, Recycling systems' performance, and Recycling markets.

Interviewees were asked about the actions their associated jurisdictions were taking regarding the current context of recycling markets. Key findings include:

#### **Recycling systems adaptation**

- Most of the interviewees indicated that they are reviewing or modifying the list of accepted materials for recycling, generally regarding hard-to-process items like plastic bags and clamshells. These actions are supported by a constant monitoring of domestic and international recycling markets, cost structure for recycling, and contamination rates in curbside collection.
- Coordination is key, with most of interviewees working to coordinate with private partners, adjacent recycling systems, as well as monitoring customers attitudes and requirements from their system.

*“The management here decided to put together a task force [...to address current recycling challenges], a subset of our advisory committees, so we have one advisory committee made up of our cities and our haulers and service providers, and we have another advisory committee which is our solid waste advisory committee which encompasses all our stakeholders including businesses, service providers, nonprofit organizations.”*

- A third component of local action is the analysis and development of outreach and educational materials to deal with contamination, for which coordination and monitoring are important. Information and educational campaigns are key to let customers understand the impact of contamination in the system. One informant describes the conformation of one of this type of instances:
- When asked about changes that would be introduced to their list of acceptable materials for recycling, most interviewees mentioned to be monitoring markets, processing issues, and structure of costs before making decisions. A cautionary approach was common, as decisions only based in short term financial needs could lead to problems in the long-term regarding residents' trust in the recycling system or investments not well aligned with local needs and context. Government mission, as some pointed out, encompasses not only the financial sustainability of the system but also its environmental a socioeconomic impact.

One informant briefly explains the analysis performed by his jurisdiction:

*“We are in the process of evaluating what the effect would be on social, economic, and environmental effect of removing glass from the single stream, as well as evaluating whether or not to keep poly-coated cartons and frozen food*



*boxes in the mix or not. [...] It is primarily a financial evaluation, the social piece has to do with a socio-political side: how do we communicate to the customers and how do they respond to that change, and the economic side is if we do provide source separated collection how much it would cost for the average rate payer.”*

- Recycling is an activity that involves costs associated to collection, processing, stocking, and disposal. Interviewees generally agreed with the need to modify the perception that the activity finances itself. Most of them indicated the need to better reflect such costs in the way residents pay both for curbside collection and for drop-off recycling, since any collection systems involves significant costs. What is more, some jurisdictions are exploring alternative pricing systems to deal with existing incentives to recycle products not included in lists of accepted materials. One informant explains this as:

*“The recycling fee is embedded often times in the garbage fee, so people are paying for garbage and they think they are getting free recycling, but it is not free. People need to be made aware [of this] and start to talk about a solid waste fee, so they are paying annually for garbage and recycling.”*

- When asked about glass, most of interviewees identified it as a problematic material in commingled systems because it leads to contamination of other recyclables. Their jurisdictions are continuously analyzing the evolution of prices and costs associated to the material which determine the feasibility of modifying its type of collection. Different approaches were mentioned, especially regarding glass separation from other recyclables at the source or at separation facilities through investment. Alternative approaches also were noted by some, including the implementation of bottle bills or recycling content requirements from producers, which can not only improve coverage and funding for glass collection, but also a reduction of contamination.

*Historically, not everyone, but most of the area in the County were taking glass in their curbside, and we just started asking people to pull it out. The county and the city together are working on a pilot project for glass, which is expensive to transport and we don't have any kind of facility over here where we can drop our glass after having have it recycled in our area, and it is very expensive to send it to the west side, so we are looking for pilot projects with glass.*

## **Coordination**

- When asked about monitoring of adjacent recycling systems, most of interviewees described how their jurisdictions were continuously tracking the development of domestic markets in nearby cities and those governments measures. Tracking of ordinances, bans, and changes in lists of recyclables are accompanied with an analysis of each jurisdiction's own circumstances: costs, providers, and existing infrastructure. Local governments usually undertake such analysis along with their private partners who can communicate operating issues, trends, and forecasts, while sustaining the coordination among their pairs in surrounding cities and counties.
- Contamination (as a regional issue) often appeared as a key concern for solid waste managers and recycling specialists. Approaches to this issue included technology prospection and policy benchmark, with bottle bills, recycling content, and extended producer responsibility being mentioned. One respondent described their effort to address contamination messaging:

*“We continue to pay attention to what is happening regionally, I am part of number of different groups of solid waste administrators. We continue to monitor what is happening, with recycling everything is sort of local [...] It is important to pay attention to what is happening statewide and to hear about everyone’s challenges but, at the same time, they are not always exactly the same challenges. We are looking for best practices but there is always the same message of what to try.”*

- Interviewees were asked about their jurisdictions’ relationship with private haulers. Most of them agreed that constant and close coordination with haulers increases awareness of issues, tracking of costs, and state of markets. Such information also allows local governments to deal with permits that are administered by UTC and improve regional coordination when considering city contracts autonomy. An improved coordination with haulers also allows the generation of more consistent materials for educational and outreach purposes. As one informant explains it:

*“The county tries to play a role of making a positive push towards contamination reduction and education which it is what we can do, given that we don’t have the same contracts’ stakes in it. We are one step removed from that, even though we know it does affect our costs as well, in the long term. So, what do I wish it was better? I think that given that we share the same hauler with the cities, it is a little frustrating that there are separate contracts being negotiated and that the county representing its unincorporated customers has no direct negotiation. So, I just wonder sometimes how that affects the overall pricing or services...”*

## **Performance & Operation**

- Interviewees were asked about their views about enforcement to address contamination. Responses were mainly orientated to the need to educate customers about proper recycling, either through outreach campaigns or through cart tagging. The latter is not viewed as a corrective action but as a direct educational tool to deal with contamination, especially when reiterated. Several interviewees also mentioned the divergence of incentives among different actors of recycling systems, for which coordination instances configure a key strategy to ensure consistent responses to these dynamic systems. Lack of control was also mentioned as a common barrier for counties, with permits administered by UTC and cities being autonomous contractors.

As one interviewee exemplifies:

*“[...] I think most [communities in Washington] are focused more in education outreach, and then, sort of our – whether written or unwritten - policy implies that our community is aimed towards encouraging - basically making that feedback – to make sure the customer is aware of their situation whether this is good or bad. We got a cart tagging program that we are implementing, and we are actually doing some initial research for that to see how well it will work in a larger scale. So [what] we do - and it is a rare occasion - where drivers note severe and repeated contamination, we monitor those and we are able to track those customers with a digital device in our route trucks, record the problem and when it is a repeated violation we then have a process of let the customer know, basically tag them.”*

- Household hazardous waste is usually collected at specifically designated drop-off locations although extended producer responsibility and curbside collection programs can bring new

opportunities for their collection. Interviewees noted that recycling and HHW collection are separated systems that operate under different revenue sources and administrations. Several of them pointed out that these programs usually lack the funds and personnel to fully cover communities' needs, usually operating a limited number of days a week. Extended producer responsibility was several times mentioned as a strategy to both increase funding and improve coverage for the collection of these materials.

As one interview puts it:

*"[...] The issue, of course, is that there are too few [Household Hazardous Waste] facilities and that is not very convenient, and it would be very costly and difficult for us to provide more facilities. But that is where producer responsibility comes in, so, in a producer responsibility system, the cost for, let's say, handling household batteries, which is expensive for us, it would be covered by the producers and they would also be responsible for setting up many more locations throughout the city for collecting household batteries."*

### **Recycling markets**

- Interviewees were asked about actions that could promote the development of domestic recycling markets. Several explained that such development is necessarily a regional effort – and sometimes even national – thus pointing out that jurisdictions' actions are somehow limited. A strong coordination with recycling partners and local industries is key to protect and support each jurisdiction's recycling system, as well as a close follow-up of the evolution of prices in international markets.
- Participants explained the importance of having enough resources to support industries associated to their recyclables. As mentioned by some of them, economic incentives like grants or tax breaks could ease the creation of new and innovative businesses, as well as a sustained investment in separation technology to improve existing feedstock of recyclables. Certain policies were mentioned as positive to help develop these markets, especially recycling content requirements for packaging and paper.

As one interviewee describes it:

*"[...] We think that doing regional and national coordination on marketing is very important. We don't have within our jurisdiction a whole lot of opportunities to buy recycle content necessarily, we do what we can, but we don't have any rules or decisions about requirements or procedures. Some of that it is because our municipal purchasing options are pretty decentralized. We know that most local market is for organics, so we encourage people to get compost products."*

- The interviews also explored the actions participants considered necessary from the state to support their local recycling systems. Most of interviewees valued the state efforts in creating coordination spaces in which different issues and approaches can be shared among key actors of recycling systems. These prove to be useful to understand the type of economic incentives that private actors require to create new businesses as well to identify the type of administrative and infrastructure barriers to development at the state level.

Most of interviewees expect leadership from the state, especially in relation to the creation of coordination instances and the exploration of approaches that involve the private sector. Some of the participants also suggested that there should be consistency and clear signaling of what

materials should be collected, as well as the provision of consistent materials for education and outreach. Such participants stated gains in efficiency related to a higher coordination at the state and local level.

One of the interviewees summarizes this as:

*“The state could be a leader on this, I mean the state has [set up the] Recycling Steering Committee and they have been able to do a great job in bringing stakeholders together and educating on some of the issues. I think that has been good and it is a good role for the state to, you know, sort of bring the key people together but also pursue policies that will have a really big impact so they just have established this recycling market development center, I think it will be interesting what is going to come up with that and whether or not they can drive longer term outcomes.”*

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## 4 FINDINGS

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This study assessed current conditions of our municipal residential collection systems for garbage, recycling, and composting, including the perspectives and local context provided by key experts. There are several considerations when discussing how the region can address a more efficient, equitable, and sustainable solid waste management system.

From the analysis of local collection systems, we found:

- **Summary paragraph here about collection rates, after data are finalized, based on this data/report review.**
- **Washington encompasses a wide variety of social, geographical, and economic realities which help to understand local systems for solid waste collection.** Lists of recycling materials are defined according to local structure of costs for collection and processing, access to end-use markets, population density, and existing infrastructure for recycling and composting. Local governments work to identify their opportunities but receive minimal state financial support. Drop-off intensive systems appeared as cost effective in some low-density areas of the state (Okanogan and Pacific counties, for example).
- **Rates of collection for recyclable materials depend not only on their prices as recycling commodities, but also on their level of access to end-markets, volume, level of contamination at their disposal, and existing infrastructure for processing.** Materials like metal, cardboard, newspaper, and plastic bottles/jugs are collected in more than 80% of the state's jurisdictions. On the contrary, materials with higher rates of contamination (plastic wrap, aluminum foil, paper cups), that generate issues at separation (i.e., plastic bags) or that are hard-to-recycle (i.e., Styrofoam) are much less often collected.
- **There is a lack of recycling program consistency, completeness, and accuracy in the information provided to customers, which can create customer confusion and increased contamination.** During our assessment of online information, it was common to find diverging criteria to classify materials like scrap metal, mixed paper or even plastic bottles, with visual materials lacking further images to clearly classify. Instructions for recycling and lists of accepted materials also varied among neighboring areas served by the same providers. Counties and their partner cities would benefit from developing common descriptions for categories, clear instructions and images, as well as closer coordination for contracts, permits, and outreach materials developed by their haulers.
- **Public recycling systems could be positively impacted in terms of coverage and efficiency through partnering with private collectors, especially scrap metal processors and thrift stores.** The observed low rate of collection of textiles could be explained by the low level of partnerships between public and private systems. Improved partnerships should not only be considered when reviewing existing recycling systems, but also exploited to increase the overall capacity of the same. Installing shared collection drop-off sites and improving the availability of data for customers appear to be the preferred strategies. Data and centralized sources of information are especially important as customers can quickly find where to go when disposing of materials. Examples of this are found in the Department of Ecology, Seattle, and Tacoma search motors, but also in private initiatives like ReCollect's Waste Wizard.

- **Commingled systems where recyclables are collected together are the most frequent hauling system for this type of materials.** Glass as a contaminant is usually tackled through excluding it from curbside pickup and providing a network of drop-off locations for its collection. Such strategy significantly reduces the amount of glass in the commingled system, but also reduces its rate of collection. Alternative approaches involve producer responsibility or container payment systems (bottle bills) could provide both better coverage and material quality for recycling systems.
- **Household Hazardous Waste collection systems are mostly independent from recycling and much more limited.** Common issues include lack of personnel and funds to run facilities on a daily basis, thus reducing counties' capacity to regularly receive hazardous items. Certain materials are included in some recycling programs for commonly disposed items like household batteries and light bulbs. Alternative approaches involving extended producer responsibility could provide the funds and coverage to significantly improve collection rates, as demonstrated by statewide LightRecycle and E-Cycle programs.
- **Compost programs in Washington state vary widely in terms of type of collection, seasonality, requirement of subscription, and types of accepted materials.** By far, yard trimmings collection is the most frequent approach when combining both curbside and drop-off only collection systems. Contamination prevention and coordination with end-use producers can lead to increased options for composting in the state.
- **Coordination is key to ensure a consistent, efficient, prospective, and resourceful response of recycling systems to existing dynamics in prices, costs, and customers behavior and attitudes.** In this sense, statewide and local initiatives that allow key actors to understand and share information from different perspectives are necessary to improve the operation and design of recycling and composting throughout the state. Such initiatives should keep being supported and encouraged at additional levels of government and geographical areas.
- **Local communities require strong leadership from the state in organizing and supporting solid waste programs, especially in regard to financial support.** Grants and tax incentives directed to promote local markets can create innovative solutions and impact positively not only at the environmental level but also in terms of job creation and local economy. It is key to identify differentiated capacities among communities when designing financial instruments, especially when considering the resources required to design and implement new projects.

# 5 APPENDICES

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## 5.1 APPENDIX 1: COMPILED DATA

For review of this draft report, the data is shown in three separate files for ease of viewing (service information, recycling and composting/garbage/notes). Data are organized by county. In the final report, data will be displayed here and there will also be an excel file available for users.

Key to abbreviations used in data files:

value	value_name	description
n	No	Indicates "no" for the category and jurisdiction
n/a	Not applicable	Not applicable
o	Not available	No information available
y	Yes	Indicates "yes" for the category and jurisdiction
yc	Yes, curbside collection	Recycling provided at curbside
yd	Yes, drop-off locations	Recycling only available at drop-off locations (some require fee), within boundary of area or within 10 miles are area
yp	Yes, special pick-up	Recycling provided at curbside but requiring notification and/or additional fees
b	Bi-weekly (Each-Other-Week)	Collection performed in a bi-weekly basis.
m	Monthly	Collection performed in a monthly basis.
w	Weekly	Collection performed in a weekly basis.

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## 5.2 APPENDIX 2: INTERVIEWS GUIDING QUESTIONNAIRE

### Interview Questions

#### Introduction

Brief presentation of interviewer, the project, and role of interviews on it. Brief description of the interview structure and dynamics, indicating protection of identity and use of information.

#### Current actions and context

1. How is/are the jurisdiction(s)/organization you work with responding to the crisis affecting recycling markets?
2. Are elements from surrounding (i.e., other jurisdictions') recycling systems that the jurisdiction(s)/organization you work with should consider? If yes, which ones?
3. How much enforcement do/does the jurisdiction(s) you work with do and how effective it is?
4. How well do you work with the private haulers in the jurisdiction(s)? What controls are over them and how do you know how good is job they are doing? What do you wish was better?
5. What is the interaction between the Household Hazardous Waste collection and the recycling system(s) you work with? Are there any issues or opportunities?

#### Future actions

6. What changes are you considering for the allowed items for the jurisdiction that you work with?
7. What changes would you introduce to the pricing system for recycling of the jurisdiction(s) you work with? (check the jurisdiction's pricing system before the interview)
8. What do you think are the chances to get glass separated from curbside collection system in the jurisdiction you work with? What options do you foresee for the future in the area? (Jurisdictions with curbside collection only)
9. What type of actions are required to create or support local recycling markets in the jurisdiction you work with?
10. What conditions should the state develop to better support your own efforts towards an efficient recycling system?
11. Why does your jurisdiction haven't required recycling & composting from multi-family residences as they did from single family? (Jurisdictions/systems without required recycling for multi-family)